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National Estimates of Marriage Dissolution and Survivorship:
United States

A study, based on duration-of-marriage tables for 1976-77, of the national pattern of marriage dissolution and survivorship, including projections of the percentage of American marriage cohorts from 1950-73 that will end in divorce. Duration-of-marriage tables are presented by marriage order for 1975.

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PREFACE

In addition to the usual review process within the National Center for Health Statistics, it is Center policy to submit all analytical reports in this publication series to peer review for technical merit and readability. This peer review is to be conducted by one or more persons who are familiar with the subject matter of the report but who are not involved in its production. In this regard, the Center would like to recognize the contributions of Professor Andrew Cherlin, Department of Social Relations, The Johns Hopkins University, and Professor Samuel H. Preston, Department of Sociology and Graduate Group in Demography, University of Pennsylvania, who served as technical reviewers for this report. The author wishes to thank Professors Cherlin and Preston for their careful reviews and for their many helpful suggestions and comments. Thanks are also due to Professor Robert Schoen, Department of Sociology, University of Illinois at Urbana-Champaign, who read and commented on an earlier paper from which this report was derived.

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NATIONAL ESTIMATES OF MARRIAGE DISSOLUTION AND SURVIVORSHIP: UNITED STATES

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INTRODUCTION

The recent rapid rise in the American divorce rate, to heretofore unprecedented levels, must be counted among the major demographic changes occurring in the United States since World War II. The potential for a sudden upsurge in divorce in American society was presaged by a "divorce boom" that occurred at the end of World War II (figure 1). At that time the American divorce rate reached a level of 4.3 divorces per 1,000 population, more than double the rates occurring prior to 1940.[1] But that divorce surge was short-lived, as the rate quickly returned to levels not too dissimilar from those occurring just before World War II.

More recently, the formal dissolution of marriage through divorce has once again climbed rapidly. This time, however, the increase has been sustained over a longer period of time, and by 1977 the crude divorce rate exceeded the old peak level reached in 1946 by 16.3 percent. Between 1966 and 1976, the annual American divorce rate doubled, rising from 2.5 to 5.0 divorces per 1,000 population. The rate per 1,000 married women 15 years of age and over rose from 10.9 in 1966 to 21.1 in 1976, not quite doubling. In the 3 years after 1976, the divorce rate per 1,000 population increased, but at a relatively slow pace. Although the 1977 rate was the same as in 1976, provisional rates showed a slight movement upward in 1978 and 1979.[2,3]

Hypotheses can be ventured about the future track of the divorce rate in the United States, but there is no way to predict exactly what will happen or when. As a substitute for prediction, demographic methods may be used to study the future implications of a given divorce pattern. In particular, projections may be used to show what the future incidence of divorce would be if a given set of rates remained in effect for a period of time. For each of the American marriage cohorts in the period 1950-73, this report presents a projection of the proportion of marriages that would end in divorce if, at each successive interval of marriage duration, the cohort marriages were subject to the divorce and death rates experienced by couples in the American population during 1976-77. (A marriage cohort is the group of all couples married during a given calendar year.)

In addition to projections of cohort divorce proportions, this report presents an analysis of the pattern of marital disruption that existed in the United States in 1975-77. In this analysis, the actuarial procedure known as a multiple-decrement life table is used to model the survival of a hypothetical cohort of marriages according to the duration of marriage. This particular application of the life table will be referred to as a duration-of-marriage table. With this model, it is possible to describe the pattern of marriage dissolution in several ways. Specifically, the model is used to calculate the proportion of marriages that can be expected to survive to a

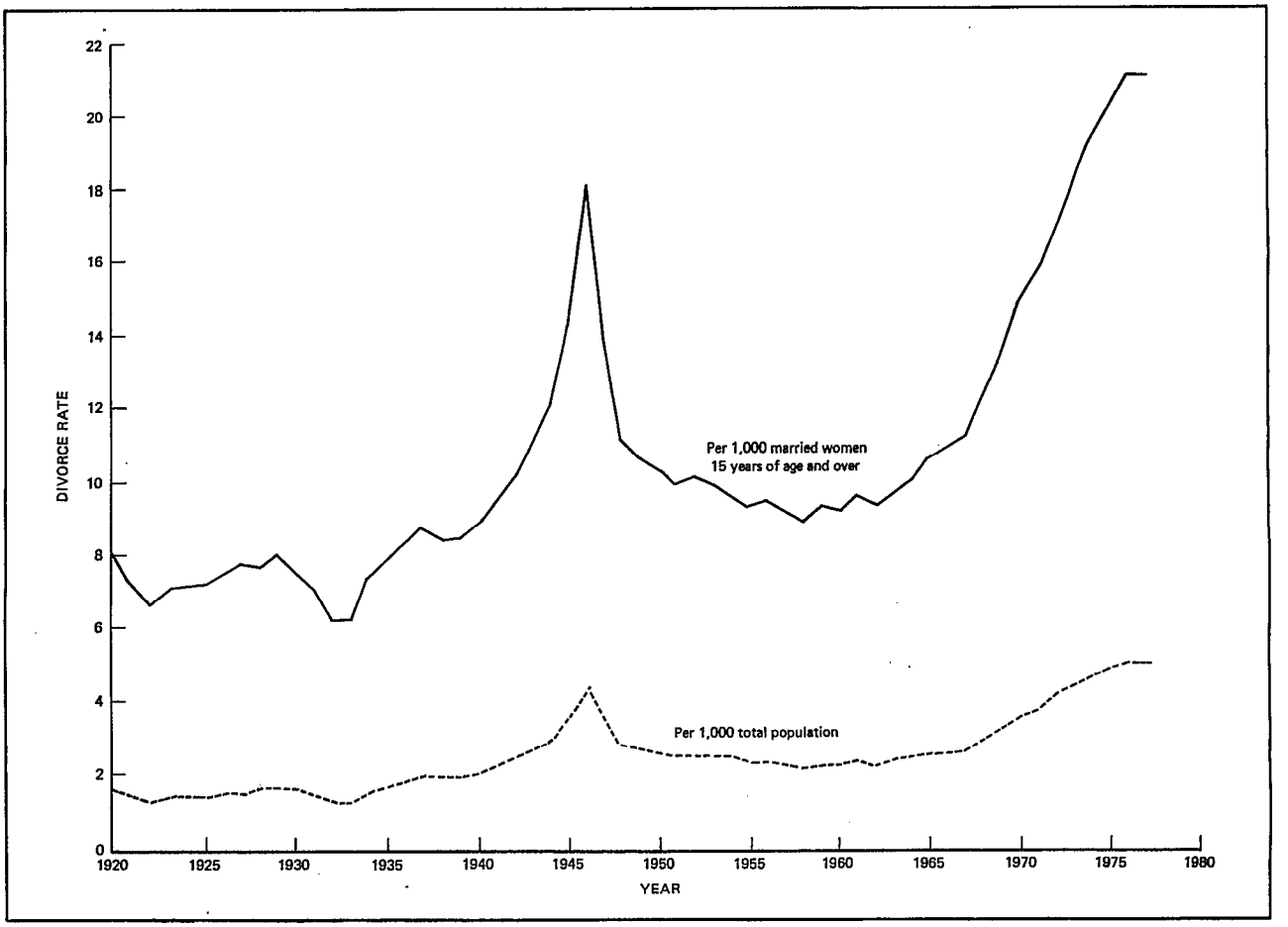

Figure 1. Divorce rates: United States, 1920-77

specified wedding anniversary, the percent of marriages that would end in divorce both before and after a specified anniversary, and the expected duration of a marriage. The duration-of-marriage table is based on the assumption that marriages represented in the model are subject throughout their existence to a preselected set of divorce and death rates specified by duration of marriage.

