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MARITAL INSTABILITY AND FERTILITY

by
Arland Dee Thornton

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Sociology)
in The University of Michigan
1975

Doctoral Committee:

Associate Professor Albert I. Hermalin, Chairman
Associate Professor Reynolds Farley
Professor David Goldberg
Professor James N. Morgan

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in my graduate career; I was to learn quickly that he was the source of a continuous flow of helpful insights. All, patiently read proposals for and drafts of the dissertation and provided useful guidance along the way. I am especially indebted to Albert Hermalin, my chairman. On numerous occasions he provided the precise comment or question that was needed to clarify some very fuzzy thinking.

To the members of my family, I owe a special thanks. Shirley has been especially patient with the demands the dissertation has made on my time and disposition. While Keriel and Blake would certainly prefer a dad to a "study doctor," they also have been most understanding. The dissertation and life itself have been more pleasant because of them.

Finally, I pay tribute to the early training I received from my dad and mom on their Idaho farm. While many (farmers and scholars alike) would fail to recognize the similarities, the writing and editing of a dissertation has much in common with "hoeing" weeds and "picking up" rocks. I learned early that it takes many trips through a field to substantially reduce the rock and weed population, and still the job is never done. Some (usually more than some) rocks and weeds always make it through (or mysteriously reappear). To my dismay I have recently learned that meaningless sentences, poor grammar, and repetitious

phrases, and clumsy language are as difficult to eliminate as rocks and weeds. Hopefully, the reader will be as patient with my errors as the Idaho farmer must be with his rocks and weeds.

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CHAPTER 1

INTRODUCTION

This study is primarily concerned with marital dissolution. The general interest is in the incidence of dissolution and its distribution in the population. Social and demographic characteristics related to dissolution are examined. A specific area of concern is the relationship between marital dissolution and fertility. This interest includes both the impact of childbearing patterns upon the incidence of dissolution and the importance of marital discord and disruption upon fertility. The precise nature of the investigation will become clearer as we review the work already done in these areas.

Organization of Material and Literature Review

Marital instability is not uniformly distributed in the population. An extensive amount of research has shown that some groups of the population have higher rates of dissolution than others. Many variables including race, socioeconomic status, religion, and age at marriage have been shown to be associated with dissolution. The first task of this study is to explore these differentials.

Racial differences in the incidence of marital dissolution consistently prove to be substantial. The

differences between blacks and whites in the United States have been especially well documented. Bernard (1966), Cutright (1971), and Udry (1966) examined these differences extensively utilizing 1960 census data and found that blacks have substantially more dissolution than whites. Similar results were found by Glick and Norton (1971) using the 1967 Survey of Economic Opportunity and by Sweet and Bumpass (1973) using the 1970 National Fertility Study. The results of Farley and Hermalin (1971) suggest that the racial differences in dissolution incidence existed in the United States at least as far back as 1930.

The relationship between marital dissolution and socioeconomic status has also received an extensive amount of attention. Two types of findings have been reported in this research. The first concerns the general overall relationship between status and instability. A large number of researchers (see, for example, Goode, 1951 and 1953; Burchinal and Chancellor, 1963; Coombs and Zumeta, 1970; Cutright, 1971; Weeks, 1943; and Monahan, 1955) have reported an inverse relationship between instability and status. Bumpass and Sweet (see Bumpass and Sweet, 1972 for an analysis of white women and Sweet and Bumpass, 1973 for an analysis of black women) have investigated the relationship between education and marital dissolution controlling for several other variables. The variables controlled were age at marriage, status of first pregnancy and birth, religion, family status at age 14, residence, first

husband's marital history, and marital duration at interview. They found that the inverse relationship persisted for both races even when all of the controls were utilized. However, the differentials between education groups were sharply reduced with controls. Farley (1970) examined the relationship between education and marital stability for blacks controlling for age at marriage and region of birth. He found that those with higher education were more likely to be in stable first marriages than those with less education even when controls were employed.

Some researchers have observed that the relationship between status and instability is not monotonic when education is used as the indicator of status. Glick (1957), Glick and Norton (1971), and Bernard (1966) have observed that those individuals who have started but not completed either high school or college tend to have higher rates than one would expect if the relationship were monotonic. Sweet (1973) found this same phenomenon for blacks in his study utilizing data from the 1967 Survey of Economic Opportunity. His analysis included controls for age at marriage, region, first birth interval, and year of first marriage. A similar analysis of white women, however, failed to show this effect. Bauman (1967) investigated the relationship between education and instability rather intensively using age at marriage as a control. He found that the instability of school dropouts was greater for

some age at marriage groups while for other groups the drop-outs did not have exceptionally high dissolution rates.

Religion is another variable that appears to be associated with marital dissolution. Researchers have generally focused upon Catholic-Protestant differences. Christensen and Barber (1967), Burchinal and Chancellor (1963), and Coombs and Zumeta (1970) report lower rates of dissolution for Catholics. Bumpass and Sweet (1972) included religion in their multivariate analysis of dissolution differentials among white women. They found that Catholics had only slightly lower than average instability when other variables (see preceding paragraphs) were controlled.

Age at marriage has been shown to have a substantial impact on marital instability. As Udry (1971) indicates, virtually every study examining the issue has found age at marriage to be directly related to marital stability. The high divorce rate for those married young, especially in the teenage years, has been shown by many researchers (for example see Carter and Plateris, 1963; Burchinal and Chancellor, 1963; Carter and Glick, 1970; Monahan, 1953; and Glick and Norton, 1971). In their multivariate analyses Farley (1970), Bumpass and Sweet (1972), and Sweet and Bumpass (1973) found that this variable has an important impact upon marital instability even when the other variables were controlled.

In Chapter 2 the differential incidence of marital dissolution will be examined. The primary emphasis of this analysis will be upon the description of the relationships observed. The investigation will focus on racial, socio-economic, religious, and age at marriage differences in the incidence of dissolution. It is hoped that Chapter 2 will contribute to the understanding of marital instability differentials in the following 4 ways.

1. Past studies have focused exclusively on dissolutions resulting from marital discord and unhappiness. In Chapter 2 dissolutions from the death of the husband will be investigated along with those resulting from discord.
2. An analysis of discord produced dissolution will be carried out utilizing multivariate techniques. The analysis will be conducted with contingency table methods as well as with the more usual regression approach.
3. The analysis will examine marital instability at several different time points in the marriage. This will allow us to see if the differentials persist throughout the life cycle or if there is an interaction between the variables and stage in the cycle. One might expect that the differentials would be greater earlier in the marriage than later. To my knowledge this issue has not been investigated before.

4. The interaction of socioeconomic status, religion, and age at marriage with race will be investigated. This will allow the testing of the hypothesis that the relationships between these 3 variables and instability vary across racial groups.

The second task of this study is an examination of the impact of childbearing patterns upon marital dissolution resulting from discord. The nature of the impact of children upon marital stability has received quite extensive treatment in the family sociology literature. This literature has focused upon marital stability as the dependent variable and children as one of the explanatory variables. Late in the nineteenth century Willcox (1891) suggested that children may reduce the risk of divorce in a family. He supported his contention with data from 4 states where he observed that the divorce rate for childless couples was from 3 to 4 times as great as the rate for couples with children. Later, Willcox (1940) estimated divorce rates for the period around 1930. Again, he found that the rates for the childless were higher than for those with children. Cahen's (1932) study supported the findings of Willcox in that he too estimated the childless to have higher divorce rates.

These early studies were deficient in not having controls for other variables that may be confounding the relationship. Most seriously, they did not take into account marital duration which strongly affects both marital

stability and cumulative fertility. However, later studies have controlled for marital duration and have obtained similar results. Jacobson (1950) and U.S. Bureau of the Census (1971) for the United States, Rowntree and Carrier (1958) for England, and Day (1965) for Australia found that even controlling for marital duration divorce rates generally were higher for couples with few children.

The studies just described suggest that there is something about children that holds marriages together. Several factors have been advanced to explain how children keep marriages together. One explanation of the higher divorce rate of those with few children is that the presence of children tends to prevent unhappily married couples from divorcing. This hypothesis suggests that the impact of children upon marital instability is direct (Burgess and Wallin, 1953; Cohen and Sweet, 1971). Three reasons have been suggested as to how children might prevent divorce. First, many people view divorce as harmful to children in certain respects. Because of this, unhappy couples may stay together for the "good of the children" (van Zanten and van den Brink, 1938; Elliott and Merrill, 1934; Burgess and Wallin, 1953; Levinger, 1965). Secondly, Burgess and Wallin (1953) suggest that the economic burden of children may be multiplied if the parents divorce, and this extra economic burden may inhibit divorce. Finally, the parents may have genuine bonds with and affection toward the children. This bond with the children may keep the parents

together (Burgess and Wallin, 1953; Elliott and Merrill, 1934).

A second possible explanation of the impact of children upon marital instability suggests an indirect mechanism. This mechanism is diagrammed in Figure 1. This hypothesis suggests that children increase the marital satisfaction and adjustment of couples. Couples with children are happier and for this reason are less prone to separate. This possibility has been suggested by van Zanten and van den Brink (1938), Marshall and May (1932), Elliott and Merrill (1934), and Nimkoff (1947). However, none of these authors strongly advocated the validity of this hypothesis.

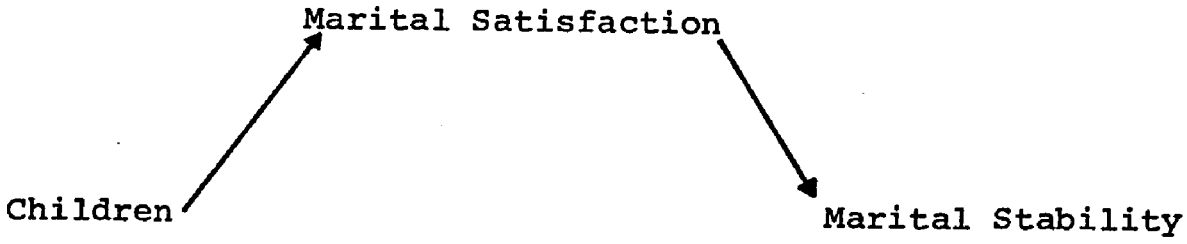


FIGURE 1. Marital Satisfaction as Intervening Variable

Several studies have attempted to examine the hypothesis that children increase marital satisfaction. Terman (1938) and Locke (1951) failed to observe a relationship between the 2 variables, and Burgess and Cottrell (1939) actually found a small negative relationship. This failure to observe a positive correlation between marital satisfaction and children has led many scholars to believe that children do not affect the marital happiness of couples. Some (Christensen and Philbrick, 1952; Burgess and Wallin, 1953; Christensen, 1968; Udry, 1971; Leslie, 1973) have suggested that the number of children itself probably has little to do with marital satisfaction. They suggest, however, that the interaction between actual number of children and desires for children may have an impact on marital happiness.

Some (Baber, 1953; Burgess and Wallin, 1953; Rowntree and Carrier, 1958; Udry, 1971) have suggested that marital satisfaction is a crucial variable in explaining the apparent relationship between children and marital instability, but that the causal mechanism formulated in Figure 1 is faulty. The alternative formulation is shown in Figure 2. This formulation suggests that couples with serious marital discord will have fewer children prior to the dissolution itself. Discord may reduce frequency of intercourse. In addition, these couples may be motivated to prevent the birth of additional children by increased use and/or the increased effectiveness of contraception and abortion.

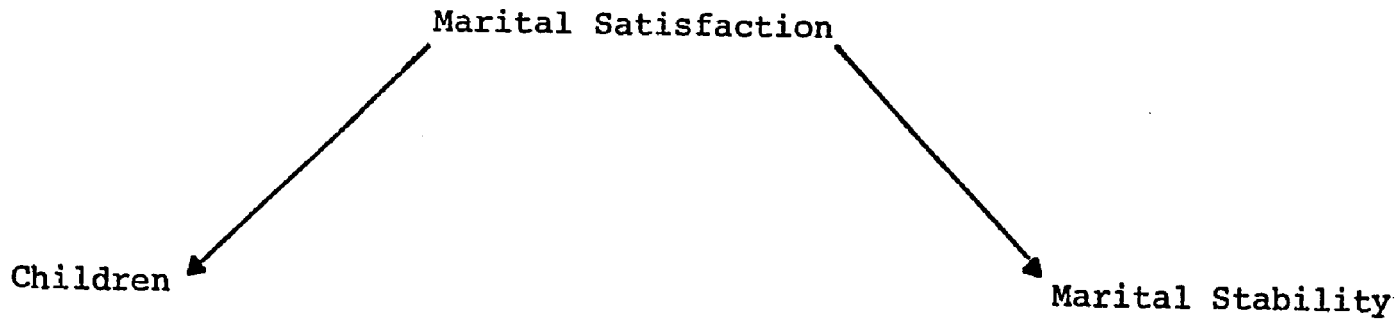


FIGURE 2. Marital Satisfaction as Cause

Several people have suggested that there is no causal relationship between children and marital dissolution, but that the apparent association is caused by some other variable. Jacobson (1950) and Goode (1963) suggest such a variable but do not identify what it may be. Landis and Landis (1948) suggest that it is a willingness to work and sacrifice that leads couples to have children and also produces conditions conducive to stability. Barber (1953) suggests that the demand for freedom and individualism produces both marital instability and small families. Udry (1971) has indicated that the conventionality of a couple may bring both stability and children.

Finally, even though the bulk of the evidence suggests that the divorce rate decreases as the number of children in the family increases, there are theoretical reasons and some empirical evidence indicating that the opposite should be true. Groves (1946) and Landis and Landis (1948) suggest several ways that children can be sources of conflict and strife in a family. Udry (1971) has outlined several adjustments that the coming of children necessitates. LeMasters (1957) and Dyer (1963) have referred to "parenthood as a crisis." However, Hobbs (1965 and 1968) has indicated that the severity of crisis at parenthood has probably been overestimated. In addition, Rainwater (1966) suggests that the higher fertility of blacks may account for some of their greater marital instability. He indicates that more children lower per capita income for any set

salary, and this factor may increase the stress on the marital bonds. In any case, the possibility of children creating conflict or intensifying existing conflict should not be ignored. These considerations suggest that the causal impact of children upon marital satisfaction (shown in Figure 1) is negative rather than positive.

There is also some empirical evidence suggesting that early childbearing may be related to marital disruption. Christensen and Meissner (1953) found in their Indiana study that divorce rates were higher when first birth intervals were short. In his summary article Christensen (1963) reports that both premarital and early postmarital pregnancy are followed by higher than usual divorce rates. He suggests that a high percentage of these pregnancies, including the early postmarital ones, are probably unplanned and add strain to a marriage which has not had time to become sufficiently settled. The findings of high divorce rates among the premaritally pregnant are confirmed by Coombs and Zumeta (1970) and Bumpass and Sweet (1972). One would expect that if those with early first births are more divorce prone, this should result in higher fertility, rather than lower fertility, for the divorcing population.

The empirical research investigating the impact of children on marital stability has not been free of methodological problems. The researchers have recognized that the childbearing relevant to this issue was that occurring prior to the dissolution itself. Unfortunately, the nature

of the data utilized for these studies has not permitted the successful isolation of predissolution fertility from that occurring after the disruption itself.

The definition of the time point of the disruption of a marriage is, of course, very difficult. It should be recognized, however, that the dissolution occurs at the time of permanent separation, if not before. Any childbearing, or lack of childbearing after that point (providing, of course, for the termination of pregnancies at the time of separation) should be considered as postdisruption fertility. Predisruption fertility should not include children born between the time of separation and divorce. Unfortunately, as Monahan (1955) has indicated, the research in this area has not been able to consider the separation date, but has had to focus on the date of divorce. This has prevented the isolation of the relevant preseparation fertility from childbearing occurring between separation and divorce. These researchers have been forced to include portions of the postdissolution fertility with the predissolution fertility of interest.

The problem just discussed can be serious if the time span from separation to divorce is significant. During the period from separation to divorce, one would expect the fertility of those experiencing marital dissolution to be significantly lower than that of women in stable marriages during equal time intervals at similar life cycle stages. If this is true, the differential measured at the time of

divorce will be substantially larger than the more relevant differential measured at the time of separation. The measurement problem would bias the estimate of the fertility of disrupted marriages downward relative to the fertility of stable marriages.

It has been shown that the time from separation to divorce is usually substantial in the United States. Kephart (1954) estimated the median time interval from separation to divorce for the United States in 1887-1906 to be 3.4 years. For Philadelphia, 1937 to 1950, he estimated the median period to be 4.6 years. Mowrer (1938) found the mean years of separation for Chicago from 1919 to 1935 to be from 3.2 to 3.7 years. Carter and Pratt (see Carter and Glick, 1970) report a time lag of about 5 years for this interval for the District of Columbia. More recent data show the interval to be shorter. Cohen and Sweet (1971) report average duration between separation and divorce for a sample of the United States to be .9 years for whites and 1.7 years for blacks. For 16 states reporting this information in 1969 Plateris (1973) found that in 8 the median duration was less than a year, between 1 and 2 years in 7 states, and more than 2 years in 1 state. If disruption reduces fertility between separation and divorce, this could account for some of the lower fertility of the divorcing.

A related problem concerns the definition of instability itself. As Monahan (1955) points out, many

investigators have utilized divorce as the indication of dissolution. Those experiencing only separation or desertion are included with the stable marriages in most of the studies. To the extent that the fertility of this group differs from the divorced, this procedure biases the estimates of the relationships. This problem further compounds the difficulty of understainding the impact of children upon marital stability.

The impact of childbearing patterns upon the incidence of discord produced marital dissolution will be investigated in Chapter 3. This analysis will examine the impact of children on dissolution during several different time periods in the marriages of the couples involved. For each time period or marital duration the impact of 2 aspects of childbearing on marital stability will be studied. The first aspect is the timing of first birth. The impact of premarital birth and premarital conception on marital dissolution will be investigated. The second aspect is the number of children the women have at the beginning of the interval in question. In that analysis the relationship between parity at the beginning of an interval and the likelihood of the marriage being disrupted during that interval will be examined. The analysis in Chapter 3 will utilize contingency table analysis allowing the utilization of controls for other important variables.

The relationship between marital stability and fertility will be studied from another perspective in

Chapter 4. There the cumulative childbearing of women in disrupted marriages will be compared with the fertility of women in stable marriages. The comparisons will be made at the time of separation and at divorce. This analysis should enable us to see if there are differences between the groups when dissolution occurs. It will also allow us to investigate the importance of measuring fertility at divorce rather than at separation. This methodological investigation should permit us to see how much the results of other studies have been influenced by utilizing the divorce date rather than the separation date.

Chapter 3 and the first part of Chapter 4 will examine only the relationship between marital stability and childbearing. No attempt will be made there to investigate the mechanisms producing the relationship. The second part of Chapter 4 will, however, look at 1 of those possible mechanisms. There, the hypothesis of Figure 2 will be studied. That hypothesis suggests that marital discord produces both dissolution and fewer children before dissolution. By examining childbearing patterns during the time period immediately preceding dissolution, the hypothesis can be evaluated. Presumably, this would be the time period in which marital unhappiness would have its greatest depressing effect on fertility.

Unfortunately, the data utilized in this study are not adequate to study the other mechanisms that may be producing the fertility-instability relationship. Measures

of marital satisfaction are not available; therefore, the hypothesis (diagrammed in Figure 1) that children increase marital happiness and marital happiness, in turn, decreases the likelihood of disruption cannot be examined here. The hypothesis that children postpone the dissolution of unhappy marriages also cannot be tested. The data used in this study do not provide enough older couples to investigate the hypothesis that unhappily married couples separate as their children mature and leave home.

The third and final task of this study is to investigate the impact of marital dissolution on subsequent childbearing patterns. The literature dealing with the impact of marital instability upon fertility has explicitly or implicitly utilized the analytical framework (or a modification of it) proposed by Davis and Blake (1956). The model, in simplified and abbreviated form is shown in Figure 3. The framework is set up to explain or understand fertility which is the dependent variable. The authors have identified intercourse, conception, and gestation and parturition as the primary steps in the reproductive process. Factors affecting exposure to these steps or influencing the outcome of these steps are the ones that determine fertility levels. Several factors have been identified at each step. They are shown in Figure 3 and are the intervening or intermediate variables ". . . through which any social factors influencing the level of fertility must operate."

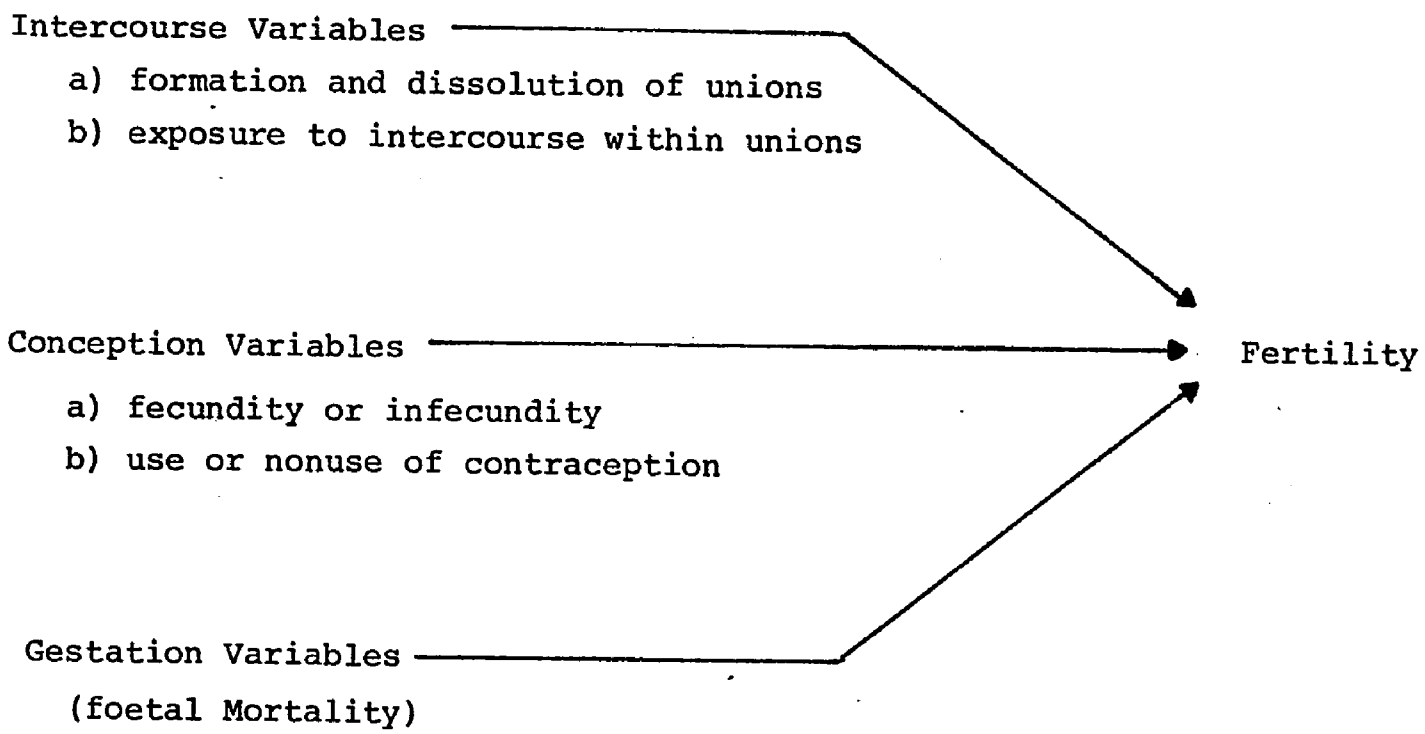


FIGURE 3. Davis-Blake Framework of Fertility

Davis and Blake identify factors "governing the formation and dissolution of unions in the reproductive period" as important in determining exposure to intercourse. It should be noted that the authors do not focus on marital unions, but focus on sexual unions which occur both in and out of marriage. In their model the formation and dissolution of these unions are one of the factors determining fertility.

Yaukey (1973) has made some useful modifications of the Davis-Blake model. His framework, again in abbreviated and simplified form, is shown in Figure 4. The first important modification by Yaukey is his conceptualization of unions. He focuses upon marital unions rather than sexual unions. With his concept of marital unions he is led to change the structure of the model. In his model the marital union variables are conceptualized as influencing exposure to conception and gestation and parturition as well as affecting exposure to intercourse.

Using Yaukey's framework we see that marital instability, along with age at marriage and the extent of permanent celibacy, becomes an important variable affecting fertility. It can affect fertility through any of the intervening variables. It is this model, or some form of it, that has been utilized in the empirical studies investigating the impact of marital instability upon fertility. Fertility has been conceptualized as the dependent variable

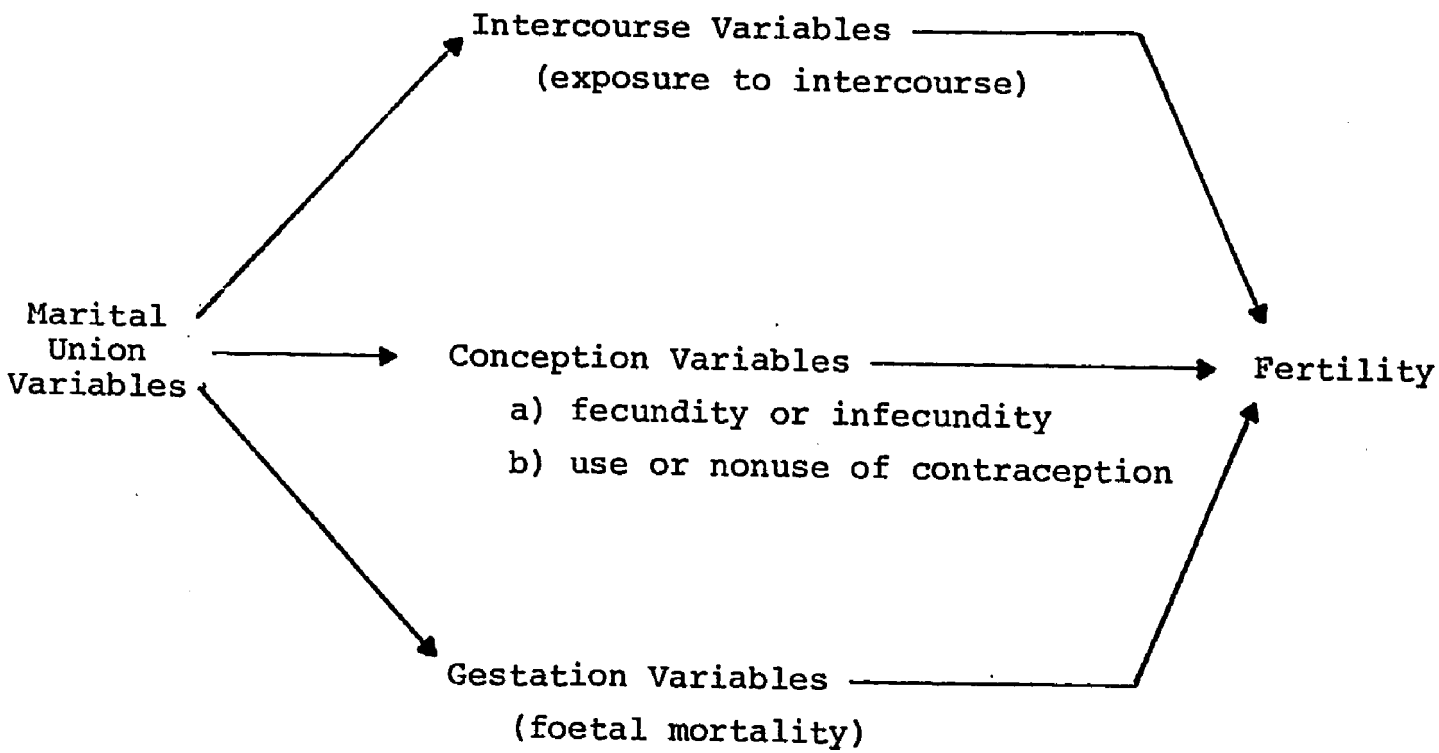


FIGURE 4. Yaukey Framework of Fertility

with marital instability being one of the explanatory variables.

The impact of marital disruption, both by death and marital discord, has been studied in several countries. The findings have indicated that marital instability does affect childbearing behavior. Marital disruptions reduce the amount of time women spend in fertile unions. In addition, women who have experienced a marital disruption, even if they remarry, have smaller families than women in stable marriages. We shall now review the empirical literature producing these findings.

Several studies of Indian fertility suggest that marital dissolutions have an important impact in India. Until recently, mortality was high in India resulting in many women becoming widowed at a fairly young age. This factor, along with restrictions limiting widow remarriage, causes these women to spend substantial amount of time outside of marital unions.

Agarwala (1968) has estimated the fertile time following first marriage that the women of India lose due to the death of husbands. He estimates that prior to 1940 widowhood curtailed the length of time spent in a fertile union by about 25 percent. Since then mortality has been reduced in India. Agarwala estimates that for the decade of the 1950s the amount of fertile time lost due to widowhood has been reduced to approximately 6 percent.

Driver (1963) provides information bearing upon the impact of widowhood on actual fertility. He compared the number of children ever born to women in intact first marriages with those who had had a marriage disrupted. He found that women who were in intact first marriages did have more children when the ages of the women were taken into account.

Onaka and Yaukey (1973) have made estimates of the reproductive time lost due to marital disruption in San Jose, Costa Rica. They found that approximately 10 percent of the women's reproductive time after first marriage was spent outside a marital union. They did not, however, provide estimates of the extent to which this decreased actual family size.

Palmore and Ariffin (1969) studied the impact of marital instability on the actual fertility of the women of West Malaysia. They found that women in intact first marriages had higher cumulative fertility than those who had been married more than once. Palmore and Ariffin also examined the relationship using multivariate techniques. They found that the relationship between number of children and multiple marriage held even when other variables known to be important were controlled.

For West Malaysia, Palmore and Ariffin made estimates of the extent to which marital disruption reduces fertility. They used the assumption that women in disrupted marriages would have had the same number of children as women in

intact marriages had who were married at the same ages. Using this assumption they estimated that marital disruptions reduced the family size of women experiencing the disruptions from 6.3 to 5.8 children per woman.

Goldstein (1973) reports a similar study of the women of Thailand. He noted that currently married women reported more children ever born than women who were either separated or divorced from their husbands.

Ardener (1962) in his study of the Bakweri in Africa hypothesized a relationship between the amount of marital instability in the society and in the society's fertility level. He observed that marital instability was quite widespread and that the society had rather low fertility. He suggested that the instability of the marriages could be one of the factors producing low fertility.

The relationship between marriage and childbearing has been studied rather extensively in Jamaica. In Jamaica a large proportion of the women are not living in legal marital unions. Many women there live in consensual or common law unions in which they live with a male partner but are not legally married to him. Others, while they do not actually live in the same house as the partner, do have sexual relations with him. This latter type is referred to as a keeper union or visiting relationship. In Jamaica a large percentage of the children are born to women living in common law or keeper unions. It has, however, been observed that fertility varies according to the type of

union the woman is in. The explanations of the fertility differential by type of union are relevant to the subject of this study.

Roberts (1957) observed that legally married women have higher current and cumulative fertility than women living in common law unions, and the common law women, in turn, have higher fertility than those in keeper unions. The explanation given for the differential lies in the living arrangements of the different types of unions. By definition, women in keeper unions are not living in the same house as their partner. This reduces the exposure to sexual relations which decreases the risk of pregnancy. The legally married women live continuously with their husbands which probably increases the frequency of intercourse. The common law women are described as having a position between the legal marital unions and the keeper unions.

Roberts estimates the fertility differential between the legally married and the other women. His estimates show that the fertility of the legally married women is from 13 to 31 percent higher than for those not legally married. While other factors may be involved, Roberts suggests that the chief explanation of this difference is the differential exposure to sexual relations produced by housing arrangements.

Blake (1961) has also studied the different types of marriages in Jamaica. She indicates that common law unions and the unions of single women are quite unstable. These

women experience more unions and spend more time between unions. The instability of the common law and keeper unions is suggested as one of the important factors accounting for their lower fertility. Blake made estimates of the amount of time lost because of the instability of unions in Jamaica. Approximately one-fourth to one-third of the reproductive time of the women studied was spent outside a union.

In their study of Jamaica, Stycos and Back (1964) found that legal marital unions were the most stable type of union, and that common law unions were more stable than visiting relationships. They also report that currently married women report participation in the fewest unions and the most time spent in a union. Women currently in a visiting relationship report the most unions but the least amount of time actually spent in them.

Stycos and Back report that cumulative fertility is also related to current marital status. Married women (controlling for age) have the most children, and women in visiting relationships the least. They found that the years spent in a union accounted for much, but not all, of this differential. Stycos and Back summarize their findings as follows.

> ". . . sexual relations and reproduction outside wedlock. . . tend to <u>reduce rather than to raise fertility</u>. The average married woman in our sample has had 6.5 pregnancies by age 35-40, the average common law wife 4.4, and the average woman in a visiting relationship only 3.8. The differences are to a large extent due to the fact that legal

> marriages are the most stable unions and visiting relationships the least stable. The more stable the relation the greater the sustained risk of conception because of more frequent and more regular sexual relations, uninterrupted by periods without a mate."

Pool (1968) has examined the relationship between type of marital unions and fertility in Ghana. He reaches similar conclusions for Ghana as those made by Stycos and Back for Jamaica. Pool found that women in mutual consent unions have more unstable unions and fewer children than women in more customary unions. He suggests that the instability of unions decreases fertility because of the amount of time spent outside of unions.

Studies of American women, both in terms of current and cumulative fertility, have shown that marital dissolution reduces the number of children. Utilizing the ratios of children under 5 years of age to women in the childbearing ages as their measure of current fertility, Grabill et al. (1958) for 1950 and Cho et al. (1970) for 1960 report that the current fertility of married women is much higher than for widowed, divorced, or separated women. As expected, removal from the marital state did reduce the current fertility of these women.

The cumulative and completed fertility of women who have had a disrupted marriage, even if they remarry, is lower than for similar women in intact first marriages in the United States. Grabill et al. (1958) report this relationship for 1950 while Kiser et al. (1968), Glick

(1967), and Lauriat (1969) report the relationship for 1960. Farley (1970), in his study of the black population, observed higher fertility for those in intact first marriages for the years 1910, 1940, 1950, and 1960. Similar findings were reported by Cohen and Sweet (1971) for their 1965 data.

Farley (1970) and Cohen and Sweet (1971) have shown that the lower fertility of women who have had a marriage disrupted is not due to the fact that these women come from subgroups of the population with lower fertility. When relevant demographic and sociological variables are controlled, the relationship between marital stability and fertility persists. In fact, the differential between the stable and unstable increases when other relevant variables are controlled. Both Farley (1970) and Cohen and Sweet (1971) report that a marital disruption reduces the cumulative fertility of the woman by about one-half a child.

The studies which have dealt with this issue are consistent in their results. Women who have had marital or marital-like unions disrupted spend less of their fertile years in marital unions. In addition, they report lower cumulative and completed fertility. All studies have shown that there is a very definite relationship between marital stability and the number of children a woman bears during her lifetime.

The Yaukey model suggests 3 possible ways in which marital instability can affect fertility. It can reduce fertility by reducing exposure to intercourse. This has

been the mechanism focused on by most students of the problem. Marital instability may, however, reduce fertility by increasing abortion. Both of these along with reduced exposure to intercourse are possible mechanisms that could account for the lower fertility of women experiencing disrupted marriages.

The empirical studies examining the impact of marital dissolution on actual fertility or completed family size have all suffered from one important difficulty. Both the Davis-Blake and the Yaukey models suggest that marital disruption can affect only postdissolution childbearing. As a causal force, marital instability can influence only fertility which would occur after the instability itself. This implies that an empirical test of the importance of marital instability would examine only postdisruption fertility. The postdisruption fertility of women in unstable marriages could be compared with similar women who have not experienced a dissolution during similar stages in the life cycle. Unfortunately, the empirical studies of this issue have not limited themselves to an examination of postdissolution fertility. They have compared the cumulative or completed family size of women in unstable marriages with those in stable marriages. This procedure has combined the postdisruption fertility differentials which are relevant to this issue with the predisruption differentials which are not relevant. Unless women who have had marriages broken have exactly the same fertility before the disruption

as other women, comparing their cumulative or completed family sizes will not give an unbiased estimate of the impact of marital instability.

It was indicated earlier that this problem is not just a hypothetical one. Studies indicate that women experiencing marital dissolution have not had the same number of children at the time of dissolution as other women at similar life cycle stages. The literature generally suggests that women in unstable marriages have lower pre-disruption fertility. If so, this factor could be producing some, if not all, of the differentials in completed family size that researchers often use as estimates of the impact of marital instability. The differential, or at least part of it, could actually exist at the time of disruption. The nature of the data will allow us to avoid this methodological problem. The research devoted to this issue will focus only on fertility occurring after the marital disruption.

The analysis of the influence of marital dissolution upon subsequent childbearing cannot be made without considering the impact of remarriage. Remarriage must play an important part in the analysis. Therefore, the discussion of this issue will begin with an examination of remarriage itself. Chapter 5 will investigate some possible factors that may influence the likelihood and rapidity of remarriage. This analysis will focus on remarriage differentials by race, socioeconomic status, age at marriage, age at

dissolution, cause of dissolution, and parity at dissolution. The impact of parity on remarriage will be of particular interest here.

In Chapters 6 and 7 the actual childbearing of women experiencing dissolution will be examined and compared with women in stable marriages. In Chapter 6 the emphasis will be upon the number of children these women have following dissolution. Their fertility will be examined at several time periods following the dissolution. The total number of children these women intend to have will also be of interest. Special care will be taken to consider remarriage and its timing.

Besides affecting the number of children a woman has, marital instability could also affect the timing or spacing pattern of those children. The marital disruption causes the woman to spend a period of time in an unmarried status. One would expect that children born after remarriage would be born later in the life of the woman than similar parity children born to the never separated. Even if separation and remarriage have no impact on the number of children born, they should certainly affect the timing pattern of those children. Our analysis of this issue will compare the timing patterns of the never separated with the separated and remarried. This issue will be examined in Chapter 7.

Summary of Study Organization

A brief outline of the organization of this study is presented below for the assistance of the reader.

Chapter 2: Marital Dissolution Differentials

In this chapter the differentials in dissolution by race, education, religion, and age at marriage will be examined. Of particular interest will be the interactions of these variables with marital duration. Do the same relationships persist throughout marriage? The interaction of race with the other 3 explanatory variables will also be of interest.

Chapter 3: Marital Dissolution Differentials by Fertility Patterns

Here the overall relationship between fertility behavior and subsequent dissolution experience will be analyzed. Special attention will be given to the impact of premarital fertility on marital dissolution. The relationship between cumulative childbearing at the beginning of an interval and dissolution experience during that particular interval will also be investigated.

Chapter 4: Fertility Differentials Between Disrupted and Intact Marriages Immediately Before and After Dissolution

Two lines of inquiry will be pursued in Chapter 4. The first will compare the number of children women in disrupted marriages have at separation and divorce with the number women in stable marriages have at similar life cycle

stages. This will allow the relationship between childbearing and marital stability to be examined at 2 important events. The importance of the time chosen to make the comparison will also be evaluated. The second part of Chapter 4 will investigate one of the specific causal mechanisms producing the fertility-dissolution relationship. That mechanism is the one that suggests that unhappily married couples restrict their childbearing even before the dissolution occurs. This analysis will be conducted by comparing the childbearing of women experiencing disruption with women in stable marriages. The period of interest will be the time immediately preceding separation.

Chapter 5: Divorce and Remarriage

Remarriage is a crucial variable mediating the effect of a marital dissolution on subsequent childbearing. Both the likelihood of remarriage and the interval from dissolution to remarriage are important in this context. Differential likelihood of remarriage and its timing will be investigated. Included in the analysis will be an examination of the influence of the woman's parity on her remarriage chances. In addition, the importance of divorce as an intervening event between separation and remarriage will be studied.

Chapter 6: The Impact of Marital Dissolution on Family Size

In this analysis the women experiencing dissolution will be compared with other women. The emphasis will be the

estimation of the number of children that women in disrupted marriages lose because of the dissolution. Racial differences are important and will be explored extensively.

Chapter 7: The Influence of Marital Dissolution and Remarriage on Fertility Timing and Childspacing

This chapter will focus on the impact of dissolution on the spacing and timing aspects of fertility. The mean length of time to the birth of children will be examined comparing the women in stable marriages with those experiencing a dissolution. Also of interest will be the individual birth intervals and the time from marriage to each birth. These analyses should allow a fair understanding of the extent to which the process of dissolution and remarriage postpone and delay the normal tempo of childbearing.

Chapter 8: Summary of Major Findings

Data

The analysis in this study will be carried out utilizing data from the 1965 and 1970 National Fertility Studies. Both studies contain features that make them especially appropriate for the present purposes. A general description of the studies is provided by Ryder and Westoff (1971). The studies contain data from interviews with large samples (5617 in 1965 and 6752 in 1970) of American women. In both studies blacks were oversampled to facilitate racial comparisons.

Both studies were designed to provide information relevant to a broad range of fertility issues. Of particular importance is the fact that the 2 studies contain marital and childbearing histories for the women interviewed. Information concerning the number and date of birth of all children is given. The marital histories give dates for each marriage and each marriage dissolution. In addition, for each dissolution the reason (death or discord) for it and the actual date the couple stopped living together are obtained. The future fertility intentions of the women are also provided. In addition, the studies contain information about the characteristics of the women.

The 2 surveys differ in 1 way that is very important for the purposes of this study. The universe defined for the 1970 survey was ever married women while the 1965 survey was limited to currently married women. Women who had experienced a dissolution, but who had not yet remarried were excluded from the sample. The exclusion of these women from the 1965 sample limits its usefulness for a large portion of this study. It will not be utilized for the general analysis of marital instability differentials (Chapter 2) nor for the specific analysis investigating the impact of children on marital dissolution (Chapters 3 and 4). In addition the analysis of remarriage (Chapter 5) will also be unable to utilize the 1965 study. For these parts of the study the analysis will rely on the 1970 survey. For the analysis of postdissolution fertility (Chapters 6 and 7)

it will be possible to use both data sets, keeping in mind the fact that the 1965 study excludes women who had not yet remarried. The utilization of 2 data sources for this part of the analysis will allow the opportunity to compare results. This should increase our confidence in the results obtained.

Both the 1965 and 1970 studies interviewed women only. For this reason, the analysis will be limited to the fertility and marital behavior of women. There will be no direct analysis of these same behavior patterns as they relate to men.

CHAPTER 2

MARITAL DISSOLUTION DIFFERENTIALS

Conceptualization and Operationalization

Marital dissolution, like most variables, presents interesting problems in conceptualization and operationalization. Conceptually, it is an event or process rather than a condition or state of being. It is a transition or passing from the married to the unmarried state. The process begins transferring people from the married condition almost immediately after marriage and continues until all women are finally removed.

Marriages can be disrupted in 3 general ways. Those 3 ways are death of the wife, death of the husband, and marital discord. In this study only 2 of the 3 kinds of marital dissolution will be investigated. Those are the death of the husband and discord produced disruptions. The data base prevents dissolutions caused by the death of the wife from being analyzed. Marriages that were disrupted by the death of the wife were excluded from the 1970 National Fertility Study. The limitation of the study to 2 of the 3 types should be kept in mind as we proceed.

For marriages dissolved by death the transition from "married" to "unmarried" is clear. The transition is made

in 1 step. Dissolution occurs upon the death of 1 of the marriage partners. For these dissolutions the fact that the event has occurred can be established fairly easily and unambiguously.

For marriages dissolved by discord, measurement problems are much more severe. The process can be seen as involving at least 2 steps. The couple separate and quit living together and then in many cases obtain a legal divorce decree certifying the fact that they have made the transition from "married" to "unmarried." Sometimes an extensive time period can elapse between separation and divorce. The couple may in fact separate and "get back together" several times before finally going on to permanent separation and divorce. Or, the couple may separate and then "get back together" again permanently. These problems make classification very difficult.

The 1970 National Fertility Study resolved these problems with some admittedly fairly arbitrary guidelines. All women reporting themselves as remarried, divorced, or widowed were classified as having experienced a dissolution. Also included in this category were women living apart from their first husband at the time of interview who reported that the reason for separation was marital discord. All women living with their first husband at the time of interview were classified as having experienced no dissolution regardless of earlier separation. Women living apart from

their first husband for reasons other than marital discord were also classified as having experienced no dissolution.

This analysis also requires a knowledge of when the dissolutions occurred. For those marriages terminated by separation (with or without divorce), the date the couple stopped living together was asked and used as the date of dissolution. For dissolutions caused by death, the death date is utilized. In all cases the dates are those reported by the respondent.

In this chapter the incidence and timing of marital dissolution in the first 16 years of marriage will be investigated. Special attention will be given to the causes (discord or death of the husband) of the disruptions. In addition, the distribution of dissolutions in the population will be studied. It should be noted that this analysis will be limited to first marriages. Second or higher order marriages are not examined.

The Decrement Table

The decrement table has proven to be a useful device for analyzing and summarizing processes that transfer individuals from one state or condition over time. It is one of the standard techniques for summarizing mortality data. In the life table there is usually only one decrement or process recognized and that is death. Sometimes, however, different causes of death are recognized and a multiple decrement table is utilized. Several researchers (Potter

et al., 1969; Hermalin and Chow, 1971; Chow et al., 1968; and Avery, 1972) have used the multiple decrement table in the study of contraceptive termination. The decrements in these studies have been the various causes that terminate contraceptive use. The approach has also been applied to marital processes. Saveland and Glick (1969) used the multiple decrement table to study first marriages. The two transitional events recognized in their study were death and marriage. Krishnan (1971) prepared decrement tables to summarize divorce rates in the United States. In this chapter multiple decrement tables of marital dissolution will be presented and discussed. The 2 decrements recognized are death of the husband and marital discord.

The decrement table has been discussed extensively elsewhere (see for example, Barclay, 1958; and Shryock and Siegel, 1971). Potter (1969) outlines the multiple decrement table that will be utilized in the initial stages of the work here. Therefore, the decrement table will be discussed only briefly.

The generating mechanisms for the table are the probabilities of experiencing dissolution during any given time period following marriage. In this work 2 sets of probabilities are required inasmuch as dissolution can result from either discord or the death of the husband. Let ${}_nq_{xd}$, ${}_nq_{xc}$, and ${}_nq_x$ be the probabilities of experiencing dissolution during the time period x to x + n respectively because of death, conflict, and for the 2

causes combined. Since there are only 2 causes of dissolution recognized, Equation 1 must hold.

Equation (1) $$ {}_nq_x = {}_nq_{xd} + {}_nq_{xc} $$

The probability of surviving the period without experiencing dissolution is ${}_np_x$ and is equal to $1 - {}_nq_x$.

The individual dissolution and survival probabilities can be used together to obtain cumulative dissolution probabilities. The cumulative probabilities express the likelihood of experiencing a dissolution by the beginning of time period x. Let Q_{xd}, Q_{xc}, and Q_x represent the cumulative probability of experiencing dissolution by period x respectively from death, discord, and all causes combined. Again $Q_x = Q_{xd} + Q_{xc}$, and $P_x = 1 - Q_x$. The Q values are obtained by Equations 2 through 4.

Equation (2) $$ Q_x = Q_{(x-n)} + P_{(x-n)} * {}_nq_{(x-n)} $$

Equation (3) $$ Q_{xd} = Q_{(x-n)d} + P_{(x-n)d} * {}_nq_{(x-n)d} $$

Equation (4) $$ Q_{xc} = Q_{(x-n)c} + P_{(x-n)c} * {}_nq_{(x-n)c} $$

Thus, the probability of experiencing a dissolution by period x is equal to the probability of experiencing it by period x-n plus the probability of experiencing it during the period x-n to x.

A multiple decrement table for the white 1970 sample is shown in Table 1. This table is presented to illustrate

TABLE 1. Marital Dissolution Decrement Table for Whites: 1970

Marital Duration (in years) (1)	$1000P_x$ (2)	Total		Death		Discord	
		$1000Q_x$ (3)	$_4q_x$ (4)	$1000Q_{xd}$ (5)	$_4q_{xd}$ (6)	$1000Q_{xc}$ (7)	$_4q_{xc}$ (8)
0	1000	0	.081	0	.005	0	.075
4	919	81	.059	5	.009	75	.051
8	865	135	.051	13	.007	122	.045
12	821	179	.044	19	.009	161	.034
16	785	215		26		189	

Number of cases = 5395

the principles just discussed; more details concerning procedures for obtaining the ${}_4q_x$ values will be presented later. Column 1 gives the time periods (being 4 years in length). In column 2 the probability (times 1000) of surviving from marriage to each year is given. It is ssumed that all marriages are intact at their beginning ($P_0 = 1000$). Columns 3 and 4 give the dissolution probabilities from all causes. It can be seen that the probability of experiencing dissolution in the first 4 years is .081; in the second 4 years it is .059. Column 3 shows the cumulative probability of dissolution to time x. We see that $Q_4 = 0 + (1000 * .081) = 81$ and $Q_8 = 81 + (919 * .059) = 135$. The values in columns 6 and 8 are the probabilities of experiencing dissolution during given time periods from death and discord respectively. Columns 5 and 7 are constructed from the respective q_x values in a manner similar to column 3. As noted earlier column 4 = column 6 + column 8 and column 3 = column 5 + column 7 (with allowance for independent rounding).

Table 1 was actually constructed by utilizing 2 month intervals rather than the 4 year periods shown. The table with 2 month intervals, of course, is very large and has more detail than can be assimilated easily. For these reasons the 2 month period table was compressed as shown in Table 1. The compression was done so as to preserve the values implied by the original table. This procedure has

been followed for all multiple decrement tables analyzed in this chapter.

It is the set of ${}_nq_{xd}$ and ${}_nq_{xc}$ values that determine the decrement tables. These values are estimated from the original data in such a way that as much information is utilized as possible. For any given period x to x + n we use the experience of all women who had been married at least x months at the time of interview and had not experienced a dissolution by x months. Call this number ${}_nN_x$. Some of the women experienced dissolution from death and discord during the interval. We shall denote all dissolutions from death, discord, and all causes combined as ${}_nD_{xd}$, ${}_nD_{xc}$, and ${}_nD_x$ respectively. Some of the ${}_nN_x$ women who began the interval were interviewed before they were able to finish the interval. Denote the women who were interviewed before the interval was completed and who had not experienced dissolution by the interview as ${}_nW_x$. We assume that some of these women will experience dissolution before they complete the interval from x to x + n. The number that would experience dissolution can be estimated by assuming that the ${}_nW_x$ women had, on the average, been observed for one-half the interval at the time of the interview. This assumption means that they will be subject to the dissolution rates of ${}_nq_{xd}$ and ${}_nq_{xc}$ for the other half of the interval. Under these assumptions we can estimate that $\frac{1}{2}\ {}_nq_{xd} * {}_nW_x$ of these women would experience dissolution from death and $\frac{1}{2}\ {}_nq_{xc} * {}_nW_x$ from discord before the interval is completed.

If all the ${}_nN_x$ women had been observed for the entire interval, our estimate of the number of death produced dissolutions during the interval would be $\frac{1}{2}\ {}_nq_{xd} * {}_nW_x + {}_nD_{xd}$. If all ${}_nN_x$ women were observed for the entire interval, we would estimate that $\frac{1}{2}\ {}_nq_{xc} * {}_nW_x + {}_nD_{xc}$ would experience dissolution from discord. By dividing these 2 estimates by ${}_nN_x$, we obtain the probability of experiencing dissolution from death and discord respectively. The resulting equations (and a simplification of each) are shown in Equations 5 and 6. Equation 7 indicates the formula for the probability of experiencing dissolution from both causes.

Equation (5) $$ {}_nq_{xd} = \frac{{}_nD_{xd} + \frac{1}{2}\ {}_nq_{xd} * {}_nW_x}{{}_nN_x} = \frac{{}_nD_{xd}}{{}_nN_x - \frac{1}{2}\ {}_nW_x} $$

Equation (6) $$ {}_nq_{xc} = \frac{{}_nD_{xc} + \frac{1}{2}\ {}_nq_{xc} * {}_nW_x}{{}_nN_x} = \frac{{}_nD_{xc}}{{}_nN_x - \frac{1}{2}\ {}_nW_x} $$

Equation (7) $$ {}_nq_x = \frac{{}_nD_x}{{}_nN_x - \frac{1}{2}\ {}_nW_x} = \frac{{}_nD_{xd} + {}_nD_{xc}}{{}_nN_x - \frac{1}{2}\ {}_nW_x} $$

As indicated earlier our analysis of marital dissolution is limited to those marriages disrupted because of marital discord or death of the husband. Marital dissolutions produced by the death of the wife are not included. In addition, in any survey of the type used in this study, the necessary information is not obtained for all

respondents. Some women failed to report the cause of the dissolution while others failed to report the date. Others reported a date that was prior to the date of marriage. It was necessary to eliminate all of these women from the analysis. This resulted in the exclusion of 81 of the 1453 (5.6 percent) dissolutions reported. The result is that our estimates of the total incidence of marital dissolution will probably be lower than the actual incidence in the American population.

Bivariate Analysis

In Table 1 the decrement table for whites was presented. Similar data for nonwhites are outlined in Table 2. From these 2 tables it can be seen that a substantial proportion of marriages experience dissolution in the years examined. Over 13 percent of all the marriages of white women end in dissolution before the eighth year of marriage. This percentage increases to over 21 percent by the sixteenth year. For nonwhites the percentage is much higher. Over 29 percent of their marriages have ended by 8 years and by 16 years the percentage has risen to almost 46. The incidence of marital dissolution is not trival among Americans.

The data in Tables 1 and 2 indicate the bulk of the dissolutions included in this study were produced by marital discord. It should, however, be kept in mind that dissolutions caused by the death of the wife are not included

TABLE 2. Marital Dissolution Decrement Table for Nonwhites: 1970

Marital Duration (in years) (1)	$1000P_x$ (2)	Total		Death		Discord	
		$1000Q_x$ (3)	$_4q_x$ (4)	$1000Q_{xd}$ (5)	$_4q_{xd}$ (6)	$1000Q_{xc}$ (7)	$_4q_{xc}$ (8)
0	1000	0	.171	0	.011	0	.160
4	829	171	.151	11	.018	160	.133
8	704	296	.141	26	.026	270	.115
12	605	395	.104	44	.040	351	.064
16	542	458		68		390	

Number of cases = 1271

here. Of those dissolutions studied, over 85 percent were the result of marital discord. Of course, it can also be seen that this differential is largest in the early years and decreases. For death, of course, the trend is the opposite. Mortality increases with age, and later in life death produces the bulk of the disruptions.

Tables 1 and 2 point out the very large racial differential which exists. During all time periods the probability of dissolution is over twice as high for nonwhites than whites. In addition, the nonwhite rates are approximately twice as high for both death and discord. These tables suggest that race is an important correlate of both types of marital dissolution.

The impact of 3 other variables on marital dissolution will be analyzed using the multiple decrement table approach. These variables are education at the time of interview, religion when growing up, and age at marriage. A separate decrement table was prepared for each subgroup of the independent variables. Since the method requires a lot of data for each table, it was necessary to restrict the number of categories. The categories used are shown in Table 3. The age categories are rather arbitrary but provide a fairly large number of women in each. The education categories are fairly standard ones and were chosen to allow maximum examination of high school and college dropouts. The choice of categories for the religion variable was more difficult. A priori considerations

TABLE 3. Probability (times 1000) Of Experiencing Dissolution Within 16 Years Of First Marriage By Education, Religion, Age at Marriage, and Race: 1970

	White				Nonwhite			
	n	Total	Death	Discord	n	Total	Death	Discord
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total	5395	215	26	189	1271	458	68	390
Education:								
Elementary	362	296	37	259	198	415	108	307
1-3 High School	966	293	31	263	446	501	62	440
4 High School	2612	183	23	160	403	422	59	363
1-3 College	827	214	26	188	148	535	46	489
4 + College	628	163	22	141	76	346	14	332
Religion:								
Fundamentalists & Baptists	1531	268	24	244	827	483	76	407
Catholics	1356	184	27	157	172	397	44	353
Others	2508	199	27	172	272	417	59	358
Age at Marriage:								
Less than 18	1135	346	28	317	431	518	62	457
18-19	1793	210	22	188	349	457	100	357
20-21	1283	158	26	132	241	429	45	384
22 and Over	1184	142	29	113	250	345	68	277

NOTE: The probabilities are obtained from marital dissolution decrement tables and are equal to 1000 Q_{16}.

suggested that Catholics should be analyzed separately. Preliminary analysis indicated that Fundamentalists and Baptists had fairly similar dissolution patterns. In addition, it seemed theoretically reasonable to analyze these 2 groups together because of their religious similarities. So the second category includes these 2 religious groups. It was hoped that the remaining religious groups could be subdivided further. However, preliminary analysis indicated that while some differences between groups did exist, all groups that were large enough to merit separate analysis had similar enough dissolution patterns to justify studying them together. Consequently, all women who were not classified as Catholic, Fundamentalist, or Baptist are placed in the "other" category.

Table 3 contains the decrement table data that will be used for the initial exploration of dissolution differentials. Table 3, however, does not contain the entire decrement tables. It contains only the different probabilities of experiencing marital dissolution by 16 years ($1000Q_{16}$). This will better allow us to see the general differentials present.

Let's begin by examining the education differentials. The relationships do not appear to be the same for the 2 racial groups. For whites the main "action" in the data appears to be the general inverse relationship between education and the incidence of instability. The incidence of dissolution decreases fairly consistently with more

education. Interestingly enough, this is true for both types of disruption. There is some evidence that women who started but did not finish high school or college have greater dissolution than would be predicted by the general inverse relationship. This phenomenon, however, does not appear to be as marked for whites as nonwhites.

For nonwhites, the inverse correlation between education and dissolution is apparent only for death produced disruptions. For discord and total dissolution there does not appear to be any clear monotonic relationship. Here the major "action" in the data appears to be produced by the high incidence of dissolution among the women who had completed 1-3 years of high school or college. These women had considerably higher rates than others.

For both races the major religion differential is between Fundamentalists and Baptist women and all other women (Catholics and "other") rather than between Catholics and non-Catholics. Fundamentalists and Baptists have higher total rates and higher rates from discord. The rates of Catholics and "other" women are below the population average and are at similar levels. Differential mortality by religion does not seem to be large.

The age at marriage differentials are quite large. Women who marry very young experience much more dissolution from discord than those who marry at an older age. This appears to be true for both races. In general, as age at marriage increases, there is a decrease in the incidence

of discord produced dissolution. There are some differences in the incidence of death produced discord, but these do not follow a consistent pattern.

The analysis that will follow examines only discord produced dissolutions. There will be no further analysis of disruptions caused by the death of the husband. This focus was chosen for 3 reasons. First, the primary interest in this part of the study concerns dissolutions produced by discord. This is the aspect of marital instability that provided the major motivation for the study. Second, in the time period of interest, death produces only a small percentage of the disruptions. Third, only the racial and education differentials from death appear to be at all significant or consistent.

When the rates of marital dissolution from discord are analyzed separately and in isolation from dissolution from death, it is important to distinguish between what Potter (1969) calls net and gross rates. Net rates assume that none of the people experiencing dissolution from death would have experienced dissolution from discord if death had not occurred. If the discord dissolution rates of Tables 1 and 2 were analyzed by themselves, they would be called net rates. Gross rates, on the other hand assume that if the husbands had not died, the women would have experienced discord dissolution at the same rate as other women. Consequently, gross rates probably indicate the incidence of dissolution from discord in a group and

differences between groups better. The difference between the 2 types of rates could be substantial if the incidence of dissolution from death were high. The 2 rates do not produce the same subgroup differentials if dissolution from death is not uniformly distributed. However, while gross rates are theoretically the better measures, net rates are easier handled by the multivariate techniques which will be utilized in the next section of this chapter. So it is important to know the magnitude of the differences between the 2 sets of rates. In Table 4 net rates (by race) are compared with the gross rates. The net rates shown are the discord dissolution rates presented in Tables 1 and 2. From Table 4 it can be seen that the 2 sets of rates are almost identical for whites and only slightly different for nonwhites. While the net rates tend to underestimate the real magnitude of the racial differential, this underestimation is not great. Gross and net rates for the subgroups defined by the other variables of interest were also compared and found to be very similar. Since the net rates essentially match the gross rates and because the net rates are handled easiest by the multivariate techniques, they will be the ones analyzed in the rest of the study.

Multivariate Analysis: Concepts

Multivariate analysis allows the impact of each of the explanatory variables to be examined controlling or adjusting the influence of the other variables. The

analysis will study the incidence of dissolution during each of the marital intervals defined. Those intervals are 0-4, 4-8, 8-12, and 12-16 years following marriage. Two measures will be utilized. One is the probability of experiencing dissolution during the period. This measure ($_4q_{xc}$) is equal to the number who experience the event divided by the number at risk. The second measure is the odds of experiencing dissolution. This measure is equal to the number who experience the event divided by those at risk but who did not experience it. Both measures can be expressed in terms of the other; the odds ratio is equal to $_4q_{xc}/1-_4q_{xc}$. Both measures will be net measures as defined earlier; they will not adjust for the fact that some women who experienced dissolution from death would have experienced it from discord if death had not occurred.

TABLE 4. Net and Gross Rates of Discord Produced Marital Dissolution, by Race; 1970

Marital Interval (in years)	White		Nonwhite	
	Net	Gross	Net	Gross
0-4	.075	.076	.160	.161
4-8	.051	.051	.133	.135
8-12	.045	.045	.115	.116
12-16	.034	.035	.064	.065

The measures $_4q_{xc}$ and $_4q_{xc}/1 - _4q_{xc}$ (odds ratio) will be calculated in a slightly different manner from those utilized in the previous section. In the previous section

the ${}_4q_{xc}$ values were "built up" from or were the result of ${}_nq_{xc}$ values based on 2 month intervals. In addition, in the formulas for obtaining the earlier ${}_nq_{xc}$ values (equation 6), data for all women who were observed during any part of the interval in question were included. This procedure allowed maximum utilization of the available data. The multivariate analysis employed prevents this procedure from being used. Here, it will be necessary to analyze only those women who were observed for the entire interval. All other women are excluded from the analysis. For this reason, the formula that will be utilized is shown in Equation 8. It should be noted that Equation 8 is identical to the second part of Equation 6 except for the fact that <u>all</u> women who were not observed the entire interval are excluded. The group of women who experienced dissolution from discord during the interval but who were not observed for the entire interval (${}_4D_{xw}$) are subtracted from the numerator. In addition, all women who were still in intact marriages at the time of interview but who had not been observed for the whole interval (${}_4W_x$) are subtracted from the denominator. In this formulation ${}_4q_{xc}$ is literally the proportion of all women (who were observed the entire interval) experiencing dissolution.

Equation (8) $$ {}_4q_{xc} = \frac{{}_4D_{xc} - {}_4D_{xw}}{{}_4N_x - {}_4W_x} $$

where ${}_4q_{xc}$ = the net probability of experiencing dissolution from discord during the interval from x to x + 4.

${}_4D_{xc}$ = the number of dissolutions resulting from discord during the interval.

${}_4D_{xw}$ = the number of dissolutions caused by discord during the period which occurred to women who were observed for part but not all of the interval x to x + 4.

${}_4N_x$ = the number of women still in intact first marriages at the beginning of the interval x to x + 4. ${}_4N_x$ includes women who experienced death in the interval x to x + 4.

${}_4W_x$ = the number of women still in intact first marriages at the beginning of the interval x to x + 4 who were not observed for the entire interval x to x + 4.

While Equation 8 is conceptually identical to Equation 6, its results differ somewhat. In Table 5 the results utilizing Equation 8 are contrasted with the earlier results shown in Tables 1 and 2. From Table 5 it can be seen that the differences are larger for nonwhites than whites, but the differences are not very great even for them. The results from Equation 8 adequately reflect dissolution incidence.

TABLE 5. Net Rates of Discord Produced Dissolution Computed From Equations 6 and 8, by Race; 1970

Marital Interval (in years)	White		Nonwhite	
	Equation 6	Equation 8	Equation 6	Equation 8
0-4	.075	.077	.160	.137
4-8	.051	.050	.133	.121
8-12	.045	.043	.115	.110
12-16	.034	.034	.064	.067

Contingency Table Analysis

Procedures for the analysis of contingency tables have been outlined rather extensively by Leo Goodman in a series of publications (1970; 1972a; 1972b; 1973. Also see Davis 1972; 1974). The contingency table analysis will be explained and carried out in 2 steps. The first step involves the formulation and testing of hypotheses or models. After appropriate models have been tested, the second step will explore and summarize the relationships implied by the models. To aid in presentation some results will be presented along with the explanation of the techniques. In the presentation of the methodology we will use the analysis of the interval from marriage to 4 years after marriage as the primary example. Those results are shown in Table 6. It should be kept in mind, however, that the analyses of the other 3 marital intervals have been carried out in the same manner. The results for those intervals are presented in Tables 7 through 9.

TABLE 6. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval from 0 To 4 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{ED},{RD}	124.46	109	.1-.2					
H_2	{AD},{ED},{RD}	133.03	111	.05-.1	8.57	2	.01-.02	.06	.05
H_3	{AD},{BD},{RD}	137.10	113	.05-.1	12.64	4	.01-.02	.09	.06
H_4	{BD},{ED},{RD}	184.48	112	<.001	60.02	3	<.001	.33	.31
H_5	{AD},{BD},{ED}	135.90	110	.02-.05	11.44	1	<.001	.08	.08
H_6	{AD},{ED},{BRD}	123.41	107	.1-.2	1.05	2	>.5	.01	-.01
H_7	{AD},{BD},{ERD}	116.82	105	.2-.3	7.64	4	.1-.2	.06	.03
H_8	{BD},{ED},{ARD}	108.52	106	.3-.5	15.94	3	.001-.01	.13	.10
H_9	{BD},{RD},{AED}	114.90	97	.1-.2	9.56	12	>.5	.08	-.04
H_{10}	{BD},{ARD},{ERD}	106.29	102	.3-.5					

*All models also fit {ABER} as described in text.

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, R = Race.
Number of observations = 5437.

TABLE 7. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval from 4 To 8 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{ED},{RD}	112.00	109	.3-.5					
H_2	{AD},{ED},{RD}	115.27	111	.3-.5	3.27	2	.1-.2	.03	.01
H_3	{AD},{BD},{RD}	119.73	113	.3-.5	7.73	4	.1-.2	.06	.03
H_4	{BD},{ED},{RD}	141.68	112	.02-.05	29.68	3	<.001	.21	.19
H_5	{AD},{BD},{ED}	140.26	110	.02-.05	28.26	1	<.001	.20	.19
H_6	{AD},{ED},{BRD}	111.30	107	.3-.5	.70	2	>.5	.01	-.01
H_7	{AD},{BD},{ERD}	106.98	105	.3-.5	5.02	4	.2-.3	.04	.01
H_8	{BD},{ED},{ARD}	102.10	106	>.5	9.90	3	.01-.02	.09	.06
H_9	{BD},{RD},{AED}	100.65	96	.3-.5	11.35	13	>.5	.10	-.02
H_{10}	{BD},{ARD},{ERD}	96.38	102	>.5					

*All models also fit {ABER} as described in text.

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, R = Race.
Number of observations = 3879.

TABLE 8. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval from 8 To 12 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{ED},{RD}	88.04	109	>.5					
H_2	{AD},{ED},{RD}	97.34	111	>.5	9.30	2	.001-.01	.10	.08
H_3	{AD},{BD},{RD}	92.40	113	>.5	4.36	4	.3-.5	.05	.01
H_4	{BD},{ED},{RD}	98.29	112	>.5	10.25	3	.01-.02	.10	.08
H_5	{AD},{BD},{ED}	98.38	110	>.5	10.34	1	.001-.01	.10	.10
H_6	{AD},{ED},{BRD}	87.36	107	>.5	.68	2	>.5	.01	-.01
H_7	{AD},{BD},{ERD}	81.73	105	>.5	6.31	4	.1-.2	.07	.04
H_8	{BD},{ED},{ARD}	86.74	106	>.5	1.30	3	>.5	.01	-.01
H_9	{BD},{RD},{AED}	77.33	97	>.5	10.71	12	>.5	.12	.01
H_{10}	{BD},{ARD},{ERD}	80.19	102	>.5					

*All models also fit {ABER} as described in text.

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, R = Race.
Number of observations = 2684.

TABLE 9. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval from 12 To 16 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{ED},{RD}	90.93	109	>.5					
H_2	{AD},{ED},{RD}	92.05	111	>.5	1.12	2	>.5	.01	-.01
H_3	{AD},{BD},{RD}	101.67	113	>.5	10.74	4	.02-.05	.11	.07
H_4	{BD},{ED},{RD}	96.12	112	>.5	5.19	3	.1-.2	.05	.03
H_5	{AD},{BD},{ED}	95.46	110	>.5	4.53	1	.02-.05	.05	.04
H_6	{AD},{ED},{BRD}	90.80	107	>.5	.13	2	>.5	.00	-.02
H_7	{AD},{BD},{ERD}	84.53	105	>.5	6.40	4	.1-.2	.07	.03
H_8	{BD},{ED},{ARD}	89.52	106	>.5	1.41	3	>.5	.02	-.01
H_9	{BD},{RD},{AED}	73.62	96	>.5	17.31	13	.1-.2	.19	.08
H_{10}	{BD},{ARD},{ERD}	84.07	102	>.5					

*All models also fit {ABER} as described in text.

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, R = Race. Number of observations = 1714.

The hypotheses or models which will be evaluated for the first marital interval are shown in Table 6. The characteristics of the models are described in the column labelled "model effects." For each model, the relationships that are allowed to exist between the independent variables and dissolution are shown. In this analysis the relationships will be interpreted as the effects these explanatory variables have on marital dissolution. For any particular model, each of the explanatory variables that is listed in a bracket with dissolution is allowed to have a direct effect on dissolution. This is true whether or not the variable is listed separately with dissolution (for example, {BD} or {RD}) or is listed in a bracket together with another independent variable (for example, {BRD}). However, when 2 independent variables are listed together in a bracket with dissolution (such as {BRD}), an interaction effect of the 2 explanatory variables on dissolution is allowed along with the main effects of the 2 variables.

The first model shown in Table 6 allows that all the independent variables (age at marriage, religion, education, and race) may have direct effects on marital dissolution, but there are no higher order or interaction effects. This hypothesis suggests the main effects of age at marriage on dissolution {AD}, religion on dissolution {BD}, education on dissolution {ED}, and race on dissolution {RD} can adequately account for the patterns of marital dissolution found in the data. We will refer to

this model (H_1) as the "all main effects model" since it contains all the main effects and no higher order or interaction effects. The second hypothesis (H_2) permits all variables except religion to have direct effects. The direct effect of religion on dissolution {BD} is excluded from the model, and along with the interaction effects is hypothesized not to exist. Hypotheses 2 through 5 are similar in that all main effects except one are allowed and no interaction effects are included. Hypotheses 6 through 8 permit all the main or direct effects of the 4 independent variables plus they allow one of the other variables to interact with race in influencing dissolution. For example, Model 6 permits the effect of any interaction between religion and race on dissolution {BRD} and the main effects of age at marriage, education, religion, and race. In that model all other effects are assumed not to exist. Model 9 allows all main effects plus the effect of any age at marriage-education interaction on dissolution {AED}. The final hypothesis (H_{10}) examined is one where the age at marriage-race {ARD} and education-race {ERD} interaction effects on dissolution are allowed along with all main effects.

The first step in the analysis procedure involves cross-tabulating the original data from the respondents into a multi-way contingency table. Since the analysis is concerned with differential dissolution for 4 time periods, 4 separate contingency tables will be analyzed. For each

interval the data are cross-classified by race, education, religion, age at marriage, and dissolution experience into a five-way contingency table. Then the contingency tables are analyzed; a similar analysis for each period is carried out.

Each of the models or hypotheses of Table 6 is tested separately. Each hypothesis is tested by creating a new table that contains "expected" values. The expected values are generated on the assumption that the model or hypothesis in question is correct. The table of expected values for the first hypothesis of Table 6 was constructed containing the direct effects of race, education, religion, and age at marriage on dissolution. No interaction effects were included in the expected table. This process of creating the table that should exist under the assumption that the hypothesis is correct is often called "fitting the model."

The actual "fitting of the model" proceeds by forcing the table of expected values to have certain characteristics of the actual table. For each effect allowed in the model there is a relationship existing in the original data that is imposed upon the table of expected values. The first model in Table 6 allows for race, education, religion, and age at marriage to have direct effects upon marital dissolution. The table of expected values for this model must have the same relationships between race and dissolution, education and dissolution, religion and dissolution, and

age at marriage and dissolution that exist in the original data. This condition is obtained by forcing the expected table to have the same race by dissolution, education by dissolution, religion by dissolution, and age at marriage by dissolution marginals as the original table. Goodman (1972a) also suggests that whenever there is a clear dependent variable, as there is in this analysis, that the marginal table produced by the cross-tabulation of the independent variables (here race by education by religion by age at marriage) be forced into the expected table. This procedure is recommended so that all interrelationships between the explanatory variables will be allowed for or taken into account in the analysis. This procedure is followed here; in all models this marginal will be forced or fitted. The forcing of all these marginal distributions (5 in all for Model 1) also automatically fits the original univariate distributions of race, education, religion, age at marriage, and dissolution. The expected table is produced by starting with a table of ones and then imposing the constraints just outlined. Each of the constraints are imposed iteratively until all conditions are met simultaneously. Further details concerning the fitting procedure are given by Davis (1974).

Other models can be fit in a similar manner. The second model in Table 6 contains only the main effects of race, education, and age at marriage. The expected table for this model is created by forcing it to have the same

race by education by religion by age at marriage, race by dissolution, education by dissolution, and age at marriage by dissolution marginals that exist in the original table. Since the main effect of religion is not included in Model 2, the religion by dissolution marginal is not fit. Similarly, Model 6 is fit by forcing the expected table to have the same race by education by religion by age at marriage, age at marriage by dissolution, education by dissolution, and religion by race by dissolution marginals.

If the hypothesis in question is correct, the table of expected values will be the same as the actual data. The reason is that the expected table contains all the relationships or effects that are allowed to exist by the given hypothesis. If the effects that are hypothesized to be nonexistent and thus absent from the expected table really do not exist, they will be absent from the actual data too. The only differences between the two tables that could exist would be those produced by sampling variability.

Each hypothesis in Table 6 is tested by comparing the expected table with the actual data. If the 2 tables are similar the hypothesis in question cannot be rejected. However, if the 2 tables are quite different, the hypothesis is rejected; and it is assumed that at least one of the effects that was hypothesized to be nonexistent really does exist. The rejection of the hypothesis gives no clues as to which of the effects left out of the model is important;

it only suggests that at least one such effect was excluded. Of course, since we are using data from a sample, the actual data is likely to vary from the expected table even if the "correct" model or hypothesis was being tested. This difference would be produced by sampling variability. However, if the difference between the two tables is sufficiently large, we could probably assume that sampling variability was not causing the difference. The classic chi square statistic provides a way of testing whether or not the 2 tables are sufficiently different to reject sampling as the cause of the difference. In this analysis the likelihood-ratio chi square statistic shown in Equation 9 is utilized rather than the Pearson chi square.

Equation (9) $$X^2 = 2 \sum_{i=1}^{K} f_i \log f_i/F_i$$

where X^2 = the chi square statistic

f_i = the actual cell frequencies in the ith cell

F_i = the expected cell frequencies in the ith cell.

The chi square statistic and the degrees of freedom upon which it is based are shown in the first two columns of Table 6. A large chi square relative to the degrees of freedom suggests that the model provides a poor fit and the hypothesis should be rejected. By using the theoretical chi square distribution, the probability that a given chi square could be produced entirely by chance sampling variability

can be obtained. A low probability would suggest that the fit is so poor that it is unlikely that sampling could have caused such a big discrepancy. A high probability indicates that sampling variability could easily have produced the discrepancy, and the hypothesis should not be rejected. The probabilities for each hypothesis are shown in column 3 of Table 6.

We shall briefly examine 2 of the hypotheses in Table 6 to illustrate interpretation. Model 4 hypothesizes that the only effects that could be operating in the data are the main effects of race, education, and religion on dissolution. All other effects are hypothesized not to exist. We see that the expected table produced by this model is quite different from the actual data. The discrepancy is large enough to produce a chi square of 184 with 112 degrees of freedom. The probability that the chi square would be this large because of chance sampling variability alone is less than 1 in a 1000. The evidence indicates that this hypothesis should be rejected; other effects need to be taken into account. Model 10 hypothesizes that the only effects that could be operating on dissolution are the 4 main effects and the education-race, and age at marriage-race interaction effects. This model produces a chi square of 106 with 102 degrees of freedom. A discrepancy of this size could result between 30 and 50 percent of the time by chance sampling variability alone. This suggests that the discrepancy between the data and the

expected table is not large enough to reject the hypothesis. Model 10 seems to be an adequate one.

The statistics in the first 3 columns of Table 6 are useful for evaluating the adequacy of a given model. They assist us in deciding whether or not to include some of the left out effects in our explanation of the data. Those statistics, by themselves, tell us nothing, however, about the importance of any of the variables or effects that were included in the given model. A different procedure must be utilized to evaluate the importance of any particular variable.

One of the goals is to investigate whether or not each of the 4 explanatory variables has a direct effect. For example, does religion have a direct effect on dissolution? This question is answered by evaluating the null hypothesis: religion has no direct effect upon dissolution. The null hypothesis is evaluated by fitting an appropriate model that does not contain the hypothesized effect (Model H_2 for example) and then obtain the appropriate chi square (X^2 (H_2)) and the degrees of freedom (df (H_2)) for that model. Then, the same model is fit again but with the hypothesized effect included (Model H_1). The appropriate chi square (X^2 (H_1)) and degrees of freedom (df (H_1)) are computed for this model. If religion has no effect as hypothesized, the fit for Model 1 will be exactly the same as the fit for Model 2; the inclusion of the effect of religion on dissolution in the model will not

change the fit produced. In that event X^2 (H_1) would equal X^2 (H_2). On the other hand, if religion has an effect, its inclusion in the model would substantially improve the fit. In that event X^2 (H_1) would be substantially smaller than X^2 (H_2). If X^2 (H_1) is substantially smaller than X^2 (H_2), we could reject the null hypothesis. Before rejecting the null hypothesis, we would want to be quite certain, however, that sampling variability did not produce the difference observed. This possibility is evaluated by obtaining the difference between the 2 chi squares $(X^2 (H_2) - X^2 (H_1))$ utilizing also the difference in the 2 degrees of freedom (df (H_2) - df (H_1)). If the difference chi square is large relative to its degrees of freedom, we reject the null hypothesis and conclude that religion has an effect. The theoretical chi square distribution allows us to estimate the probability of obtaining the chi square by chance sampling variability even if the hypothesized effect was nonexistent.

The data in columns 4 through 6 are presented to evaluate the hypotheses that certain effects are non-existent in the data. For each row, the effect being evaluated is the one substracted from or added to the all main effects model (H_1). For example, row 2 contains the data for evaluating our hypothesis about religion. There we see the addition of religion to Model 2 decreases X^2 by 8.57 $(X^2 (H_2) - X^2 (H_1) = 133.03 - 124.46 = 8.57)$. With 2 degrees of freedom (111 - 109), the probability

of obtaining such a large chi square by sampling alone is less than 2 in a 100. The null hypothesis that religion has no effect is rejected. Similar tests for the other variables are provided in rows 3 through 5. In Models 6 through 9 individual interaction effects are added to the main effects model. The null hypothesis that there is no interaction effect of religion with race is tested in row 6. The addition of this effect decreases chi square by only 1.05 (X^2 (H_1) - X^2 (H_6) = 124.46 - 123.41 = 1.05). The likelihood of getting such a small chi square by sampling variability alone is over one-half. The null hypothesis that there is no race by religion interaction effect cannot be rejected. The other null hypotheses are tested in a similar manner.