SUMMARY OF FINDINGS

The findings presented in this report are based on two distinct demographic approaches to the study of marriage disruption and survivorship patterns. In the first approach, a group of couples who married during a given calendar year (a marriage cohort) is followed over an interval of time, and the number of marriages in the group that have ended in divorce during that interval is recorded and analyzed. Using the cohort approach, data presented in this report show the proportions of selected cohort marriages divorced by the end of 1977.

In the second approach, divorce, mortality, and population data for a fixed period of time are used to characterize the pattern of marriage disruption and survivorship as it existed during that time period. Using the period approach, this report presents a duration-of-marriage table derived from data for 1976-77, the time period in which no change occurred in the national divorce rate (figure 1). Also, separate tables are presented for first marriages and for remarriages, using 1975 data only.

The cohort analysis provides information on the percent of marriages in each of the cohorts of 1950-77 that had experienced divorce before the end of 1977. This analysis indicates that, for each of the annual cohorts from 1952-66, about 3 out of 10 of the original marriages had already ended in divorce by 1977. Among the marriages in the 1970 and 1972 cohorts, about 1 out of 4 and 1 out of 5, respectively, had ended in divorce before the end of 1977.

In order to project the proportions of cohort marriages that will eventually end in divorce, marriage-duration-specific divorce and death rates, based on period data for 1976-77, were applied to the estimated number of marriages still remaining intact as of 1977 for each cohort from 1950-73. The resulting projections indicate that 29.5 percent of the marriages in the 1950 cohort will end in divorce. The projection increases for almost every succeeding cohort, rising ultimately to about half (49.2 percent) of all marriages in the 1973 cohort. The assumption underlying the projections is that divorce and death rates experienced by American couples in 1976-77 would stay in effect for the remaining life of the cohorts.

The duration-of-marriage table for 1976-77 summarizes the regime of divorce and death rates that prevailed in the United States in 1976-77 for all marriages, irrespective of marriage order. With the aid of this table it is possible to specify a number of characteristics of the pattern of marriage disruption and survivorship for that period. For a hypothetical cohort of marriages assumed to be subject only to the 1976-77 duration-specific risks of marriage disruption by divorce or death of a spouse, the table shows that, out of every 100 marriages just initiated, 63 would survive to the 10th anniversary, 41 to the 25th anniversary, and 13 to the 50th anniversary. Only one-third of the marriages attaining the 25th anniversary would go on to attain the 50th.

The 1976-77 duration-of-marriage table indicates that almost half (49.6 percent) of all newly contracted marriages (duration 0) would eventually end in divorce. Marriages that have attained later anniversaries have a somewhat smaller probability of ending in divorce. For example, 26.8 percent of marriages reaching the 10th anniversary, and only 6.6 percent of those reaching the 25th anniversary, would end in divorce.

The combined effects of duration-specific divorce and death rates may also be summarized in terms of the expectation of marriage, which is analogous to the expectation of life in an ordinary life table. In the 1976-77 duration-of-marriage table, the expectation of marriage at duration 0 is 23.2 years. This is about one-fourth lower than the levels of expectation of marriage reported in the literature for the 1950's and early 1960's. The recent decline in expectation of marriage has been mitigated to some extent by a simultaneous moderate decline in mortality, which in itself would tend to lengthen the expectation of marriage.

To more clearly isolate the effect of divorce on the expectation of marriage, one may calculate a duration-of-marriage table in which only mortality is allowed to disrupt marriages. With divorce eliminated as a competing risk, the expectation of marriage at duration 0 would be 39.1 years, under the death rates of 1977. Thus the marriage duration lost due to divorce is 15.9 years (39.1 minus 23.2); that is, about 41 percent of potential marriage duration is lost due to divorce, at the 1976-77 rates of death and divorce.

This report also presents separate duration-of-marriage tables for first marriages and for remarriages. The tables are based on divorce, mortality, and population data for 1975. Indexes analogous to those summarized above are presented and compared for these tables.

CUMULATIVE AND PROJECTED COHORT PERCENTS DIVORCED

Previous Research Results

With the recent increase in divorce, there has been a growing interest in measuring marital disruption in terms of the proportion of marriages that have ended or will eventually end in divorce. This interest is reflected in work by Ferriss,[4] Preston and McDonald,[5] Plateris,[6] McCarthy,[7] Preston,[8] U.S. Bureau of the Census,[9,10] and Glick and Norton.[11] The results reported here were obtained using essentially the

divorce projection method employed by Preston and McDonald,[5] with minor variations either permitted or necessitated by data availability. Preston and McDonald, using the duration-of-marriage table developed by Preston,[8] demonstrated that high proportions of cohort marriages were already ending in divorce as of 1969. They found that 22 percent of the marriages in the 1950 cohort (all U.S. marriages performed in 1950) and 13 percent of those in the 1964 cohort had already ended in divorce by 1969.[5] Their projections of the proportions of these cohort marriages that would end in divorce, based on a 1969 duration-of-marriage table, were 27 and 36 percent, respectively.

Using divorce data available through 1977 and the public-use data tapes for the June 1975 Current Population Survey, it is possible to update these estimates and projections to account for the rapid divorce rate increase between 1969 and 1977. This report is restricted to updating the cumulative and projected divorce experience of the 1950-77 marriage cohorts. The results demonstrate that a rather sizable subgroup of the population has already experienced divorce, and an even larger group will have this experience if current risks of divorce continue in the near future.

Cumulative Percents Divorced

For the 1968-77 cohorts, it was possible to prepare national duration-specific divorce estimates using computer tapes that contain samples of divorce certificates from the divorce-registration area (DRA).[a] From each of the annual divorce data tapes for 1968-77, a tabulation was prepared showing the distribution of divorces granted in the DRA cross-classified by year of marriage, by duration of marriage. Next, this distribution was applied to the total number of divorces in the United States for the appropriate year[1,2] to obtain national estimates of divorces by year and duration of marriage.[b] With this procedure it was possible to avoid the problem of allocating divorces by duration of marriage in a given year to specific cohorts. (Compare the work of Ferriss,[4] Preston and McDonald,[5] and Plateris.[6])

For the 1950-67 cohorts, duration-specific divorce estimates, covering the experience of these cohorts in the period 1968-77, were obtained by the same method as that described for the 1968-77 cohorts. These estimates for the 1950-67 cohorts were supplemented by national duration-specific estimates of divorces occurring among these cohorts in the period 1950-67, as prepared by Plateris.[6] These procedures yielded cumulative proportions of marriages that had ended in divorce by the end of 1977 for each of the 1950-77 marriage cohorts.

Table A shows for each marriage cohort year from 1950-77 the number of marriages in the original cohort[1,12] and the estimated number and percent of the marriages in the cohort that had ended in divorce by the end of 1977. For the 1952-66 cohorts, about 3 out of 10 of the original marriages had already ended in divorce by 1977. At least 1 out of 4 marriages had ended in divorce among the 1967-70 cohorts, 1 out of 5 had ended in divorce among the 1971-72 cohorts, and 1 out of 6 marriages had ended in divorce among the 1973 cohort.

Projected Cohort Percents Divorced

In order to project the proportions of the cohort marriages that will end in divorce, two steps were required. First it was necessary to develop marriage-duration-specific divorce and death rates. Second an estimate was needed for the number of marriages still remaining intact as of 1977 for each cohort from 1950-73. The 1973 cohort is the last one for which a projection was made, because by 1977 about one-third of its

[a] Since 1968, the DRA has changed very little. It comprised 29 States and represented about 60 percent of all divorces granted in the United States by 1976. Each year, the National Center for Health Statistics selects a sample of divorce certificates from each State in the DRA and codes the information reported on these certificates. Dates of marriage and divorce are particularly well reported by States in the DRA.

[b] Since divorce estimates are based on sample data, they are subject to sampling errors. It should also be noted that some bias may be introduced by applying a DRA duration distribution to the national divorce total. See the appendix for further discussion of the data and sources.

Table A. Number of marriages in cohort, cumulative number and percent of cohort marriages ended by divorce through 1977, and percent of cohort marriages projected to end in divorce, by year of marriage: United States, 1950-77

Year of marriage	Number of marriages in cohort	Cohort marriages ended by divorce through 1977		Percent of cohort marriages projected to end in divorce
		Cumulative number	Cumulative percent	
1977	2,178,367	17,947	0.8	---
1976	2,154,807	92,050	4.3	---
1975	2,152,662	185,584	8.6	---
1974	2,229,667	289,759	13.0	---
1973	2,284,108	381,537	16.7	49.2
1972	2,282,154	448,033	19.6	48.7
1971	2,190,481	482,085	22.0	48.0
1970	2,158,802	535,330	24.8	47.8
1969	2,145,000	565,776	26.4	47.1
1968	2,069,000	560,362	27.1	45.9
1967	1,927,000	545,884	28.3	45.3
1966	1,857,000	539,856	29.1	44.3
1965	1,800,000	538,730	29.9	43.7
1964	1,725,000	512,797	29.7	42.2
1963	1,654,000	489,733	29.6	41.0
1962	1,577,000	468,397	29.7	40.0
1961	1,548,000	457,371	29.5	39.1
1960	1,523,000	461,192	30.3	38.8
1959	1,494,000	445,732	29.8	37.6
1958	1,451,000	428,035	29.5	36.5
1957	1,518,000	445,473	29.3	35.4
1956	1,585,000	457,366	28.9	34.4
1955	1,531,000	450,958	29.5	34.4
1954	1,490,000	438,147	29.4	33.8
1953	1,546,000	440,420	28.5	32.3
1952	1,539,318	445,529	28.9	32.1
1951	1,594,694	446,349	28.0	30.9
1950	1,667,231	448,442	26.9	29.5

divorce experience had already occurred, and projections for later cohorts would necessarily incorporate much less actual experience.

To solve the first problem, duration-specific divorce and death rates were estimated according to the general procedures developed by Preston.[8] Since the national divorce rates for 1976 and 1977 were the same, an average of the estimated 1976 and 1977 divorce rates was calculated at each duration interval in order to obtain more stable rates. To solve the second problem, a Lexis diagram was used to update each marriage cohort to 1977, diminishing each cohort at each duration of marriage by the estimated number of divorces (as described above) and by an estimated number of marriages that ended by the death of either spouse. Details on these procedures are provided in the appendix.

With these components—a set of 1976-77 divorce and death rates (shown in columns 1 and 2 of table 1) and an estimate of marriages still intact in 1977 for each cohort from 1950-73—the projections shown in the last column of table A were produced. The projections were obtained by reducing the remaining marriages of the cohort according to the number of divorces and disruptions by death expected at each duration after 1977, following the reduction procedure employed by Preston and McDonald.[5]

As table A shows, the projected proportion of marriages that will end in divorce increases from 29.5 percent for the 1950 cohort to 49.2 percent for the 1973 cohort. The projections for the 1950 and 1964 cohorts, calculated with 1976-77 divorce rates and 1977 death rates, may be compared with those of Preston and

McDonald,[5] who used 1969 rates. They obtained projections of 27.1 percent and 35.7 percent, respectively. Thus the effect of rising divorce rates since 1969 (and, to a much lesser extent, declining death rates) has been to raise the projections for the 1950 and 1964 cohorts by 2.4 and 6.5 percentage points, respectively. The projections simply reflect what will happen to the cohorts if future rates of divorce and death should remain the same as in 1976-77. The extent to which these projections will represent the actual experience of the cohorts depends on how closely future duration-specific divorce and death rates conform to the rates used in the projections.

1976-77 DURATION-OF-MARRIAGE TABLE

Survival of Marriages to Specified Anniversaries

A duration-of-marriage table is analogous to a triple-decrement life table. In the latter, a synthetic (i.e., not actual or real) cohort of 100,000 persons, followed from birth, is subjected to age-specific risks of mortality from three causes of death (e.g., cancer, heart disease, and all other causes combined). In a duration-of-marriage table, a synthetic cohort of 100,000 marriages, followed from the initiation of marriage, is subjected to duration-specific risks of marriage disruption from divorce, death of wife, and death of husband.

The duration-specific 1976-77 divorce rates and 1977 death rates described in the previous section were used to calculate a duration-of-marriage table. The calculations, shown in table 1, follow the procedure used by Preston[8] and are described in the appendix. Table 1 refers to all marriages, regardless of marriage order (i.e., number of the marriage) for either husband or wife.

Summarizing the combined duration-specific effects of divorce rates (shown in column 1 of table 1) and death rates (shown as the sum of rates for males and females in column 2), the figures in column 4 show the number of marriages surviving to the start of each marriage-duration interval out of an original cohort of 100,000 marriages. These figures may be used to calculate the proportion of marriages that can be expected to attain a specified wedding anniversary. The marriages that succumb to dissolution during an interval are shown in columns 5, 6, and 7.

According to table 1, out of every 100 marriages performed, 63 would survive to the 10th anniversary, 41 to the 25th anniversary, and 13 to the 50th anniversary. Among those marriages surviving to the 10th anniversary, 65 out of 100 would reach the 25th anniversary, and 21 the 50th anniversary. For every 100 marriages achieving the 25th anniversary, 32 would attain the 50th.

Percent of Marriages Ending in Divorce

Figure 2 and column 9 of table 1 show the percent of marriages intact at the beginning of a specified duration year that would end in divorce during that year and all later years of marriage. Thus at 0 years of duration, 49.6 percent of all newly contracted marriages would eventually end in divorce provided they were subject throughout their existence to the duration-specific rates of marital disruption that were estimated for American marriages in 1976-77. This figure confirms what has recently been suggested in the literature; that is, current rates imply that almost one-half of all American marriages would end in divorce (compare Schoen and Urton[13]).

In figure 2, curve 1 demonstrates that, in the first 15 years of duration, there is a rapid decline in the probability that a marriage intact at a given duration would eventually end in divorce. Thus, 39 percent of marriages reaching the 5th anniversary and 27 percent of those reaching the 10th would eventually end in divorce, representing a decline of 12 percentage points. In comparison, 11 percent of those marriages reaching the 20th anniversary and 7 percent of those reaching the 25th would subsequently end in divorce, yielding a decline of only 4 percentage points. This comparison illustrates the effect of the rapid decline in the divorce rate after the first 10 years of marriage.