The statistics in columns 4 to 6 allow us to evaluate whether or not any particular effect is large enough to preclude the possibility that it was produced by sampling variability, but they do not directly tell us how important the effect is. Goodman (1972a, 1972b) suggests the difference chi square can, however, be used for this purpose. By dividing the difference chi square by the chi square existing for the model excluding the given effect, we can estimate the percentage reduction in chi square produced by adding the effect. The resulting measure, as Goodman suggests, is very similar to the partial correlation coefficient of regression. The measure (which Goodman calls r^2) provides an estimate of the variation that is explained

by the variable in question. The formula for this measure is given in Equation 10.

Equation (10) $$r^2 = \frac{X^2\ (H_2) - X^2\ (H_1)}{X^2\ (H_2)}$$

For the direct effect of religion, for example

$$r^2 = \frac{133.03 - 124.46}{133.03} = \frac{8.57}{133.03} = .06$$

For the interaction effect of religion with race

$$r^2 = \frac{124.46 - 123.41}{124.46} = \frac{1.05}{124.46} = .01$$

As in regression coefficients, it is possible to adjust for differences in degrees of freedom in the 2 chi squares by dividing each chi square by its degrees of freedom. This results in an adjusted coefficient of partial determination. The last 2 columns of Table 6 contain the unadjusted and adjusted coefficients of determination for the various effects.

The Problem of Empty Cells

Before getting into the substantive aspects of Table 6 and similar tables for the other marital intervals, it will be necessary to discuss one more methodological problem. In the introduction to this study the importance of the timing of the first birth to the likelihood of

experiencing dissolution was discussed. Several studies have shown that women with a premarital birth or pregnancy have higher rates of dissolution. While this whole issue will be explored more in Chapter 3, it is important here because this variable is related to the others being analyzed. For this reason it should be controlled in the analysis.

The original goal was to analyze the effects of race, education, religion, age at marriage, and the timing of first birth on marital dissolution simultaneously. This goal proved to be a difficult one to attain. Such an analysis would require a six-way contingency table having a total of 480 cells (960 if 4 categories of first birth timing were used instead of 2). Even with 5437 observations in the first marital interval, the problem of empty cells becomes important immediately. The technique can handle some empty cells, but if they appear in any of the marginals being fit, the summarization of the model becomes very difficult. Since the procedure involves fitting the entire table defined by the cross-tabluation of the independent variables, the likelihood of zeroes in this marginal table is substantial. In fact this occurred even in the first marital interval table. This problem made it necessary to try other approaches.

There are several ways in which multi-way contingency tables can be collapsed to reduce the number of cells. The number of categories per variable can be reduced, or

the number of variables can be reduced, or both undertaken simultaneously. The first method tried was to reduce the number of categories. Each variable of interest was examined using a different table. The table for each variable was constructed using all its categories but having all other variables dichotomized. Then the models were fit and the effect of the variable in question was summarized. An analysis of this type was done for each variable. This preliminary analysis showed that the effect of first birth timing was not large or statistically significant during any of the 4 marital intervals. More will be said about this in Chapter 3, but the finding has important ramifications here. It suggested the possibility that this variable could safely be excluded from the analysis. The effects of the other variables on dissolution could be analyzed successfully without controlling for first birth timing. Therefore, it was decided the bulk of the analysis could be carried out on a five-way contingency table of race by education by religion by age at marriage by dissolution experience. The methodology for this part of the analysis was described in detail in the previous section. The results will be presented in the next section.

The analysis procedure with first birth excluded was carried out separately for each marital interval. There were no problems encountered in the analysis of the first 2 intervals. However, during the last 2 intervals there

were fewer observations, and empty cells in the marginals again became a problem.

In all cases the empty cell problem was caused by the fact that there were no observations for a given combination of race by education by religion by age at marriage characteristics during the interval in question. This meant there were no women of either marital dissolution characteristic (disrupted or intact) observed. The lack of women of either marital characteristic would produce one empty cell in the race by education by religion by age at marriage marginal table. This empty cell would result in problems.

It was decided to solve the problem of an empty cell in the marginals by assigning reasonable values to its 2 component cells in the original table. Essentially, this is a Bayesian approach. Prior knowledge is utilized to obtain reasonable estimates for the values of the 2 empty cells causing the difficulty. The prior knowledge is obtained from the preliminary analysis. For the six-way contingency table (with first birth included) with all variables dichotomized, a model containing all main variable effects except for first birth and excluding all interaction effects was fit. This fitting produced expected cell frequencies which were then utilized for the current problem.

In all cases (6 in the third interval and 11 in the fourth) where 2 empty cells together produce an empty cell in the marginal table, the cells of the dichotomized table

containing the empty cells were located. The expected values in the cells of the dichotomized table provide the criteria for filling the problem cells. The 2 problem cells were filled so that the ratio of those experiencing dissolution to those not experiencing it would equal the appropriate ratio in the expected dichotomized table. Besides meeting the criteria just described the 2 numbers supplied also were forced to meet the criteria that their sum equal 1. The last criteria was followed so that the additions to the table would be as small as possible. These additions to the 2 tables were included in all of the analyses conducted with those particular tables.

It turned out that the analysis excluding the timing of first birth produced the same conclusions (about the impact of race, education, religion, and age at marriage on dissolution) as the preliminary analysis including the variable. In fact, the outcomes were so similar that the reporting of both sets of results would have been redundant. For this reason the findings of the preliminary analysis are not included in detail. One table (Table 13) will, however, be presented toward the end of the chapter to support the conclusion that the results presented would not be changed if timing of first birth were controlled.

Testing the Hypothesized Effects

In Chapter 1 various studies of marital dissolution were reviewed. Those studies suggested that race, education,

religion, and age at marriage had important influences upon marital dissolution. In the first part of this chapter the relationships between these variables and dissolution were examined without controlling or adjusting for other variables. One of the purposes in conducting this contingency table analysis is to examine the relationships with other variables controlled. The direct or main effects of the explanatory variables on dissolution will be examined. In addition, this analysis provides an opportunity to evaluate whether or not race interacts with the other explanatory variables in influencing dissolution. One other interaction will also be explored; that is the interaction effect of education with age at marriage. The final purpose of this analysis is to see how well the effects that have been hypothesized account for the data patterns observed. The hypothesis that a model containing these effects and only these effects can account for the observed data will be evaluated.

The results of the model fitting and hypothesis testing are shown in Tables 6 through 9 for the marital intervals 0-4 through 12-16 years respectively. The first 3 columns in each table report on the fit of the models themselves. Columns 4 to 6 contain statistics for testing the existence of each individual effect, and columns 7 and 8 indicate the strength or importance of the particular effect. It is the material in columns 4 to 8 concerning individual model effects that will be reviewed in detail now.

We shall first examine the main effects of the 4 explanatory variables. Of particular interest is the conclusion that can be drawn from row 5 of all 4 tables concerning the importance of race. For all 4 intervals following marriage, race has a statistically significant impact on dissolution. In addition, the impact appears to be substantial. For all intervals the inclusion of race substantially decreases the amount of variation measured by chi square. The introduction of race decreases chi square (adjusted) from 4 to 19 percent. The result is important. Race is an important correlate of dissolution even when other important variables are controlled.

The data in Tables 6 through 9 indicate that age at marriage is a very important variable. For the first 3 intervals the relationship between age at marriage and dissolution is statistically significant. Even in the fourth interval where the number of observations is smaller, the relationship is significant at the .2 level. Like race, age at marriage has a substantial impact on chi square. The adjusted partial coefficient of determination (r^2) ranges from .03 to .31 for the 4 intervals. The relationship between age at marriage and dissolution cannot be accounted for by the variables controlled.

It can be seen from rows 2 and 3 of the tables that the effects of religion and education are not as large nor as consistent as the effects of race and age at marriage. The largest adjusted r^2 for religion is .08 and the largest

adjusted r^2 for education is .07. While the impact of religion and education on dissolution does not seem to be large, the statistics of Tables 6 through 9 do not support the hypothesis that there are no relationships between these variables and dissolution. Even when other variables are controlled, the relationships between education and dissolution and between religion and dissolution persist.

We also want to investigate whether or not the influences of religion, education, and age at marriage on marital dissolution are the same for the 2 racial groups. The hypotheses that the influences of religion, education, and age at marriage interact with race are evaluated in rows 6 through 8 of the tables. From those results we see that there is no interaction effect between religion and race. In no interval was this effect even marginally significant. In fact, when degrees of freedom are considered, the data are fit better without utilizing this interaction effect than when the interaction is included in the model. These results suggest that the relationship between religion and dissolution is similar for the 2 races.

It appears that there is an interaction effect between race and age at marriage during the first 2 marital intervals. For those intervals the reduction in chi square accomplished by the introduction of this interaction is substantial and statistically significant. The adjusted r^2 for these 2 intervals are .10 and .06. However, for

the last 2 intervals, the interaction appears to be small and is not statistically significant.

The education-race interaction effect appears to be small and only marginally significant over the intervals examined. However, while the interaction does not seem to be large, it does appear to be fairly consistent. This suggests that the interaction may indeed be present even if it is small. The nature of this interaction will be explored further in the next section of this chapter.

It was hypothesized in Chapter 1 that women who start but do not finish high school or college have higher rates of dissolution. This phenomenon may be produced, in part, by the fact that many women discontinue their education to marry. It is possible that the discontinuance of education to marry increases marital instability. The data allow us to explore this possibility somewhat by assuming that women who discontinue high school do so when they are less than 18 and that women who discontinue college do so in their very early twenties (say 20 to 21). If the hypothesis is true that quitting school to marry increases instability and if dropouts are concentrated in the under 18 and 20 to 21 age groups, women who start but do not finish high school and marry when they are less than 18, and women who start but do not finish college and marry between 20 and 21 would have higher dissolution rates. This suggests that there is an interaction effect between

education and age at marriage. This interaction hypothesis is evaluated in row 9 of Tables 6 through 9.

The data clearly do not support the hypothesis that there is an education-age at marriage interaction in the first 3 marital intervals. For all of those intervals the interaction effect is not significant at the .5 level; and when degrees of freedom are taken into account, the coefficients of determination are negative. In the first 3 periods, this interaction effect does not improve our predictive ability at all. It is only in the fourth interval that this interaction effect is statistically significant at even the .2 level. For that interval the r^2 (adjusted) is .08. Since the results are clearly not significant in 3 of the 4 tests and are only marginally significant in the other, it seems reasonable to conclude that these data do not support the age at marriage-education interaction hypothesis.

The material just reviewed indicates the direct effects of age at marriage and race are important and should be included in any model of marital dissolution. While the direct effects of religion and education and the interaction effects of education with race and age at marriage with race are small and/or inconsistent, it is my opinion that they too should be included in a model of dissolution. On the other hand, the data do not support the hypothesis that the interaction effects of religion with race and education

with age at marriage are important. These effects will not be included in the "final" model.

The next question concerns how well a model including only the direct effects of race, education, religion, and age at marriage and the interaction effects of race with education and race with age at marriage can account for the data obtained. The hypothesis that a model containing these effects and only these effects can adequately account for the patterns of dissolution is evaluated by fitting such a model. The results of this testing are shown in columns 1 to 3 of row 10 of the tables. From these results we see that the hypothesis cannot be rejected at the .3 level during any of the intervals. This result indicates that the model does adequately account for the data, and additional effects are not needed. The results suggested by this model will be summarized in the next section of this chapter.

From Tables 6 through 9 it can be seen that the overall effects of the variables are not consistent across intervals. The significance levels vary as well as the magnitudes of the partial correlation coefficients. It should be kept in mind, however, that all of these measures are chi square based and, therefore, depend greatly on the number of observations in the table. Since the number of observations decreases significantly with marital interval, comparisons of these chi square based measures over interval may be misleading.

One of the goals of this chapter is to ascertain the stability of the relationships over the marital history. This is accomplished by looking at marital dissolution for all marital intervals simultaneously. To accomplish this the 4 five-way contingency tables, which were analyzed separately above, were combined into 1 six-way contingency table with marital interval as the sixth variable. With this large table it is possible to rigorously test the hypothesis that the relationships change with interval.

The fitting and testing of the models including the effect of marital interval itself is shown in Table 10. In the first 6 rows the model containing all 5 main effects and the models excluding 1 of the main effects are shown. There it can be seen that the direct effects of all the variables are statistically significant. In addition, the contributions of age at marriage, race, and interval to the reduction of chi square are substantial. It is especially relevant to observe that race and age are about as important as interval in influencing marital dissolution. The overall impact of religion and education appears again to be small. The 2 interaction effects found in the earlier analysis are found to be statistically significant here also, but they are not of great importance. These conclusions can be seen from rows 7 and 8.

In rows 9 to 12 the hypotheses that the relationships vary with marital interval are examined. In rows 11 and 12 we see that the interaction effects of race with

TABLE 10. Contingency Table Analysis of Discord Produced Marital Dissolution for All Marital Intervals Together: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{ED},{ID},{RD}	452.61	466	>.5					
H_2	{AD},{ED},{ID},{RD}	467.15	468	>.5	14.54	2	<.001	.03	.03
H_3	{AD},{BD},{ID},{RD}	470.34	470	.3-.5	17.73	4	.001-.01	.04	.03
H_4	{BD},{ED},{ID},{RD}	556.39	469	.001-.01	103.78	3	<.001	.19	.18
H_5	{AD},{BD},{ED},{ID}	501.82	467	.1-.2	49.21	1	<.001	.10	.10
H_6	{AD},{BD},{ED},{RD}	518.50	469	.05-.1	65.89	3	<.001	.13	.12
H_7	{AD},{BD},{ID},{ERD}	437.68	462	>.5	14.93	4	.001-.01	.03	.02
H_8	{BD},{ED},{ID},{ARD}	432.93	463	>.5	19.68	3	<.001	.04	.04
H_9	{AD},{ED},{RD},{BID}	441.79	460	>.5	10.82	6	.05-.1	.02	.01
H_{10}	{AD},{BD},{RD},{EID}	430.77	454	>.5	21.84	12	.02-.05	.05	.02
H_{11}	{BD},{ED},{RD},{AID}	445.98	457	>.5	6.63	9	>.5	.01	.00
H_{12}	{AD},{BD},{ED},{RID}	448.33	463	>.5	4.28	3	.2-.3	.01	.00

*All models also fit {ABEIR} as described in text.

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, I = Marital Interval, R = Race.

Number of observations = 13714.

interval and age with interval are clearly not statistically significant. For these 2 variables, any interaction with time appears to be trivial. However, for religion and education, the impact on dissolution may vary with time. The chi squares for these interactions are close to being statistically significant. However, the adjusted partial r^2 measures are very small. Since they are so small and since the chi squares from such a large number of observations are only marginally significant, it is probably safe to say that the interval interactions are not important. The conclusion, therefore, is that the relationships are persistent over the marital history observed. The effects these variables have on marital dissolution do not appear to change substantially with the life cycle.

Summary of Model Effects

We now shift from the analysis of models to the summarization of the relationships suggested by the models examined. The model that seemed to be "the best" overall was the 1 containing all main effects and the interaction effects of education by race and age at marriage by race. This is the model summarized here. The analysis will first examine the relationships subtested by the 4 marital interval specific tables.

By using the model chosen and the expected values it generates, it is possible to describe the level of marital dissolution in each subgroup of each of the

independent variables. This is accomplished by computing the odds of experiencing disruption for each race by religion by education by age subgroup in the table. The odds ratio is computed by dividing the expected number experiencing dissolution by the expected number not experiencing dissolution. The result is a four-way contingency table of expected odds ratios. Similar procedures are followed for each marital interval.

In his publications, Goodman (see especially 1972a and 1972b) suggests 2 methods for analyzing the odds. One expresses the log of the odds as a linear function of a grand mean effect plus the main variable effects plus the interaction effects present in the model. The main characteristics of this system produces the title "log linear model." This system will not be utilized because the coefficients obtained are difficult to grasp and interpret substantively. They always force the researcher to think in terms of a log transformation of odds ratios which is not easy intuitively (at least for this writer).

The second method suggested by Goodman expresses the odds themselves as a multiplicative function of the grand mean effect times the main variable effects times the interaction effects present in the model. This method has more appeal. The grand mean effect is the geometric mean of all the odds ratios in the table. It indicates the overall or average level of dissolution for the entire group. The main variable effects indicate the level of

dissolution for the entire group. The main variable effects indicate the level of dissolution in each category of the independent variable. These effects are obtained by computing the geometric mean of the odds ratio for the category in question and then expressing this mean as a ratio to the overall or grand mean. Similar coefficients are obtained for every category of each variable in the model. The system allows for complete statistical control for all variables in the model.

The grand mean effect and the main variable effects in the multiplicative model are easily interpretable. This system is especially appealing when there are no interaction effects. When there are interaction effects, as there are in the current model, the system is complicated in 2 ways. First, the interaction effects must be obtained. These effects are a root of the ratio of a ratio of odds ratios. This proliferation of ratios makes the interpretation of these effects somewhat difficult. The second complication is inherent in the very nature of interaction. By definition, interaction means that the effect of a variable upon the dependent variable depends on the level of another variable. For our model the effects of education and age are interpreted as depending upon race. Since this is true, the main variable effects for education and age would only be averages of the levels in the white and nonwhite groups. They would indicate levels in neither group. These 2 considerations together have

been sufficient to rule out using the coefficients exactly as they are in the multiplicative model.

Both interaction terms in the final model involve race. Since both have been interpreted as the effects of age and education depending on race, it seems appropriate to analyze the expected odds ratios separately for whites and nonwhites. This is the procedure that will be followed. The summary will handle the interaction directly by looking at the effects of the other variables separately by race. It will present the average level (geometric mean) for each racial group. Then the average level (geometric mean) for each category of each variable will be shown for whites and nonwhites. These means are presented in Table 11 for the 4 marital intervals. It should be emphasized that each mean is obtained in such a way that it reflects no influence from the other variables in the table.

All of the evidence examined in this study suggest that racial differentials in marital dissolution are substantial. The studies reviewed in Chapter 1 all found that blacks had higher rates of dissolution than whites. In an earlier section of this chapter we also found that nonwhites (composed primarily of blacks) had higher incidence of dissolution than whites. The nonwhite rates were higher for both discord and death produced disruptions. In this part of the chapter the relationship between race and discord produced dissolution is examined controlling for education, religion, and age at marriage. Even controlling

TABLE 11. Geometric Means of Expected Marital Dissolution Odds Ratios By Education, Religion, Age at Marriage, Race, and Marital Interval: 1970

	White				Nonwhite			
	Marital Interval				Marital Interval			
	0-4	4-8	8-12	12-16	0-4	4-8	8-12	12-16
Total	.071	.046	.044	.036	.135	.101	.085	.081
Education:								
Elementary	.070	.040	.065	.059	.111	.060	.053	.042
1-3 High School	.087	.037	.056	.023	.132	.142	.087	.043
4 High School	.059	.048	.033	.020	.126	.119	.068	.059
1-3 College	.090	.061	.038	.044	.210	.195	.180	.112
4 + College	.057	.048	.036	.051	.117	.054	.080	.303
Religion:								
Fundamentalists & Baptists	.086	.050	.064	.035	.163	.111	.125	.078
Catholics	.062	.049	.034	.030	.119	.108	.065	.068
Others	.068	.039	.039	.045	.128	.086	.076	.101
Age at Marriage:								
Less than 18	.160	.102	.066	.060	.188	.160	.153	.120
18-19	.086	.060	.047	.037	.121	.076	.106	.095
20-21	.050	.026	.030	.038	.150	.133	.074	.063
22 and Over	.037	.027	.040	.020	.098	.065	.044	.061

for these other variables, we find that race is very highly correlated with dissolution. Earlier we found that the relationship between race and dissolution could not be explained by sampling error, and that the predictive power (measured by r^2) of race was fairly large. In Table 11 we see that the odds of experiencing dissolution are much higher for nonwhites than for whites.

The magnitude and consistency of the racial difference over the life cycle are important. For every interval the average odds for the nonwhite women are approximately twice as large as the odds for white women. These results indicate that there are conditions existing among nonwhites that increase their marital instability. In addition, those conditions, whatever they are, seem to increase nonwhite rates about equally at every stage in the life cycle. This result suggests that those conditions must be pervasive and general enough so they are not tied to any specific events or stages in the lives of the women involved. The conditions are not, it would seem, specifically related to marriage, family building, or some other stage that could be identified. The conditions must be more general ones that influence instability throughout the life cycle.

Studies of the relationship between age at marriage and marital instability consistently find the correlation is substantial (see Chapter 1). The results of the analysis here support those findings. In addition, this analysis indicates that the relationship is very strong

even when race, education, and religion are controlled. In addition, we find there may be an age at marriage-race interaction. For whites, Table 11 suggests a very distinct inverse relationship between age at marriage and instability. This inverse relationship exists for every marital interval. The incidence of dissolution for white women marrying before 18 is from 3 to 4 times as great as it is for women marrying at ages 22 and over. For nonwhites the relationship between age at marriage and dissolution is inverse, but not as marked as for whites. In addition there is an unusually large amount of dissolution for nonwhites married at ages 20 and 21 during the first 2 intervals. This last phenomenon probably produces the race-age at marriage interaction effect existing during the first 2 intervals.

It should be noted that the research design utilized in this analysis makes the variable "age at marriage" exactly equivalent to the variable "age at the beginning of the marital interval." This is obvious for the first interval since marriage is the beginning of the interval. For the second interval (4 to 8 years), the addition of a constant 4 years to each woman's age at marriage will produce the woman's age at the beginning of the interval. Similar procedures will produce age at the beginning of the third and fourth intervals. The realization that age at marriage is equivalent to age should help us better understand the meaning of the relationship between age at

marriage and dissolution. The relationship can, thus, be interpreted as an indication of the importance of age and maturity in marital success. For every marital interval, the older the woman was at the beginning of the interval the less likely she was to experience dissolution. More mature women are less likely to experience dissolution during any given interval than less mature women. It is also important to realize that the relationship between age and dissolution is constant over time. Age and maturity seems to be about as important in the later years as it is in the early years of marriage. There is no interaction effect between time and age (see Table 10). The popular notion that age and maturity are important ingredients of marital stability is supported by the results obtained.

In the previous section we found the relationship between religion and marital dissolution was weak. In addition, it was observed that there appeared to be no important interaction effect between race and religion. The relationship between religion and dissolution was found to be about the same for both races. From Table 11 we see that although there are some fluctuations, the bivariate patterns observed earlier generally hold. Fundamentalists and Baptists in most intervals have the highest dissolution rates. Catholics have rates that are very similar to the women classified in the "other" category.

Most of the research into the relationship between religion and marital dissolution has focused on the

non-Catholic-Catholic dimension (see Chapter 1). The general finding of those studies has been that Catholics have lower dissolution incidence. In this analysis the non-Catholic group has been divided into 2 subgroups, Fundamentalists and Baptists together, and all others. While this classification system is very crude, it allows 1 important result to emerge. The important difference is between Fundamentalists and Baptists and all other women rather than between Catholics and all others. Catholics have very similar dissolution rates to the "other" group of women. The results suggest it is Fundamentalists and Baptists that have abnormally high rates of dissolution rather than Catholics having below normal rates. When Catholics are compared to the group of women classified as "other" (non-Catholic, non-Fundamentalist, non-Baptist), no differences are found. However, both Catholics and "other" women have less incidence of marital dissolution than Fundamentalist and Baptist women.

The results of this analysis suggest that the official Catholic attitude toward marital disruption and divorce has only minor influence on actual dissolution rates. When the analysis controls for race, education, and age at marriage, Catholics have very similar rates to women classified here as "other." The Catholic position may inhibit divorce once a dissolution has occurred (see Chapter 5), but it does not seem to inhibit actual dissolution. The group of women with the "different" dissolution rates are

the Fundamentalists and Baptists. These theologically more conservative religions have the highest dissolution rates. More research needs to be carried out to understand the reason for the higher instability of these groups. It may also be necessary to include additional controls such as region to be sure that the correlation found is not a spurious one.

The relationship between education and marital dissolution depends upon the racial group being examined. For nonwhites there appears to be no overall positive or negative relationship between education and dissolution. The odds of experiencing dissolution do not increase or decrease generally with education. The main aspect of the relationship for nonwhites is the higher rates of dissolution for those who start but do not finish high school or college. The women who do not finish college have especially high rates.

For white women, the relationship does not seem to be consistent across marital intervals. During the first interval there appears to be an overall inverse relationship between education and disruption. In addition the school dropouts have slightly higher odds of experiencing dissolution in that interval than other women. For the other intervals, there does not seem to be any consistent relationship. The inverse relationship is not evident, and those not finishing educations which were begun do not have higher odds. The controls for race, age at marriage,

and religion almost completely eliminate the relationship between education and dissolution which was observed when there were no controls (see Table 3).

The results indicate no substantial or important inverse relationship between education and marital dissolution when race, religion, and age at marriage are controlled. Women with higher educational attainment do not have substantially lower disruption experience. This finding confirms those reported by Bumpass and Sweet (Bumpass and Sweet, 1972; Sweet, 1973; and Sweet and Bumpass, 1973). In their analyses of the 1967 Survey of Economic Opportunity and the 1970 National Fertility Study, they found that the relationship between education and dissolution was minor when other variables were controlled using Multiple Classification Analysis. The results of the analysis conducted here and those reported by Sweet and Bumpass do not support the hypothesis that greater socioeconomic position substantially reduces the incidence of dissolution.

The higher odds of experiencing dissolution for those who start but do not finish high school or college is an interesting finding. This result was first reported by Glick (1957) and has been found by others (see Chapter 1). Many investigators have hypothesized that the relationship is produced by some individuals having personality traits or social characteristics that decrease their general persistence level. As Glick (1957) indicates, "it may be

that certain predisposing factors in the social background and psychological orientation of these persons that affect their persistence in education also affect their persistence in marriage." I am not aware of any studies that have investigated or identified these hypothesized factors. A different hypothesis concerning the higher dissolution rates of school dropouts was examined briefly here. This hypothesis concerns the fact that many women probably discontinue their education to marry and this may increase their likelihood of experiencing dissolution. This possibility was evaluated by looking at the interaction effect of age at marriage and education (see previous section). No support was found for this hypothesis.

The results reported in Table 11 suggest that the higher dissolution rates of school dropouts is much more a phenomenon of nonwhites than of whites. It is only among nonwhite women that this aspect is very important. This result was also found by Sweet (1973) in his analysis of the 1967 Survey of Economic Opportunity. The reason for this race-education interaction, however, is not obvious. Further research will need to be done on this topic.

It is possible to summarize the relationships existing between dissolution and the other variables somewhat more concisely by examining the 4 marital intervals together. In Table 10 we investigated the importance of some of the relationships, and in Table 12 the nature of those relationships are summarized. The model summarized there

TABLE 12. Geometric Means of Expected Marital Dissolution Odds Ratios for All Marital Intervals Combined, By Race: 1970

	Whites	Nonwhites
Total	.048	.097
Education:		
Elementary	.051	.064
1-3 High School	.050	.099
4 High School	.040	.089
1-3 College	.057	.159
4+ College	.043	.097
Religion:		
Fundamentalists and Baptists	.057	.116
Catholics	.043	.088
Others	.044	.090
Age at Marriage:		
Less than 18	.098	.147
18-19	.057	.090
20-21	.033	.107
22 and over	.029	.064
Marital Interval:		
0-4 years	.074	.150
4-8 years	.051	.104
8-12 years	.045	.091
12-16 years	.031	.063

contains the direct effects of age at marriage, religion, education, marital interval, and race as well as the interaction effects of age at marriage with race and education with race. The geometric means shown in Table 12 are obtained and interpreted as outlined earlier.

The general outline of the relationships observed in Table 12 are very similar to those in Table 11. The substantive comments made concerning the relationships existing in the 4 individual intervals also apply to the data in Table 12. In addition, however, Table 12 confirms the earlier impression that dissolution rates decrease with marital duration.

It was noted in an earlier section of this chapter that the timing of first birth was not included or controlled because of the need to reduce the number of cells in the tables and because the preliminary analysis showed that the effect of this variable on dissolution was not statistically significant. In addition, conclusions about the other explanatory variables were the same in the preliminary analysis as in the one reported here. A control for the timing of first birth has very little effect on the relationships between the other explanatory variables and marital dissolution. Some results from the preliminary analysis for the first marital interval are shown in Table 13. These results indicate the very small impact a control for first birth has on the results obtained.

TABLE 13. Ratio of Category Means to Grand Mean for the Marital Interval From 0 to 4 Years, With and Without Controls for First Birth Timing: 1970

	Control For 1st Birth (1)	No Control For 1st Birth (2)
Race:		
White	.828	.820
Nonwhite	1.208	1.219
Education:		
Elementary	1.008	.927
1-3 High School	1.297	1.171
4 High School	.815	.865
1-3 College	1.261	1.339
4+ College	.745	.796
Religion:		
Fundamentalist & Baptist	1.266	1.232
Catholics	.837	.863
Others	.943	.941
Age at Marriage:		
Less than 18	1.913	1.918
18-19	1.111	1.111
20-21	.815	.805
22 and over	.578	.584

The preliminary investigation was carried out by analyzing a separate table for each variable. For the particular variable of interest, all variables including first birth timing were dichotomized. First birth timing was dichotomized into the categories of less than 8 months and greater than 7 months. The variable of interest, however, would keep its original number of categories. Then a model including all main effects and excluding all interactions was fit. The expected frequencies from the fit were then summarized by computing the geometric means for the categories of the variable of interest. This process was carried out separately for each variable. The resulting means (actually ratios of category means to grand mean) are shown in column 1 of Table 13. The means are not presented separately by race here because the interaction terms were not included. In column 2 is shown the comparable ratios of geometric means produced by fitting the same "all main effects, no interaction effects" model to the table excluding the first birth variable, but having all categories of the other variables. The original table producing the column 2 data is the same one analyzed in the previous sections. The important point, however, is that the ratio of means shown in column 1 contain a control for first birth while those in column 2 do not.

A comparison of the ratios in Table 13 reveals that the differences are very small. The 2 methods produce almost exactly the same results. The same conclusions were

reached in the analysis of the other marital intervals. The important conclusion is that the results presented earlier are only affected in trivial ways by the inability to include a first birth control. An analysis of the effect of first birth timing on marital dissolution will be carried out in Chapter 3.

Multiple Classification Analysis

This section is an attempt to confirm the earlier findings of this chapter using a different statistical technique. The method utilized is multiple classification analysis (MCA). MCA is a form of dummy variable multiple regression with all independent variables in categorical form. The dependent variable is assumed to be measured on an interval scale. In MCA the dissolution experience of each woman in any given time period is expressed as an additive function of the independent variables. The form of the function is shown in Equation 11.

Equation (11) $$Y_{ijkn} = \overline{Y} + E_i + B_j + A_k + e_{ijkn}$$

where Y_{ijkn} = the respondents dissolution experience.

$\overline{Y}$ = the grand mean of variable Y. In this special case $\overline{Y}$ is the proportion of all women experiencing dissolution.

E_i = the effect of being in the ith education.

B_j = the effect of being in the jth religion category.

A_k = the effect of being in the kth age at marriage category.

e_{ijkn} = the error term for the nth individual.

Equation 11 expresses each respondent's experience as the sum of the overall level of dissolution ($\bar{Y}$), plus an effect for being in her category of each of the independent variables, plus an error term. Since the contingency table analysis found interactions between race and education and between age at marriage and race, Equation 11 was estimated separately for whites and nonwhites.

The coefficients in Equation 11 are adjusted coefficients. That is, they express the effect of being in a given category of an independent variable net of the effect of the other variables in the equation. The coefficients reflect the deviation of that particular category from the grand mean ($\bar{Y}$). The grand mean for a zero-one dependent variable is the overall proportion for the group. The estimation procedures utilized to obtain the coefficients are described fully elsewhere (for example, see Suits, 1957; and Andrews et al., 1973). Essentially, the estimation procedure produces coefficients that will minimize the sum of the error terms (squared). These coefficients can be obtained either through iterative procedures or by the solution of the normal equations of regression.

One attractive quality of MCA coefficients is that they can be utilized to obtain predicted values for the

categories of the variables. The predicted value or mean is merely the sum of the overall mean and the coefficient for that category. This value is often referred to as an adjusted mean (or in this analysis, proportion).

MCA requires all of the assumptions of regression analysis. Unfortunately, the dependent variable in this analysis is a dichotomy and this causes difficulties (see Goldberger, 1964; and Nerlove and Press, 1973 for a discussion of this issue). The first problem lies in the fact that the assumption of heteroscedasticity is violated whenever this kind of variable is utilized. The second problem is that a dichotomy's values lie between zero and one. A linear fit to such a variable will usually provide some expected values outside the allowable range. As Goodman (1973) explains these problems are especially serious when the proportion of respondents reporting one value of the dichotomy is outside the range .25 to .75. It will be recalled from the earlier analysis that the proportion experiencing dissolution in a given time period is always less than .25. Since these problems are serious for the variables being examined here, MCA is not utilized extensively in this chapter (or the next). The analysis will, however, provide an independent confirmation of the earlier results.

Table 14 provides the adjusted means or proportions of the various subgroups experiencing dissolution for each of the marital intervals. The pattern of adjusted

TABLE 14. Proportion of Women Experiencing Marital Dissolution From Discord, Adjusted By MCA, By Education, Religion, Age at Marriage, Race, and Marital Interval: 1970

	White				Nonwhite			
	Marital Interval				Marital Interval			
	0-4	4-8	8-12	12-16	0-4	4-8	8-12	12-16
Education:								
Elementary	.076	.042	.068	.066	.116	.063	.075	.044
1-3 High School	.098	.037	.058	.026	.137	.146	.121	.046
4 High School	.066	.052	.034	.023	.131	.123	.098	.066
1-3 College	.093	.063	.040	.048	.193	.177	.199	.122
4 + College	.069	.053	.039	.054	.124	.071	.107	.296
Religion:								
Fundamentalists & Baptists	.093	.059	.061	.028	.143	.122	.129	.069
Catholics	.067	.053	.035	.028	.116	.138	.047	.057
Others	.071	.043	.037	.039	.129	.110	.089	.069
Age at Marriage:								
Less than 18	.140	.089	.065	.050	.168	.159	.148	.082
18-19	.078	.056	.043	.032	.117	.083	.107	.071
20-21	.048	.025	.029	.033	.141	.138	.081	.042
22 and Over	.038	.026	.037	.016	.095	.073	.045	.042

proportions in Table 14 is very much like that of the pattern pattern of odds ratios in Table 11. The same conclusions reached with the data of Table 11 (and 12) would also be reached with the data in Table 14. This indicates that the conclusions reached earlier are not dependent upon the statistical procedures used.

Summary

In this chapter the marital dissolution experience of women interviewed in the 1970 National Fertility Study was explored. The chapter has investigated both the incidence and distribution of dissolution among these women. It was found that dissolution is quite widespread. At the dissolution rates observed, over 21 percent of the white women and over 45 percent of the nonwhite women would experience a marital dissolution before 16 years had elapsed after their marriages. The bulk (over 85 percent) of these dissolutions were produced by marital discord rather than widowhood.

The chapter has analyzed the distribution of discord produced disruptions in the sample utilizing multivariate techniques. The importance of race and age at marriage has been reconfirmed. Nonwhite women and those who marry young have higher dissolution rates than white women and those who marry when they are older. Religion was found to be moderately related to marital instability. Fundamentalists and Baptists have somewhat higher dissolution rates than

women in other groups. The relationship between education and dissolution was also studied. We found that this relationship depends upon race. When controls are applied, there appears to be no important or consistent education differential for whites. For nonwhites there is, however, a consistent relationship. The nonwhite women who fail to complete an education they start, have higher dissolution rates than other women.

The relationships between the explanatory variables and dissolution were examined for 4 different marital intervals. While the relationships were not constant for all intervals, the results indicate that the differences were not large. The hypothesis that some of the effects of the independent variables interact with marital interval was rejected. The relationships observed appear to persist over the life cycle.

CHAPTER 3

MARITAL DISSOLUTION DIFFERENTIALS BY FERTILITY PATTERNS

Theoretical Model

In this chapter the emphasis will shift from a general analysis of marital dissolution differentials to an investigation of the impact of childbearing patterns on dissolution. An extensive amount of literature exists suggesting that childbearing patterns have an important influence on dissolution. In Chapter 1 much of this literature was reviewed. Many researchers have found that women experiencing dissolution have fewer children at the time of disruption than other women. Several hypotheses have been advanced to explain that differential. Those hypotheses are summarized in Figure 5. It should be noted that because of data limitations the figure is presented only for heuristic purposes rather than as a model that permits effects to be estimated.

Figure 5 shows the causal influences (depicted as arrows) that have been suggested as being important in producing the negative correlation between fertility and the likelihood of experiencing dissolution. In Chapter 1 we saw that children are hypothesized to have an indirect

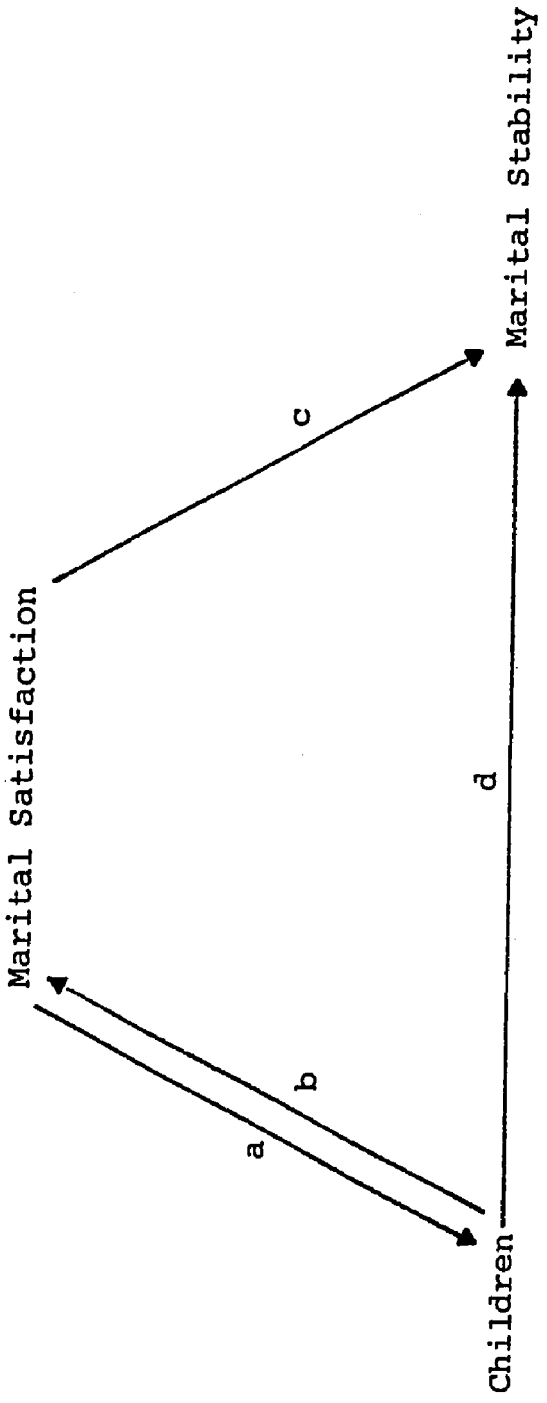


FIGURE 5. Theoretical Framework or Model of Marital Stability

impact upon stability by influencing ("b") marital satisfaction which, in turn affects ("c") stability. The usual argument is that children increase satisfaction. But, as we saw in Chapter 1, there is theory and data existing to suggest that children may decrease satisfaction. Children may introduce stress and conflict into the marriage. The negative impact of children upon marital satisfaction is hypothesized to be greatest when the children are born very early in the marriage.

The model shown in Figure 5 also shows marital satisfaction affecting the number of children in a family (effect "a"). The hypothesis is that marital unhappiness and conflict decrease childbearing. Couples who are unhappy together are probably less likely to want more children added to the family. These couples will also probably have less exposure to pregnancy because of reduced intercourse. It is likely that these factors result in unhappy couples having fewer children before separation. If so, this could account for much of the negative relationship observed between the number of children and the likelihood of dissolution.