For an alternative way to examine the divorce pattern, column 6 of table 1 may be used to calculate the percent of marriages that

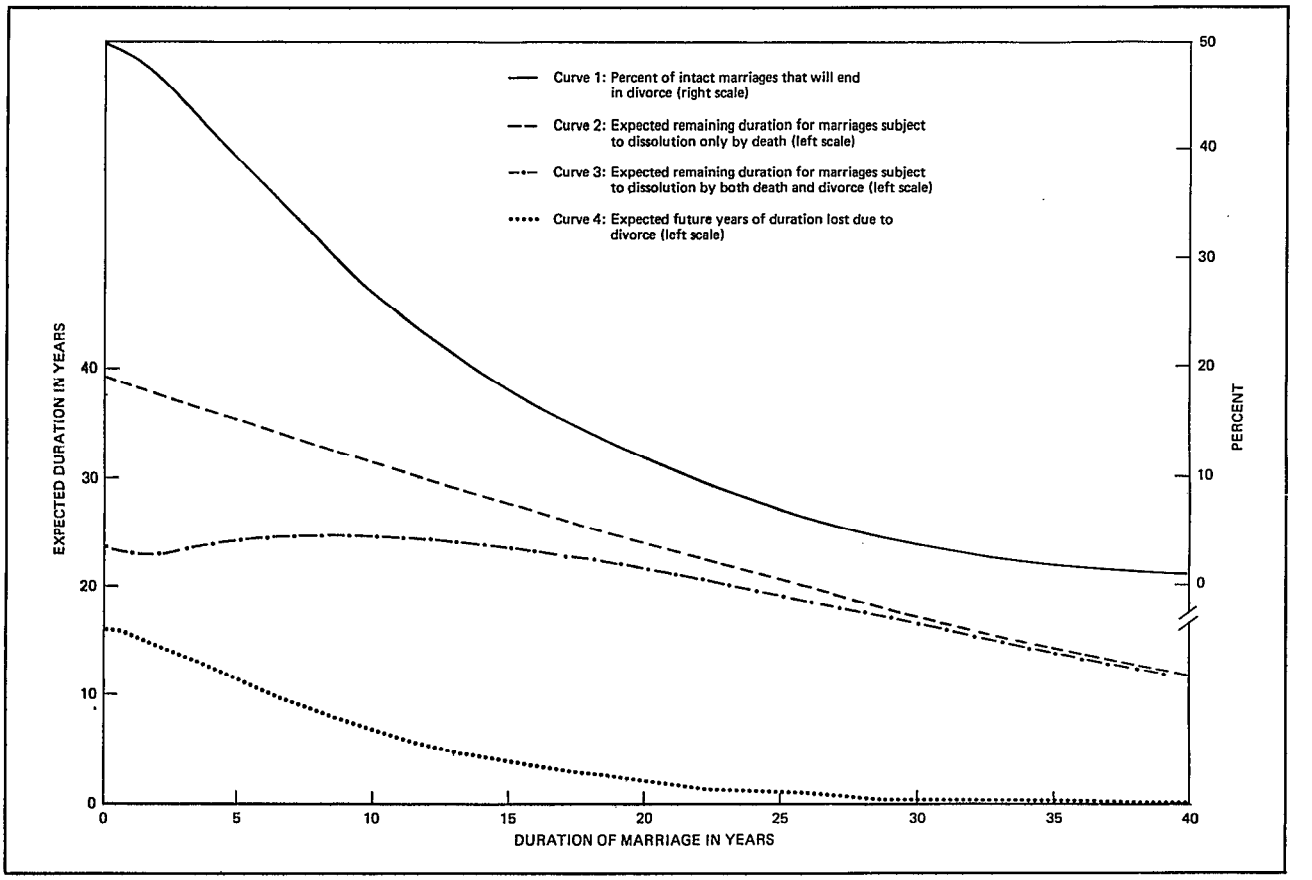

Figure 2. Expected duration of marriage and percent of intact marriages that will end in divorce, by duration of marriage: United States, 1976-77

would end in divorce prior to a given anniversary. Out of a cohort of newly contracted marriages, a cumulative figure of 19 percent would end in divorce before the 5th anniversary, 33 percent before the 10th, 40 percent before the 15th, 47 percent before the 25th, and 50 percent before the 50th. Cumulative percent divorced up to 30 years' duration of marriage is shown in column 5 of table 2.

Theoretically, the cumulative percent divorced, as derived from table 1, is attenuated by the fact that some marriages end by the death of a spouse and thereby become unavailable for dissolution by divorce. In other words, if a marriage ends by death of a spouse, it is no longer subject to the risk of divorce. As a result, the cumulative percent divorced is not as large as it could be if marriages were not disrupted by death. Of course, it may be difficult to imagine a situation in which death did not operate to end marriages. Nevertheless, under the hypothetical condition of no mortality until a fixed duration of marriage, it is possible to determine the potential cumulative percent divorced at any given anniversary. This can be done by calculating the associated single-decrement table in which only the risk of divorce is allowed to operate on the synthetic marriage cohort. Table 2 presents such a calculation, carried through the 30th anniversary. Specifically, it is assumed in table 2 that, until the 30th anniversary, the risk of marital disruption by death is zero, and marriages therefore can end only in divorce, following the same 1976-77 duration-specific divorce rates as were employed in table 1.

Column 4 of table 2 shows the cumulative percent of marriages that would end in divorce by a stipulated anniversary, assuming death rates to be zero for the indicated duration intervals. For example, by the 25th anniversary, 49.4

percent of marriages would have ended in divorce. This may be compared with the cumulative figure of 47.0 percent shown in column 5 of table 2, which is derived from table 1 in which both divorce and death rates operate. Thus if marriages could end only in divorce through the 25th anniversary, the cumulative percent divorced would rise by just 2.4 percentage points. This result demonstrates how minimal the effect of mortality is during the early decades of the average marriage, as defined by the divorce and death regimes existing in 1976-77.

Expected Duration of Marriage

In an ordinary life table the effects of age-specific mortality rates are summarized in a column of figures called "the expectation of life at age x." Similarly, the expectation of duration of marriage (or simply the expectation of marriage) at duration x years may be calculated from a duration-of-marriage table. With respect to an ordinary life table, the expectation of life at birth is of special interest. In a duration-of-marriage table, the analog to this quantity is the expectation of marriage at duration 0 years, that is, at the time the marriage is contracted. For the duration-of-marriage table for 1976-77 (table 1), the expectation of marriage at duration 0 is 23.2 years.

Some estimates of expectation of marriage for prior years are available in the literature. For the years 1948 and 1955, Jacobson[14] calculated the "average number of years of marriage remaining before dissolution by divorce or death" to be 29.9 years and 31.5 years, respectively, at duration 0. Schoen and Nelson[15] used the methodology of the "life status table" to obtain an estimate of 30.8 years as the "expectation of life of a marriage" for American females in 1960. In an unpublished paper, Plateris and Armstrong[16] calculated the expectation of marriage to be 31.6 years for women 15-20 years of age in 1965. Finally, Preston,[8] with the methodology used here, obtained an "expected duration of life for a marriage just initiated" of 26.2 years, based on 1969 divorce and death rates for the United States. Thus since 1948, and indeed, since the early 1960's, the expectation of marriage at duration 0 has declined from about 31 years to about 23 years. This decline of one-fourth clearly reflects the rise in divorce, because there has been a moderate decline in mortality that in itself would tend to lengthen the expectation of marriage.

Curve 3 in figure 2 shows the expectation of marriage at duration x years. A notable feature of this curve is that there is a very brief decline in the expectation of marriage in the first 2 years of marriage, followed by a very slow increase until the expected number of years remaining reaches a maximum of 24.5 years at the time of the 9th anniversary. In other words, a marriage that has survived 9 years can be expected to survive another 24.5 years, which is 1.3 years more than the expected duration of a marriage that has just been initiated. The reason for the apparent anomaly in this finding is that the risk of divorce is very high in the early years of marriage and declines rapidly thereafter. As a marriage increases in duration, it faces smaller and smaller risks of divorce in the later years of marriage, and its expected remaining duration can actually increase. Of course, as the marriage "ages," it faces an increased risk of disruption due to death of a spouse, and the expected duration eventually begins to decline as a result.

Marriage Duration Lost Due to Divorce

The effect of divorce on the expectation of marriage can be further examined by estimating the years of marriage duration lost due to divorce. By calculating a double-decrement duration-of-marriage table in which only mortality (death of husband or wife) is allowed to disrupt marriages, it is possible to estimate the expectation of marriage with divorce eliminated as a competing risk. Then the difference between expectation of marriage in the mortality double-decrement table and expectation in the triple-decrement table (in which divorce is also a competing risk) provides an estimate of the years of marriage duration lost due to divorce.

The triple-decrement duration-of-marriage table for 1976-77, table 1, shows an expectation of marriage of 23.2 years. The mortality double-decrement table, table 3, shows an expectation of 39.1 years. In other words, the potential years of a newly contracted marriage disrupted only by death of a spouse is 39.1 years. Thus the years of marriage duration lost due to divorce,

based on 1976-77 rates, is 39.1 minus 23.2, or 15.9 years. This means that, out of a potential duration of 39.1 years for all marriages combined, about 41 percent is lost due to divorce. Alternatively one could say that 15.9 years would be the expected gain in the average duration of marriage if divorce were eliminated as a cause of marriage dissolution.

Curve 3 in figure 2 shows the expectation of marriage at duration x years, as derived from column 12 of table 1. Curve 2 in figure 2 shows the expectation of marriage at duration x years as derived from the double-decrement duration-of-marriage table, with marriages subject to dissolution only by death of spouse (column 5 of table 3). Curve 4 in figure 2 shows the expected future years of marriage duration lost due to divorce for marriages at duration x years. Curve 4 is simply the difference between curves 2 and 3 at each duration year. (The data from which this curve is plotted are shown in column 6 of table 3.) Although the years of marriage lost due to divorce is 15.9 for a newly married couple, the analogous loss to a couple celebrating their 10th anniversary is reduced to less than 7 years, and the loss to a couple celebrating their 25th anniversary is just a little over 1 year.

1975 DURATION-OF-MARRIAGE TABLES BY MARRIAGE ORDER

Data and Methods

The results reported in the previous sections are limited because the 1976-77 duration-of-marriage table and the cohort projections are for all marriages combined. Second marriages are somewhat more likely to end in separation and divorce than are first marriages, at least among white persons, as shown by McCarthy in research based on the National Survey of Family Growth.[7] Consequently, projections by marriage order would eliminate the confounding effect produced by the fact that, in recent years, first marriages have constituted declining proportions of all marriages. Unfortunately, data limitations in the vital statistics system in past years would tend to cast doubt on the validity of projected proportions of first marriages and remarriages that will end in divorce. It is feasible, however, to calculate marriage-duration tables for first marriages and remarriages for the year 1975. By so doing, the pattern of divorce risk for first marriages may be compared with that for remarriages, as these patterns are displayed in the dissolution experience of synthetic cohorts.

Tables 4, 5, and 6 present 1975 duration-of-marriage tables for first marriages, remarriages, and all marriages combined, respectively. The tables are derived from 1975 divorce and death rates estimated by marriage order and are calculated by procedures presented in the appendix. The rates are based on 1975 data exclusively, because population data by marriage order are available from the June 1975 Current Population Survey conducted by the U.S. Bureau of the Census.[9] Discussion will be limited to findings related to first marriages and remarriages since the 1975 duration-of-marriage table for all marriages combined (table 6) is very similar to the 1976-77 data (table 1) described earlier.

To obtain marriage-order-specific divorce rates for 1975, it was necessary to first calculate national estimates of divorces by duration and marriage order. For this purpose, the 1975 divorce-registration area distribution of divorces cross-classified by marriage duration, by marriage order of wives was applied to the total number of divorces in the United States in 1975. The population base used to calculate marriage-order-specific divorce rates by duration was the 1975 distribution of currently married women, by marriage order, derived from the June 1975 Current Population Survey public-use data tape. The decision to distribute divorces by marriage order of wives was made primarily because the required population data are apparently more accurate for women than for men.

For each duration-of-marriage interval, the male and female death rates were calculated as the weighted average of 1975 sex-specific life table rates, with weights taken from the 1975 age distribution of married men and women by duration, by marriage order, based on the June 1975 Current Population Survey (see the discussion of death rates in the appendix). The male and female rates were then added together to form the rates by duration for first marriages and for remarriages as shown in tables 4 and 5.

Survival of Marriages to Specified Anniversaries

Figures in column 4 of tables 4 and 5 can be used to derive the proportion of first marriages and remarriages, respectively, that can be expected to survive to a specified anniversary, under the regime of divorce and death rates experienced in 1975.

According to table 4, out of every 100 first marriages just initiated, 67 would survive to the 10th anniversary, 47 to the 25th, and 16 to the 50th. In comparison, table 5 indicates that, out of every 100 newly contracted remarriages, 52 would survive to the 10th anniversary, 24 to the 25th, and only 3 to the 50th. These differences in chances of survival between first marriages and remarriages are a reflection of the higher risks of both divorce and death among remarriages at almost every duration of marriage.

Among those first marriages surviving to the 10th anniversary, 69 out of 100 would attain the 25th anniversary and 23 the 50th. In contrast, among remarriages surviving to the 10th anniversary, 47 out of 100 would attain the 25th and only 6 the 50th.

Since remarriages occur on the average at higher ages than first marriages do, death rates for the former are greater than for the latter at each given duration. However, divorce rates of first marriages and remarriages decline and tend to converge with increasing years of duration. Tables 4 and 5 (column 4) indicate that about one-third of all first marriages attaining the 25th anniversary will survive to the 50th, but less than one-eighth of all remarriages reaching the 25th anniversary will survive to the 50th. This survival differential is due largely to the difference in death rates at higher durations between first marriages and remarriages, since divorce rate differences decline very rapidly after 15 years' duration (compare columns 1 and 2 of tables 4 and 5).

Percent of Marriages Ending in Divorce

Figures in column 9 of tables 4 and 5 show, respectively, the percent of first marriages and remarriages intact at the beginning of a specified duration interval that would end in divorce during that and all later intervals of marriage. Procedures for calculating these figures are described in the appendix. At 0 years of duration, 47.4 percent of all first marriages would eventually end in divorce; the corresponding proportion for remarriages is 48.9 percent. The assumption behind this comparison is that all marriages are subject throughout their existence to the duration-specific rates of marital disruption that were estimated for first marriages and remarriages in 1975. These figures indicate that a higher proportion of remarriages just initiated end in divorce, but the difference, based on rates for 1975, is only 1.5 percentage points. This difference is small because both divorce and death rates are higher among remarriages than among first marriages. Indeed, death rates for remarriages are about 4 to 6 times the rates for first marriages at durations up to 15 years.