Figure 5 suggests one direct effect ("d") of family size upon marital stability. This effect is hypothesized to influence stability independent of marital satisfaction. The mechanism suggested is that the presence of children in a family delays the break up of couples who are unhappy. This is hypothesized to operate in 1 of 3 ways. Parents

who are experiencing marital conflict may be held together because they have strong ties to the children, or they may fear dissolution will have a damaging impact upon the children, or the increased economic burden of children following dissolution will inhibit separation. It should be noted that the hypothesis suggests that children only delay the disruption. After the children are grown and become at least somewhat independent, the parents are free to separate. While this mechanism may, in the long run, prevent some marriages from disrupting, its primary result is usually seen as merely delaying dissolutions.

Unfortunately, the National Fertility Studies do not include information concerning marital satisfaction. For this reason it will not be possible to estimate the effects hypothesized in the theoretical framework outlined in Figure 5. For example, the estimation of coefficients in a structural equations model is not possible. The model was presented only to improve our understanding of the basic processes that have been hypothesized. In addition, it will be of value in devising strategies for evaluating some of the specific hypotheses.

While the data are not sufficient to investigate the causal mechanisms of the model thoroughly, they permit the overall relationship between childbearing and dissolution to be examined in more appropriate ways than have been undertaken before. The nature of that relationship will be explored in Chapters 3 and 4. In Chapter 3 the issue will

be investigated by comparing the dissolution experiences of women with different childbearing patterns. The fertility behavior of women prior to the beginning of an interval will be related to dissolution experience during the interval. In Chapter 4 the same relationship will be explored from a different perspective. There the fertility behavior of women experiencing dissolution will be compared with the behavior of those in stable first marriages. The cumulative fertility of the 2 groups at the time of dissolution will be compared. It will also be useful to compare the fertility of the 2 groups during the period of time just before separation. This comparison will enable us to "tease out" some interesting results concerning 1 of the causal mechanisms shown in Figure 5. That is the mechanism hypothesizing an influence of marital satisfaction on fertility (influence "a"). This analysis will also be carried out in Chapter 4.

One other causal mechanism of Figure 5 could have been explored if the data source used had included older women. That mechanism is the one suggesting that children postpone the dissolution of unhappy marriages (influence "d"). The postponement part of the hypothesis is that children bind unhappy couples together only as long as the children are relatively young. After children mature, and especially when they leave home, they no longer hold marriages together. The couple is then free to end the unhappy marriage. If the hypothesis is correct, dissolution

rates should increase as children mature and leave home. The general decrease in dissolution rates with marital duration (observed in Chapter 2) should be stopped or even reversed at the time children leave. In addition, if the hypothesis is correct, couples having only older children should have higher dissolution rates than those with younger children (controlling, of course, for other important variables such as marital duration). If the 1970 National Fertility Study had collected data for older women (who would have older children), this possibility could have been explored. It may be possible to examine this question using either the 1967 Survey of Economic Opportunity or the June 1971 Current Population Survey; both of these sources include older women. In fact, some data from the 1967 Survey of Economic Opportunity reported by the U.S. Bureau of the Census (1971) seem to support this hypothesis. Those data suggest that couples having only older children have higher dissolution rates than couples who have young children even when marital duration is held constant. However, these results are neither consistent nor conclusive. Additional analysis of these data is required. It should also be noted that these data provide only indirect evidence on the matter. The resolution of the issue requires that marital satisfaction and fertility be measured and their impact on instability investigated using a model similar to the one shown in Figure 5. In any event, it will not be possible to explore this hypothesis in the current study.

Two major aspects of childbearing will be investigated in this chapter. The first will be the timing of the woman's first birth. One of the findings reported in the literature (see Chapter 1) is the higher incidence of dissolution among those having their first child before marriage or being pregnant at marriage. Premarital pregnancy is seen as increasing dissolution incidence through several mechanisms. One hypothesis is that marriages contracted following pregnancy are undertaken with less care than other marriages. These couples are seen as having weaker ties than other couples. Thus, they are more likely to experience dissolution when faced with the usual marital stresses. Another possibility is that premarital pregnancy results in children being born very soon after marriage, and the couple is forced to adjust to the presence of an infant in the home before they completely make the adjustments to marriage itself. These multiple adjustments and pressures may hinder the couple in their attempts to establish the relationships necessary to avoid discord and separation. Finally, as Freedman and Coombs (1966) point out, couples who have a child immediately after marriage experience greater economic pressure. These economic pressures may be translated into marital pressures.

The 1970 National Fertility Study provides an opportunity to re-evaluate the effect of first birth timing on marital dissolution utilizing multivariate techniques. The likelihood of experiencing a dissolution during each of the

4 marital intervals (0-4, 4-8, 8-12, and 12-16 years) following marriage will be examined. For the first marital interval (0-4 years) the timing of first birth is divided into 4 categories: before marriage, 0-7 months after marriage, 8-11 months after marriage, and more than 12 months after marriage or no children. For the other 3 intervals, the variable will be dichotomized. Women with first birth before the eighth month of marriage are classified as premaritally pregnant; other women as not premaritally pregnant. The differential experience of these groups will be analyzed.

The second major aspect of fertility analyzed will be the cumulative number of children ever born at the beginning of the marital interval of interest. The relationship between the number of children at the beginning of a period and dissolution experience during the period will be examined. This kind of analysis will enable the nature and magnitude of the relationship to be studied. As mentioned earlier, however, it will not allow us to specifically investigate the structural hypotheses of Figure 5.

The relationship between cumulative fertility and dissolution will be investigated for 3 marital intervals. These will be the intervals from 4-8, 8-12, and 12-16 years following marriage. For each interval the number of children ever born at the beginning of the interval is measured. Since cumulative fertility is measured at

intervals fairly early in the marriage, it includes both the number and timing elements of childbearing.

In all of the analyses in this chapter marital dissolution is operationalized and measured in the same way as in Chapter 2. However, in this chapter, disruptions will be limited to those caused by discord. As in Chapter 2 the focus will be upon net rates; that is, there will be no adjustment made to take into account the fact that some women who experience dissolution from death would have experienced it from discord if death had not occurred. For each time period the analysis will be limited to those women who are observed for the entire period in question.

The Effect of First Birth Timing

The analysis will begin by examining the impact of the timing of first birth on marital dissolution. Table 15 shows the bivariate relationship between first birth and dissolution. The table shows the proportion of the women in each first birth timing category (by race) experiencing dissolution from discord during each interval. The proportions or probabilities are obtained from Equation 8 (Chapter 2). Included in Table 15 are the probabilities of experiencing dissolution from discord by 16 years (Q_{16}) under the assumption that there is no death in the population. These latter probabilities (Q_{16}) are obtained utilizing the decrement table procedures described in Chapter 2.

TABLE 15. Probability of Experiencing Marital Dissolution from Discord By Marital Interval, Race, and Timing of First Birth: 1970

Timing Of First Birth	Marital Interval (in Years) 0-4 $_4q_x$	n	4-8 $_4q_x$	n	8-12 $_4q_x$	n	12-16 $_4q_x$	n	Q_{16}*
White									
<0 Months	.131	122							
1-7 Months	.095	463							
8-11 Months	.075	901							
12+ Months	.072	2905							
≤7 Months	.103	585	.062	355	.072	236	.035	142	.247
8+ Months	.073	3806	.048	2797	.040	1964	.034	1275	.181
Nonwhite									
<0 Months	.132	242							
1-7 Months	.149	188							
8-11 Months	.127	158							
12+ Months	.138	458							
≤7 Months	.140	430	.133	285	.114	175	.050	101	.372
8+ Months	.135	616	.113	442	.107	309	.077	196	.368

*Q_{16} is the probability of experiencing dissolution within 16 years of marriage. This measure is obtained from marital dissolution decrement tables.

From Table 15 we see that the bivariate relationship depends upon race. Whites appear to have a substantial and consistent relationship. For the interval from marriage to 4 years, women who have a premarital birth have the highest dissolution rate. They are followed by the women who are pregnant at the time of marriage. There is virtually no difference between the 2 groups whose first birth occurred after the seventh month. For the last 3 marital intervals the categories of first birth timing have been collapsed to 2 so that the number of observations will be adequate. For all 3 intervals the rates for white women having their first birth before marriage or being pregnant at marriage is higher than for other white women. A good summary measure of these probabilities is Q_{16}, the probability of experiencing a dissolution by the sixteenth year of marriage. Almost 25 percent of those having their first birth before the eighth month have experienced dissolution by year 16. This percentage is about 18 for women with no births or with first birth occurring after the seventh month.

For nonwhites there appears to be no consistent relationship between first birth timing and the incidence of marital dissolution. The summary measure (Q_{16}) shows that 37.2 percent of the women having a birth before 8 months experience dissolution by year 16. For all other women the percentage is 36.8, or almost the same. From Table 15 it seems the relationship between first birth

timing and dissolution is extremely limited for this sample of nonwhite women.

It is important to investigate the relationship between first birth timing and marital dissolution controlling for other important variables. The multivariate contingency table techniques described and utilized in Chapter 2 will be employed here. In Chapter 2 five-way contingency tables composed of the cross classification of race, education, religion, age at marriage, and marital dissolution were studied. In the current analysis the timing of first birth is included with the other 5 variables to form six-way tables. However, education, religion, and age at marriage have been dichotomized to decrease the size of the tables. This reduces the empty cell problem discussed in Chapter 2. As in Chapter 2, a separate table is analyzed for each interval.

Our first analysis will focus on the marital interval from marriage to 4 years. During that interval the 4 categories of first birth timing were utilized. Table 16 reports the results of the model fitting and testing procedure for this interval. The "all main effects" model contains the direct effects of each explanatory variable on dissolution as well as fitting the relationships between the explanatory variables (see Chapter 2 for further explanation of the procedure). The other models either subtract or add 1 effect to the "all main effects" model. From Table 16 it can be seen that Model 1 fitting all main

TABLE 16. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval From 0 To 4 Years Following First Marriage: 1970

		Model Statistics			Difference Statistics			Partial Coefficients	
Model	Model Effects*	X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{ED},{FD},{RD}	61.01	56	.3-.5					
H_2	{AD},{BD},{ED},{RD}	62.28	59	.3-.5	1.27	3	>.5	.02	-.03
H_3	{AD},{BD},{ED},{RFD}	57.03	53	.3-.5	3.98	3	.2-.3	.07	.01
H_4	{AD},{BD},{RD},{EFD}	53.44	53	.3-.5	7.57	3	.05-.1	.12	.07
H_5	{AD},{ED},{RD},{BDF}	56.44	53	.3-.5	4.57	3	.2-.3	.07	.02
H_6	{BD},{ED},{RD},{AFD}	59.71	53	.2-.3	1.30	3	>.5	.02	-.03

*All models also fit {ABEFR} as described in text (Chapter 2).

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, F = First Birth Timing, R = Race.

All variables except first birth timing are dichotomized.

Number of observations = 5437.

effects and none of the interaction effects fits the data fairly well. The second model was fit excluding the effect of first birth timing on marital dissolution. From columns 4 to 6 of row 2 we see that the exclusion of the first birth main effect from the model increases X^2 only slightly. The contribution of first birth to the reduction of X^2 is slight, and certainly not large enough to be statistically significant. When degrees of freedom are adjusted, the r^2 measure of association becomes negative. The conclusion from this analysis is that the effect of first birth on marital dissolution during the first interval is not large when other variables are controlled.

While the statistics presented in row 2 of Table 16 indicate that the relationship between first birth timing and dissolution is not important for the sample as a whole, it is possible that it is substantial for some of the subgroups defined by race, education, religion, or age at marriage. This possibility can be investigated by testing whether or not first birth timing and race, education, religion, or age at marriage interact in influencing marital dissolution. The results are shown in rows 3 through 6 of Table 16. There, models containing all of the main effects plus one of the interaction effects have been fitted and tested. In addition, each of the interaction effects have been tested individually (columns 4 through 6). The chi square significance tests reveal that none of the interaction effects are large enough to preclude the

possibility that they were produced by sampling variability. This indicates that the relationship between first birth timing and dissolution is probably not important for any of the subgroups defined by race, education, religion, and age at marriage.

The relationship that does exist between first birth timing and dissolution is summarized in Table 17. There the average (geometric mean) odds of experiencing dissolution during the interval from marriage to 4 years after marriage are presented for each category of first birth timing. The means are presented for the entire sample rather than by race since the race-first birth timing interaction effect on dissolution is not large. The expected values utilized to compute the means are taken from Model 1 of Table 16 where the effects of race, education, religion, and age at marriage are controlled. The results shown in Table 17 indicate that both groups of women giving birth to a child before 8 months of marriage have higher mean odds of experiencing dissolution than other women. The differences, however, are not very large. They are certainly much smaller than the racial or age at marriage differences shown in Chapter 2 (see Table 11).

The relationship between timing of first birth and marital dissolution was also examined during all 4 marital intervals with first birth timing dichotomized. All women with a birth occurring prior to the eighth month of marriage were placed in 1 category of the dichotomy while all others

were placed in a second category. For this analysis, the control variables race, education, religion, and age at marriage were also dichotomized. In this analysis only 2 multivariate models were fit for each interval. These were the models with all main effects and all main effects except first birth timing no attempt was made to investigate interaction effects between first birth timing and the other variables since none were found in the more extensive analysis of the first marital interval. The results of the model fitting and the evaluation of the influence of first birth timing are shown in Table 18. The results of that analysis are consistently negative. In none of the intervals was the effect of the timing of first birth even marginally statistically significant. During no interval was the adjusted r^2 greater than zero. The results consistently suggest that the importance of the timing of first birth is not large.

TABLE 17. Geometric Means of Expected Marital Dissolution Odds Ratios for the Marital Interval From 0 to 4 years, by Timing of First Birth: 1970

Timing of First Birth	
< 0 months	.119
0-7 months	.108
8-11 months	.098
12 or more months	.099

TABLE 18. Contingency Table Analysis of Discord Produced Marital Dissolution During Each of the Four Marital Intervals: 1970

Model	Model Effects*	Model Statistics X^2 (1)	df (2)	p (3)	Difference Statistics X^2 (4)	df (5)	p (6)	Partial Coefficients r^2 (7)	r^{2**} (8)
Interval From 0 to 4 Years									
H_1	{AD},{BD},{ED},{FD},{RD}	34.80	26	.1-.2					
H_2	{AD},{BD},{ED},{RD}	35.88	27	.1-.2	1.08	1	.2-.3	.03	-.01
Interval From 4 to 8 Years									
H_1	{AD},{BD},{ED},{FD},{RD}	37.95	26	.05-.1					
H_2	{AD},{BD},{ED},{RD}	38.87	27	.05-.1	.92	1	.3-.5	.02	-.01
Interval From 8 to 12 Years									
H_1	{AD},{BD},{ED},{FD},{RD}	29.71	26	.2-.3					
H_2	{AD},{BD},{ED},{RD}	30.96	27	.2-.3	1.25	1	.2-.3	.04	.00
Interval From 12 to 16 Years									
H_1	{AD},{BD},{ED},{FD},{RD}	26.94	26	.3-.5					
H_2	{AD},{BD},{ED},{RD}	27.31	27	.3-.5	.37	1	> .5	.01	-.02

*All models also fit {ABEFR} as described in text (Chapter 2).

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, D = Dissolution, E = Education, F = First Birth Timing, R = Race.
All Variables Dichotomized.

While the timing of first birth appears to produce no substantial effect on dissolution and while the effect is not statistically significant, it is still worthwhile comparing the means of the odds of experiencing disruption for the 2 first birth groups. These means were computed for the whole sample utilizing the expected values from the "all main effects model" (H_1 of Table 18). The resulting means which have been computed controlling for race, education, religion, and age at marriage are shown in Table 19. Table 19 shows that for the first 3 marital intervals, the women with early first births have greater incidence of dissolution. However, again the differences are not very large. In the last interval we find the relationship is reversed; during that interval the average odds are greatest for those with first birth coming more than 7 months after marriage.

TABLE 19. Geometric Means of Expected Marital Dissolution Odds Ratios for Each Marital Interval by Timing of First Birth: 1970

Timing of First Birth	Marital Interval (in years)			
	0-4	4-8	8-12	12-16
$\leq$ 7 months	.112	.085	.080	.040
8+ months	.099	.072	.063	.050

How do the results of this analysis compare with earlier studies of the relationship between first birth

timing and marital dissolution? In Chapter 1 it was noted that other studies report a substantial relationship between first birth timing and marital dissolution. Christensen, and his colleagues (see for example, Christensen and Meissner, 1953; Christensen, 1963a, and 1963b) have studied the relationship extensively in several areas utilizing vital statistics data. They studied marriages occurring in Tippecanoe County, Indiana between 1919 and 1941, Utah and Salt Lake Counties in Utah between 1949 and 1951, and in Copenhagen, Denmark during 1938. In all 3 areas the investigators examined subsequent birth and divorce certificates in the areas to ascertain the birth and marital histories of the couples involved. In all areas the observed incidence of divorce was higher for couples with premaritally conceived births than for other couples. For the American women the rates for the premaritally pregnant were from 2 to 3 times higher than the overall or average rates (see Christensen, 1963b). In the Indiana study the wife's age at marriage, age differences between the mates, place of residence, type of occupation, type of wedding, and number of times married were controlled. Even with these variables controlled, the couples with premarital conceptions experienced twice as much divorce as other couples (Christensen and Meissner, 1953). Coombs and Zumeta (1970) also studied this relationship with a sample of white couples in Detroit. They sampled couples marrying or having a first, second, or fourth child in the Detroit

metropolitan area in July, 1961. From registration data the investigators were able to estimate whether or not the first birth of the couple was premaritally conceived or not. The couple was interviewed several times over the next 5 years which allowed the researchers to ascertain whether or not the marriage was disrupted. Coombs and Zumeta found that the couples experiencing dissolution during the period were about twice as likely to have had a premarital conception than other couples. The relationship could not be examined employing multivariate techniques inasmuch as the sample of marital disruptions was small.

It is clear that the results obtained in the current study indicate a weaker relationship between marital dissolution and first birth timing than those of the other studies discussed. Without controls, we found that for nonwhites the probability of experiencing dissolution during the first 3 marital intervals was only from 4 to 18 percent higher for women having a birth before the eighth month of marriage than it was for others (see Table 15). During the last interval the probability for women with a birth prior to 8 months was actually lower than for other women. For white women, the probability of experiencing a dissolution during the first 3 intervals ranged from 29 to 80 percent higher for those with first births occurring before the eighth month than it was for others. During the final interval the probability for women with births before 8 months was only 3 percent higher. These differentials are

substantially lower than those found by other investigators. As discussed in the preceding paragraph, the other studies have typically found that the couples with early conception had dissolution rates at least 100 percent higher than those of other women.

The results of our multivariate analysis indicated that the racial difference in the relationship between first birth timing and dissolution was not statistically significant or important (Table 16) and the two racial groups could be studied together. The multivariate analysis, controlling for race, education, religion, and age at marriage, revealed that during the first 3 marital intervals the women with first births occurring prior to 8 months of first marriage had average dissolution odds ratios that ranged from 13 to 27 percent higher than the averages of other women (see Table 19). In the last interval the average odds ratios for these women were actually lower than the average ratios for others. The multivariate analysis suggests much smaller differences than were obtained by Christensen and Meissner (1953) in their multivariate analysis of Indiana marriages.

It is not possible to determine why this analysis found a substantially weaker relationship between first birth timing and marital dissolution than the earlier investigations. Some speculation about possible causes may, however, be useful. One possibility is that premarital sex and pregnancy is becoming more accepted in America. As Christensen (1960) points out, the stronger the norms are against premarital sex and pregnancy, the more the violation of

those norms will increase marital dissolution. If the norms have become weaker in America, it would seem likely that the relationship between first birth timing and dissolution would not be as large in the 1970 data as it was in Christensen's Indiana data which reflected an earlier period. The 1970 relationship should also be smaller than the one Christensen observed in the Utah data during the 1950s. A second possibility is that changing attitudes toward abortion could cause the relationship to be weaker in the data analyzed here than in earlier studies. If abortion is more acceptable now than it used to be, more women who become pregnant out of wedlock may resort to abortion rather than become involved in an unacceptable marriage. This avenue may prevent many "high risk" marriages from being contracted and thus reduce the overall relationship observed.

There are several methodological differences between this study and the earlier ones that could produce the results observed. One important difference is the marital and childbearing histories utilized in this study were obtained from the reports of the wives involved while the other studies used registration data. Presumably, the procedure utilized in this study is less accurate since it is subject to recall error and the actual manipulation of birth or marriage dates to "hide" premarital conceptions. The investigators in the Detroit study (see Coombs et al., 1970) found the number of women that were estimated to be premaritally pregnant was 25 percent larger if registration

material was employed than if data reported by the respondents were used. This result suggests that some women classified in the current study as having their first birth after 7 months may indeed have actually had the birth earlier. This methodological difficulty could produce a smaller estimate of the relationship between first birth timing and marital dissolution than really exists in the population. The studies carried out by Christensen and his associates and the Detroit study also have methodological difficulties that could bias results. All the earlier studies used specialized samples of marriages from limited geographical areas. In addition, the Detroit study only followed the women for 5 years. For this reason only a small number of dissolutions was observed and sampling error could be quite large. Christensen's studies were only able to analyze divorces and births occurring in the geographical area where the marriages occurred. The childbearing and divorce histories of mobile couples could not be ascertained. While it is not clear how the methodological difficulties faced by the earlier studies would bias estimates of the relationship between the timing of first birth and dissolution, the possibility that they could do so must be retained.

In summary, the 1970 National Fertility Study analyzed here suggests that the relationship between the timing of first birth and marital dissolution is not large when other variables are controlled. Women with premarital births or conceptions appear to have higher dissolution

rates, but these differences are not large enough to eliminate the possibility that they were produced by sampling variability. In addition, the inclusion of the first birth variable in a multivariate model does not reduce the chi square measure when degrees of freedom are considered; none of the adjusted coefficients of determination (r^2) for this variable are greater than zero. Contrary to expectations, the relationship between the timing of first birth and marital dissolution is not very important in these data.

The Effects of Cumulative Fertility

In this section of the chapter the overall relationship between cumulative fertility at the beginning of an interval and marital dissolution during the period will be investigated. The relationship will be examined only for the intervals from 4-8, 8-12, and 12-16 years following marriage. The interval from marriage to year 4 will not be analyzed inasmuch as cumulative fertility measured at the beginning of the interval (marriage) would include only premarital fertility, and the impact of premarital childbearing on stability was examined in the previous section.

I had anticipated carrying out this part of the analysis excluding women with premarital fertility experience. This was thought necessary since the literature had placed so much stress on the importance of premarital fertility. By removing these women, the analysis would be

completely limited to the effects of postmarital childbearing. This path was followed in much of the preliminary analysis. However, when it became apparent (as reported in the previous section) that the timing of first birth was only of limited importance, I decided to utilize data for all women. This decision was made to maximize the number of observations available for analysis. So, the analysis reported will include all women observed throughout the period in question. No controls will be employed for the timing of first birth. It should be emphasized that the findings are not seriously affected by the inclusion of women with premarital fertility. The results of the preliminary analysis (excluding women with premarital fertility) are very similar to those reported here (where all women are analyzed).

Table 20 shows the bivariate relationship between cumulative fertility at the beginning of an interval and the incidence of dissolution during the interval. The table shows the proportion (or probability) of the women in each fertility category (by race) experiencing dissolution from discord during each interval. The proportions are obtained from Equation 8 of Chapter 2. Included in Table 20 are Q'_{16} values. These values (Q'_{16}) indicate the probability of experiencing dissolution from the fourth to the sixteenth year given the interval rates shown and assuming no death. This measure, which is obtained through the decrement table

TABLE 20. Probability of Experiencing Marital Dissolution from Discord, By Marital Interval, Race, and Cumulative Fertility at the Beginning of the Interval: 1970

Number of Children	4-8		8-12		12-16		
	$_4q_x$	n	$_4q_x$	n	$_4q_x$	n	Q'_{16}*
White							
Zero	.071	494	.072	167	.043	69	.175
Small	.046	1269	.040	1111	.029	548	.111
Medium	.043	1099	.041	809	.031	622	.110
Large	.055	290	.053	113	.056	178	.155
Nonwhite							
Zero	.134	97	.088	34	.125	16	.309
Small	.094	171	.096	157	.045	66	.218
Medium	.121	265	.114	185	.061	98	.269
Large	.139	194	.130	108	.077	117	.309

*Q'_{16} refers to the probability of experiencing dissolution during the period from 4 to 16 years. The measure is obtained through decrement table procedures.

procedures described in Chapter 2, provides an overall summary indicator of differential dissolution incidence.

The nature of the fertility or family size classifications should be kept clearly in mind. While the category titles are the same for each interval, the components of those categories vary. For all intervals the category "0" includes couples with no children at the beginning of the interval. For the 4-8 year marital interval, small, medium, and large refer to women with 1, 2, and 3 or more children respectively. For the 8-12 and 12-16 year intervals, small, medium, and large refer to 1-2, 3-4, and 5 or more children respectively. These differences in classification were necessitated by the dynamic nature of childbearing. There is also no assumption that any woman observed for several intervals will always be in the same family size category. In fact, there certainly must be a large amount of shifting from one category to another across intervals.

Table 20 reveals that the bivariate relationship between cumulative number of children and dissolution is not a simple linear one. The relationship between parity and dissolution is not monotonic for either race during any of the intervals. Instead, for both races, the relationship appears to be U shaped. Women with no children or with relatively large families are the ones most likely to experience dissolution. For both races the women with small or medium families are the least likely to experience disruption. These conclusions hold during all intervals.

The only possible exception is the low probability for nonwhite women with no children during the 8-12 year period. The conclusions are, of course, also supported by the summary measure, Q'_{16}.

Students of fertility know that childbearing is related to the variables analyzed in Chapter 2. For this reason it is important to control these variables so the relationship between fertility and dissolution can be better evaluated. The multivariate contingency table procedures described in Chapter 2 will be utilized here. For each interval the race by education by religion by age at marriage by cumulative fertility by dissolution contingency table will be analyzed. All the variables in the analysis except for fertility have been dichotomized to limit the number of cells. Table 21 reports the results of the model fitting and testing procedures for the 4-8 year interval; Tables 22 and 23 report the same information for the 8-12 and 12-16 year intervals.

From Table 21 we see that family size has a statistically significant impact upon dissolution during the 4-8 year interval. The impact is large enough to produce an adjusted r^2 of .09. However, in the other intervals the effect is not statistically significant, and the adjusted r^2s are much smaller but still positive. This analysis suggests that for at least 1 interval fertility does have an impact.

TABLE 21. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval from 4 To 8 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{CD},{ED},{RD}	55.87	56	.3-.5					
H_2	{AD},{BD},{ED},{RD}	64.76	59	.2-.3	8.89	3	.02-.05	.14	.09
H_3	{AD},{BD},{ED},{RCD}	54.57	53	.3-.5	1.30	3	>.5	.02	-.03
H_4	{AD},{BD},{RD},{ECD}	51.78	53	>.5	4.09	3	.2-.3	.07	.02
H_5	{AD},{ED},{RD},{BCD}	54.86	53	.3-.5	1.01	3	>.5	.02	-.04
H_6	{BD},{ED},{RD},{ACD}	52.01	53	>.5	3.86	3	.2-.3	.07	.02

*All models also fit {ABCER} as described in text (Chapter 2).

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, C = Cumulative Fertility, D = Dissolution, E = Education, R = Race.

Number of observations = 3879.

All variables except cumulative fertility dichotomized.

TABLE 22. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval from 8 To 12 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{CD},{ED},{RD}	60.51	56	.3-.5					
H_2	{AD},{BD},{ED},{RD}	64.33	59	.2-.3	3.82	3	.2-.3	.06	.01
H_3	{AD},{BD},{ED},{RCD}	58.64	53	.2-.3	1.87	3	>.5	.03	-.02
H_4	{AD},{BD},{RD},{ECD}	52.97	53	.3-.5	7.54	3	.05-.1	.12	.08
H_5	{AD},{ED},{RD},{BCD}	56.07	53	.3-.5	4.44	3	.2-.3	.07	.02
H_6	{BD},{ED},{RD},{ACD}	58.64	53	.2-.3	1.87	3	>.5	.03	-.02

*All models also fit {ABCER} as described in text (Chapter 2).

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, C = Cumulative Fertility, D = Dissolution, E = Education, R = Race.

Number of observations = 2684.

All variables except cumulative fertility dichotomized.

TABLE 23. Contingency Table Analysis of Discord Produced Marital Dissolution During the Interval From 12 To 16 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics			Difference Statistics			Partial Coefficients	
		X^2 (1)	df (2)	p (3)	X^2 (4)	df (5)	p (6)	r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{CD},{ED},{RD}	44.09	56	>.5					
H_2	{AD},{BD},{ED},{RD}	48.01	59	>.5	3.92	3	.2-.3	.08	.03
H_3	{AD},{BD},{ED},{RCD}	43.44	53	>.5	.65	3	>.5	.01	-.04
H_4	{AD},{BD},{RD},{ECD}	40.56	53	>.5	3.53	3	.3-.5	.08	.03
H_5	{AD},{ED},{RD},{BCD}	42.46	53	>.5	1.63	3	>.5	.04	-.02
H_6	{AD},{ED},{RD},{ACD}	43.85	53	>.5	.24	3	>.5	.01	-.05

*All models also fit {ABCER} as described in text (Chapter 2).

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, C = Cumulative Fertility, D = Dissolution, E = Education, R = Race.

Number of observations = 1714.

All variables except cumulative fertility dichotomized.

The attempt to discover the existence of any variables interacting with fertility in influencing dissolution produced negative results. For all intervals the interactions with fertility were so small that they were not statistically significant. In addition, with the possible exception of the education-fertility interaction, the overall magnitudes of these interaction effects are small. In fact, many of the adjusted coefficients of determination are negative. The data do not indicate that there are important race, education, religion, or age at marriage differences in the relationship observed between cumulative fertility and marital dissolution.

The results of Tables 21 through 23 suggest that the effect of fertility may vary with marital interval. This is indicated by the fact that during the first interval the adjusted r^2 is .09 while in the other intervals it is only .01 and .03. The possibility of an interaction between marital interval and cumulative fertility is tested by combining the data from all 3 intervals into a larger contingency table and utilizing marital interval as a variable. The results of this analysis are reported in Table 24. Combining the data for 3 intervals materially increases the number of observations. This larger table with its increased number of observations produces an effect for fertility which is clearly significant. The adjusted r^2 for this effect is .06. The results of testing the hypothesis that fertility and marital interval interact

TABLE 24. Contingency Table Analysis of Discord Produced Marital Dissolution During the Intervals from 4 To 8, 8 To 12, and 12 To 16 Years Following First Marriage: 1970

Model	Model Effects*	Model Statistics X^2 (1)	df (2)	p (3)	Difference Statistics X^2 (4)	df (5)	p (6)	Partial Coefficients r^2 (7)	r^{2**} (8)
H_1	{AD},{BD},{CD},{ED},{ID},{RD}	174.98	182	>.5					
H_2	{AD},{BD},{ED},{ID},{RD}	190.18	185	.3-.5	15.20	3	.001.01	.09	.06
H_3	{AD},{BD},{ED},{RD},{ICD}	174.62	176	>.5	.36	6	> .5	.00	-.03

*All models also fit {ABCEIR} as described in text (Chapter 2).

**The r^2 values in this column have been adjusted for degrees of freedom.

NOTES: Symbols - A = Age at Marriage, B = Religion, C = Cumulative Fertility, D = Dissolution, E = Education, I = Marital Interval, R = Race.

Number of observations = 8277.

All variables except cumulative fertility dichotomized.

indicate this effect is clearly not significant or large. Whatever the relationship is between fertility and dissolution, it is consistent across marital interval.

The implications of the "main effects" model for each interval and for all intervals combined can be seen by summarizing the expected odds ratios produced by the model. For each fertility category the geometric mean of the expected odds ratios is computed. Since the model does not include any interaction effects, the means are presented for the whole sample rather than by race. The computed means which are estimated controlling for race, education, age at marriage, and religion are shown in Table 25.

TABLE 25. Geometric Means of Expected Marital Dissolution Odds Ratios by Cumulative Fertility and Marital Interval: 1970

Number of Children	Marital Interval (in years) 4-8	8-12	12-16	All Combined
Zero	.111	.112	.073	.096
Small	.066	.061	.037	.055
Medium	.065	.063	.041	.056
Large	.082	.072	.066	.072

The data in Table 25 are interesting and consistent. For every interval, women with no children have the highest odds of experiencing disruption. The next highest odds are for those with large families. The odds for women with "small" families are almost identical with those having

"medium" sized families. The relationship is very much a U shaped one. It is those with middle sized families (between the 2 extremes) who experience the least dissolution. The women at both ends of the fertility continuum have the highest odds.

The results of this analysis suggest that there is a definite relationship between cumulative fertility at the beginning of an interval and dissolution during the interval. Some insights into the magnitude of the relationship can be obtained by comparing the present results with those obtained in Chapter 2 concerning the relationships of education, religion, age at marriage, and race with dissolution. This can be done by comparing the r^2 obtained for cumulative fertility for the 3 marital intervals combined (see Table 24) with those obtained for the other variables with all 4 marital intervals combined (see Table 10). From those comparisons we see that the adjusted r^2 for cumulative fertility (r^2 = .06) is larger than the adjusted r^2 for education and religion (both of these r^2 measures = .03). However, the r^2 for cumulative fertility is smaller than for age at marriage (r^2 = .18) and race (r^2 = .10). The conclusion is that the relationship between cumulative fertility and dissolution is medium or moderate in magnitude. It is larger than the relationships between dissolution and education and between dissolution and religion. On the other hand, it is smaller than the relationships between dissolution and race and between

dissolution and age at marriage. Similar conclusions can be obtained by comparing the marital dissolution odds ratios for the cumulative fertility groups (see Table 25) with the odds ratios obtained for the race, education, religion, and age at marriage groups studied earlier (see Table 12). There we see that the differences among the fertility groups appear to be smaller than the differences among the racial or age at marriage groups, while the differences among the fertility groups are larger than the differences among the religion or education groups.

Summary and Speculation

One interesting result of this analysis concerns the relationship between the timing of first birth and marital instability. As expected, we found that women with premarital births or who were pregnant at marriage have higher dissolution rates than other women. However, contrary to expectations these differences were not substantial when race, religion, education, and age at marriage were controlled. In fact the magnitude of the relationship found was not large enough to preclude the possibility that it was produced by sampling variability. In addition, none of the adjusted coefficients of determination (r^2) for this variable are greater than zero.

The fact that women with premarital births or who are pregnant at marriage have only slightly higher dissolution rates suggests several possibilities. It may be that

in post World War II America these events do not substantially increase the stresses of marriage. Or, it may be that the increased stress and conflict produced is not translated into significantly higher dissolution rates. These data also do not support the notion that couples marrying under these conditions are not able to adjust to marriage as well as others. While the data are not adequate to test these hypotheses, they do indicate the actual dissolution rates of these couples are not substantially greater than the rates of others.

The analysis in this chapter found a moderate relationship between cumulative fertility and marital dissolution. The relationship, however, is not a simple monotonic one with dissolution consistently decreasing or increasing with fertility. Rather, dissolution rates are highest for those with no children and for those with fairly large families. Couples with medium sized families appear to have the lowest rates. The U shaped relationship between these variables is one of the more interesting results of this study. Unfortunately, however, the results do not directly inform us of the mechanisms producing the U shaped relationship. Additional data and analysis are required to evaluate those mechanisms. It is possible, and perhaps worthwhile, however, to speculate about the causal mechanism that could be producing the observed relationship.

It should be remembered that the model outlined in Figure 5 was formulated to account for or explain why couples with few children experience more marital dissolution than others. For this reason all of the mechanisms hypothesized in Figure 5 could produce the high dissolution rates of the childless. One hypothesis (effect "d" in Figure 5) is that the presence of children delays or prevents the disruption of unhappy marriages. Dissatisfied childless couples may have fewer pressures to stay together than unhappily married couples with children. In this regard it is interesting to note that the data are consistent with the idea that 1 child delays or prevents dissolution as effectively as several children. This implication is suggested by the fact that couples with only 1 or 2 children have dissolution rates that are as low or lower than the rates for couples with more children. A second hypothesis is that marital discord produces both lower fertility and dissolution (effect "a"). Couples with marital problems may have fewer children than others. It may be that the discord which produces dissolution also produces childlessness. A third possibility is that couples with some children are more happily married than childless couples (effect "b"). Children may provide the marriage partners with shared goals and interests which are translated into more happiness. It may also be that individuals who desire independence may decide not to have children and may not be able to establish a relationship with the

partner which is necessary for marital success. Any of these 3 mechanisms could be producing the high rates for the childless.

While several of the mechanisms shown in Figure 5 could produce the high dissolution rates of the childless, it is my opinion that only 1 can adequately explain the high rates of those with large families. That is the hypothesis that family size influences dissolution indirectly through marital satisfaction (effect "b"). It is plausible to think that a large number of children increases the stresses and strains of marriage. Children may increase the possible sources of marital conflict while decreasing the opportunity for pleasant marital interactions. In the preceding paragraph it was suggested that childless couples may not be as happily married as couples with children. Here, the suggestion is that while a few children increase marital staisfaction a large number of children may, in turn, reduce happiness. In fact, the data suggest that the dissolution rates for those with large families are only slightly lower than those of the childless.

CHAPTER 4

FERTILITY DIFFERENTIALS BETWEEN DISRUPTED AND INTACT MARRIAGES IMMEDIATELY BEFORE AND AFTER DISSOLUTION

Conceptualization

There are several different avenues for exploring the relationship between marital instability and childbearing. In Chapter 3 we investigated the matter by comparing the dissolution experiences of women with different fertility patterns. Several insights into the relationship were gained through that analysis. A second strategy is to compare the childbearing behavior of those who experience marital disruption with the behavior of those who do not. This approach, which will be used in this chapter, provides some possibilities that were not available in the Chapter 3 analysis. First, it will allow us to investigate the relationship using data for all marital durations. In Chapter 3 the relationship between cumulative fertility and marital dissolution could be examined only for the marital intervals from 4 to 16 years. The inability to study the relationship during the first 4 years of marriage was a serious limitation of that analysis since so many dissolutions occur in that period. Second, the strategy utilized

here is the same general approach that has been employed by others investigating this issue. Using the same approach not only makes it easier to compare results, but allows us to consider the importance of one of the methodological difficulties faced by other researchers. Finally, the procedures permit the dynamics of the relationship to be explored. By examining the relationship at several time points around the dissolution, it will be possible to explore the hypothesis (effect "b" of Figure 5 of Chapter 3) that marital dissatisfaction reduces childbearing even before the partners separate.

The studies reviewed in Chapter 1 consistently found that women experiencing dissolution had fewer children at the time of disruption than those in stable marriages. Research of this kind should utilize the actual time of dissolution as the reference point for making comparisons. Theoretically, the best time would be when the couple stops living together. Unfortunately, the studies reviewed have all been forced to make the comparison at divorce since the date of separation and/or the number of children at separation were not available. Using the divorce date rather than the separation date in this kind of research produces 2 fairly serious problems.

The first problem concerns the timing of divorce relative to separation. In most cases divorce occurs sometime after separation, and often the time between the 2 events is substantial. This means that fertility

differences observed at divorce include differential fertility between separation and divorce. This seriously complicates the interpretation of the differential at divorce since it includes both preseparation and post-separation fertility. This is especially serious if the childbearing of women experiencing disruption is reduced substantially during the interval from separation to divorce as one would expect. In fact, the reduced childbearing of separated women during this interval could account for most of their lower fertility at divorce.

The second problem concerns the fact that not all women who separate eventually divorce. In addition, some of the separated couples who will divorce have not done so by the time they are studied. If the probability or speed of obtaining a divorce is not independent of family size at separation, the exclusion of the separations that had not been officially recognized by divorce could influence results.

The first part of the analysis conducted in this chapter will compare the fertility of women in disrupted marriages with that in stable marriages. The comparison will be made for the time of separation itself as well as for the interval between separation and divorce. This should increase our understanding of differential fertility at separation and during the interval between events. These data will also be utilized to investigate the actual

problems caused by using the date of divorce as the time for making comparisons.

The second part of the chapter will investigate one of the specific hypotheses of the model presented in Figure 5 of Chapter 3. The hypothesis is the one suggesting that the degree of marital satisfaction affects childbearing levels even before dissolution occurs. The usual argument is that unhappiness and discord tend to reduce fertility. Couples with serious problems are unlikely to want to complicate the situation by enlarging the family. In addition, it seems reasonable to think that discord would reduce the risk of pregnancy by decreasing the frequency of intercourse. There is, of course, also a counter argument. With the common notion that children strengthen marriages, couples with difficulty may want to have more children "to bring them together." If so, discord would increase childbearing.

The analysis of the influence of marital satisfaction on childbearing requires some important assumptions. One assumption concerns the marital dissolution process itself. It is necessary to assume that marital dissatisfaction precedes and influences the disruption of the marriage (effect "c" in Figure 5 of Chapter 3). We also assume that the greatest period of discontent is the time immediately preceding separation. It would, of course, be useful to know when in marriage, discord became serious; but this information is not available for the marriages studied here.

Without this information, it is necessary to make some assumptions about the timing of discontent. The assumption about the timing of discontent relative to separation has to be fairly arbitrary since I am unaware of any studies that have explicitly explored the issue. In this analysis the time period chosen is 2 years. It is assumed that the 2 years before dissolution are ones of discontent. Arguments could be made that this interval is too long for some and too short for others, and this is undoubtedly true. However, the assumption seems reasonable in view of Goode's (1965) study of divorces in Detroit. He estimated that the median time from the first serious consideration of divorce to the actual decree was almost 2 years, and the median time from separation to the divorce decree was about a year. This suggests that, on the average, the first serious consideration of divorce occurred around a year before separation. Undoubtedly, serious discontent existed before the consideration of divorce. Therefore, the assumption that serious problems existed 2 years before actual separation seems reasonable. This assumption will obviously result in important measurement errors; but it should be adequate enough to give some insight into the hypothesis.

Another assumption required concerns the direction of the causal influence between childbearing and marital satisfaction. While Figure 5 of Chapter 3 hypothesized that, in general, the 2 variables influence each other, it

seems reasonable to think the causal influence is mainly unidirectional during the 2 years preceding separation. During this period, discord must influence fertility more than childbearing affects harmony. Satisfaction is already low then, and the discontent is assumed to influence the childbearing of affected couples.

The influence of marital dissatisfaction on childbearing will be evaluated by looking at the fertility of broken marriages during the 2 years preceding separation. The childbearing of these marriages will be compared with the number of children women in stable marriages have during the same length of time. Any difference between the 2 groups will be assumed to be the result of marital dissatisfaction. It can be seen that this analysis requires important assumptions, and there are serious classification problems. The assumptions, however, are plausible ones, and the measurement problems should not prevent detection of the hypothesized forces.

Methodology

Both parts of the analysis carried out in this chapter use the same basic methodology. Fertility of women in disrupted marriages is compared with childbearing in stable ones. Cumulative fertility is compared at various times around the dissolution. The comparison points include 18, 12 and 6 months prior to separation, separation, 6 months after separation, and divorce. In addition,

fertility occurring between some of these points is studied. As in Chapters 2 and 3, separation is defined as the reported time the couple stopped living together.

The fertility estimates for those who have experienced disruption are made in a very straightforward manner. For each time or event of interest the cumulative number of children each women has at the end of the quarter (measured from first marriage) in which the event occurred is obtained. The number of children born between 2 times or events is computed by subtracting cumulative fertility at the first event from that at the second. Mean cumulative fertility at an event and mean childbearing between events are estimated in the usual way.

The estimates of the means described are obtained from a sample. Therefore, it will be useful to have estimates of their sampling variability. In this analysis the usual formulas for simple random samples will be utilized. The data, however, were obtained from a complex sample, and the estimates of sampling variability obtained from the simple random sample formulas will undoubtedly be underestimates.

Unfortunately, estimates for the never separated women cannot be obtained in this straightforward manner since they, by definition, have not experienced the events in question. Since they did not experience separation or divorce, estimates of their cumulative fertility at these events cannot be obtained. We do, however, know the date

each of their children were born and the date they were married. This information enables us to compute the cumulative number of children they had at each time point following marriage. We also know the dates of the marital events for the women experiencing dissolution. This information allows us to compute the length of time from marriage to separation and divorce. The technique of standardization utilizes these pieces of information to estimate the number of children stable women had at the time the other women were experiencing these events. Then the fertility estimates of the 2 groups can be compared.

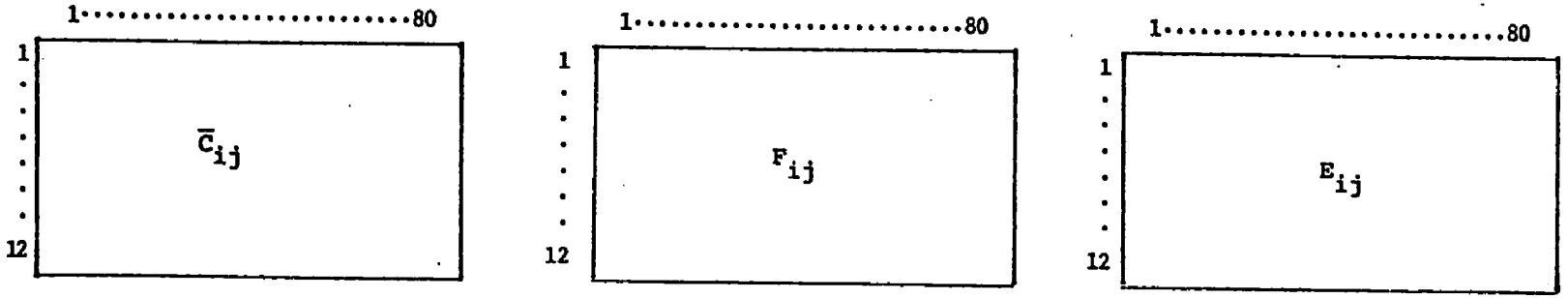
It is important that the fertility of the disrupted group be compared with <u>similar</u> women who have not experienced dissolution. For this reason the standardization procedure should control not only marital duration, but also race, education, religion, and age at marriage. It is important to remove the effects of these variables since they influence both fertility and dissolution. We now turn to the details of the standardization procedure.

The standardization procedure is outlined in Figure 6. The procedure requires that the cumulative fertility of each woman in a stable first marriage be obtained. The cumulative number of children is obtained for the end of each quarter (3 months) from marriage to 80 quarters (20 years) marital duration. Then for each group defined by the cross-classification of race by education by religion by age at marriage the mean number of children at each

Matrix A: Cumulative fertility means by marital duration and characteristic for the stably married

Matrix B: Dissolution event by marital duration and characteristic for those experiencing dissolution

Matrix C:
Either: 1) the number of children stably married women had at the same marital duration
Or: 2) the number of children women in disrupted marriages would have been expected to have if they had the same fertility as the stably married



$\bar{C}_{ij}$ = the mean number of children the stably married women in the ith social category had at marital duration j.

F_{ij} = the number of women in the ith social category who experienced the dissolution event during the jth marital duration.

$E_{ij} = \bar{C}_{ij} * F_{ij}$ = the number of children F_{ij} stably married women had.

$\bar{E}_n$ = standardized mean number of children nonwhite women in stable marriages had $= \dfrac{\sum_{i=1}^{4}\sum_{j=1}^{80} E_{ij}}{\sum_{i=1}^{4}\sum_{j=1}^{80} F_{ij}} = \dfrac{\sum_{i=1}^{4}\sum_{j=1}^{80} \bar{C}_{ij} * F_{ij}}{\sum_{i=1}^{4}\sum_{j=1}^{80} F_{ij}}$

$\bar{E}_w$ = standardized mean number of children white women in stable marriages had $= \dfrac{\sum_{i=5}^{12}\sum_{j=1}^{80} E_{ij}}{\sum_{i=5}^{12}\sum_{j=1}^{80} F_{ij}} = \dfrac{\sum_{i=5}^{12}\sum_{j=1}^{80} \bar{C}_{ij} * F_{ij}}{\sum_{i=5}^{12}\sum_{j=1}^{80} F_{ij}}$

FIGURE 6. The Standardization Procedure

marital duration is estimted. It should be noted, however, that religion is not included in the cross-classification for nonwhites. This procedure was adopted because of the limited number of Catholics in the nonwhite sample. The result of this operation is a 12 by 80 matrix of cumulative fertility means (call them $\bar{C}_{ij}$). This matrix is labelled as Matrix A in Figure 6. The columns of the matrix are the 80 marital durations utilized. The rows are the group categories and are as defined in Table 26. The values for some columns are shown in Table 26 as a summary of the overall matrix.

Two characteristics about the matrix of means should be kept in mind as we proceed. First, the data are from a sample of the population, and the estimates of cumulative fertility are subject to sampling variability. Secondly, for each marital duration, the cumulative number of children for all women who had been married that long (and were still in their first marriages at the time of the interview) was included in the mean for that marital duration. This procedure ensures that there will be more observations for the shorter marital durations than for the longer ones. All of the women were observed for the earlies durations; but only a few were observed over the entire 20 years. This ensures that the sampling variability of the means for the early durations will be quite small while the variability of the later means could be large. These 2 features together probably account for some of the unusual results in

TABLE 26. Cumulative Mean Number of Children Ever Born At Various Marital Durations for Women in Intact First Marriages By Race, Education, Religion, and Age At Marriage: 1970

Social Characteristics				Marital Duration (in Quarters)										
Race	Education	Religion	Age At Marriage	1	8	16	24	32	40	48	56	64	72	80
Nonwhite	<High School	All	<20	.30	1.19	2.05	2.79	3.47	4.17	4.73	5.08	5.38	5.67	5.87
Nonwhite	High School+	All	<20	.15	.98	1.71	2.24	2.75	3.06	3.53	3.67	3.80	3.63	3.40
Nonwhite	<High School	All	20+	1.07	1.74	2.26	2.85	3.25	3.49	3.92	4.26	4.66	4.65	4.77
Nonwhite	High School+	All	20+	.28	.84	1.47	1.89	2.26	2.61	2.88	3.45	3.85	4.42	5.82
White	<High School	Catholic	<20	.08	1.02	1.78	2.23	2.62	3.11	3.27	3.46	3.56	3.69	3.88
White	<High School	Non Cath	<20	.04	.86	1.55	2.13	2.62	2.97	3.26	3.33	3.45	3.44	3.44
White	High School+	Catholic	<20	.02	.84	1.57	2.15	2.63	2.94	3.22	3.50	3.74	3.97	3.93
White	High School+	Non Cath	<20	.02	.70	1.31	1.85	2.23	2.51	2.71	2.81	2.92	2.97	3.00
White	<High School	Catholic	20+	.10	.79	1.35	1.83	2.16	2.43	2.57	2.82	3.03	3.38	3.83
White	<High School	Non Cath	20+	.25	.88	1.40	1.88	2.22	2.51	2.78	3.00	3.05	2.71	3.04
White	High School+	Catholic	20+	.02	.72	1.52	2.14	2.68	3.05	3.30	3.53	3.74	3.75	3.67
White	High School+	Non Cath	20+	.04	.52	1.12	1.64	2.01	2.23	2.42	2.54	2.58	2.73	2.75

the 65 to 80 quarter marital duration range. For some of the groups, increased marital duration produces large increases in fertility while others register decreases, which is, of course, impossible conceptually.

The standardization procedure also requires the cross-classification of women who experience marital dissolution. It requires that they be cross-classified by race, education, religion, age at marriage, and marital duration at the dissolution event or time in question. This cross-classification utilizes the same combination of characteristics presented in Table 26. Marital duration is categorized by quarters (including only those events occurring in the first 80 quarters). The result is another 12 by 80 matrix. However, here the cell entries in the matrix are the frequency counts (call them F_{ij}) of women experiencing the event. Note that a different matrix is required for each marital event or time of interest. An example of this kind of matrix is diagrammed in Figure 6 as Matrix B.

Matric C is obtained by multiplying the cell entries in Matrix A by the similar cells in Matrix B. By utilizing Matrices B and C together as shown in the formulas in Figure 6, the mean number ($\bar{E}$) of children women in stable marriages had at the time of the event in question can be estimated. These means are obtained separately for nonwhites ($\bar{E}_n$) and whites ($\bar{E}_w$). The resulting means ($\bar{E}_n$) for the nonwhite women in stable marriages are, thus,

standardized on the education, age at marriage, and marital duration distribution of the nonwhite women in disrupted marriages. Therefore, comparisons between the fertility of nonwhite women in disrupted marriages and the fertility of those in stable marriages will be made controlling for education, age at marriage, and marital duration. Similarly, the resulting means ($\bar{E}_w$) for white women in stable marriages are standardized on the education, age at marriage, marital duration, and religion distribution of white women in disrupted marriages. So when the fertility of the 2 groups of white women are compared, these 4 variables will be controlled.

The process just described is carried out to obtain estimates for each of the times or periods of interest. These estimates are obtained 18, 12, and 6 months prior to separation, at separation, 6 months after separation, and at the time of divorce. By taking the appropriate difference between the means, estimates of fertility during any given interval can be computed. These will be compared with the actual fertility of women experiencing dissolution.

It should be observed that the procedure just outlined permits fertility estimates for the women in stable marriages to be made only for the first 80 quarters of marriage. Cumulative fertility beyond this time is not included. This limitation was adopted because the number of women observed for more than 80 quarters was limited. This factor would have produced unstable estimates of mean

cumulative fertility ($\bar{C}_{ij}$) at these longer durations. This limitation means that all analysis utilizing this technique (which includes this entire chapter) will exclude all women who experienced an event of interest at a marital duration greater than 80 quarters.

Estimates of the sampling variability of the standardized or expected means ($\bar{E}_n$ and $\bar{E}_w$) are more difficult to obtain than the estimates of the means themselves. Kish (1965) and Chiang (1968) outline some of the difficulties involved. A precise estimate of the sampling variability would require that several sources of error be considered simultaneously. As outlined in Figure 6, $\bar{E}_n$ and $\bar{E}_w$ are weighted averages of a set of means. Both the weights (F_{ij}) and the means ($\bar{C}_{ij}$) are subject to sampling. In addition, none of the 80 $\bar{C}_{ij}$ values for any given row are independent of the other $\bar{C}_{ij}$ values in that row. All $\bar{C}_{ij}$ values for any row are based at least partly on the same sample of women since the fertility of every woman is included in all marital durations for which she was observed. This factor requires the contribution of the covariance between the means in a row to be taken into account.

Unfortunately, the simultaneous inclusion of all these sources of sampling error for a large data matrix results in a complex problem. The estimation of the sampling error for 1 mean would require a complex and expensive computational procedure. Since many means are

examined in the analysis (requiring many sampling errors), it was decided that it would be useful to "trade-off" some precision for simplicity and reduction in cost. By simplifying the problem, it would be possible to reduce the computational complexity and expense and still obtain useful approximate estimates. One assumption and a reduction in the data matrix are required to accomplish this.

The assumption concerns the contribution of the weights ($\overline{F}_{ij}$ values) used in producing the standardized means ($\overline{E}_n$ and $\overline{E}_w$). Some experimentation was carried out to see how much the variability of the weights would affect the estimates of overall variability. It was concluded that the contribution of this factor would be small. Therefore, the estimates of sampling variability utilized do not include the contribution of this factor. They are obtained by assuming that the weights (F_{ij} values) are constants.

Estimates of the standardized or expected means ($\overline{E}_n$ and $\overline{E}_w$) will be obtained separately only for the 2 racial groups, whites and nonwhites. The more extensive categorization (in Figure 6) was used only to control or standardize for the effects of education, age at marriage, religion, and marital duration. Since the analysis will only utilize the means for whites and nonwhites, it will not be necessary to include the other variables in the calculation of sampling errors. By not taking the other

variables into account, the estimation procedures are simplified considerably.

The number of categories of marital duration utilized in obtaining the estimates can also be reduced by using 1 year intervals instead of the 3 month ones. This results in 20 categories instead of the 80 used in the estimation of the means. The reduced number (20) of categories will be used in all estimates of sampling variability.

The estimation of sampling errors for the standardized means will incorporate all of the simplifications just outlined. Equation 12 contains the formula to obtain the sampling errors. Separate, but identical, operations are employed for the 2 racial groups.

Equation (12)

$$\text{var}\ (\bar{E}) = \frac{1}{\left(\sum_{j=1}^{20} F_j\right)^2}\left[\sum_{j=1}^{20} F_j^2 \text{var}(\bar{C}_j) + 2\sum_{j<j'} F_j F_{j'} \text{Cov}(\bar{C}_j, \bar{C}_{j'})\right]$$

The F_j values are obtained from the distribution of women who experienced a dissolution. F_j is the number experiencing the time or event of interest during the jth marital duration. F_j is actually taken from the F_{ij} values of Matrix B of Figure 6; Matrix B is collapsed across both rows and columns to create the 1 by 20 matrix or vector. The elements of this vector are the 20 F_j values.

The variance and covariance terms of Equation 12 come from the group of women who have not experienced dissolution. The cumulative fertility of all in the racial group is obtained for each of the 20 marital durations (one year in length) used. Every woman is included for every marital duration for which she is observed. This procedure (like the one providing $\bar{E}_n$ and $\bar{E}_w$) ensures more observations in the shorter durations than in the longer ones. Cumulative fertility at each duration is treated as a variable, and the 20 by 20 covariance matrix is computed from them. Then each term in the matrix is divided by the number of cases it is based on. The resulting matrix forms the var $(\bar{C}_j)$ and cov $(\bar{C}_j, \bar{C}_{j'})$ terms. The diagonal elements are the var $(\bar{C}_j)$ terms and the off diagonals become the cov $(\bar{C}_j, \bar{C}_{j'})$ terms.

Equation 12 is used to obtain the sampling variance of the standardized mean for any event or time related to dissolution. If the sampling variance being computed is for a difference between 2 times or events (fertility during an interval) Equation 12 can still be used, but requires some modification. Then the F_j terms inside the brackets are the difference between the number of women in the jth duration at the first event and the number in that duration at the second. However, the denominator in the first term in the equation is still the total number of women utilized in obtaining the mean for which the sampling variability estimate is being computed.

Fertility Differentials From Separation to Divorce

In the first part of the analysis, the fertility of women in disrupted marriages will be compared with that in stable marriages. This analysis will begin by examining the differential at divorce (which is the usual date used) and then work backward to the time of separation. In Table 27 the mean cumulative fertility of women in disrupted marriages (who divorce by the interview date) is presented for the time of divorce. The fertility of women in stable marriages at similar marital durations is also shown. In addition, the difference between the 2 groups and the standard error of that difference are presented (standard error of the difference is equal to the square root of the sum of the sampling variances of the 2 means). Again, it should be emphasized that the sampling errors are based on simple random sampling assumptions and undoubtedly are underestimates. The data are presented separately for 4 subgroups of the sample. The groups are obtained from the cross-classification of marital duration at separation by race. This will allow the analysis to be done separately for the 2 races. In addition, it will allow investigation of the effect of dissolution timing on the differential. Marital dissolutions are divided at 7 years. Those separations occurring before 7 years of marriage are classified as early; those occurring after that are classified as late. The comparisons for the

TABLE 27. Mean Number of Children Ever Born at the Time of Divorce for Those Divorcing and For Similar Women in Stable Marriages, By Race and Separation Timing: 1970

	Number of Women Experiencing Divorce (1)	Disrupted Marriages (2)	Stable Marriages (3)	Difference (4)	Standard Error of Difference (5)
White:					
Separation Early	428	1.02	1.18	.16	
Separation Late	248	2.41	2.68	.27	
Total	676	1.53	1.73	.20	.06
Nonwhite:					
Separation Early	145	1.49	1.97	.48	
Separation Late	81	3.32	3.88	.56	
Total	226	2.15	2.66	.51	.15

nonwhite women are made controlling for education, age at marriage, and marital duration while the comparisons for the white women control these variables as well as religion.

The data in Table 27 confirm the results of earlier research (see Chapter 1). At the time of divorce, women in disrupted marriages have fewer children than similar women in stable marriages. This result holds for all race-time subgroups. For both races the differential is greater than 3 times its standard error; it is unlikely that sampling variability produced the differences observed. It is also interesting to observe the effect that race has on the differential. The difference between the marital status groups is more than twice as large for nonwhites than whites.

The data allow us to compare the fertility of the 2 groups of women at the time of separation (the time the couple stopped living together). The actual time used is 6 months after separation to allow for the birth of most children conceived before separation. This analysis includes all women who separate whether or not they obtain a divorce. The data for these comparisons are shown in Table 28.

From the data in Table 28 we can see that at the time of separation (plus 6 months) there is a difference between women in disrupted and stable marriages. Like the differential at divorce, the difference is consistent across all 4 timing by race groups. However, it is much

TABLE 28. Mean Number of Children Ever Born at Time of Separation (Plus 6 Months) For Those Experiencing Separation and For Similar Women in Stable Marriages, By Race and Separation Timing: 1970

	Number of Women Experiencing Separation (1)	Disrupted Marriages (2)	Stable Marriages (3)	Difference (4)	Standard Error of Difference (5)
White:					
Separation Early	459	.99	1.04	.05	.05
Separation Late	272	2.61	2.72	.11	.11
Total	731	1.59	1.67	.08	.05
Nonwhite:					
Separation Early	221	1.54	1.57	.03	.11
Separation Late	137	3.66	3.71	.05	.23
Total	358	2.35	2.39	.04	.12

smaller at separation than divorce. For whites the differential is reduced from .20 children to .08; for nonwhites the reduction is from .51 to .04. For none of the subgroups is the differential large at the time of separation. In fact, they are not large enough to eliminate the possibility that sampling error produced them.

In the first section of this chapter, 2 factors that might be causing the differential to be larger at divorce than separation were discussed. Those 2 factors are the probability and timing of divorce and differential fertility occurring between separation and divorce. The effects of both of these factors will be examined here. We can see how much fertility is reduced between separation and divorce by comparing the number of children divorcing women have in the interval with the number born to those in stable marriages during similar time periods. This analysis, of course, excludes women who do not divorce by the interview date. The results are shown in Table 29. It should be noted that the number of observations in Table 29 do not equal the number in Table 27 since women with unknown separation dates are not included there.

Table 29 shows the mean number of children the 2 groups of women (stable and disrupted) have between separation (plus 6 months) and divorce. Again, the difference between the 2 means and its standard error is included. For all timing by race groups, differential fertility during the interval is substantial. As expected, women in intact

TABLE 29. Mean Number of Children Born Between Separation (Plus 6 Months) and Divorce For Those Experiencing Divorce and For Similar Women in Stable Marriages, By Separation Timing and Race: 1970

	Number Of Women Experiencing Divorce* (1)	Disrupted Marriages (2)	Stable Marriages (3)	Difference (4)	Standard Error Of Difference (5)	Years From Separation To Divorce (6)
White						
Separation Early	421	.03	.15	.12		1.00
Separation Late	226	.02	.06	.04		.96
Total	647	.03	.12	.09	.01	.99
Nonwhite:						
Separation Early	145	.17	.52	.35		2.15
Separation Late	73	.07	.26	.19		2.16
Total	218	.13	.43	.30	.06	2.15

*Women for whom the date of separation was not known were excluded.

marriages have more children. The differences are large enough to preclude the possibility that they were produced by sampling. Fertility does seem to be reduced during the interval between separation and divorce.

The data in Table 29 suggest that the fertility reduction between separation and divorce is greater for nonwhites than whites. There are at least 2 reasons for this. One is divorcing white women take the step much quicker after separation than nonwhite women. The average time between separation and divorce is about 1 year for whites while the time for nonwhites is over 2 years. This allows the reduced rate of childbearing to operate longer among nonwhites. A second reason is that fertility of white women in stable marriages is lower than that of nonwhites. With a lower "normal" level the reduction that is possible because of marital disruption is smaller for white women. Table 29 also indicates that the reduction in childbearing between separation and divorce is greater for women separating early in the marriage than for those who separate late since the time interval between events is almost identical for early and late separaters. The most likely explanation is that fertility levels are highest early in marriage; and therefore, the fertility reduction that is possible is greatest for those who separate early. Since the early separaters come from a higher fertility group than the late separaters, their fertility can be reduced more.

The second factor that was hypothesized to make differential fertility greater at divorce than separation was the possible greater likelihood of separated women with small families going on to divorce. Some insights into this mechanism can be gained from Table 30. In Table 30 differential fertility of stable and disrupted marriages are presented separately for those who divorce and those who had not yet divorced. The date of separation (plus 6 months) is the time reference for these differentials. The data suggest some very interesting relationships. For both races, the women who divorce have fewer children at separation than similar women in stable marriages. However, for those women who do not go on to divorce, the relationship is reversed. At separation, they have more children than similar women in stable marriages. This indicates that the apparent differences between disrupted and stable marriages are increased by looking only at the separated who divorce. For whites the differential is increased by .03 (.11 - .08) children by focusing only on women who divorce; for nonwhites the increase is .15 (.19 - .04). These data also support the hypothesis that women who have fewer children at the time of separation are more likely to go on to divorce. This hypothesis will be tested more thoroughly in Chapter 5.

From the data presented in Tables 27-30, it can be seen that women who separate and go on to divorce have fewer children at divorce than similar women in stable

TABLE 30. Mean Number of Children Ever Born At Time of Separation (plus 6 Months) for Those Separating and for Similar Women in Stable Marriages, By Divorce Status and Race: 1970

	Number Of Women Experiencing Separation (1)	Disrupted Marriages (2)	Stable Marriages (3)	Difference (4)
White:				
Divorced	677	1.51	1.62	.11
Not Divorced	54	2.65	2.25	-.40
Total	731	1.59	1.67	.08
Nonwhite:				
Divorce	229	2.02	2.21	.19
Not Divorced	129	2.93	2.70	-.23
Total	358	2.35	2.40	.04

marriages. This differential comes from 3 sources. The first is the reduction in fertility that separated women experience during the interval from separation to divorce. The part of the differential produced here is clearly a result of dissolution reducing childbearing rather than the number of children influencing dissolution. The second source of the difference is the apparent higher likelihood of divorcing for separated women with fewer children. Together, these 2 sources account for most of the differential at divorce. The third source, differential fertility existing at the time of separation accounts for only a small part of the overall difference.

The Impact of Marital Dissatisfaction on Preseparation Fertility

In this section of the chapter we turn our attention to the hypothesis that marital dissatisfaction and discord reduces childbearing even before separation occurs. A discussion of that hypothesis and the rationale for the current approach to its investigation were presented in the first section of this chapter. The hypothesis will be examined by comparing the fertility of women experiencing separation with those who do not. The time period for this analysis is the 2 years immediately preceding separation. Any reduction in the fertility of women in disrupted marriages during this period is considered the result of marital dissatisfaction.

The analysis will proceed by examining the fertility of the 2 groups of women at several time points between 18 months before and 6 months after separation. In addition, fertility during the interval between these times will be investigated. The interval from 18 months before to 6 months after separation was chosen to include most of the pregnancies occurring during the 2 year interval immediately preceding separation. Since the analysis will be examining fertility at 18 months prior to dissolution, it will be necessary to exclude all separations occurring before 18 months marital duration.

The previous section of this chapter compared the fertility of the 2 groups of women 6 months following the separation. That analysis (see Table 28) included data for all separations occurring before the twentieth year. Similar data for the group of women experiencing dissolution between 18 months and 20 years is shown in Table 31. The second panel of Table 31, which contains data for these women 18 months before separation, allows us to examine the differential then. At that time there are virtually no differences between the cumulative fertility of women in disrupted and stable marriages. None of the differences are larger than their standard errors. It is interesting to note, however, that for 3 of the 4 race-timing groups the stably married have fewer children than those in disrupted marriages. At 18 months before separation, the usual higher fertility of the stably married is not found.

TABLE 31. Mean Number of Children Ever Born 18 Months Before and 6 Months After Separation For Those Separating and For Similar Women in Stable Marriages, By Separation Timing and Race: 1970

	Number of Women Experiencing Separation	Disrupted Marriages	Stable Marriages	Difference	Standard Error of Difference
		Separation Plus Six Months			
White:					
Separation Early	270	1.34	1.43	.09	
Separation Late	272	2.61	2.72	.11	
Total	542	1.98	2.08	.10	
Nonwhite:					
Separation Early	148	1.88	1.89	.01	
Separation Late	137	3.66	3.71	.05	
Total	285	2.73	2.77	.04	
		Separation Minus Eighteen Months			
White:					
Separation Early	270	.78	.76	-.02	.05
Separation Late	272	2.38	2.44	.06	.10
Total	542	1.58	1.60	.02	.07
Nonwhite:					
Separation Early	148	1.27	1.17	-.10	.12
Separation Late	137	3.26	3.25	-.01	.20
Total	285	2.22	2.17	-.05	.13

In Table 32 we investigate the hypothesis that the fertility of women who are going to separate is reduced during the interval immediately preceding separation. In that table we see the fertility of the stable women is higher for all race-timing subgroups. Those differences are only marginally statistically significant for the non-whites, but for whites the differences (except for those who separate late) are approximately 3 times their standard errors. It could be argued, however, that the differential is small and therefore unimportant. It is true that the reduction is only about .1 child per woman for both races, but it is not trivial when compared with total "normal" fertility occurring in the relatively short interval of 2 years. The reduction amounts to 18 percent (for whites) of the total fertility of women in stable marriages during the period; whereas, for nonwhites the reduction is 15 percent. The data support the hypothesis that dissatisfaction reduces childbearing.

Further insights into the impact of discord on fertility can be obtained from Table 33. There the fertility of the 2 groups during each of the 6 month intervals between 18 months before and 6 months after separation are compared. The data show the difference between the 2 groups (stable minus disrupted) for each 6 month interval. During each interval (except the first interval for nonwhites separating late), the women in stable marriages have more children than

TABLE 32. Mean Number of Children Born During the Interval From 18 Months Before to 6 Months After Separation For Those Separating and For Similar Women in Stable Marriages, By Separation Timing and Race: 1970

	Number of Women Experiencing Separation	Disrupted Marriages	Stable Marriages	Difference	Standard Error of Difference
White:					
Separation Early	270	.56	.67	.11	.04
Separation Late	272	.23	.28	.05	.03
Total	542	.39	.48	.09	.02
Nonwhite:					
Separation Early	148	.61	.72	.11	.06
Separation Late	137	.40	.47	.07	.06
Total	285	.51	.60	.09	.05

TABLE 33. Fertility Differences Between Those in Stable and Disrupted Marriages (Stable Minus Disrupted) During 6 Month Intervals Around Separation, By Race and Separation Timing: 1970

	18 to 12 Months Before Separation	12 to 6 Months Before Separation	6 Months Before To Time Of Separation	Separation To 6 Months After Separation
White:				
Separation Early	.035	.032	.029	.019
Separation Late	.010	.003	.020	.018
Total	.022	.018	.025	.019
Nonwhite:				
Separation Early	.002	.029	.022	.056
Separation Late	-.039	.022	.068	.014
Total	-.017	.026	.043	.036

those experiencing disruption. The results show small but consistent reduction in fertility during the entire 2 year interval.

Summary and Conclusions

In this chapter we have explored the relationship between fertility and marital dissolution by comparing the childbearing of those who experience dissolution produced by discord with the fertility of those in stable first marriages. The comparison of the cumulative fertility of the 2 groups was made at several time points around the disruption. Those points included 18 months before separation, 6 months after separation, and the time of divorce (for those who went on to divorce). In addition, childbearing occurring between these points was investigated.

Figure 5 of Chapter 3 contained a model or framework setting forth causal mechanisms that might explain a relationship between dissolution and childbearing. That framework suggests that a relationship between the 2 variables could be produced by fertility directly influencing dissolution (effect "d") or by fertility influencing dissolution indirectly through marital satisfaction (effects "b" and "c"). Another possible mechanism would be the influence ("a") of marital dissatisfaction on childbearing. One assumption of this chapter has been that the impact of discontent on childbearing is greatest near the time of separation. We have assumed that the period of greatest

marital discord was the 2 years immediately preceding dissolution. Hopefully, if the relationship between cumulative fertility and dissolution was examined 2 years before separation, the influence of this mechanism ("a") could be minimized; and the relationship observed could be attributed mostly to the direct and indirect influence of childbearing on dissolution. The relationship observed then would reflect the influence of fertility on dissolution better than those observed later. It was this hope that motivated the investigation of the relationship 2 years (actually 18 months to allow some lag time) before separation. While the procedure requires several assumptions and the findings can be only tentative, it is believed that the results do provide insights into the influence of childbearing on dissolution.

When we examined cumulative fertility 18 months prior to separation, we found that the women experiencing dissolution had almost exactly the same number of children as similar women in stable marriages (see Table 31). At that time there was virtually no relationship between mean cumulative fertility and marital dissolution. From these data alone one would conclude that there is no relationship between the 2 variables, and that childbearing has no influence on marital dissolution. It should be emphasized, however, that these results do not contradict the findings of Chapter 3, but are consistent with them. The analysis of Chapter 3 found that women with no children or many

children are the most likely to experience dissolution. With dissolutions drawn disproportionately from the large and small families, it should not be surprising to find that the mean number of children for those separating is similar to the mean number for other women. The large number of childless couples among those experiencing dissolution tends to "cancel out" the large number of couples with large families. The result is that when we compare the mean number of children the 2 groups have, we find no differences.

While there was virtually no difference between the 2 groups 18 months before separation, there was a small difference existing 2 years later. Six months after separation the women in disrupted marriages had slightly fewer children than women in stable marriages; however, this difference was not large enough to eliminate the possibility that it was produced by sampling variability (see Table 28). The implication of these results is that during this 2 year interval the women in disrupted marriages had fewer children than others. In Table 32 we saw that the difference in the number of children born was almost .1 child per woman. This reduction was approximately 15 percent of the total number of children born to intact marriages during the interval.

The relatively low fertility observed immediately prior to separation is interpreted as supporting the hypothesis that marital dissatisfaction and discord reduces fertility even before separation. This interpretation, is

made possible by assuming that separating couples experience discontent during the 2 year interval before separation, and that during this interval the primary causal force between childbearing and dissatisfaction went from dissatisfaction to childbearing. While the results suggest that discontent reduces childbearing, the numbers in Table 32 should not, however, be interpreted as estimates of the reduction in fertility produced by marital dissatisfaction. Many couples, undoubtedly, experience discord more than 2 years prior to actual separation. It is also likely that a large number of couples who never separate, do experience serious discontent. It seems probable, from the results obtained, that the fertility of these couples is also reduced. If both of these observations are correct, it is likely that the reduction in fertility produced by marital discord, either before or without dissolution, is substantial.

The results of this chapter indicate that there is virtually no relationship between mean cumulative fertility and marital dissolution when the relationship is examined at or before separation. However, when the relationship was examined at the time of divorce (for those who had divorced), we found a very definite correlation. Divorcing women had fewer children at that time than similar women in stable marriages (see Table 27). The differences were quite substantial and large enough to eliminate the possibility they were produced by sampling. We found the difference at the

time of divorce existed primarily because women in disrupted marriages had fewer children during the interval between separation and divorce than other women (see Table 29). In addition, separated women with a large number of children appeared to be less likely to go on to divorce than those with few children (see Table 30). These results indicate that the differences in cumulative childbearing existing at the time of divorce are almost entirely the result of forces operating after separation. It is important to realize that these postseparation factors have nothing to do with the influence of childbearing on marital dissolution.

In Chapter 1 we reviewed several other studies which investigated the relationship between cumulative fertility and marital dissolution. Those studies examined the relationship at the time of divorce. The consistent finding was that couples experiencing dissolution had fewer children than other couples. Unless the forces that are influencing the childbearing, separation, and divorce patterns of the couples studied in this analysis are quite different from the forces affecting the patterns of the couples investigated in the other studies, the results of the current analysis have important implications for the interpretation given to the findings of those studies. The results of our analysis suggest that the relationship those studies found at the time of divorce was probably produced by postseparation forces. The separated women with large families were probably less likely to divorce; and those who did divorce

probably had reduced fertility between the 2 events. If this is true, it is difficult to know what the relationship would have been at the time of separation. However, it is possible, and even likely, that the relationship observed then would have been very small as it was in the data analyzed here.

In considering the implications of our results for the interpretation of the findings of earlier studies, it should be noted that there is no reason to believe that the postseparation forces influencing the relationship observed at the time of divorce are stronger now than they were earlier. In fact, there is some reason to believe that the influence of these forces is less now than it used to be. The reason is that the time between separation and divorce has been decreasing. In our data we found that the average time from separation to divorce was about a year for whites and a little over 2 years for nonwhites (see Table 29). Similar results were reported by Plateris (1973) for the 16 states reporting this information in 1969. Estimates of this span in earlier data show a longer period of time. Kephart (1954) estimated the median period to be 3.4 years in the United States from 1887-1906, and for Philadelphia (1937 to 1950), he estimated the median to be 4.6 years. For Chicago between 1919 and 1935 Mowrer (1938) estimated the mean interval to be from 3.2 to 3.7 years. Monahan (1962) reports that the average time in Wisconsin decreased from 2.7 years in 1887-1906 to 1.8

years in 1929, and was only 1.3 years in 1957. If the interval between separation and divorce has decreased as these data indicate, it is likely that the fertility reduction experienced during the interval has also decreased. The influence of reduced fertility during the interval should be less now since the length of time the mechanism can operate has decreased.

The findings of this chapter suggest that the results of the earlier investigations of the relationship between marital instability and fertility should be interpreted with great caution. The relationships found there reflect a great deal more than the correlation between preseparation childbearing and dissolution. The information those results provide concerning the influence of childbearing on marital instability is very limited.

CHAPTER 5

DIVORCE AND REMARRIAGE

Conceptualization and Measurement

In this study marital dissolution and its relationships with other variables and events are the topics under examination. The previous chapters have investigated the incidence and distribution of marital disruption. Of particular interest in those chapters was the relationship between childbearing and marital dissolution. The time focus in those analyses was the predissolution period. With this chapter the time frame will change. The rest of the study will be concerned with processes and relationships existing after dissolution. In this chapter we will study the remarriage process. Included in the analysis will be an investigation of factors that are related to the likelihood of remarriage. In addition, for those marriages that were disrupted by discord, we will examine divorce and factors related to it. In Chapters 6 and 7 the emphasis will be upon the influence of dissolution and remarriage on subsequent childbearing.

Two primary purposes motivate this chapter. The first is that divorce and remarriage are interesting subjects in and of themselves. The nature of these events

and their relationships to other social and demographic variables will be looked at. The second purpose of the chapter concerns remarriage as an important intervening or mediating factor between marital dissolution and subsequent childbearing. By better understanding the incidence and distribution of remarriage, the impact of dissolution on fertility (the subject of Chapters 6 and 7) can be evaluated better.

Conceptually, it is useful to think of marital dissolution and remarriage as the component parts of a process or cycle that takes people back and forth between being married and not being married. There are 2 states of being (married and unmarried), and dissolution is the process or event that transfers people from being married to being unmarried while remarriage takes people in the opposite direction.

For women who experience dissolution through widowhood, there are 2 distinct steps that correspond with the 2 processes of the dissolution-marriage cycle. The women go from the married to unmarried state at the death of the husband. The reverse process is accomplished when they remarry. However, for women who experience dissolution from marital unhappiness and discord, there is a 3 step sequence of events that corresponds to the 2 processes of the dissolution-remarriage cycle. The first step is the decision to stop living together. This, for many couples, is the actual breaking point of the marriage. However,

the formal and legal dissolution of the marriage requires a second step, divorce. Marriages are only legally dissolved when a divorce is obtained. The third step in the complete cycle is remarriage. A second marriage can only be contracted after the first one is officially dissolved. That is, remarriage cannot occur before a divorce is obtained.