In figures 3 and 4, curve 1 shows that first marriages and remarriages have very similar patterns of decline in the percent of marriages at a given duration that would eventually end in divorce. As already noted, at duration 0, a higher percent of remarriages than first marriages would end in divorce. However, after duration year 1, there is a crossover of the curves, and from duration 2 years through duration 20 years the percent of extant marriages that will eventually end in divorce is a little larger for first marriages than for remarriages (see column 9 in tables 4 and 5). At duration 25 years and over, remarriages once again have the higher probability of future divorce. Thus during durations of 2-20 years, even though remarriages have greater duration-specific divorce rates, the competing risk of death is sufficiently low among first marriages that larger numbers of marriages survive dissolution by death only to be eventually terminated by divorce. Among remarriages the risk of dissolution by death is sufficiently high at early durations that relatively fewer marriages survive to be ended by divorce.

In the same way as discussed earlier, figures in column 6 of tables 4 and 5 provide information on the cumulative proportion of first marriages and remarriages that would end in divorce by a given anniversary. Table B shows

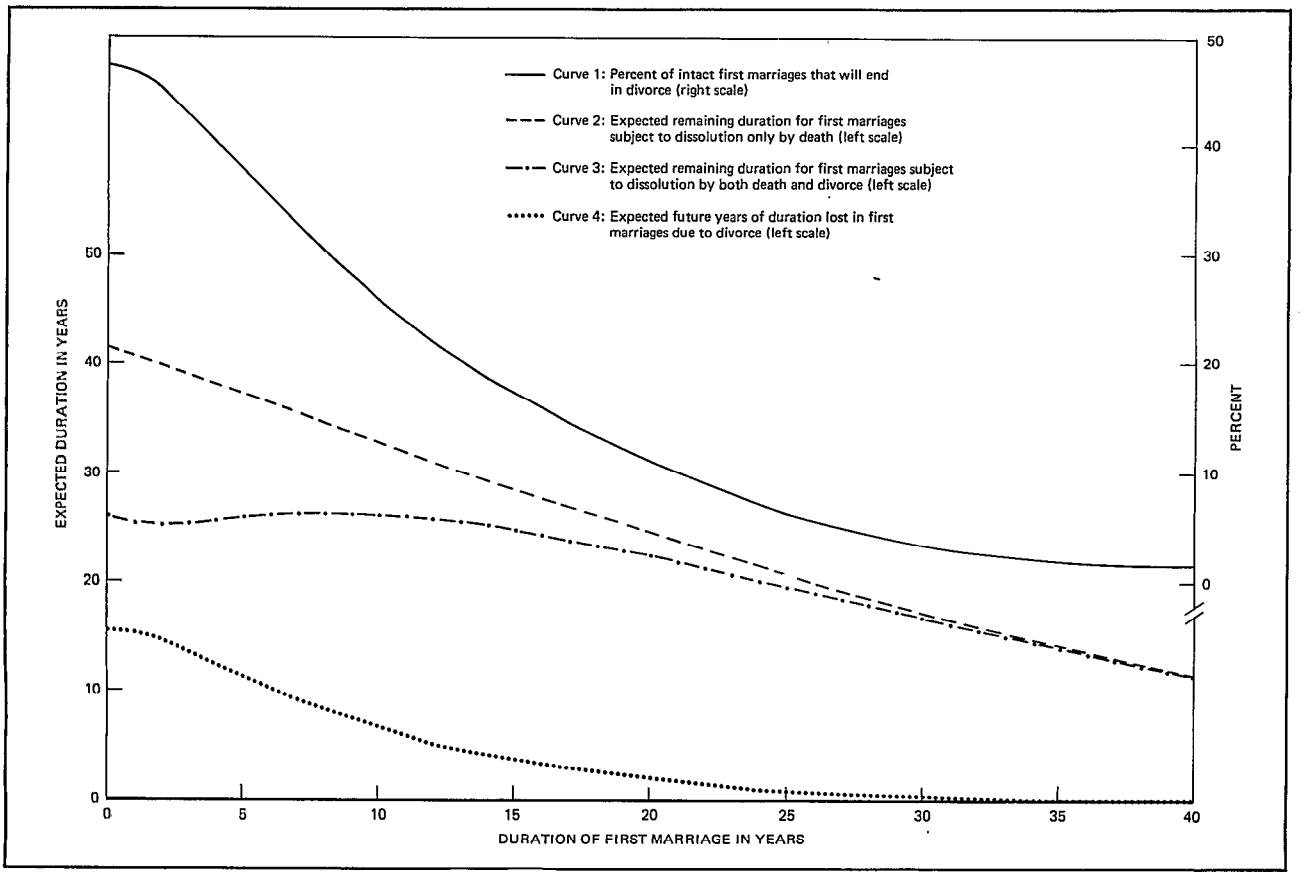

Figure 3. Expected duration of first marriage and percent of intact first marriages that will end in divorce, by duration of marriage: United States, 1975

these proportions at selected anniversaries. For example, out of a synthetic cohort of newly contracted first marriages, a cumulative total of 16.3 percent would end in divorce before the 5th anniversary. In comparison, among a cohort of remarriages just initiated, 23.6 percent would end in divorce before the 5th anniversary. The difference between proportions of first marriages and of remarriages divorced declines with increasing duration. By the 25th anniversary, 44.5 percent of first marriages and 47.3 percent of remarriages would have ended in divorce.

Tables 7, 8, and 9 are the 1975 associated (divorce) single-decrement duration-of-marriage tables for first marriages, remarriages, and all marriages combined, respectively. The tables are constructed, as described in the previous section, under the assumption that marriages can be dissolved only by divorce through the 30th anniversary; that is, that the risk of marital disruption by death of a spouse is zero. The figures in column 4 of tables 7-9 indicate the cumulative percent of marriages that would end in divorce as of a given anniversary. Thus by the 25th anniversary, potentially 46.0 percent of first marriages would end in divorce if death of a spouse were not a possibility. This is only 1.5 percentage points higher than the analogous figure of 44.5 percent derived from the triple-decrement duration-of-marriage table (table 4) and shown for comparative purposes in column 5 of table 7.

In contrast, table 8 shows that potentially 53.5 percent of remarriages would end in divorce by the 25th anniversary if death were not a competing risk. This figure is 6.2 percentage points higher than the 47.3 percent derived from the corresponding triple-decrement table for