For women who experience dissolution from discord a 3 step procedure (separation, divorce, and remarriage) is superimposed on a cycle that only contains 2 states of being (married and unmarried) and which only contains 2 processes (dissolution and remarriage) for transferring people between states. This superimposition creates conceptual and methodological difficulties. Separation, the first step in the cycle is obviously part of the dissolution process; it takes women from being married to being unmarried. The third step, remarriage, is obviously part of the remarriage process; it takes women from the unmarried condition to the married. It is the second step, divorce, and the period of time between separation and divorce that creates the difficulty. Are the marriages of separated women dissolved? Is a separated woman married or unmarried? Is the remarriage process best seen beginning with separation or divorce?

Legally and formally the 3 questions of the preceding paragraph can be answered in a fairly straightforward and simple manner. Marriages end at the time of divorce. Until

divorce, women remain in the married state and are not able to begin the remarriage process. However, the sociological answers to the questions are less simple and in many ways different. The legal requirements are recognized, but it is also understood that most of the characteristics of the married state end when separation occurs. By definition, the partners no longer live together, and the ties are mostly broken. In addition, and more importantly for the purposes of this study, the childbearing function of the marriage has been disrupted. Many separated couples no longer consider themselves married. This is especially true for those who believe the separation is permanent. In fact, many marriages are disrupted permanently from discord and yet are never dissolved legally by divorce. It was these considerations and the resulting sociological answers to the first 2 questions that led me to include separation in the definition of dissolution and utilize the date of separation as the dissolution date in Chapters 2 through 4.

The third question (Is the remarriage process best seen beginning with separation or beginning with divorce?) is more difficult to answer sociologically than the first 2. The beginning of the remarriage process undoubtedly varies tremendously among individuals. As Bernard (1956) points out the process probably begins even before separation for some. For these people, both separation and divorce are merely steps allowing a new marriage to be contracted. Sweet (1973) also argues that the process of remarriage

begins before divorce. He suggests that many separated couples divorce only when one of them desires remarriage. For these people, divorce is only a formality in the remarriage process. Other individuals undoubtedly do not begin the remarriage process until after divorce. For them, the actual beginning of the process roughly coincides with legal requirements.

Since it is not clear when the analysis of remarriage should start, the process will be examined in several ways. We first consider the remarriage behavior of all who separate or become widowed. Then, for those experiencing dissolution from discord, the "jump" from separation to remarriage is decomposed into its 2 "steps"; divorce following separation and remarriage given that divorce has occurred. The total "jump" from separation to remarriage and the 2 component "steps" are then studied separately. This permits the remarriage process to be studied beginning with separation and then again starting with divorce. In addition, the strategy allows the study of divorce as an intervening "step" between separation and remarriage.

Analyzing the overall process of remarriage and then investigating the 2 components allows us to look at the topic in a way that has not been used before. Several studies have either examined the overall process or the divorce to remarriage step, but none have looked at all the components together. Sweet (1973) used the 1967 Survey of Economic Opportunity and the 1970 National Fertility

Study to examine the overall process. In his study, all those who had experienced separation or widowhood were included in the analysis. Sweet's primary interest was the relationships between remarriage and other variables. Two other studies have used data on divorcees and widows to examine remarriage given that divorce or widowhood had occurred. The U.S. Bureau of the Census (1971) reports a study utilizing the 1967 Survey of Economic Opportunity, and Williams and Kuhn (1973) analyzed the remarriage of divorcees and widows using vital statistics data. Where appropriate, the results of the current analysis will be compared with the findings of these other studies.

Since remarriage transfers women from the unmarried to the married state over time, it can be analyzed efficiently through the use of decrement tables. Jones (1962) utilized the decrement table to analyze the remarriage of widows. Inasmuch as he was interested in all processes removing women from the widowed category, he recognized both remarriage and mortality as forces that reduced the number of widowed women. Therefore, he utilized a double decrement table approach. This procedure will not be followed since all women included in the study, by definition, had not experienced mortality. The present analysis will use single decrement tables. Only remarriage will be recognized as a process transferring women from the unmarried status. It will, therefore, not be necessary to distinguish between net and gross rates as done in Chapter 2.

Overall Remarriage Incidence and Distribution

In Table 34 remarriage decrement tables are presented for all women who experience either separation or widowhood. The probabilities of remarrying during 3 year intervals ($_3q_x$) are computed using Equation 7 of Chapter 2. However, in this analysis the $_3q_x$ values are built up from 1 month rather than the 2 month intervals used in the marital dissolution analysis (see Chapter 2 for more details about the decrement table procedure). The date of dissolution is either the reported time of separation or widowhood. Women who did not report the date of dissolution or remarriage are excluded.

The decrement tables are presented separately for whites and nonwhites. The results indicate marital dissolution among whites is not an indication that married life has been rejected. A large proportion of the white women remarry very soon after dissolution. Over 50 percent of them remarry within 3 years; and before 9 years have passed, the percentage increases to 83. For the women who had remarried by the ninth year, it is possible to estimate the mean time between dissolution and remarriage. This measure is computed by multiplying the midpoint of each interval by the proportion remarrying in the interval, summing the products, and then dividing by the proportion who remarried altogether. For whites, the average time is 2.93 years.

TABLE 34. Remarriage Decrement Tables By Race: 1970

Dissolution Duration (in years)	White		Nonwhite	
	$1000Q_x^*$	${}_3q_x^*$	$1000Q_x^*$	${}_3q_x^*$
0	0	.518	0	.164
3	518	.472	164	.193
6	746	.331	326	.174
9	830		443	
	n = 908		n = 473	

*Q_x = the probability of remarrying by year x.

*${}_3q_x$ = the probability of remarrying from year x to year x + 3.

NOTE: Dissolution duration is measured from the date of separation or the death of the husband as appropriate.

The experience of nonwhite women is very different. Fewer of them remarry within the 9 years examined; and those who remarried, did so at a slower rate than whites. Only about 16 percent had remarried by the third year and by the ninth year the percentage was still less than 45. The percentage remarrying by the ninth year is, thus, only about one-half that of whites. In addition, for those who remarry by the ninth year, the mean length of time between dissolution and remarriage is 4.18 years. This is over 40 percent larger than the time for whites.

These data suggest that the impact of marital dissolution on subsequent fertility will not be the same for the 2 races. Since whites remarry quickly and in large numbers, the impact of dissolution on their fertility is likely to be small. For nonwhites the impact should be larger since fewer of them remarry and those who do remarry do so at a slower rate.

Remarriage propensity has been found to be related to several important social and demographic variables (see especially U.S. Bureau of the Census, 1971; and Sweet, 1973). The data provide an opportunity to investigate those relationships further. Three procedures are used in the analysis. For each category of the variables listed in Table 35 a remarriage decrement table is constructed. Since the presentation of all the complete tables would supply more data than could be readily assimilated, only the probabilities of remarrying within 9 years (Q_9) are

TABLE 35. Probability of Remarrying Within 9 Years of Dissolution and the Unadjusted and Adjusted (by MCA) Proportion Remarrying Between Dissolution and Interview: 1970

	White				Nonwhite			
		Prob.	Proportion			Prob.	Proportion	
	n (1)	Q_9 (2)	Unadjusted (3)	Adjusted (4)	n (5)	Q_9 (6)	Unadjusted (7)	Adjusted (8)
Total	908	.83	.66	.66	473	.44	.33	.33
Education:								
Elementary	101	.90	.71	.66	81	.39	.38	.26
1-3 High School	256	.86	.70	.64	194	.44	.30	.30
4 High School	370	.82	.66	.68	124	.44	.32	.39
1-3 College	119	.80	.60	.65	58	.46	.36	.36
4 + College	62	.66	.47	.59	18	.69	.50	.53
Religion:								
Fundamentalists & Baptists	336	.87	.71	.66	326	.39	.31	.30
Catholics	185	.74	.60	.63	51	.63	.41	.45
Others	387	.84	.63	.66	96	.55	.36	.38
Age at Marriage:								
Less than 18	351	.89	.76	.70	212	.48	.41	.37
18-19	306	.85	.69	.68	127	.47	.24	.28
20-21	144	.71	.49	.53	79	.41	.38	.35
22 and Over	107	.70	.44	.57	55	.26	.18	.28
Age at Dissolution:								
Less than 22	351	.93	.82	.72	159	.63	.54	.43
22-26	306	.82	.67	.68	149	.35	.30	.29
27-31	144	.72	.56	.62	95	.25	.18	.23
32 and Over	107	.55	.34	.51	70	.50	.14	.33

TABLE 35. Continued

	White				Nonwhite			
		Prob.	Proportion			Prob.	Proportion	
	n (1)	Q_9 (2)	Unadjusted (3)	Adjusted (4)	n (5)	Q_9 (6)	Unadjusted (7)	Adjusted (8)
Cause of Dissolution:								
Death	106	.79	.59	.67	70	.33	.24	.30
Discord	802	.83	.66	.65	403	.46	.35	.34
Number of Children at Dissolution:								
0	203	.89	.77	.72	68	.57	.60	.45
1	258	.89	.74	.69	104	.54	.41	.35
2	216	.77	.59	.60	96	.46	.35	.34
3 or More	231	.74	.51	.61	205	.31	.19	.28

NOTES: The date of dissolution is defined as the date of separation or death of husband as appropriate.

Q_9 = Probability of remarrying within 9 years of dissolution (from decrement table).

Adjusted proportion remarrying is from MCA model including all listed variables plus dissolution duration.

shown. These values are presented in columns 2 (for whites) and 6 (for nonwhites) of Table 35. These summary measures build in explicit controls for dissolution duration but provide no controls for other important variables.

The second strategy is to analyze the entire remarriage experience of eligible women (those who had experienced either separation or widowhood) between dissolution and interview. For each of the subgroups in Table 35, the proportion remarrying before the interview is computed. The proportions resulting from this analysis are presented in columns 3 and 7 of Table 35. These proportions do not take into account or control any of the other relevant variables including dissolution duration. For this reason, they are labelled "unadjusted."

The third approach will study the proportion remarrying before the interview using Multiple Classification Analysis (MCA). As explained in Chapter 2, MCA allows an effect for each category of the independent variable to be estimated controlling for the effects of all other variables in the equation. By adding this effect to the grand proportion (mean), the "adjusted" proportion remarrying is obtained. The results of the MCA analysis are shown in columns 4 and 8 of Table 35. The adjusted proportions are estimated from an equation that included all the variables in Tables 35 plus the length of time from dissolution to interview. So, in the MCA analysis, each of the variables in Table 35 and dissolution duration are controlled. In

all analyses shown in Table 35, the date of dissolution is either the time of separation or the date of the husband's death.

One comment concerning the choice of multivariate technique is necessary. Since the dependent variable was a dichotomy, my first inclination was to use contingency table procedures. Unfortunately, even more controls have to be utilized in the analysis of remarriage than were employed in the study of dissolution reported in Chapters 2 and 3. The remarriage study requires controls for dissolution cause, age at dissolution, and dissolution duration in addition to those used in the earlier analysis. This meant that the tables analyzed here would have many more cells. With fewer observations available, the problem of empty cells (which was just an annoyance in Chapters 2 and 3) would be insurmountable here. Therefore, it was decided that Multiple Classification Analysis (MCA) with all its problems (see Chapter 2) would be the multivariate tool. Two factors increase my confidence in using MCA for this analysis. First, the distribution of the dependent variable here is "better" than for any of the dependent variables studied in Chapters 2 and 3. The percentage remarrying is between 25 and 75. Secondly, in Chapter 2 the results obtained utilizing MCA were almost identical to those obtained from the contingency table analysis.

The data reported in Table 35 indicate that among whites there is an inverse relationship between education

and remarriage when there are no controls (column 3) or when only dissolution duration is controlled (column 2). However, when other variables are taken into account, the association disappears (column 4). The relationship between education and remarriage appears to be positive (but small) among nonwhites. The mechanisms producing these results will become clearer later when remarriage is broken into its 2 components.

For whites there is a fairly substantial relationship between religion and remarriage when either no controls are employed or when only dissolution duration is included as a control. Catholics, in those instances, appear to have the lowest remarriage propensity. When other controls are employed, Catholics still have a lower remarriage rate; but the difference then is only .03. For nonwhite women there is an entirely different relationship that seems to persist even when other variables are controlled. Catholics have the greatest remarriage propensity and Fundamentalists and Baptists the least. The high remarriage propensity of the nonwhite Catholics is not readily explainable. It should be remembered, however, that the sample size for this subgroup is quite small (only 51).

The data in Table 35 suggest a positive correlation between the timing of the first marriage and the timing of the second one. Those women who married early the first time are more likely to remarry following a dissolution. This is especially true for whites where the relationship

persists over all 3 comparisons made. The association is apparently not produced by the correlations among age at marriage, age at dissolution and time from dissolution to the interview. For nonwhites the relationship is not nearly so clear. It only appears in the decrement table summarization (Q_9) and even there it is fairly weak. In the unadjusted and adjusted proportions remarrying the relationship does not appear to be interpretable for nonwhites.

Further analysis will obviously need to be done to understand the age at marriage-remarriage relationship. These data, however, suggest an interesting hypothesis. There may be characteristics of women that increase their desire for and/or likelihood of marrying, and these characteristics may persist over time and marriages. It is interesting to note that Sweet (1973) reports that the relationship for whites in the 1970 National Fertility Study was also found in the 1967 Survey of Economic Opportunity data.

The influence of age on remarriage has been reported by several researchers. Remarriage rates are higher for younger women than they are for older women (see Glick, 1957; and Williams and Kuhn, 1973). The results also hold up when a control for dissolution duration is introduced (see also Sweet, 1973; and U.S. Bureau of the Census, 1971). Without a control for duration, the proportion remarrying by the interview date is over twice as high for those who experience dissolution under age 22 than it is for those

32 or older. The differential is reduced substantially when the probability of remarrying within 9 years of dissolution is examined. It is reduced even further when the other controls (columns 4 and 8) are introduced in the MCA analysis. However, even when the effects of all the other variables are taken into account, the relationship between age at dissolution and remarriage persists. Experiencing dissolution at a young age appears to increase the likelihood of remarriage in 2 ways. As our results indicate, it increases the chance of remarrying in any given interval (the high remarriage rate of the very old nonwhite women being an exception in these data). In addition, those who experience disruption young, have more time available for remarrying.

The relationship between the cause of dissolution and remarriage has received an extensive amount of attention in the literature. Typically, the research has found the remarriage rates of the divorced are much higher than those of the widowed (Bernard, 1956; Carter et al., 1955; Glick, 1957; and Williams and Kuhn, 1973). These studies have compared the remarriage rates of the divorced with those of the widowed; separated women have not been included. While (as I duscussed in the previous section of this chapter) it is not clear whether or not separated women should be included in remarriage analysis, it is certainly clear that their exclusion increases the remarriage rates of discord produced dissolutions relative to death produced ones.

Remarriage rates for dissolutions resulting from discord will be higher if separated women are excluded. When Sweet (1973) analyzed the relationship between the cause of dissolution and remarriage using the Survey of Economic Opportunity data, he included separated women and still found that widows had lower rates; but the differential was much smaller than reported in earlier studies.

It is my opinion that separated women should be included when the remarriage rates of widows are compared to the rates of women who experienced dissolution because of discord. The reason is that the remarriage process can and often does begin before divorce. In any event, separated women are included in the analysis shown in Table 35. From those data, we see that when no controls (columns 3 and 7) are utilized, widows have lower remarriage propensity. But, when controls for important variables such as age at dissolution are introduced, the difference is reduced tremendously (columns 4 and 8). For nonwhites the difference is reduced from .11 to .04. For whites, the relationship is actually reversed when controls are employed; with controls white widows have higher remarriage propensity. The conclusion of this analysis is that the lower remarriage propensity of widows has probably been overstated in earlier research. It may even be, as these data indicate, that widows have the same remarriage rate as others when relevant differences between the 2 groups of women are taken into account.

The last variable listed in Table 35 is especially relevant for this study. That variable is the number of children the women had at the time of dissolution. The data suggest an interesting relationship between number of children and remarriage. For both races, all of the analyses indicate that women with few children are more likely to remarry than those with more. Unfortunately, the reasons for the lower remarriage rates of the high parity women cannot be ascertained from the available data. It is possible, however, to speculate that having a large number of children may be a disadvantage in the remarriage market. Women with several children may not be as desirable marriage partners as those with few or no children since children require extensive time, financial, and emotional resources. It is possible that men prefer to marry women who have few or no children so that resource constraints will be minimized. It is also possible that the time, financial, and emotional requirements of children prevent women with several children from devoting the time that is necessary to arrange a second marriage.

The inverse relationship between parity and the likelihood of remarrying is important for understanding the impact of marital dissolution on subsequent fertility. In a country like the United States, fertility norms appear to be quite low. The desired number of children is well below the physiological capacity of most individuals, and the use of birth control is widespread. The probability of a

woman bearing an additional child or children is known to depend upon the number of children she already has. High parity women are less likely to have additional children than low parity women. In a society like this, it seems reasonable to expect that since remarriage is selective of low parity women, it is also selective of those who will have more children after remarriage. Women who are probably the most likely to have additional children if they do remarry, also seem to be the ones most likely to remarry. If this argument is correct, the inverse relationship between parity and remarriage may limit the impact marital dissolution has on subsequent childbearing.

It is important to realize that the inverse relationship between parity and remarriage, as well as the implication it has for the influence of dissolution on subsequent fertility, may be limited to countries where the desired number of children is low and the use of birth control is widespread. In countries where the level of fertility is high and birth control is limited, the relationships may be different. In those countries low parity women experiencing dissolution may have few children because of subfecundity or sterility. Since childbearing seems to be more valued, low parity women may have a disadvantage rather than an advantage in the remarriage market. Therefore, in these countries the relationship between remarriage and parity may be positive rather than negative. However, even if the relationship between parity and remarriage is inverse, the

hypothesized subfecundity of the low parity women experiencing dissolution has implications for the way the inverse relationship influences the impact of dissolution on subsequent childbearing. If the low parity women have subfecundity or sterility problems, the differential remarriage probabilities would select women with the lowest future fertility potential. Women who are the least likely to have additional children if they did remarry would be the ones most likely to do so. If this is true, in these countries, an inverse relationship would increase the influence of dissolution on subsequent childbearing rather than decreasing it. In any event these considerations suggest the importance of studying the relationships in countries where the conditions are different from those in the United States. The relationships in those countries may be quite different from the ones observed in this study.

Decomposition of the Total Remarriage Experience

In the previous section of this chapter the overall incidence of remarriage and differential remarriage by social and demographic characteristics were studied. The analysis examined the whole period from dissolution (separation for those marriages disrupted by discord) to remarriage. We now turn to the investigation of the individual steps in the process of going from previously married to married. The analysis will investigate the step from separation to divorce; and then, for those who divorce, the step from

divorce to remarriage. The goal is to better understand the relationships between the social and demographic variables and both of the steps between separation and remarriage. By definition, this investigation will exclude dissolutions produced by widowhood.

One of the strategies of the previous section was to investigate the proportion of women in disrupted marriages who had remarried by the interview. The proportion who remarry can be decomposed directly into 2 parts. The 2 components are the proportion of separations that divorce and the proportion of those who divorce that go on to remarry. Observe, these 2 components are multiplicative rather than additive. It is the product of the 2 components, rather than the sum, which equals the total proportion.

The unadjusted proportion divorcing and the unadjusted proportion remarrying given divorce is obtained for each category of the independent variables. In addition, adjusted proportions for both components are estimated through MCA. The adjusted proportion divorcing is obtained from an equation having divorce as the dependent variable with separation duration and the variables in Table 36 as independent variables. The adjusted proportions remarrying given divorce are computed in a similar manner. For the latter estimates, women who divorce will be analyzed in an equation with remarriage as the dependent variable and with the independent variables being separation duration

TABLE 36. Proportion Divorcing, Proportion Remarrying Given Divorce, and the Total Proportion Remarrying, Unadjusted and Adjusted By MCA, Whites: 1970

		Unadjusted Proportions			Adjusted Proportions		
	n (1)	Divorce (2)	Remarry Given Divorce (3)	Total Remarry (4)	Divorce (5)	Remarry Given Divorce (6)	Total Remarry (7)
Total	803	.88	.75	.66	.88	.75	.66
Education:							
Elementary	89	.82	.88	.72	.81	.80	.65
1-3 High School	230	.87	.82	.71	.86	.76	.66
4 High School	322	.90	.74	.66	.90	.76	.68
1-3 College	108	.94	.64	.60	.96	.70	.67
4 + College	54	.83	.56	.46	.87	.67	.58
Religion:							
Fundamentalists & Baptists	305	.91	.79	.72	.90	.75	.67
Catholics	162	.85	.73	.62	.86	.75	.64
Others	336	.88	.71	.62	.88	.75	.66
Age at Marriage:							
Less than 18	322	.89	.87	.77	.88	.81	.72
18-19	274	.92	.75	.69	.91	.76	.69
20-21	122	.85	.53	.45	.86	.59	.51
22 and Over	85	.81	.56	.46	.85	.66	.56

TABLE 36. Continued

	n (1)	Unadjusted Proportions: Divorce (2)	Unadjusted Proportions: Remarry Given Divorce (3)	Unadjusted Proportions: Total Remarry (4)	Adjusted Proportions: Divorce (5)	Adjusted Proportions: Remarry Given Divorce (6)	Adjusted Proportions: Total Remarry (7)
Age at Separation:							
Less than 22	329	.93	.88	.82	.89	.80	.71
22-26	234	.89	.74	.66	.89	.77	.68
27-31	126	.88	.65	.57	.91	.71	.64
32 and Over	114	.75	.42	.32	.84	.57	.48
Number of Children at Separation:							
0	188	.92	.84	.78	.90	.82	.74
1	229	.93	.80	.75	.92	.77	.70
2	195	.88	.67	.59	.88	.67	.59
3 or More	191	.79	.66	.52	.83	.72	.60

NOTES: All MCA equations have the variables listed and separation duration as indpendent variables.

n refers to the number of observations at the time of separation.

Column 4 = column 2 times column 3 and column 7 = column 5 times column 6.

and the variables listed in Table 36. It is important to note that the same set of independent variables are employed in both equations. The results of the analysis are shown in Table 36 for whites and in Table 37 for nonwhites. Besides the proportions for the 2 components, the tables contain estimates of the proportion of separated women who remarried by the time of the interview. Unadjusted and adjusted estimates of the proportion remarrying are shown, and both are equal to the product of their respective components.

The pattern of coefficients for the total remarriage proportions (columns 4 and 7) is the same in Tables 36 and 37 (where widows are excluded) as in Table 35 where widows are included. The comments presented earlier about Table 35 apply equally well to the total remarriage proportions here. For this reason we turn directly to the components.

Education produces opposite effects in the 2 components of total remarriage. For both races, there is a positive correlation between education and divorce. The relationship, however, appears to be more important among nonwhites. On the other hand, the correlation between education and remarriage given that divorce has occurred appears to be an inverse one. This, however, is more true among whites than nonwhites. When other variables are controlled, the relationship persists for whites but disappears for nonwhites. The results indicate that education is related differently with the 2 components of the overall

TABLE 37. Proportion Divorcing, Proportion Remarrying, Unadjusted and Adjusted By MCA, Nonwhites: 1970

		Unadjusted Proportions			Adjusted Proportions		
	n (1)	Divorce (2)	Remarry Given Divorce (3)	Total Remarry (4)	Divorce (5)	Remarry Given Divorce (6)	Total Remarry (7)
Total	403	.59	.59	.35	.59	.59	.35
Education:							
Elementary	63	.59	.73	.43	.45	.57	.26
1-3 High School	166	.51	.60	.30	.51	.58	.30
4 High School	107	.60	.58	.35	.65	.67	.44
1-3 College	51	.74	.47	.35	.78	.51	.39
4 + College	16	.88	.57	.50	.90	.61	.55
Religion:							
Fundamentalists & Baptists	275	.57	.57	.33	.58	.54	.32
Catholics	46	.63	.69	.44	.63	.77	.49
Others	82	.62	.59	.37	.59	.63	.38
Age at Marriage:							
Less than 18	184	.64	.66	.42	.67	.62	.41
18-19	100	.48	.48	.23	.48	.51	.25
20-21	71	.72	.59	.42	.65	.62	.40
22 and Over	48	.42	45	.19	.41	.55	.23

TABLE 37. Continued

	n (1)	Unadjusted Proportions: Divorce (2)	Unadjusted Proportions: Remarry Given Divorce (3)	Unadjusted Proportions: Total Remarry (4)	Adjusted Proportions: Divorce (5)	Adjusted Proportions: Remarry Given Divorce (6)	Adjusted Proportions: Total Remarry (7)
Age at Separation:							
Less than 22	146	.68	.78	.53	.61	.67	.41
22-26	135	.57	.49	.28	.57	.54	.31
27-31	77	.53	.39	.21	.58	.46	.26
32 and Older	45	.44	.45	.20	.60	.66	.40
Number of Children at Separation:							
0	60	.83	.78	.65	.74	.67	.49
1	93	.56	.73	.41	.54	.65	.35
2	84	.64	.52	.33	.66	.52	.34
3 or More	166	.49	.43	.21	.52	.55	.29

NOTES: All MCA equations have the variables listed and separation duration as independent variables.

n refers to the number of observations at the time of separation.

Column 4 = column 2 times column 3 and column 7 = column 5 times column 6.

rate. Consequently, the relationship between education and the overall remarriage rate appears unimportant.

It is possible that economic considerations explain the relationships described. Education can be used as a proxy for the ability to obtain and control assets. Since divorce requires financial resources, it seems reasonable that economic constraints could inhibit the process. People with low education may be less able to afford divorce. The factor should be more relevant in the nonwhite population where there are more economic constraints operating. The data are consistent with this hypothesis; the relationship between education and divorce is larger for nonwhites. The remarriage differential for those who have divorced also seems consistent with an economic interpretation. Supposedly, educated women are able to provide their own support easier than those with less education. This may decrease their motivation and desire to remarry. The data for whites are more consistent with this hypothesis than those for nonwhites.

For white women there appears to be an interesting, but small relationship between religion and the 2 component variables. Catholics appear to be less likely to divorce. All religions, however, appear to have the same remarriage rates given that divorce occurs (when controls are introduced). The overall lower remarriage propensity of white Catholics seems to be accounted for completely by their lower divorce rate. It seems reasonable to think

that this lower divorce propensity of Catholics may be produced by the official Catholic position on divorce. Catholics that separate may be slowed down in going on to obtain a divorce. However, the size of this effect certainly should not be overstressed since it is rather small.

For nonwhites, the relationship between religion and divorce appears to be exactly the same as between religion and remarriage given divorce. In both cases Catholics have the highest rates and Fundamentalists and Baptists the lowest. Since the differentials are consistent for both components, the result is a substantial total remarriage differential. I do not, however, have an explanation of the differences between the nonwhite religion groups.

For both components there is a race-age at marriage interaction. For whites, women who married when they were less than 20 have higher proportions divorcing and higher proportions remarrying after divorce. Since these women have higher proportions on both components, the overall proportion remarrying is substantially higher for them than it is for those who married when they were 20 or older. This relationship, however, does not seem to exist for nonwhites. For nonwhites the percentages for both components are highest for those who first married when they were 20 or 21 or when they were younger than 18. It is not clear what the explanation is for the different relationships existing in the two racial groups.

In the previous section of this chapter, we observed an inverse relationship between age at dissolution and total remarriage propensity. The decomposition of the total remarriage rate shown in Tables 36 and 37 shows the source of that association. When we examine the adjusted coefficients, we find that none of the total correlation between age and remarriage is produced by the relationship between age and divorce. It is all produced by differential remarriage following divorce. While young women do not appear more likely to divorce, they are more likely to remarry if they have divorced. It is important to note that these are the relationships existing when other variables including separation duration are controlled.

The inverse relationship between parity and overall remarriage seems to be produced by similar and consistent relationships with the components. Parity is inversely related with both divorce and remarriage given that divorce occurs. These results hold for both races.

The procedure used in Tables 36 and 37 provides a clear decomposition of the overall rate. The methodology also allows the proper MCA analysis to be conducted for the divorce component. Some compromises were made, however, in the MCA analysis of the remarriage given divorce component. The analysis defined age and parity at the time of separation as dictated by the decomposition rather than at the time of divorce. In addition, dissolution duration was measured from the time of separation rather than divorce.

Since remarriage following divorce was being studied, in this instance, it would have been more appropriate to measure age, parity, and dissolution duration relative to divorce. In an attempt to see if the results of Tables 36 and 37 were affected by the definition of age, parity, and dissolution duration, I carried out another analysis defining all of these variables relative to divorce. The other variables and procedures utilized were exactly the same as in the earlier analysis. The results of this investigation are contained in Table 38.

A careful examination of the proportions for white women in Table 38 show that they are very similar to those in Table 36. The change in the variable definitions does not affect the interpretations offered concerning the relationships between the variables and remarriage following divorce. There are, however, some differences between the coefficients for nonwhites in Table 38 and those in Table 37. These differences do not alter the interpretations given either. In fact, the data for nonwhites in Table 38 are more consistent with the interpretations given than the earlier data.

Since the main findings of this chapter have been recapitulated in different ways throughout the chapter, they will not be restated again here. One methodological point should, however, be made. The process of going from separation to remarriage is a complex process. It is not clear exactly how that process should be conceptualized

TABLE 38. Proportion Remarrying Between Time of Divorce and Time of Interview, Unadjusted and Adjusted By MCA, By Race: 1970

	White			Nonwhite		
	n	Unadjusted	Adjusted	n	Unadjusted	Adjusted
Total	682	.74	.74	228	.58	.58
Education:						
Elementary	68	.88	.80	35	.71	.51
1-3 High School	190	.81	.75	80	.58	.56
4 High School	281	.73	.74	64	.58	.67
1-3 College	99	.63	.70	35	.49	.52
4 + College	44	.57	.70	14	.57	.63
Religion:						
Fundamentalists & Baptists	259	.79	.74	151	.56	.56
Catholics	135	.73	.75	28	.71	.71
Others	288	.71	.74	49	.57	.58
Age At Marriage:						
Less than 18	270	.87	.79	112	.65	.62
18-19	247	.75	.76	48	.48	.51
20-21	101	.52	.60	49	.57	.58
22 and Over	64	.55	.67	19	.47	.54

TABLE 38. Continued

	White			Nonwhite		
	n	Unadjusted	Adjusted	n	Unadjusted	Adjusted
Age at Divorce:						
Less than 22	236	.90	.79	62	.77	.61
22-26	212	.76	.78	81	.59	.58
27-31	129	.66	.69	50	.52	.58
32 and Older	105	.48	.62	35	.31	.54
Number of Children At Divorce:						
0	172	.85	.81	49	.78	.65
1	200	.78	.76	47	.70	.64
2	164	.66	.67	51	.49	.55
3 Or More	146	.66	.73	81	.46	.53

MCA equation has the variables listed and divorce duration as independent variables.

and investigated. In this analysis the entire period from separation to remarriage was examined. This was then decomposed into the two component steps, divorce and remarriage. The decomposition of the overall process into steps provides insights into the mechanisms operating that could not have been gained by looking at only the total or any of the parts separately.

CHAPTER 6

THE IMPACT OF MARITAL DISSOLUTION ON FAMILY SIZE

Conceptualization and Measurement

The analytic framework of fertility proposed by Davis and Blake (1956) and modified by Yaukey (1973) was outlined and reviewed in Chapter 1. That model suggests that the marital status of a woman significantly affects her exposure to intercourse, conception, and gestation and parturition. By influencing these steps in the reproductive process, marital status influences fertility levels; married women have more children than unmarried women. Marital dissolution should lower the fertility of affected women by transferring them to a lower fertility status. For women who do not remarry, this reduction in fertility should be experienced for the entire postdissolution period. However, a large proportion of the women who experience a marital disruption remarry and are thereby transferred back into a high fertility status. These women are then able to resume their childbearing and may be able to entirely "make up" for the fertility reduction experienced between marriages. The purpose of Chapters 6 and 7 is to examine the influence of marital dissolution and remarriage on childbearing.

Two main aspects of childbearing are usually recognized in fertility research. They are the number of children ever born and the timing pattern of those births. Chapter 6 is devoted to the analysis of the impact of marital dissolution and remarriage on the number of children women have. In addition, Chapter 6 examines briefly the influence of these factors on the dynamics of childbearing. Chapter 7 is devoted exclusively to the impact of these events on the timing and spacing of children.

Unfortunately, the National Fertility Studies do not contain measures of completed fertility since the samples were limited to women in the reproductive ages. The completion of the analysis, therefore, requires that a proxy for completed childbearing be employed. Since there are always difficulties involved with utilizing any particular proxy, this investigation uses 2 different ones so that results and conclusions can be compared. For one proxy, we measure cumulative fertility at some point prior to the end of childbearing. The choice of the time point is constrained by 2 considerations. First, the time had to be close enough to the end of childbearing to be a reasonable substitute. Second, it had to be far enough from the end of childbearing to provide a reasonable number of women to study. The compromise time point chosen was 17 years following first marriage. By this time most childbearing has occurred; and the data sources include a

reasonable number of women who were interviewed 17 or more years after first marriage.

The second proxy of completed childbearing employed in this chapter is "total intended fertility." This measure was obtained by asking the woman the number of children she intended to have in the future. Her response was added to the number of children she already had. The resulting measure, thus, indicates the woman's estimate of the total number of children she intends to have altogether. While there are certainly problems with utilizing fertility intentions as indicators of total fertility, the measure should allow us to check the results obtained from using 17 years as the proxy.

The cumulative fertility of all women who experienced a dissolution is examined at the time of the disruption and 17 years after first marriage. The number of children these women had at the 2 time points is compared with the number women in intact marriages had at the same time. Additional analysis is carried out for the women who remarry. Their cumulative fertility is studied at remarriage as well as at dissolution and 17 years after first marriage. Fertility intentions are also studied. The analysis of intentions, however, is limited to remarried women since those who had not remarried by the interview were not asked about their fertility intentions.

In this chapter we use data from both the 1965 and 1970 National Fertility Studies. The 1970 study sampled

ever married women; therefore, it is utilized for the analysis of the fertility of all those who experienced dissolution. The 1965 study, however, excluded women who were not married at the time of the interview. For this reason, it cannot be used to examine the childbearing of women who experienced dissolution and not remarried. The study can only be used to compare the fertility of those who remarry with that of women in stable first marriages.

The estimates of cumulative fertility at the various time points and the estimates of fertility between points are made for women in disrupted marriages in the usual manner. However, fertility estimates for those in intact marriages cannot be made in the same straightforward manner since they, by definition, do not experience dissolution and remarriage. For these women it is necessary to employ the indirect standardization procedures used in Chapter 4. For 1970 the procedures summarized in Figure 6 of Chapter 4 are utilized. In fact, the same 12 by 80 matrix of cumulative fertility means (shown, in part, in Table 26) which was utilized in Chapter 4 is used here. It should be recalled that the resulting standardization controls for race, education, age at marriage, marital duration, and religion (for whites).

With one minor exception, the analysis of the 1965 data is carried out using the 1970 procedures. In the 1970 study, the sample was limited to women under age 45. For this reason most of them married and had their children

during the baby boom. Preliminary analysis showed that the younger women had similar early fertility as the older women, and a control for age or the date of marriage was not necessary. However, the 1965 study sampled women under age 55. A large proportion of the older women in this sample married and had many of their children before the baby boom while the younger women were starting their families during that period. Preliminary analysis showed that the group of women that married before the baby boom had very different fertility from those marrying later. For this reason, it was decided that a control for the date of first marriage should be employed in the 1965 analysis. This control was accomplished by classifying all first marriages occurring prior to 1950 in one category and all other marriages in a second category. This variable was then cross-classified with the 12 categories already shown in Table 26. The result is that the 1965 study utilized matrices that were 24 by 80 rather than the 12 by 80 matrices used for the 1970 data. Thus, for 1965 the controls include date of first marriage in addition to those employed in 1970. The purpose in analyzing the 1965 data is to check 1970 results. For this reason sampling errors are not computed for the 1965 data.

The Impact of Marital Dissolution on Individual Family Size

We begin by examining the fertility histories of women who experienced marital dissolution during the first 17 years of marriage. The analysis will include both discord produced disruptions and those resulting from death. The mean numbers of children these women had at the time of dissolution (plus 9 months lag time) and 17 years after first marriage are shown in Table 39. In addition, the standardized number of children women in intact first marriages had at the same time points are shown. It should be noted that dissolution refers to either separation or widowhood.

An examination of the cumulative fertility means 17 years after first marriage reveals some interesting findings. For whites, the differences between the cumulative fertility of those who experience dissolution and those who do not are very small. In the 1970 data, the 2 groups of women had almost exactly the same number of children 17 years after first marriage. This result was produced by the fact that the women who did not remarry had .18 fewer children than those in stable marriages while the remarried women had .05 more. Notice that all of the differences observed are smaller than their standard errors. In the 1965 data we observe that white remarried women had .15 fewer children than similar women in stable marriages.

TABLE 39. Mean Number of Children Ever Born at Time of Dissolution (Plus 9 Months) and 17 Years After First Marriage, For Women in Disrupted Marriages and Similar Women in Stable Marriages, By Remarriage Status, Race, and Year

	Dissolution Plus 9 Months				17 Years After First Marriage			
	Number Of Women In Disrupted Marriages (1)	Disrupted Marriages (2)	Stable Marriages (3)	Difference (4)	Disrupted Marriages (5)	Stable Marriages (6)	Difference (7)	Standard Error Of Difference (8)
1970								
White:								
Remarry	211	1.59	1.81	.22	3.30	3.25	-.05	.13
Not Remarry	70	2.94	2.82	-.12	3.00	3.18	.18	.24
Total	281	1.93	2.06	.13	3.23	3.24	.01	.12
Nonwhite:								
Remarry	70	1.63	2.09	.46	3.49	4.96	1.47	.39
Not Remarry	96	3.20	3.46	.26	3.76	4.82	1.06	.34
Total	166	2.54	2.89	.34	3.64	4.88	1.23	.29
1965								
White:								
Remarry	208	1.19	1.37	.18	2.88	3.03	.15	
Nonwhite:								
Remarry	78	1.13	1.59	.46	2.77	4.03	1.26	

This difference (judging from the size of the 1970 standard errors) is also probably about the same size as its standard error.

The situation, however, is quite different for nonwhites. Seventeen years after first marriage there are important fertility differences between nonwhite women in intact marriages and those who had experienced dissolution. Reduced fertility exists both for those who remarry as well as for those who do not. For every comparison (both 1965 and 1970), women in intact marriages had at least 1 more child per woman than those in disrupted marriages. All differences are approximately 3 times their standard errors. It is very unlikely that the differences could have been produced by sampling errors, especially when we see the 1965 results are so similar to the 1970 ones.

It is important to note that the women in disrupted marriages did not have the same number of children as other women 9 months after the dissolution. While the differences existing at 9 months are of no substantive interest here (see Chapter 4 for a discussion of them), they must be taken into account since they are included in the differences existing 17 years after first marriage. Since there are differences existing at the time of dissolution, it is important to focus directly on fertility occurring between that time and 17 years marital duration. The number of children women in disrupted marriage had during this interval are shown in Table 40. In addition, Table 40

TABLE 40. Mean Number of Children Born Between Dissolution (Plus 9 Months) and 17 Years After First Marriage For Women in Disrupted Marriages and Similar Women in Stable Marriages, By Remarriage Status, Race, and Year

	Number of Women in Disrupted Marriages (1)	Disrupted Marriages (2)	Stable Marriages (3)	Difference (4)	Standard Error of Difference (5)
1970					
White:					
Remarry	211	1.71	1.44	-.27	.11
Not Remarry	70	.06	.36	.30	.03
Total	281	1.30	1.18	-.12	.10
Nonwhite:					
Remarry	70	1.86	2.87	1.01	.29
Not Remarry	96	.56	1.36	.80	.14
Total	166	1.10	1.99	.89	.16
1965					
White:					
Remarry	208	1.69	1.66	-.03	
Nonwhite:					
Remarry	78	1.64	2.44	.80	

contains standardized estimates of the number women in stable marriages had during the same period of time.

An examination of the data in Table 40 indicates that the fertility of white women between dissolution and 17 years after first marriage depends on whether or not they remarry. The remarried white women had as many children during the period as those in stable marriages. In fact, in 1970, the remarried women had more children during the interval than others. Their fertility was high enough to compensate for the fewer number they had at the time of dissolution. These results definitely do not indicate that marital dissolution reduces completed childbearing if remarriage follows.

For white women who did not remarry, we see a very definite reduction in fertility during the interval from dissolution to the seventeenth year of marriage. During this interval these women only have .06 children. The average length of time from dissolution (plus 9 months) to 17 years marital duration is about 4½ years. This suggests that the rate of illegitimacy for these women is very low. During this same period of time women in stable marriages were having .36 children. These results show that dissolution without remarriage definitely reduces fertility among whites. However, such a large proportion of the white women remarried that, on the average, the total group of white women in disrupted marriages had more children during the interval than those in stable marriages.

For nonwhite women the reduction in fertility following dissolution is substantial and consistent. Even those who remarry have fewer children between dissolution (plus 9 months) and 17 years marital duration. In the 1970 data the reduction in fertility during the interval was 1 child per woman. In the 1965 data the reduction was .8 children. In both years the data show that during this interval, the fertility of women experiencing dissolution and remarriage was about one-third less than the fertility of women in stable marriages.

The fertility of nonwhite women who did not remarry was also reduced considerably between dissolution (plus 9 months) and 17 years marital duration. During this interval (which was about 7 years) these women had, on the average, .56 children. While this suggests a fairly high illegitimacy rate, these women had fewer children during the interval than those in stable marriages. During the same period of time, women in stable first marriages were having 1.36 children or .8 more than women in disrupted marriages. These results indicate that in the nonwhite population marital dissolution substantially reduces the childbearing of affected women. This reduction also appears to be independent of whether or not the women remarry.

The Impact of Marital Dissolutions on Aggregate Family Size

Marital dissolution, through its impact on individual fertility, can influence aggregate fertility. If a substantial number of women experience dissolution, and if their fertility is significantly reduced, the total number of children in the population will be decreased. The analysis now turns to an examination of the impact of marital dissolution on average completed parity in the population. Again, cumulative childbearing 17 years following first marriage is used as the proxy for completed parity. The estimates are obtained from the 1970 study.

The data necessary for making the estimates are contained in Table 41. From column 1 we see that approximately 19 percent of the white and 41 percent of the nonwhite women experienced dissolution from either death of the husband or discord before 17 years had elapsed. In column 2 we see the actual fertility of the women sampled. For whites, the women in stable marriages had 3.10 children at 17 years while the mean number for those who experienced dissolution is 3.23. The grand mean for all white women is 3.13 children. For nonwhites the actual fertility for women in stable marriages is 4.77 children; for women in disrupted marriages the mean is 3.64. The grand mean for nonwhites is 4.31.

The question concerns the extent to which the overall white mean of 3.13 children and the overall nonwhite mean

TABLE 41. Mean Number of Children Ever Born 17 Years After First Marriage For the Aggregate Population Under Existing Conditions and If There Were No Marital Dissolutions Prior to 17 Years: 1970

	Distribution of Marriages at 17 Years (Proportions) (1)	Actual Number Of Children (2)	Number if There Were No Dissolutions Under Assumption* 1 (3)	2 (4)	3 (5)
White:					
Stable Marriages	.811	3.10	3.10	3.10	3.10
Disrupted Marriages	.189	3.23	3.10	3.24	3.11
Total	1.000	3.13	3.10	3.13	3.10
Nonwhite:					
Stable Marriages	.590	4.77	4.77	4.77	4.77
Disrupted Marriages	.410	3.64	4.77	4.88	4.53
Total	1.000	4.31	4.77	4.81	4.67

*Assumption 1: The women in disrupted marriages would have had exactly the same number of children women in stable marriages had.

2: The women in disrupted marriages would have had exactly the same number of children similar women in stable marriages had.

3: The women in disrupted marriages would have had the number of children they had at the time of dissolution plus the number similar women in stable marriages had from the time of dissolution to 17 years.

of 4.31 would be affected if there were no marital dissolutions in the populations. The estimates of the impact of dissolution on completed fertility can be made using several different assumptions. Three assumptions are given in Table 41. All 3 assume that the fertility of the stable marriages would remain constant at 3.10 for whites and 4.77 for nonwhites. The assumptions vary on how many children the women in disrupted marriages would have had if they had not experienced dissolution.

The first assumption is that the women in disrupted marriages would have exactly the same number of children as those in stable marriages. Instead of having 3.23 children the white women in disrupted marriages would have 3.10. If this were the case, the total mean would be 3.10 children or .03 less than the actual total mean. For nonwhites, the mean for women in disrupted marriages would be changed to 4.77 children resulting in a grand mean of 4.77 which is .46 children more than the actual total mean.

The second assumption is that women in disrupted marriages would have exactly the same number of children as <u>similar</u> women in stable marraiges. That is, the mean number of children assigned would be based on the education by religion by age at marriage distribution of the disrupted marriages. The necessary means are provided in column 6 of Table 39. There we see that similar stable white women had 3.24 children and similar stable nonwhite

women had 4.88 children. If women in disrupted marriages had this number of children, the total white mean would be 3.13 and the total nonwhite mean would be 4.81. This assumption suggests that marital dissolution has zero effect on total white fertility and for nonwhites it suggests a reduction in mean fertility from 4.81 to 4.31, or one-half child per woman.

Both of the above procedures implicitly assume that marital dissolution produces the entire difference in completed fertility between the stable marriages and the disrupted ones. We know from Table 39 that there is a difference in the fertility of the 2 groups at dissolution. It could be argued that marital dissolution could not produce that difference. That difference should be accepted as given, and the impact of dissolution on fertility is really the difference occurring between the 2 groups after dissolution. This argument was built into the third assumption. This assumption says that women in disrupted marriages would have had the number of children they had at dissolution plus the number similar women in intact marriages had after that point. So for white women, the assumption is they would have 1.93 children at dissolution (from column 2 of Table 39) plus 1.18 children between dissolution and 17 years (column 3 of Table 40). Under this assumption, these women would have had 3.11 children altogether. Similarly, nonwhite women would be assumed to have 2.54 children at dissolution and 1.99 children

after dissolution or 4.53 altogether. With these estimates (3.11 for whites and 4.53 for nonwhites) of the number of children women in disrupted marriages would have if no disruption occurred, it is possible to estimate what the total fertility of the 2 racial groups would be. For whites, the estimate is 3.10 children which is less than the actual mean of 3.13. For nonwhites the estimate is 4.67 children. This is .36 more children per woman than the actual nonwhite total.

Under none of the assumptions utilized would the elimination of marital dissolution before the seventeenth year of marriage materially affect overall white fertility. With dissolutions, the overall mean is 3.13 children per woman. Without dissolutions, the mean would range between 3.10 and 3.13 children depending on the assumption. There is no evidence that marital dissolution reduces the aggregate fertility of the white population.

For nonwhites the situation is very different. Their overall completed fertility is reduced substantially by marital dissolutions. According to the estimates shown in Table 41, overall nonwhite fertility would be increased from .36 to .50 children per woman if dissolutions before the seventeenth year of marriage were eliminated. Or, to say the same thing in another way; marital dissolutions reduce overall nonwhite completed fertility from between one-third and one-half child per woman. These estimates suggest that marital instability plays an important part

in determining the level of fertility in the nonwhite population.

One comment about the magnitude of the overall nonwhite fertility reduction seems appropriate. My opinion is that the estimate of the reduction produced by assumption 2 is probably the best. It is better than assumption 3 because it assumes that the total difference in fertility at the completion of childbearing is produced by marital instability and not just the difference occurring after dissolution. We saw in Chapter 4 that 18 months before dissolution there was virtually no difference between the fertility of women in stable and disrupted marriages. This suggests that the difference existing 9 months after the dissolution is largely produced by the events leading up to the dissolution itself. If this is true, the difference existing at dissolution plus 9 months should be included in the estimate of the fertility reduction produced by instability. This consideration would indicate that assumption 3 underestimates the reduction. Assumption 2 is also better than assumption 1 because it standardizes on the composition of the disrupted marriages which seems appropriate in this case. With these considerations it seems likely that the reduction in overall nonwhite fertility produced by marital dissolutions is close to one-half child per woman.

The Dynamics of Marital Dissolution, Remarriage, and Childbearing

The two previous sections of this chapter have focused exclusively on the overall impact of marital dissolution on fertility. This included an examination of the influence of disruption on the fertility of women involved as well as its impact on population fertility levels. While remarried women were analyzed separately from those who do not remarry, there was no analysis of the dynamics of fertility associated with dissolution and remarriage. In this section the fertility dynamics produced by those events will be investigated.

The first part of the analysis will investigate the behavior of women who remarry prior to marital duration 17. The numbers of children these women had at dissolution and 17 years after first marriage were presented in Table 39. In Table 40 the number they had between dissolution and marital duration 17 was presented. In this analysis we break the fertility shown in Table 40 into its 2 components; the component between dissolution and remarriage, and the component between remarriage and 17 years after first marriage. Fertility during the 2 component intervals can be compared with that of women in intact marriages. As in the earlier analyses, these comparisons are made standardizing for education, age at marriage, marital duration, religion (for whites), and date of first marriage

(for 1965). This decomposition, which is shown in Table 42, will allow us to better understand the dynamics operating.

From Table 42 we see that for both races there is a definite reduction in fertility between dissolution and remarriage. The reduction is about .4 children per woman for whites and about .8 for nonwhites. Both differences are large enough to preclude the possibility that they were produced by sampling.

During the period of time following remarriage, white women have more children than similar women in stable marriages. In fact, these women entirely make up for the fertility reduction that occurred before remarriage. The fertility of nonwhite women following remarriage, however, does not seem to be higher than that of similar women in intact marriages. Nonwhite women do not make up for the reduction in fertility experienced between marriages.

An analysis similar to the one carried out in Table 42 is shown in Tables 43 and 44. The data in those tables are limited to women who remarry within 15 years of first marriage. In Table 43 the mean number of children these women have at dissolution (plus 9 months) and 5 years after remarriage are shown. Table 43 also shows the standardized means for women in intact first marriages at the same points. The general outline of the data in Table 43 is very similar to the one shown for remarried women at marital duration 17 in Table 39. The fertility of white women after 5 years of remarriage is only somewhat lower

TABLE 42. Mean Number of Children Born Between Dissolution (Plus 9 Months) and Remarriage, and Between Remarriage and 17 Years After First Marriage For Remarried Women and Similar Women in Stable First Marriages, By Race and Year

	From Dissolution to Remarriage				From Remarriage to 17 Years After First Marriage			
	Disrupted Marriages	Stable Marriages	Difference	Standard Error Of Difference	Disrupted Marriages	Stable Marriages	Difference	Standard Error Of Difference
1970:								
White	.12	.49	.37	.03	1.59	.95	-.64	.11
Nonwhite	.43	1.27	.84	.09	1.43	1.60	.17	.26
1965:								
White	.11	.61	.50		1.58	1.05	-.53	
Nonwhite	.31	1.09	.78		1.33	1.35	.02	

TABLE 43. Mean Number of Children Ever Born At Time of Dissolution (Plus 9 Months) and 5 Years Following Remarriage, For Remarried Women and Similar Women In First Marriages, By Race and Year

		Dissolution Plus 9 Months			Remarriage Plus 5 Years			
	n	Disrupted Marriages	Stable Marriages	Difference	Disrupted Marriages	Stable Marriages	Difference	Standard Error Of Difference
1970:								
White	324	1.27	1.45	.18	2.63	2.78	.15	.09
Nonwhite	87	1.45	1.82	.37	2.86	4.10	1.24	.28
1965:								
White	248	.98	1.23	.25	2.31	2.62	.31	
Nonwhite	85	1.11	1.43	.32	2.49	3.42	.93	

TABLE 44. Mean Number of Children Born Between Dissolution (Plus 9 Months) and Remarriage and Between Remarriage and 5 Years Following Remarriage For Remarried Women and Similar Women in Stable First Marriages, By Race and Year

	From Dissolution to Remarriage			From Remarriage to 5 Years After Remarriage			
	Disrupted Marriages	Stable Marriages	Difference	Disrupted Marriages	Stable Marriages	Difference	Standard Error Of Difference
1970:							
White	.09	.47	.38	1.27	.86	-.41	.06
Nonwhite	.44	1.08	.64	.97	1.20	.23	.14
1965:							
White	.11	.56	.45	1.22	.83	-.39	
Nonwhite	.26	.95	.69	1.13	1.05	-.08	

than that of similar women in stable first marriages. On the other hand, the cumulative number of children born to nonwhite women after 5 years of remarriage is substantially lower than the number born to those in stable marriages.

The fertility of women between dissolution and 5 years after remarriage is shown in Table 44. Fertility over the interval is broken into two components. The first component is the interval between dissolution and remarriage; the second is the time between remarriage and 5 years after remarriage. We again see the reduction in the number of children born during the interval from dissolution to remarriage. For whites, the reduction is around .4 children; for nonwhites, the reduction is over .6 children per woman. The data indicate that following remarriage white women have more children than similar women in stable marriages. In fact, remarrying white women have about .4 more children during the period which almost exactly makes up for the reduction in fertility before remarriage. On the other hand, remarrying nonwhite women do not have higher fertility than others during the 5 years following remarriage. In fact, in the 1970 sample the remarrying nonwhite women had .23 fewer children while in the 1965 sample they had .08 more. The fertility of nonwhite women following remarriage does not seem to be any higher than fertility in intact marriages.

The racial differences in the childbearing dynamic just described merit further investigation. The fertility

of both races is reduced in the interval between dissolution and remarriage. After remarriage whites seem to make up for the lost fertility. There is no evidence in these data that remarrying nonwhite women make up for their reduced fertility. The gap between them and women in stable marriages persists. There is even some evidence to suggest that the gap grows wider. This racial difference is important at the individual level and has repercussions at the aggregate level. If remarrying nonwhites were to make up for even part of the reduction in fertility, the aggregate reduction in fertility produced by marital dissolutions would be much less. The data available in the National Fertility Studies are not appropriate to explore the reasons for this racial difference. Hopefully, other research will provide insights into the mechanisms producing the results observed.

In much of the work of this chapter the emphasis has been upon completed fertility. Since no measure of actual completed fertility was available in the data, I was forced to utilize proxies. The proxy that has been used was cumulative fertility 17 years after first marriage. There are, however, some important problems with this proxy. By truncating the reproductive period at 17 years, it excludes all children born after that time. If women in stable marriages do not have the same number of children after 17 years as those in disrupted marriages, the difference in their cumulative fertility at 17 years could be a biased indicator of any completed fertility difference

We have seen, for whites at least, that women who experience dissolution and then remarry bear more children in later years than those in stable marriages. If this were true after 17 years, using the cumulative number of children born 17 years after first marriage as a proxy for completed fertility would tend to underestimate the childbearing of the disrupted relative to the stable. On the other hand, many women who will eventually remarry, had not done so by 17 years marital duration. These women probably have substantially fewer children than women in stable marriages. If this is true, the addition of these women to the remarried group would tend to reduce the average completed family size of the remarried relative to women in stable marriages. These 2 mechanisms are probably offsetting, but they may still bias the results that have been obtained. For this reason, additional analysis of differential completed fertility is necessary.

Intended Completed Family Size

Both the 1965 and 1970 National Fertility Studies contain additional information that will be useful in evaluating the impact of marital dissolution on completed family size. In these studies women were asked the number of children they intended to have after the interview. By adding this to the number they had at the time of interview, an estimate of the number of children they intend to have altogether can be obtained. While these estimates are not

very good proxies for the completed fertility of younger women, they are probably good indicators for older women since most of them already have most of the children indicated. By utilizing this measure, another examination of completed family size is possible. It allows a check of the previous results using cumulative fertility at 17 years as the proxy.

Since intended family size works as a proxy for the completed fertility of older women, younger women will be excluded from this analysis. All women who were interviewed before 17 years had elapsed since first marriage are not included. For the current analysis, this exclusion will apply both to those who experienced dissolution and those who did not. In addition, the question about intended fertility was not asked of women who were not currently married at the time of interview. So all women who had experienced dissolution but had not remarried are excluded. Furthermore, any woman who had remarried, experienced another disruption, and was not married at the time of interview was also left out. With these exceptions, this investigation includes the same universe of women examined in the analysis of cumulative fertility at 17 years.

The analysis of intended family size will follow the same general procedure utilized in the examination of cumulative fertility at 17 years. For remarried women the mean number of children born prior to 17 years and mean intended fertility are shown in Table 45. For women

TABLE 45. Mean Number of Children Ever Born 17 Years After First Marriage and Total Intended Fertility of Remarried Women and Similar Women in Stable First Marriages by Interview Date and Race

	17 Years After First Marriage				Total Intended			
	Number Of Women In Disrupted Marriages	Disrupted Marriages	Stable Marriages	Difference	Disrupted Marriages	Stable Marriages	Difference	Standard Error Of Difference
1970:								
White	173	3.25	3.25	.00	3.61	3.41	-.20	.16
Nonwhite	47	3.53	4.97	1.44	4.13	5.35	1.22	.40
1965:								
White	208	2.88	3.03	.15	3.25	3.29	.04	
Nonwhite	78	2.77	4.03	1.26	3.29	4.62	1.33	

in intact first marriages the standardization procedure used throughout the chapter is again employed. The means for these women are standardized on either the education by age at marriage (nonwhites) or the education by religion by age at marriage (whites) distribution of the remarried women. This procedure controls for the effects of these other variables. These standardized means are also shown in Table 45. In addition, Table 45 contains the difference between the intended means of the 2 groups of women and the standard error of that difference. Like the other standard errors in this chapter, these assume simple random sampling (which is not the case). The sampling errors shown are, therefore, underestimates and are given only to provide an idea of their actual magnitude.

Looking first at the differentials existing at 17 years, we find the same relationships for this group of remarried women that was discussed in the earlier section. For whites, there is no difference at all between the remarried women and those in intact marriages in 1970. In 1965 white women in stable first marriages have a few more children (.15) than remarried women. For nonwhites the differences between the 2 groups are substantial. In both years the women in stable marriages have at least 1.2 more children than remarried women.

An examination of the data for whites in Table 45 suggests that remarried women intend to have more children after 17 years than those in intact first marriages. This

conclusion is apparent in both studies. For the women interviewed in 1965, the remarried intend to completely "catch up" with the women in intact first marriages. In the 1970 data the remarried plan to have enough children after the 17 year point to have more children altogether than women in intact first marriages. Indeed, the "catching up" phenomenon described earlier for whites seems to continue past the 17 year point.

For whites, the data on intended fertility reconfirm our conclusions about the impact of marital dissolution on completed family size. Marital dissolution, if followed by remarriage, does not decrease average completed family size. White remarried (and currently married at interview) women do not intend to have fewer children than those in stable first marriages. The fact that these are intentions and not behavior should be kept in mind. However, the intended outcomes are certainly plausible since the actual fertility of the two groups are so similar at 17 years. The fact that this analysis excludes women who were not currently married at interview should be noted. This prevents conclusions about fertility intentions from being extended to all dissolutions.

What can we make of the fact that in the 1970 data white remarried women have higher fertility intentions than other women? Does this indicate that dissolution and remarriage actually increase total family size rather than decreasing it? Perhaps, women in second marriages have

more children than women who remain in first marriages. Perhaps, a second marriage is a motivation to start a second family or to begin a second "round" of childbearing. These couples may desire more children to "cement" the second marriage. Another possibility is that remarriage could be a "correction" for possible subfecundity of first husbands. All of these hypotheses are interesting ones and in view of the 1970 results merit further investigation. There are, however, 3 important considerations that prevent the conclusion that dissolution and remarriage increase completed family size from being accepted with confidence. The first is that we are dealing only with intentions. The results need to be checked further with actual completed fertility data. The second is that the difference is about the same size as its sampling error. The possibility that the difference is produced by sampling cannot be rejected. Third, the 1965 results do not support those from 1970. In 1965 the intended fertility of women in first marriages is as great as the intended fertility of remarried women. All these considerations suggest that this hypothesis is tentative at best.

The data on fertility intentions contained in Table 45 are entirely consistent with the conclusions reached earlier concerning nonwhite fertility. Marital dissolution appears to reduce the completed fertility of nonwhite women even if they remarry. Both the 1965 and 1970 studies suggest that nonwhite remarried women will complete their

childbearing with fewer children than women in intact first marriages. The results indicate that women in stable first marriages will have at least 1.2 more children, on the average, than remarried women. Again, marital dissolution has an important impact on nonwhite completed family size.

CHAPTER 7

THE INFLUENCE OF MARITAL DISSOLUTION AND REMARRIAGE ON FERTILITY TIMING AND CHILDSPACING

It has been hypothesized that marital instability influences subsequent childbearing. In Chapter 6 we examined the effect of marital dissolution and remarriage on the number of children women have. In this chapter the impact of these events on the timing and spacing of children will be studied. Several different aspects of fertility timing will be explored. The first section of the chapter will examine the average amount of time from first marriage to the birth of all children the women have. Then the analysis moves to the timing of specific births. In that section the time from first marriage to individual birth orders will be studied. In the third part of the chapter, the focus will be on childspacing. Birth intervals (the time from one parity to the next) will be studied. The final aspect to be examined is the interval from first marriage to the birth of the youngest child. The hope is that by investigating several different aspects of family formation that a better understanding of the impact of marital dissolution and remarriage on fertility dynamics can be obtained.

The Timing of All Children Born

In Chapter 6 we investigated the total number of children born during the 17 years following first marriage. In this section of Chapter 7, childbearing during those 17 years will again be the subject of study; however, here the focus will be on the timing of the children born. The analysis will examine childbearing during each period or interval from marriage to 17 years. For both the women who experience dissolution and those who do not, marital duration specific childbearing is obtained for each 2 year interval between first marriage and 17 years marital duration (except, the last interval is 3 years). For each interval the mean number of children born to the group is estimated. The estimates for women in intact first marriages and for 2 groups of women who experienced dissolution are shown in Table 46. These estimates of marital duration specific fertility allow us to examine the influence of dissolution and remarriage on the timing of childbearing.

The fertility estimates shown in Table 46 were obtained utilizing the same standardization procedure employed in Chapters 4 and 6. For the two groups of women in disrupted marriages, the estimates are the actual means for the women involved. The estimates for women in stable first marriages are, however, standardized means. These standardized means estimate the number of children born to women in stable marriages who had characteristics that

TABLE 46. Mean Cumulative Number of Children at First Marriage and At 17 Years Marital Duration and Mean Number of Children Born During Specified Intervals from Marriage To 17 Years After First Marriage, By Marital Experience, Race, and Year

	- Marital Interval -								
	Marriage	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-17	17 Years
						1970				
White										
Disrupted - Remarry	.04	.61	.47	.53	.45	.35	.32	.25	.29	3.31
Stable (Standardized)	.04	.75	.66	.55	.44	.32	.24	.12	.13	3.25
Disrupted - Not Remarry	.03	.77	.65	.47	.40	.23	.24	.14	.07	3.00
Stable (Standardized)	.05	.70	.66	.54	.43	.30	.23	.14	.13	3.18
Nonwhite										
Disrupted - Remarry	.26	.57	.51	.47	.33	.39	.23	.24	.49	3.49
Stable (Standardized)	.31	.82	.79	.65	.60	.55	.50	.33	.41	4.96
Disrupted - Not Remarry	.28	.73	.67	.56	.49	.31	.28	.21	.23	3.76
Stable (Standardized)	.37	.80	.76	.63	.56	.50	.49	.33	.38	4.82
						1965				
White										
Disrupted - Remarry	.02	.52	.38	.34	.38	.35	.31	.28	.30	2.88
Stable (Standardized)	.02	.62	.55	.49	.40	.32	.25	.20	.18	3.03
Nonwhite										
Disrupted - Remarry	.19	.47	.36	.23	.27	.29	.28	.28	.40	2.77
Stable (Standardized)	.22	.69	.65	.55	.50	.44	.39	.28	.31	4.03

NOTE: The cumulative fertility shown for marriage is actually cumulative fertility at 2 months after marriage. For all of the intervals, fertility is measured from one month before the start of the interval to one month before the end of the interval.

matched those of women in disrupted marriages. For 1970, nonwhite women were matched on education and age at marriage; for whites the characteristics controlled were education, age at marriage, and religion. In the 1965 data, the date of first birth was controlled in addition to the variables in the 1970 analysis. The methods and data matrices used here are the same as those utilized in Chapters 4 and 6. The reader is referred to those chapters for further details. In addition the same universe of women studied in the 17 year analysis in Chapter 6 is utilized here.

Three additional comments about the nature of the data in Table 46 are necessary. In Chapter 1 I observed that marital dissolution could not influence predisruption fertility; only postdisruption fertility could be affected. For this reason, wherever possible, the analysis of the impact of marital dissolution on fertility has been limited to children born after the disruption. The analysis reported in this section of Chapter 7 is not, however, limited to postdissolution fertility. The data in Table 46, of necessity, reflect the entire childbearing histories of the women. This procedure means that the results of this analysis are subject to the biases discussed in Chapter 1. However, the actual biases produced by including predissolution fertility should be minor since the average predissolution fertility of the groups is so similar (see Chapter 4).

The second comment concerns the fact that the groups defined in Table 46 are categorized according to their overall marital histories. Since the dissolutions and remarriages that define the groups occurred across the entire 17 years, for any given interval the groups will be composed of women who were in several different marital statuses during that interval. For example, the women who are categorized as "disrupted-remarry" may have been in their first marriages, between marriages, or in second marriages during any specific interval. Similarly, the women in the "disrupted - not remarry" group may have been in their first marriages or postmarried during any specific interval. Therefore, fertility estimates for an interval are averages for the entire group of women defined in a category at 17 years and do not necessarily reflect the fertility of any particular marital status defined at the time of the interval.

Finally, the fertility estimates for women in disrupted marriages are dominated by predissolution fertility. Most of the children of these women are born prior to the disruption. From Table 39 (Chapter 6) we saw that only approximately 1 out of every 3 are born after dissolution. This means that the overall differences that can be expected between women in disrupted marriages and those in stable marriages are constrained. If a larger proportion of the dissolutions occurred early in marriage, it is

likely that fewer children would be born prior to the disruption, and the differences between the groups would probably be greater.

The data in Table 46 support expectations about the timing of children. Remarried women have fewer children during the early intervals than similar women in intact marriages. During the later intervals the relationship is reversed; then the remarried have more children. These observations hold for both years and for both races. However, the early reduction in childbearing is more pronounced and persists longer for nonwhites than whites. Nonwhite remarried women have lower fertility during the first 12 years; and during some of the intervals, they have .25 fewer children than those in stable marriages. It is only after 14 years that they have higher fertility than those in intact marriages. White remarried fertility, on the other hand, is lower than that of women in stable marriages only during the first 6 years; and the difference never exceeds .2 children per interval. After 8 years, their marital duration specific fertility exceeds that of similar women in intact marriages.

The expected results are also found for women who experience dissolution and do not remarry. During almost every interval from 4 to 17 years, these women have fewer children than those in stable marriages. This is true for both races, but the differences are greater for nonwhites than whites. The low fertility of women in disrupted

marriages suggests that dissolution truncates the childbearing of those who do not remarry.

The data in Table 46 can be summarized succinctly by computing the mean marital duration at childbirth for each group of women defined. Conceptually, this measure is identical to mean age at childbirth which is a standard demographic measure. The difference is that mean age at childbirth measures the length of time from the birth of the mother to the birth of her children while the indicator used here measures time from the first marriage of the mother to the birth of her children. Mean marital duration at childbirth is computed by multiplying the number of children born in an interval by the midpoint of the interval, summing over all intervals, and dividing by the total number of children born. The midpoint of each interval is assumed to be the mean of the lower and upper bounds listed in Table 46 even though the actual bounds are slightly different than those listed (see the note in Table 46). For those children born before 2 months have elapsed since first marriage, a marital duration of zero is assigned. The resulting indicators are presented in Table 47.

In Table 47 we see that disruption and remarriage increase the mean length of time to childbirth. For whites, the means for remarried women are over a year longer than for similar women in stable marriages. This increase in the length of time to childbirth is not trivial, especially

TABLE 47. Mean Marital Duration at Childbirth (in Years) For Those in Disrupted Marriages and Similar Women in Stable Marriages, by Remarriage Status, Race and Year.

	Number of Women in Disrupted Marriages	Disrupted Marriages	Stable Marriages	Difference
1970				
White:				
Disrupted - Remarry	211	6.72	5.43	-1.29
Disrupted - Not Remarry	70	5.16	5.49	.33
Disrupted - Total	281	6.36	5.44	-.92
Nonwhite:				
Disrupted - Remarry	70	6.74	6.40	-.34
Disrupted - Not Remarry	96	5.62	6.27	.65
Disrupted Total	166	6.07	6.33	.26
1965				
White:				
Disrupted - Remarry	208	7.25	6.12	-1.13
Nonwhite:				
Disrupted - Remarry	78	7.26	6.35	-.91

when it is compared to the mean for women in first marriages. In 1965 the increase in average time was 18 percent; in 1970 it was 24 percent. For nonwhite women, the average time to childbirth for remarried women is also greater than for women in first marriages, but the difference is not as great as for whites. In both 1965 and 1970 the increase in average time for remarried nonwhites was less than 1 year. However, even for nonwhites, mean marital duration at childbirth is from 5 to 14 percent greater for remarried than for stably married women.

The data in Table 47 indicate that the average time to childbirth for women who experience disruption and do not remarry is shorter than it is for women in stable marriages. For whites, the reduction is .33 years, and for nonwhites it is .65. These reductions amount to 6 and 10 percent of the mean time for whites and nonwhites respectively. These statistics indicate that the fertility of these women is truncated by marital disruption, and so their childbearing is concentrated in the early years following marriage.

The conclusion from Tables 46 and 47 is that fertility timing is significantly affected by marital dissolution. Remarriage, in turn, significantly alters the impact of dissolution. For those women who do not remarry, fertility is truncated; for women who remarry, children are spread out over a longer period of time. When considering the magnitude of these effects, it should be kept in mind that

the majority of the children involved are born prior to the disruption. This constrains the size of the differences that could be obtained.

The overall impact of marital dissolution on the timing of children (independent of remarriage) can be seen by averaging the means for the 2 groups of women who experienced dissolution. This averaging, of course, must be done over children and not over women since the means indicate time per child. The resulting averages are shown (for 1970) in Table 47. We see that marital dissolution increases the overall white mean marital duration at childbirth by .92 years. That is, the average child of white women experiencing dissolution is born .92 years later than the average child born in stable first marriages. For nonwhites the opposite results emerge. For them, the average child of women in disrupted marriages is born .26 years earlier than children born in intact marriages. The reason for this racial difference can be seen from our earlier analysis. More white women remarry, and remarrying white women have their mean duration to childbirth increased more than nonwhite women who remarry. The result is that marital dissolution increases overall average time for white children and decreases it for nonwhites.

The analysis so far has dealt with the influence of dissolution on individual birth timing. It is also useful to speculate about the impact of marital dissolution on aggregate timing. By making an assumption about what the

fertility behavior of women in disrupted marriages would be without dissolution, a fair idea of the influence can be ascertained. For this purpose, we assume that these women would have the same fertility as similar women in stable marriages. The actual estimates are obtained by using the results of Table 47 together with those of Table 41 (Chapter 6). The results of this exercise are shown in Table 48. We see that if there were no dissolutions, the mean time to childbirth for the aggregate white population would decrease from 5.72 years to 5.54 years. The elimination of marital dissolutions would thus decrease the time to the average birth by .18 years or approximately 2 months. This is a reduction of about 3 percent. For nonwhites, the elimination of dissolutions would increase the mean time to births. The increase in time would be .08 years or about 1 month. This is an increase of about 1 percent. These results suggest that the elimination of marital dissolution would not substantially influence aggregate mean duration to childbirth in either the white or the nonwhite population.

The impact of marital dissolution on aggregate fertility timing is limited by several factors. First, most of the children of women experiencing dissolution are born before the disruption. Second, disruption decreases the average time to childbirth for women who do not remarry and increases the time for those who do. These opposite influences tend to offset each other. Third, a majority of women do not experience dissolution during the first 17

TABLE 48. Mean Number of Children Ever Born 17 Years After First Marriage and Mean Marital Duration at the Birth of Those Children Under Actual Conditions and Assuming No Marital Dissolutions, by Race: 1970

	Distribution of Marriages at 17 Years (Proportions)	Actual		If No Dissolutions	
		Number of Children	Marital Duration (in years)	Number of Children	Marital Duration (in years)
White:					
Stable	.811	3.10	5.57	3.10	5.57
Disrupted	.189	3.23	6.36	3.24	5.44
Total	1.000	3.13	5.72	3.13	5.54
Nonwhite:					
Stable	.590	4.77	6.58	4.77	6.58
Disrupted	.410	3.64	6.07	4.88	6.33
Total	1.000	4.31	6.40	4.81	6.48

NOTE: For the estimates assuming no dissolutions, the women who actually experienced a disruption are assumed to have the same number of children and the same timing pattern as similar women in intact first marriages.

years of marriage. It seems reasonable to think that if any of these basic factors change substantially, the impact of marital dissolution on aggregate fertility timing could become important.

Marital Duration to Specific Birth Orders

In this section of the chapter the influence of marital dissolution on the timing of individual births is studied. The focus is on the length of time from first marriage to individual birth orders. Because of the small number of women with large families, the analysis is limited to the first 5 births. The time from the first marriage of the mother to various birth orders is compared for the groups of births defined in Table 49. All children born to women who were in intact first marriages at the time of interview are classified as "stable." Children born to women who had experienced a dissolution are placed in one of the disrupted categories. If the birth in question occurred prior to the dissolution (plus 9 months lag time), it is placed in the "birth before disruption" category. If the birth occurred after the dissolution, it is in the "birth after disruption" group. This classification system was adopted to allow the timing pattern of children born after the dissolution to be examined separately from the pattern of children born before dissolution. This will allow us to investigate the impact of disruption on subsequent childbearing.

TABLE 49. Mean Marital Duration (In Months) To Given Birth Orders, Unadjusted and Adjusted By MCA, By Race and Marital Experience: 1970

	White			Nonwhite		
	n	Unadjusted	Adjusted	n	Unadjusted	Adjusted
First Birth						
Stable	3657	22.5	22.2	514	18.7	18.3
Disrupted - Total	806	25.7	26.9	322	21.9	22.5
Birth Before Dissolution	666	17.5	18.9	284	16.2	16.7
Birth After Dissolution	112	73.3	73.0	26	81.2	81.7
Grand Total	4463	23.1	23.1	836	19.9	19.9
Second Birth						
Stable	2799	52.0	51.6	386	45.2	45.0
Disrupted - Total	635	57.6	59.2	262	50.8	51.2
Birth Before Dissolution	417	44.4	46.6	200	41.6	42.2
Birth After Dissolution	196	84.2	84.3	51	83.6	83.3
Grand Total	3434	53.0	53.0	648	47.5	47.5
Third Birth						
Stable	1625	79.9	79.5	268	68.9	68.7
Disrupted - Total	411	89.7	91.4	196	78.6	78.9
Birth Before Dissolution	216	70.8	73.8	130	62.2	63.4
Birth After Dissolution	178	111.1	111.6	58	112.8	110.7
Grand Total	2036	81.9	81.9	464	73.0	73.0

TABLE 49. Continued

	White			Nonwhite		
	n	Unadjusted	Adjusted	n	Unadjusted	Adjusted
Fourth Birth						
Stable	807	105.2	104.9	187	91.3	90.9
Disrupted - Total	237	116.6	117.7	137	96.2	96.8
Birth Before Dissolution	102	92.7	97.0	85	82.4	82.9
Birth After Dissolution	126	135.5	133.8	46	118.8	119.1
Grand Total	1044	107.8	107.8	324	93.4	93.4
Fifth Birth						
Stable	369	124.9	123.4	126	113.5	112.7
Disrupted - Total	122	133.8	138.3	101	117.8	118.8
Birth Before Dissolution	49	108.0	113.2	53	107.9	108.7
Birth After Dissolution	69	150.7	153.7	44	131.3	131.0
Grand Total	491	127.1	127.1	227	115.4	115.4

NOTES: The adjusted means are estimated from an MCA equation which included education, age at marriage, religion, and parity at interview.

Data are not shown separately for the women with dissolution date not ascertained since the number of these women is small. These women are, however, included in the totals for those in disrupted marriages and in the grand totals.

There is one serious problem with the classification system which should be kept in mind as the analysis proceeds. The system imposes some arbitrary restrictions on the data that are built into the results. The group of births in the "before dissolution" category almost by necessity are forced to occur earlier than average. They have to be born soon enough in the marriage to allow another event (in this case, dissolution) to follow. The opposite problem exists for births in the "birth after dissolution" category. These births must occur late enough to allow dissolution to precede them. Almost by definition, these births have to occur, on the average, later than other births. While these "ceiling" and "floor" effects are serious and should be kept in mind as we proceed, they should not prevent some insights being gained from the procedure. The problem, however, makes it important to combine the results for the disrupted categories so that the spacing patterns for the entire group can be compared with the patterns for women in stable marriages. This allows us to investigate the overall differences in timing patterns. It should be remembered, however, that for most of these comparisons the bulk of the children in disrupted marriages are born prior to the dissolution.

The analysis will proceed by computing mean birth durations for the 3 groups of women. For each group, 2 sets of means are estimated. The unadjusted means are estimated without considering the effects of other variables.

The adjusted means are estimated utilizing MCA which allows other variables to be controlled. The controls that are used include education, religion, and age at marriage. In addition, it is necessary to control for the number of children the women have at the time of interview since spacing is related to parity. As Wolfers (1968) and Leridon (1975) point out, high parity women have their children closer together than low parity women. Both the unadjusted and adjusted means are shown separately for each birth order in Table 49. From the means for each of the individual groups of disrupted marriages, I have computed means (both unadjusted and adjusted) for the entire group of women in disrupted marriages. These are also shown in Table 49. It should be noted that the analysis is conducted separately for whites and nonwhites.

The following are excluded from the analysis:

1. Women with a child born prior to first marriage. They were excluded because their spacing patterns are, by definition, much different from those of other women.
2. Women with dissolution date or the birth date of any children unknown.
3. Women with missing data on any of the control variables.
4. Those women with cause of dissolution unknown.

Several consistent results appear in Table 49. One finding is that the time from first marriage to the birth

of a child is shortest for children born before a marriage is disrupted. This result holds for both races and all birth orders and is probably produced by the "ceiling" effect discussed earlier. These children have to be born early enough to allow for an event such as dissolution to follow. For this reason, no substantive interpretation of this finding will be offered.

A second finding is that the time from first marriage to the birth of a child is longest for children born after the dissolution of a marriage. This result also holds for both races and all birth orders. However, the increase in the length of time between first marriage and the birth of a child is especially important for first children. For them, the increase in time is 50 to 60 months. For the higher birth orders, the increases range between 20 and 40 months. The "floor" effect could be producing some of the longer interval for children born after dissolution. These children have to be born later to allow dissolution to precede them. It is unlikely, however, that the "floor" effect could produce the entire difference observed. Most of the increase in the interval from first marriage to children born after dissolution is probably produced by the disruption itself.

The average time to each birth order is also shown in Table 49 for the entire group of children born to women who had experienced a dissolution. From those data we see the average time for these births is longer than the time

for children born to women in stable marriages. For the first birth interval the difference is about 4 months. The difference increases to 6 or 7 months for second births and to 10 or 12 months for third and higher order births. The greater difference for the higher birth orders is probably due to the fact that more of these births occur after the dissolution itself. All the differences, would of course, be larger if more of the children were born after the dissolution. The fact that most of them are born prior to the dissolution constrains the magnitude of the difference.

The pattern of adjusted means is very similar to the pattern of unadjusted ones. Education, religion, parity, and age at marriage appear to have little impact on the relationships observed. The impact of dissolution operates independently of these other variables.