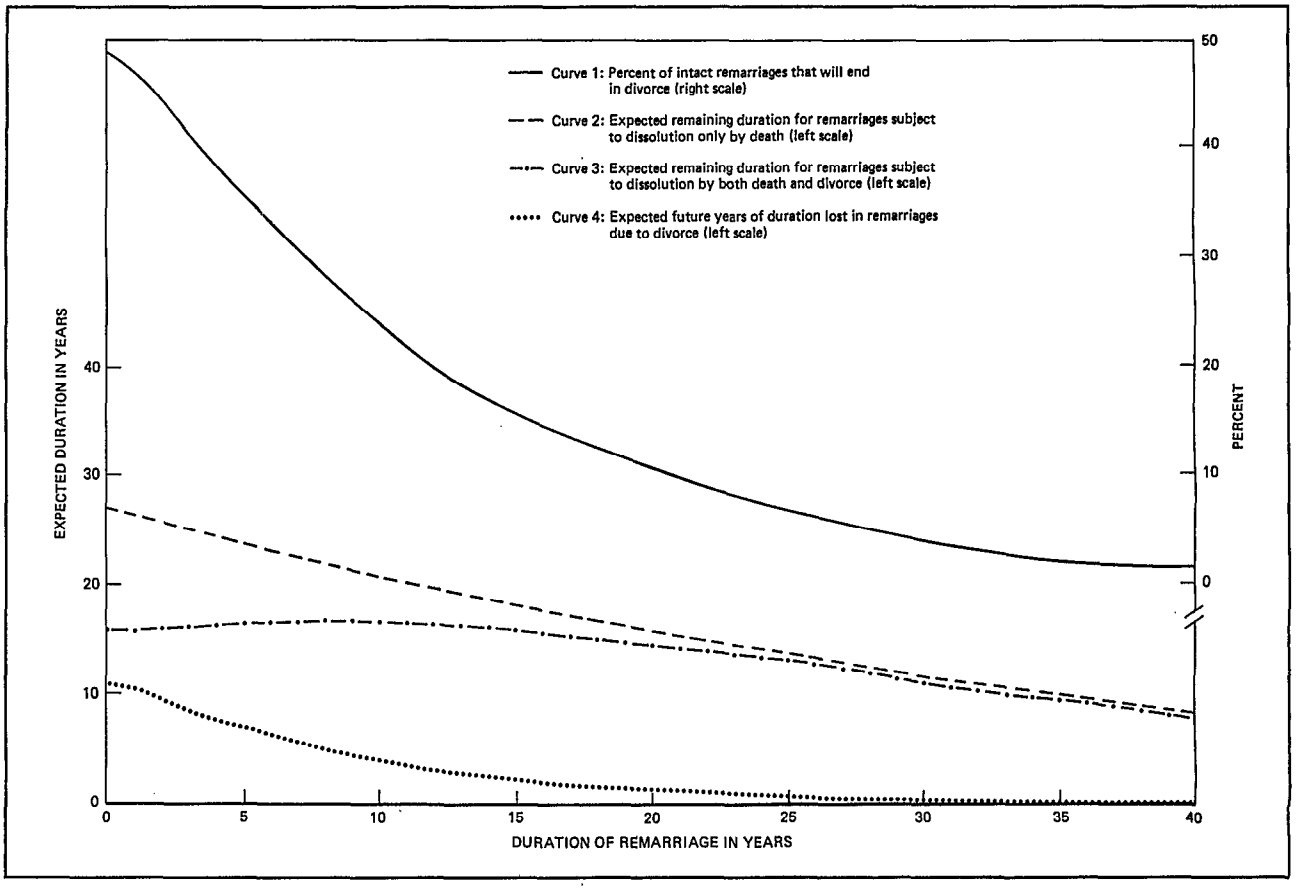

Figure 4. Expected duration of remarriage and percent of intact remarriages that will end in divorce, by duration of marriage: United States, 1975

Table B. Cumulative percent divorced, by marriage order and anniversary: United States, 1975

Anniversary	First marriages	Remarriages
	Cumulative percent divorced	
5th	16.3	23.6
10th	30.0	36.4
15th	37.4	42.7
25th	44.5	47.3
50th	47.3	48.9

remarriages (table 5). Thus, the effect of mortality as a competing risk in marital disruption is considerably greater for remarriages than for first marriages. However, in either case, the overall effect of mortality in reducing the proportion of marriages that would end in divorce is not remarkably large.

Expected Duration of First Marriages and Remarriages

There is a very large difference between first marriages and remarriages in terms of the expectation of marriage. Tables 4 and 5 indicate an expectation of 25.8 years for first marriages at duration 0 years and an expectation of 15.9 years for remarriages at duration 0 years, respectively.

Curve 3 in figure 3 shows the expectation of first marriages at duration x years. Similarly, curve 3 in figure 4 shows the expectation of marriage at duration x years for remarriages. Both curves drop at the outset, and then they increase gradually; at the beginning of duration 8 years, the expected remaining duration of first marriages is 26.0 years and of remarriages is 16.6 years. In both cases, the rise in expected duration results from a rapid decline in divorce rates after the early years of marriage. Up to the

beginning of the 20th year of duration, first marriages retain an expected duration that is about 8 years higher than that of remarriages. Thereafter, the difference in expected duration declines, so that at 50 years of duration the difference is only 2 years.

Marriage Duration Lost Due to Divorce

The 1975 mortality double-decrement duration-of-marriage tables for first marriages and remarriages are presented in tables 10 and 11, respectively. Table 12 is the 1975 mortality double-decrement table for all marriages combined. For first marriages, the mortality double-decrement table yields an expected duration of 41.4 years at duration 0 years. This means that the potential years of marriage in the absence of divorce is 41.4 years for a first marriage just initiated. Thus the years of first-marriage duration lost due to divorce is 41.4 minus 25.8, or 15.6 years, based on 1975 rates. In other words, about 38 percent of a potential first-marriage duration of 41.4 years is lost due to divorce.

In comparison, the 1975 mortality double-decrement table for remarriage (table 11) yields an expected duration of 26.8 years at duration 0 years; this is 14.6 years less than the potential duration of first marriages. The years of remarriage duration lost due to divorce is 26.8 minus 15.9, or 10.9 years, based on 1975 rates. This means that, out of a potential duration of 26.8 years for remarriages, about 41 percent is lost due to divorce. Thus the proportionate loss is just a little larger for remarriages (41 percent) than for first marriages (38 percent).

Curve 2 in figure 3 shows the expectation of first marriage at duration x years as derived from table 10. Curve 4 in figure 3 shows the future years of marriage duration lost due to divorce for first marriages attaining a specified duration of x years. Figure 4 shows similar curves for remarriages. It can be seen that the years of marriage duration lost due to divorce for first marriages and for remarriages tend to converge as they decline. At the 25th anniversary, the loss to a first marriage has been reduced to 1.0 years, while the future loss to a remarriage has been reduced to 0.7 years.

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Table 1. Duration-of-marriage table for all marriages: United States, 1976-77