Birth Intervals

In this section the influence of marital dissolution on the spacing of children will be studied. The focus will be on birth intervals, the length of time from one parity to the next. Average times for the groups of birth intervals defined in Table 50 will be compared. All intervals for women in stable first marriages are classified in the "stable" group. Birth intervals of women who experienced a dissolution are placed in one of the "disrupted" categories. The specific category in which these intervals are

TABLE 50. Mean Birth Intervals (In Months), Unadjusted and Adjusted By MCA, By Race and Marital Experience: 1970

	White			Nonwhite		
	n	Unadjusted	Adjusted	n	Unadjusted	Adjusted
From Birth 1 To 2						
Stable	2799	31.4	31.3	386	27.9	27.6
Disrupted - Total	635	35.6	36.2	262	29.6	30.1
Interval Before Dissolution	417	28.5	29.6	200	25.2	25.9
Interval Includes Dissolution	122	60.7	60.4	32	49.9	49.5
Interval After Dissolution	74	31.3	30.6	19	38.6	37.3
Grand Total	3434	32.2	32.2	648	28.6	28.6
From Birth 2 To 3						
Stable	1625	35.3	35.0	268	28.8	28.6
Disrupted - Total	411	38.4	39.5	196	31.7	32.0
Interval Before Dissolution	216	30.6	32.5	130	27.0	27.7
Interval Includes Dissolution	66	63.7	64.3	23	54.4	52.3
Interval After Dissolution	112	37.6	37.5	35	35.7	35.9
Grand Total	2036	35.9	35.9	464	30.0	30.0
From Birth 3 To 4						
Stable	807	37.7	37.7	187	29.7	29.5
Disrupted - Total	237	39.2	39.3	137	27.5	27.8
Interval Before Dissolution	102	31.8	34.1	85	25.6	26.1
Interval Includes Dissolution	33	77.1	72.8	10	43.3	43.0
Interval After Dissolution	93	34.1	33.8	36	26.4	26.0
Grand Total	1044	38.1	38.1	324	28.8	28.8

NOTES: The adjusted means are estimated from an MCA equation which included education, age at marriage, religion, and parity at interview.

Data are not shown separately for women with dissolution date not ascertained since their number is small. These women are, however, included in the totals for those in disrupted marriages and in the grand totals.

placed depends upon the timing of the interval relative to dissolution. It should be noted that this classification system has the same advantages and disadvantages as the one used in the previous section. It allows intervals that include the dissolution and those coming entirely after disruption to be analyzed separately from those intervals occurring before disruption. However, it also produces the same troublesome "ceiling" and "floor" effects discussed earlier.

For each of the groups shown in Table 50, the average length of time between births is estimated. These estimates are obtained without controls (unadjusted) and with controls (adjusted) for parity at interview, education, religion, and age at marriage. The adjusted means are estimated using MCA. In addition, for each interval, a set of unadjusted and adjusted means are obtained for all births to women in disrupted marriages. These estimates are computed by averaging together the means for the subgroups. The same group of women analyzed in the previous section is studied here.

The results in Table 50 indicate that all birth intervals occurring before dissolution are shorter than average. I suspect this result is due to the "ceiling" effect. By definition, these intervals must be short enough to permit another event (dissolution) to follow. This constrains the length of interval that is possible. No attempt will be made to explain this finding substantively.

It was expected that the length of the birth interval including a marital dissolution would be unusually long. During this interval, the woman terminates one relationship and begins another. This change of marital partners should increase the time to the birth of her next child. The data in Table 50 confirm this expectation. The birth intervals that include dissolution are very long. While the average interval is 2 or 3 years in length, these intervals are closer to 4 or 5 years. The process of changing partners appears to almost double the length of the affected intervals.

The data in Table 50 concerning birth intervals occurring after marital dissolution are especially interesting. For whites, these intervals are very similar to those of women in stable marriages. The implication of this finding is that marital dissolution and remarriage do not affect the tempo of subsequent childbearing. For nonwhites, we find that birth intervals occurring after a dissolution (except for the last interval) are longer than average. This result is probably influenced by the fact that much postdissolution nonwhite fertility occurs outside of marriage (see Tables 39 and 42 of Chapter 6), where the tempo of childbearing is reduced and less regular.

The results of Table 50 indicate that the birth intervals of the total group of women in disrupted marriages are not greatly different from the intervals of other women. The differences between the "stable" and "total

disrupted" intervals are only 2 to 5 months. These findings suggest that the overall influence of dissolution on the average spacing of children is limited.

Marital Duration to the Youngest Child

This section of the chapter will investigate one more aspect of fertility timing. The aspect examined is the time from first marriage to the birth of the youngest child. This can be seen as a measure of the total length of the reproductive period observed at the time of interview. In other parts of this study we have found that dissolution with remarriage tends to spread out or lengthen the childbearing span. On the other hand, dissolution without remarriage truncates childbearing. The expectation is that the same results will be found for this measure of timing. The time from first marriage to the birth of the youngest child should be long for remarried women and short for those who experience dissolution and do not remarry.

For each of the 3 groups of women shown in Table 51, mean time from first marriage to the birth of the youngest child is obtained. The means are estimated without controls for other variables (unadjusted) and controlling for education, religion, age at marriage, parity of youngest child, and marital duration at interview in an MCA analysis (adjusted). In addition, means for the entire group of women in disrupted marriages are computed by averaging subgroup means. The results of the analysis are shown in

TABLE 51. Mean Marital Duration (In Months) From First Marriage to the Birth of the Youngest Child, By Marital Experience and Race: 1970

	White			Unadjusted		
	n	Unadjusted	Adjusted	n	Unadjusted	Adjusted
Stable	3657	76.5	78.9	514	82.6	88.3
Disrupted - Total	806	96.0	85.1	322	98.1	89.0
Disrupted - Remarry	554	108.4	92.8	117	120.3	99.3
Disrupted - Not Remarry	252	68.7	68.3	205	85.4	83.1
Grand Total	4463	80.0	80.0	836	88.6	88.6

Table 51. This analysis includes the same group of women studied in the two preceding sections of this chapter.

The data in Table 51 are consistent with the other analyses of fertility timing conducted in this chapter. Women who experience dissolution and remarry have the longest interval from first marriage to the birth of the youngest child. For whites, the adjusted mean for these women is almost 14 months longer than for those in stable marriages. For nonwhites, the difference is 11 months. However, if dissolution occurs and is not followed by remarriage, the time from first marriage to the youngest child is shorter than in stable marriages. For whites, the reduction in the adjusted mean is about 11 months, and for nonwhites it is approximately 5 months. These results support the earlier findings that dissolution without remarriage shortens the childbearing span while dissolution followed by remarriage tends to lengthen it.

Table 51 also contains means for the entire group of women in disrupted marriages. The results indicate that, overall, the average span of time between first marriage and the youngest child is about the same for the total group of women in disrupted marriages as it is for those in stable ones. For nonwhites there are virtually no differences between the groups, and for whites the difference is approximately 6 months. It appears that the long intervals for the remarried group generally compensate for

the short intervals of those who experience dissolution and do not remarry.

Summary and Conclusions

The findings of this chapter (and Chapter 6) indicate that marital dissolution does influence childbearing. Those women, who experience dissolution and do not remarry, have their childbearing truncated (or at least greatly reduced) by the disruption (see Table 46). They have fewer children after dissolution (see Table 40 of Chapter 6), and as a result their cumulative fertility 17 years after first marriage is lower than that of women in stable marriages (Table 39 of Chapter 6). While this general result holds for both races, the reduction in fertility is greater for nonwhites than whites.

Marital dissolution also influences the timing patterns of children born to women who do not remarry. Since dissolution greatly reduces fertility, the childbearing of these women is concentrated in the early years (see Table 46). The average length of time from marriage to the births of all children is lower for these women than others (Table 47). In addition, the birth of their youngest child comes early (Table 51).

The fertility of those who experience dissolution and then remarry is also influenced by the marital events. Women bear few children between marriages (see Tables 42 and 44 of Chapter 6), and as a result their cumulative

fertility is low at the time they remarry (Tables 39 and 43 of Chapter 6). After remarriage, women of both races increase their fertility from what it was between marriages. White women have more children after remarriage than women in stable marriages (Tables 42 and 44 of Chapter 6). In fact, their postremarriage fertility is high enough to completely make up for their low cumulative fertility at the time of remarriage. However, the postremarriage fertility of nonwhite women is not greater than that of women in stable marriages. Nonwhite remarried women do not make up for their low fertility at remarriage, and as a result they have fewer children when their childbearing is completed.

While dissolution only influences the total number of children born to remarried nonwhite women, it affects timing patterns for both racial groups. Remarried women have their fertility spread out over a longer period of time than other women (Table 46). The average time from first marriage to the birth of all children they have is longer than the average for children born in stable marriages (Table 46). The average time to the birth of the youngest child is also long for them (Table 51).

Earlier, we observed that the cumulative fertility of remarrying white women at the time of remarriage was lower than that of stably married women. However, after remarriage, these women bear more children than those in stable marriages. In fact, they have enough children after

remarriage to "catch up" with the cumulative fertility of women in stable marriages. There are 2 ways that the remarried could "catch up" with the stably married women. They can bear children very rapidly after marriage and "catch up" with the stably married because they space their children closer together. As a result they might be able to finish their childbearing at the same time and with the same number of children as others. Or, they could bear children at the normal rate, but "catch up" by extending the childbearing span. The results indicate that the "catching up" is accomplished in the second way rather than the first. The spacing of postdissolution births is very similar to the spacing in stable marriages (Table 50). The tempo of childbearing is not faster for remarried women. However, we saw from Table 49 that postdissolution childbearing occurs later in the life of the mother, and in Table 51 we saw that the average time to the birth of the youngest child is substantially longer for remarried women than for those in stable marriages. The "catching up" process is, thus, accomplished by extending the number of years children are born.

CHAPTER 8

SUMMARY OF MAJOR FINDINGS

In this dissertation the marital and childbearing histories of a large sample of American women have been studied. This investigation was motivated by two general purposes. One was to examine the relationships existing between childbearing patterns and the marital processes of marital dissolution and remarriage. The results of this investigation will be summarized in the first section of this chapter. The second purpose was to examine the incidence and distribution of marital dissolution. In addition, for those who experienced disruption, the likelihood of remarriage was studied. A summary of the major findings of this part of the study will be presented in the second section of this chapter.

The Relationships Between Marital Dissolution and Childbearing

Several graphs have been prepared to assist in the summarization of the relationships between marital dissolution, remarriage, and childbearing. In those graphs the mean cumulative fertility of those who experienced dissolution is compared with those who had not. The data utilized in this summarization were drawn from the 1970

National Fertility Study. The relationships existing before and during the dissolution process are shown in Figure 7. Figures 8 and 9 present the relationships existing after dissolution.

In Figure 7 the fertility of women who experienced dissolution because of discord is summarized. The mean number of children these women had 8 months after marriage and 18 months before and 6 months after separation (see Table 31 of Chapter 4) are graphed with average marital duration at the same time points. Since fertility is shown 18 months prior to separation, this summary excludes those who separated before they had been married 18 months. In addition, Figure 7 provides an estimate of the number of children divorcing women had at the time of divorce. This estimate is obtained by adding the number of children born to all divorcing women during the interval from separation (plus 6 months) to divorce (from Table 29 of Chapter 4) to the number shown at the time of separation (plus 6 months). Besides the estimates for the women in disrupted marriages, Figure 7 shows the cumulative fertility that women in stable marriages had at the same time. It should be remembered from Chapter 4 that the estimates for the stable marriages are standardized on the age at marriage, education, marital duration, and (for whites) religion distribution of women in disrupted marriages. Fertility between the points was estimated by linear interpolation.

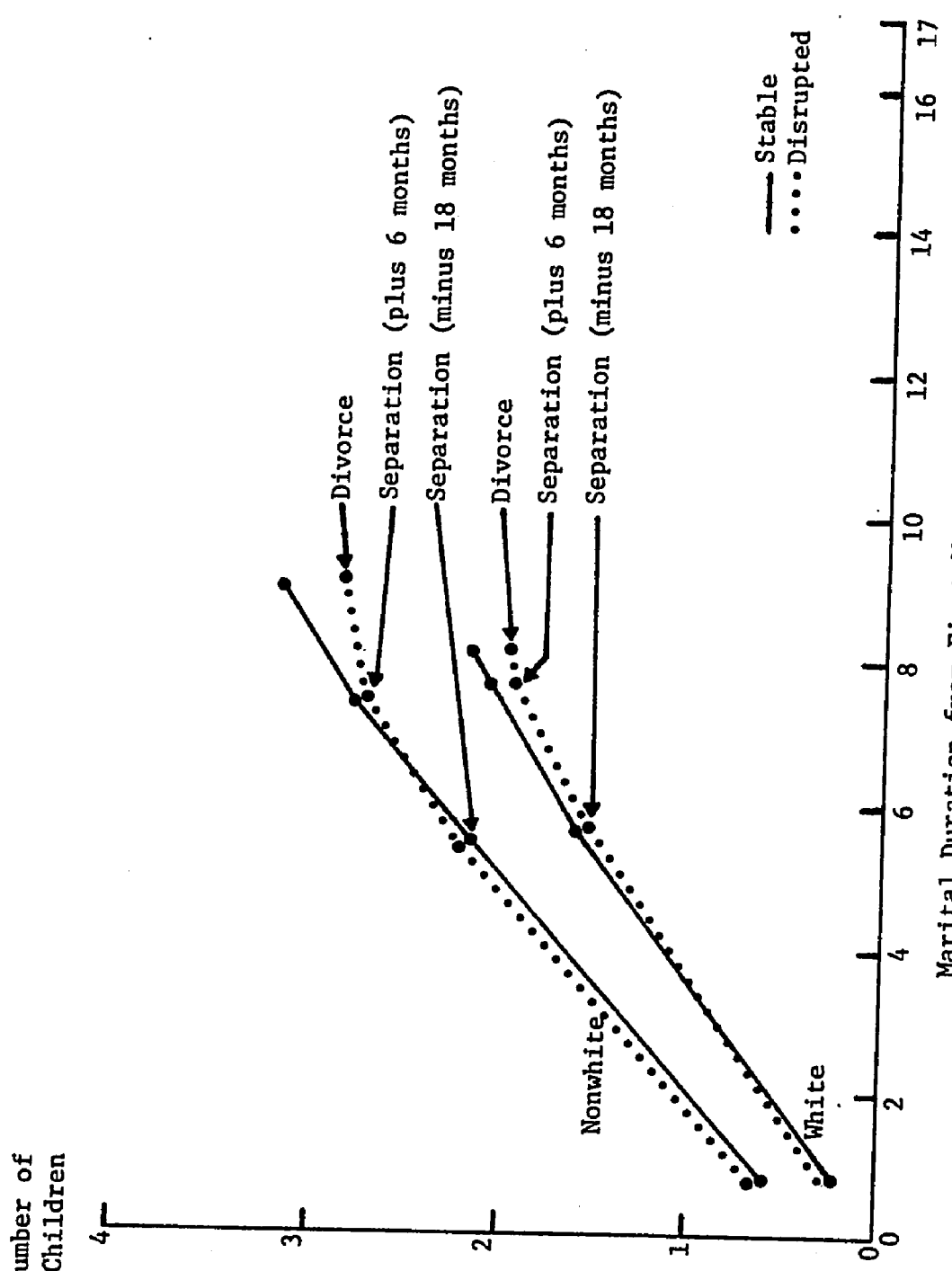


FIGURE 7. Mean Fertility By Marital Status, Marital Duration, and Race: 1970

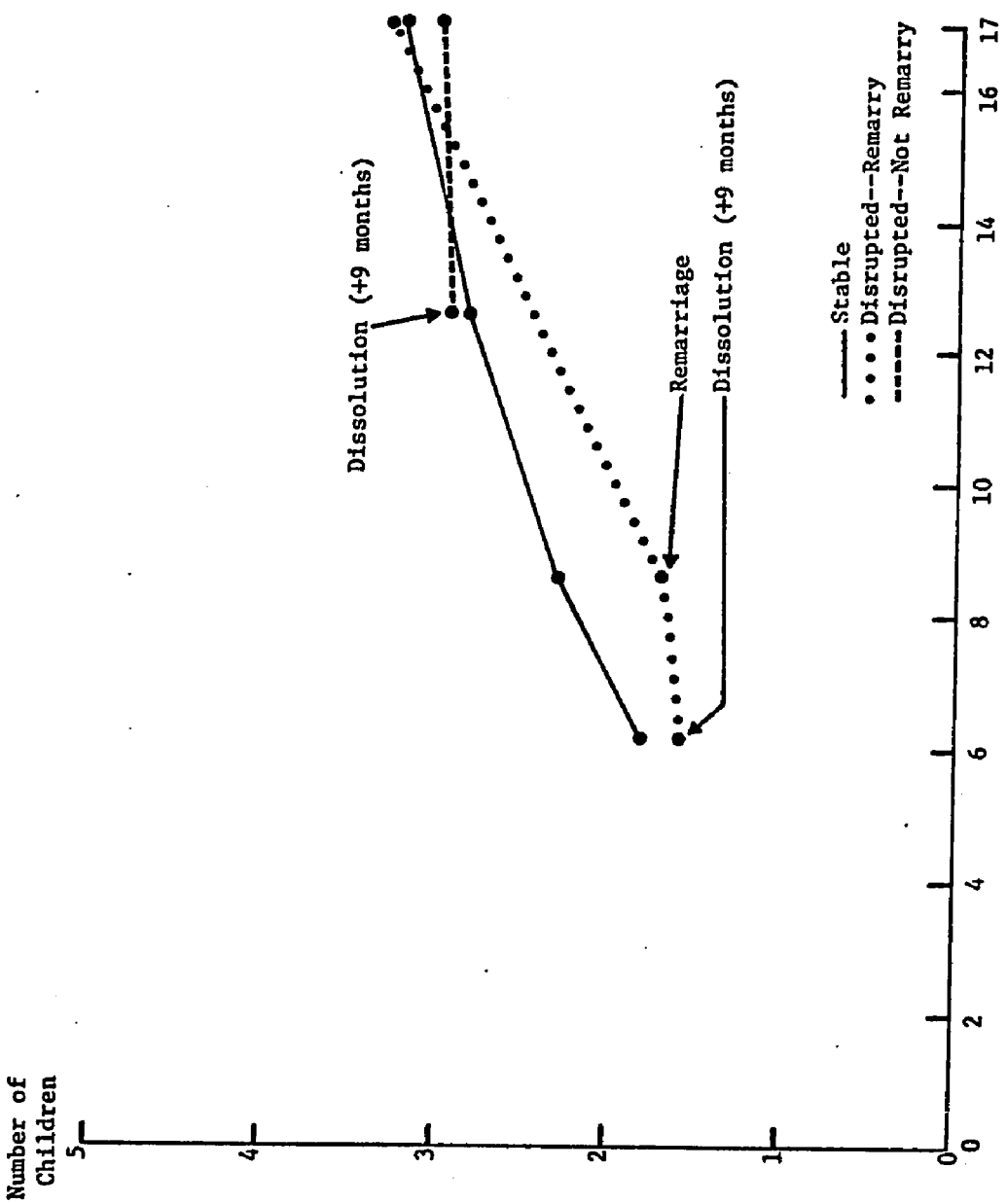


FIGURE 8. Mean Cumulative Fertility of White Women By Marital Status and Marital Duration: 1970

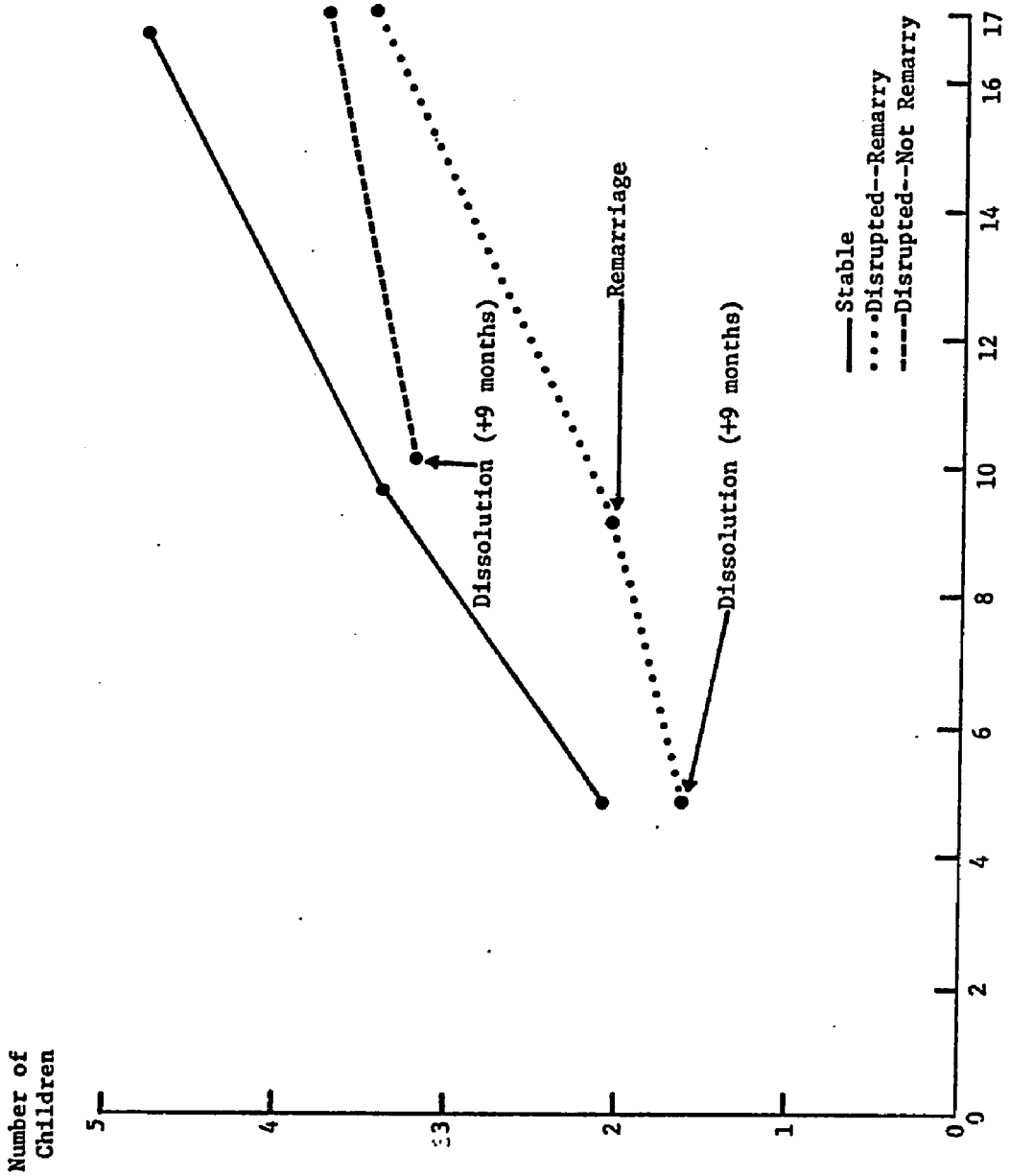


FIGURE 9. Mean Cumulative Fertility of Nonwhite Women by Marital Status and Marital Duration: 1970

This was done by connecting the actual points with straight lines.

In Chapter 3 we found the timing of first birth was only weakly related to the likelihood of experiencing separation. While women with premarital births or pregnancies had higher dissolution rates than others, the differences were only small and statistically insignificant. Figure 7 supports that conclusion. We see there that 8 months after first marriage the women who will eventually separate have about the same number of children as similar women in stable marriages. For whites the cumulative fertility of the 2 groups is virtually identical. For nonwhites, the women in disrupted marriages had only slightly higher fertility at 8 months marital duration. The 1970 National Fertility Study does not support the conclusion that the timing of first birth is an important factor in marital dissolution when other factors are taken into account.

Several researchers have reported that women experiencing marital dissolution have fewer children at the time of dissolution than others. These studies, as we discussed in Chapter 4, made the comparison at the time of divorce. In Figure 7 we can see that if we compare the fertility of the 2 groups 18 months before or 6 months after separation, the differences are very small. For nonwhites, women in disrupted marriages actually have more children 18 months before separation. It is only after the separation occurs that they have fewer children than other women. For whites,

the fertility of the 2 groups is virtually identical 18 months prior to separation, and there is only a .1 child per woman difference 2 years later. These results do not support the hypothesis that the preseparation fertility of women in disrupted marriages is lower than that of other women nor that increased numbers of children increases marital stability.

Figure 7 should not, however, be interpreted as showing that predissolution childbearing has no relationship to marital stability. In Chapter 3 we found a moderate U shaped relationship between the number of children a woman had at the beginning of an interval and the likelihood that she would experience dissolution during the interval. Women with large families and those with no children were the most likely to experience disruption. The lowest dissolution rates were found for those with moderate numbers of children. For this reason the women who experience separation are drawn disproportionately from those with no children and from those with many children. The high fertility of the one group tends to balance out the low fertility of the other. It is not surprising, therefore, to find that the average cumulative fertility of those separating is so similar to that of other women.

Figure 7 illustrates the fact that women in disrupted marriages experience reduced childbearing during the interval from 18 months before to 6 months after separation. While the differences are not large, these women have fewer

children during the interval than those in stable marriages. In Chapter 4 we interpreted this difference as supporting the hypothesis that marital dissatisfaction reduces childbearing. We assumed the separating couples were experiencing discontent and unhappiness during this period, and this dissatisfaction was reducing childbearing.

Figure 7 clearly shows the drastic reduction in childbearing that occurs between separation and divorce. While there are some children born between separation (plus 6 months) and divorce (presumably, many of these are illegitimate), the number is much smaller than the number born in stable marriages. The result of this reduced fertility is that at the time of divorce the women experiencing disruption have substantially fewer children than those in stable marriages. This is especially true for nonwhites where "normal" fertility is very high and the length of time between separation and divorce is fairly long. These results demonstrate the importance of the reduction in childbearing which occurs when people make the transition from married to unmarried.

Throughout this study it has been emphasized that if the predissolution fertility of couples in disrupted marriages is to be compared with the childbearing of other couples, the comparison should not be made at the time of divorce. There are 2 reasons why divorce is a poor time for making this comparison. First, some people who experience separation either do not divorce or have not divorced

by the time of the study. We found in Chapter 5 (Tables 36 and 37) the likelihood of obtaining a divorce following separation is inversely related to the number of children at separation (also see Table 30 of Chapter 4). Since women with many children are less likely to obtain a divorce following separation, they will be underrepresented in the divorced group. As a result the fertility of those divorcing will tend to be lower than the fertility of women in stable marriages. The second reason why divorce is a poor time for making the comparison is clearly illustrated in Figure 7. During the time from separation to divorce the fertility of separated women is markedly reduced. The reduction in fertility during this period produces much of the fertility differential existing at the time of divorce. As a result of the forces just discussed, differences in cumulative childbearing that exist at the time of divorce are very poor indicators of the differences existing at separation. As we discussed in Chapter 4, these results suggest that the findings of all studies making the comparison at divorce should be interpreted with great caution.

In Figures 8 and 9 the postdissolution relationships between childbearing, marital dissolution, and remarriage are summarized. Figure 8 presents a summary for whites while Figure 9 summarizes the relationships for nonwhites. Both figures represent data for all marital dissolutions (including those produced by the death of the husband) in

which the interview occurred at least 17 years after first marriage. In those figures the average cumulative numbers of children the women in disrupted marriages had 9 months after dissolution, remarriage (if they had remarried), and 17 years after first marriage are plotted with the average time since first marriage that the event occurred (see Tables 39 and 42 of Chapter 6). The fertility of those who remarry is plotted separately from those who had not. Fertility estimates for women in stable marriages are also shown in Figures 8 and 9. These estimates are standardized on the education, age at marriage, marital duration, and religion (for whites) distribution of those experiencing disruption. In the figures the childbearing curves for the women in stable marriages are drawn to represent both the standardized estimates based on the distribution of those who remarried and the estimates based on the group who had not. As in Figure 7 fertility between time points is represented by straight lines connecting the estimates at the points. It should be noted that dissolution refers to separation or the death of the husband, as appropriate.

We shall first focus on the childbearing behavior of the women who remarry. We observe from Figures 8 and 9 that they have fewer children 9 months after dissolution than those in stable marriages. This differential is partially produced by the reduction in fertility occurring during the interval between 18 months before and 9 months after the dissolution (see Figure 7 and the accompanying

comments). The differential is also partially produced by the fact that the likelihood of remarrying following a dissolution is inversely related to the number of children a woman had at dissolution (see Table 35 of Chapter 5). The remarrying women are, therefore, drawn disproportionately from the low parity women experiencing disruption.

From the figures we can see that childbearing is greatly reduced during the interval from dissolution (plus 9 months) to remarriage. While there is some illegitimate childbearing during this interval, the fertility of women in disrupted marriages is much lower than that of those in stable marriages (also see Table 40 of Chapter 6). Therefore, when they remarry, their average cumulative fertility is substantially lower than that of women in intact first marriages. The difference existing between the 2 groups at the time of remarriage is, however, greater for nonwhites than whites. At the time of remarriage the remarrying white women have about .6 fewer children than similar women in stable marriages while the difference for nonwhites is over 1.2 children. The greater difference for the nonwhites can be accounted for by 3 factors. First, the level of fertility for nonwhite women in stable marriages is much higher than the level for the white women in stable marriages. For this reason, the amount of reduction possible during the interval from dissolution to remarriage is greater for nonwhites. Second, nonwhites take longer to remarry than whites. This allows the

fertility reduction to last longer for them. Third, the difference existing between the women experiencing disruption and those in stable marriages was greater for nonwhites at the time of dissolution (plus 9 months) than it was for whites.

The data illustrated in Figures 8 and 9 indicate that remarriage is followed by increased childbearing. For whites, remarrying women bear more children during the interval from remarriage to 17 years after first marriage than the women in stable marriages. In fact, remarrying white women have enough more children during this interval to entirely eliminate the deficit existing when they remarried. The result is white women who experience disruption and then remarry have as many children altogether as women in stable marriages. As we concluded in Chapter 6, marital dissolution does not reduce the number of children born to white women who remarry. However, dissolution and remarriage does influence the timing and spacing patterns of the children born to them. As we can see from Figure 8, women experiencing dissolution and remarriage have a period of reduced fertility which is followed by increased childbearing. This pattern indicates that these women have their children born, on the average, later than other women.

The data shown in Figure 9 suggest the postremarriage fertility of nonwhite women is very similar to childbearing in intact first marriages. Nonwhite women who remarry

do not "make up" for the lower cumulative fertility they had at remarriage. The result is that the number of children they have 17 years after first marriage is substantially smaller than the number stably married women have. It should also be noted that the total number of children remarrying nonwhite women "intend" to have is much less than the number similar women in stable marriages "intend" (see Table 45 of Chapter 6). The number of children born to nonwhite women is reduced substantially by dissolution even if remarriage follows. The timing patterns of the children born are also influenced by the marital events. As we observed for whites, dissolution and remarriage increase the time from first marriage to the birth of children.

The influence of dissolution and remarriage on the total number of children born depends upon the population studied. These marital events have virtually no overall impact on the number of children born among whites, while, for nonwhites, the impact is substantial. Nonwhite women who spend their reproductive lives in 1 intact marriage have at least 1 more child per woman than those who have remarried. These results are probably produced by overall differences in the marital and childbearing patterns of the 2 racial groups.

One important difference between whites and nonwhites relevant to this issue is remarriage patterns. As we saw in Chapter 5 (Table 34), more white women remarry following

dissolution, and remarrying whites take the step much faster. Nonwhite women who remarry spend more time between marriages, and therefore, the fertility reduction experienced between marriages operates longer for them (see Figure 8 and 9).

A second important difference between the 2 populations is the level of fertility among stably married women. Stably married white women had just over 3 children during the first 17 years of marriage while nonwhite women in stable marriages had over 4½. Since "normal" nonwhite fertility is so consistently high, the interruption of the pattern by disruption and remarriage can be very important. Between marriages these women "lose" a lot of childbearing since the potential fertility to be "lost" is great. Similarly, it is difficult for them to "make up" for "lost" fertility after remarriage since the tempo of childbearing is high for stable marriages. Remarried white women find it much easier to "make up" for lost fertility. They "lose" fewer children between marriages and with fairly low "normal" fertility, it is not difficult to "make up" for "lost" time after they remarry.

A third important difference between whites and nonwhites is the extent to which childbearing is planned. Studies consistently indicate that family planning is less extensive and effective among nonwhites than whites. In addition, "excess" or "unwanted" fertility is greater for nonwhites (see Whelpton et al., 1966; Bumpass and Westoff, 1970; and Ryder and Westoff, 1971, 1972). Since a smaller

proportion of nonwhite childbearing is "planned," "non-planning" factors must be more important for nonwhites. Marital dissolution is one of those unplanned factors.

If these observations are accurate, marital dissolution probably only decreases the number of children born in populations where fertility is high and planning is limited. In these populations, "unplanned" factors like dissolution can have an important influence as they do among nonwhite Americans. On the other hand, in populations where childbearing is low, planning extensive, and remarriage rapid, fertility will be determined more by norms and desires; and the brief interruption of childbearing by dissolution will be less important. These are the conditions that seem to exist among white Americans. It is likely that as conditions among nonwhites become more similar to those of whites, the influence of marital dissolution should become less important for them.

Figure 8 also summarizes the fertility of white women who experienced dissolution and did not remarry. It is important to notice that these women experienced dissolution, on the average, much later than the women who remarried. The result is that they had many more children at the time of dissolution than remarrying women. On the average this group of women experienced dissolution almost 12 years after first marriage and had nearly 3 children 9 months after the dissolution. These results suggest the childbearing of these women was probably almost completed when the disruption occurred. For this reason dissolution

could not seriously affect the total number of children they have at 17 years marital duration. While dissolution does truncate their childbearing, they still have only about .2 fewer children than women who are stably married.

The nonwhite women who experience dissolution and do not remarry have substantially fewer children 17 years after first marriage than similar women in intact first marriages. These women experience dissolution, on the average, about 9 years after first marriage when they have just a little over 3 children. While these women bear some children after the disruption, their fertility level is much lower than that of stable marriages. As we can see from Figure 9 nonwhite women in stable marriages go on to have considerably more children than those who experience disruption and do not remarry. The conclusion is that for nonwhite women, marital dissolution substantially decreases the number of children born.

The results of this study have one important methodological implication. When studying the relationship between marital instability and childbearing, it is crucial that the analysis be made at the appropriate time in the life cycle. As we saw in Chapter 4, misleading results concerning the correlation between predissolution fertility and disruption are obtained when the relationship is examined after the disruption occurs. Similarly, as discussed in Chapter 6, the relationship between postdissolution childbearing and instability can be distorted if examined

at an inappropriate time. Since dissolution with remarriage lengthens out the childbearing span, it is important that the relationship be examined when childbearing is completed. Otherwise, the increased childbearing span of the remarried will be artificially truncated by the analysis procedure.

The Incidence and Distribution of Dissolution and Remarriage

A second major focus of this study was the marital processes themselves. The incidence of marital dissolution in the population was studied in Chapter 2. In addition, the distribution of dissolution among the different subgroups was investigated. In Chapter 5 we examined the remarriage process for those who had experienced disruption. The likelihood of remarriage was examined for the overall population and for certain subgroups. In this section of Chapter 8 we review the major findings of those 2 chapters.

This study has shown a substantial number of marriages are disrupted quite soon after they are contracted. Using the rates observed in the 1970 National Fertility Study, we estimated that over 21 percent of the marriages of whites would be disrupted in the first 16 years (see Table 1 of Chapter 2). For nonwhites, more than 45 percent of the marriages would be disrupted during the same period (Table 2). The analysis indicated that most of these dissolutions (over 85 percent) were produced by marital discord.

Marital dissolution is not uniformly distributed in the subgroups of the population. Some groups experience

considerably more disruption than others (see Table 3 of Chapter 2). In Chapter 2 we investigated the distribution of dissolutions resulting from discord. The relationships between disruption and race, education, religion, and age at marriage were studied using multivariate contingency table analysis. This procedure allowed us to examine the influence of each of the explanatory variables on dissolution with the effects of the other variables controlled.

The multivariate analysis showed the relationship between race and dissolution was important. We found nonwhites had higher odds of experiencing dissolution than whites during every interval examined. The nonwhite odds were consistently about twice as high as the odds for whites (see Tables 11 and 12). These results indicate that the greater instability found among nonwhites is not the result of differences in religion, education, or age at marriage. There must be other conditions or circumstances existing in the nonwhite population which increase the incidence of dissolution. Unfortunately, the data utilized do not allow us to identify the conditions producing high marital instability in the nonwhite population.

The relationship between age at marriage (or, "age at the beginning of the marital interval examined" since the 2 concepts are identical in this analysis. See Chapter 2 for further discussion) and dissolution was also found to be an important one. For every marital interval, the younger women were the most likely to have their marriage

disrupted. The odds of experiencing dissolution for the very young were from 2 to 4 times as large as the odds for the very old (see Tables 11 and 12). These data strongly support the hypothesis that age and maturity increases stability. The results also indicate that the importance of age is not limited to the time period immediately following marriage. Rather, it is important during the entire first 16 years of marriage.

The investigation of dissolution differentials showed the relationship between religion and disruption was much weaker than the relationships observed between race and dissolution and between age at marriage and dissolution (see Table 10 of Chapter 2). The results of the analysis suggest the influence of religion is very limited. We did, however, find some differences among the 3 groups defined. The 3 categories used were Catholics, Fundamentalists and Baptists, and all others. The Fundamentalists and Baptists had slightly higher rates than the other 2 groups. It was also found, however, Catholic rates were very similar to those of the "other" women when controls were employed (Tables 11 and 12 of Chapter 2). These results indicate that the important religious difference is between the Fundamentalist and Baptist group and all other religions.

The correlation between education and marital dissolution was also found to be quite small (see Table 10). For whites we found a very small and inconsistent relationship. For nonwhite women the nature of the relationship

was much clearer. For this group, the women who had started, but not finished, high school or college had the highest odds of experiencing dissolution. The odds for the college dropouts were especially high. These results suggest the possibility of predisposing factors that decrease persistence in both education and marriage. Unfortunately, the nature of these factors has not been identified.

While a substantial percentage of marriages are disrupted fairly early, the results of Chapter 5 indicate that marital dissolution does not represent a rejection of married life. A large percentage of the women who experienced disruption remarry, and they do so quite quickly after the dissolution. Over half of the white women remarry within 3 years of the dissolution (separation or the death of the husband), and over 80 percent remarry within 9 years. For nonwhites, 16 percent remarry before 3 years elapse and 44 percent remarry within 9 years (see Table 34).

The likelihood of remarrying following a dissolution is not uniform across subgroups of the population. As we have already seen, nonwhites are much less likely to remarry than whites. In addition, those nonwhites who did remarry within 9 years took longer to do so than whites. The study indicates that while nonwhites are twice as likely to experience dissolution, they are only about one-half as likely to remarry following disruption. Both suggest that

marital instability and its effects on other behavior is much more important in the nonwhite population than in the white.

Other remarriage differentials were analyzed using the multivariate technique of multiple classification analysis. In the analysis of white women we found religion and education did not seem to be related to the likelihood of remarrying. The adjusted differences between the education groups and between the religious groups were very small (see Tables 35 and 36 of Chapter 5). One reason for the small overall influence of education on remarriage is that it was positively related to the likelihood of obtaining a divorce following separation and inversely related to getting remarried once the divorce was obtained (see Table 36). For nonwhites we found a fairly substantial positive relationship between education and remarriage. This relationship was produced by the fact that highly educated nonwhite women were more likely to divorce following separation (see Table 37 of Chapter 5).

Contrary to expectations we found the cause of dissolution was not related to the likelihood of remarriage when other variables were controlled. With controls, the remarriage rates of the widows were not substantially lower than those of separating women. For whites, when controls were employed, the proportion of the widows remarrying was even higher than the proportion of the women experiencing dissolution from discord (see Table 35 of Chapter 5).

The analysis in Chapter 5 showed both age at first marriage and age at dissolution were related to remarriage. Those who married young the first time were the most likely to remarry after dissolution (see Table 35). In addition, the younger a woman was at the time of dissolution, the more likely she was to remarry. Older women appear to have a disadvantage in the remarriage market.

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