Duration of marriage at beginning of interval in years	Divorce rate during interval[1]	Death rate during interval[2]	Proportion of marriages surviving to start of interval that terminate during interval	Of 100,000 marriages contracted:					Percent of marriages terminated by divorce in this and all later intervals	Stationary population		Expected number of years of marriage remaining at beginning of interval
				Number surviving to start of interval	Number terminated during interval			Number terminated by divorce in this and all later intervals		In duration interval	In this and all later intervals	
					By death or divorce	By divorce	By death					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0	.0223	.0053	.0272	100,000	2,722	2,199	523	49,637	49.6	98,633	2,324,102	23.2
1	.0431	.0051	.0471	97,278	4,578	4,094	484	47,438	48.8	94,971	2,225,469	22.9
2	.0503	.0050	.0538	92,700	4,987	4,536	451	43,344	46.8	90,183	2,130,498	23.0
3	.0516	.0056	.0556	87,713	4,876	4,399	477	38,808	44.2	85,252	2,040,315	23.3
4	.0492	.0058	.0535	82,837	4,433	3,966	467	34,409	41.5	80,600	1,955,063	23.6
5	.0451	.0062	.0500	78,404	3,921	3,447	474	30,443	38.8	76,427	1,874,463	23.9
6	.0424	.0061	.0473	74,483	3,526	3,083	443	26,996	36.2	72,706	1,798,036	24.1
7	.0394	.0064	.0448	70,957	3,177	2,733	444	23,913	33.7	69,357	1,725,330	24.3
8	.0363	.0064	.0408	67,780	2,768	2,343	425	21,180	31.2	66,386	1,655,973	24.4
9	.0324	.0069	.0385	65,012	2,506	2,066	440	18,837	29.0	63,751	1,589,587	24.5
10	.0301	.0068	.0362	62,506	2,264	1,847	417	16,771	26.8	61,367	1,525,836	24.4
11	.0282	.0074	.0350	60,242	2,107	1,669	438	14,924	24.8	59,182	1,464,469	24.3
12	.0257	.0072	.0324	58,135	1,881	1,469	412	13,255	22.8	57,189	1,405,287	24.2
13	.0228	.0094	.0317	56,254	1,783	1,262	521	11,786	21.0	55,358	1,348,098	24.0
14	.0207	.0087	.0290	54,471	1,578	1,111	467	10,524	19.3	53,678	1,292,740	23.7
15	.0168	.0102	.1263	52,893	6,680	4,156	2,524	9,413	17.8	247,391	1,239,062	23.4
20	.0119	.0140	.1215	46,213	5,613	2,579	3,034	5,257	11.4	216,713	991,671	21.5
25	.0075	.0189	.1237	40,600	5,020	1,426	3,594	2,678	6.6	190,173	774,958	19.1
30	.0043	.0270	.1449	35,580	5,155	708	4,447	1,252	3.5	164,676	584,785	16.4
35	.0023	.0378	.1817	30,425	5,527	317	5,210	544	1.8	137,845	420,109	13.8
40	.0008	.0536	.2381	24,898	5,930	87	5,843	227	0.9	108,994	282,264	11.3
45	.0008	.0719	.3048	18,968	5,781	64	5,717	140	0.7	79,515	173,270	9.1
50	.0008	.1055	.4123	13,187	5,437	41	5,396	76	0.6	51,146	93,755	7.1
55	.0008	.1551	.5414	7,750	4,195	22	4,173	35	0.5	26,914	42,609	5.5
60	.0008	.2257	.9999	3,555	3,554	13	3,541	13	0.4	15,695	15,695	4.4

[1]Divorce rates are an average of rates for 1976 and 1977; see appendix.
[2]Death rates are the sum of rates for males and females for 1977; see appendix.

Table 2. Duration-of-marriage table for all marriages with divorce as the only form of marital disruption: United States, 1976-77

Duration of marriage at beginning of interval in years	Divorce rate during interval[1] (1)	Proportion of marriages surviving to start of interval that terminate during interval (2)	Of 100,000 marriages contracted: Number surviving to start of interval (3)	Of 100,000 marriages contracted: Cumulative percent ended by divorce (4)	Cumulative percent of marriages ended by divorce (from table 1) (5)
0	.0223	.0221	100,000	0.0	0.0
1	.0431	.0422	97,795	2.2	2.2
2	.0503	.0491	93,669	6.3	6.3
3	.0516	.0503	89,074	10.9	10.8
4	.0492	.0480	84,595	15.4	15.2
5	.0451	.0441	80,533	19.5	19.2
6	.0424	.0415	76,982	23.0	22.6
7	.0394	.0386	73,786	26.2	25.7
8	.0353	.0347	70,935	29.1	28.5
9	.0324	.0319	68,475	31.5	30.8
10	.0301	.0297	66,292	33.7	32.9
11	.0282	.0278	64,326	35.7	34.7
12	.0257	.0254	62,538	37.5	36.4
13	.0228	.0225	60,951	39.0	37.9
14	.0207	.0205	59,577	40.4	39.1
15	.0168	.0806	58,356	41.6	40.2
20	.0119	.0578	53,655	46.3	44.4
25	.0075	.0368	50,555	49.4	47.0
30	. . .	. . .	48,695	51.3	48.4

[1]Divorce rates are an average of rates for 1976 and 1977; see appendix.

Table 3. Duration-of-marriage table for all marriages with death as the only form of marital disruption: United States, 1977

Duration of marriage at beginning of interval in years	Death rate during interval[1]	Number of marriages surviving to start of interval	Stationary population		Expected number of years of marriage remaining at beginning of interval	Years of marriage lost due to divorce
			In duration interval	In this and all later intervals		
	(1)	(2)	(3)	(4)	(5)	(6)
0	.0053	100,000	99,735	3,912,102	39.1	15.9
1	.0051	99,471	99,218	3,812,367	38.3	15.4
2	.0050	98,965	98,718	3,713,149	37.5	14.5
3	.0056	98,472	98,197	3,614,431	36.7	13.4
4	.0058	97,922	97,639	3,516,234	35.9	12.3
5	.0062	97,356	97,055	3,418,595	35.1	11.2
6	.0061	96,754	96,460	3,321,540	34.3	10.2
7	.0064	96,165	95,858	3,225,080	33.5	9.2
8	.0064	95,552	95,247	3,129,222	32.7	8.3
9	.0069	94,942	94,615	3,033,975	32.0	7.5
10	.0068	94,290	93,970	2,939,360	31.2	6.8
11	.0074	93,651	93,305	2,845,390	30.4	6.1
12	.0072	92,960	92,626	2,752,085	29.6	5.4
13	.0094	92,293	91,861	2,659,459	28.8	4.8
14	.0087	91,430	91,033	2,567,598	28.1	4.4
15	.0102	90,638	441,828	2,476,565	27.3	3.9
20	.0140	86,131	415,928	2,034,737	23.6	2.1
25	.0189	80,308	383,151	1,618,809	20.2	1.1
30	.0270	73,067	341,748	1,235,658	16.9	0.5
35	.0378	63,839	290,845	893,910	14.0	0.2
40	.0536	52,845	231,781	603,065	11.4	0.1
45	.0719	40,422	169,769	371,284	9.2	0.1
50	.1055	28,215	109,630	201,515	7.1	0.0
55	.1551	16,649	57,915	91,885	5.5	0.0
60	.2257	7,667	33,970	33,970	4.4	0.0

[1]Death rates are the sum of rates for males and females; see appendix.

Table 4. Duration-of-marriage table for first marriages: United States, 1975

Duration of marriage at beginning of interval in years	Divorce rate during interval	Death rate during interval[1]	Proportion of marriages surviving to start of interval that terminate during interval	Of 100,000 marriages contracted:				Percent of marriages terminated by divorce in this and all later intervals	Stationary population		Expected number of years of marriage remaining at beginning of interval
				Number surviving to start of interval	Number terminated during interval		Number terminated by divorce in this and all later intervals		In duration interval	In this and all later intervals	
					By death or divorce	By divorce	By death				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0	.0131	.0028	.0158	100,000	1,577	1,299	278	47,403	47.4	99,209	2,577,993	25.8
1	.0330	.0031	.0355	98,423	3,490	3,190	300	46,104	46.8	96,668	2,478,784	25.2
2	.0428	.0030	.0448	94,933	4,250	3,972	278	42,914	45.2	92,792	2,382,116	25.1
3	.0454	.0029	.0472	90,683	4,276	4,019	257	38,942	42.9	88,528	2,289,324	25.2
4	.0454	.0032	.0474	86,407	4,099	3,829	270	34,923	40.4	84,341	2,200,796	25.5
5	.0444	.0034	.0467	82,308	3,842	3,569	273	31,094	37.8	80,372	2,116,455	25.7
6	.0389	.0035	.0415	78,466	3,257	2,988	269	27,525	35.1	76,826	2,036,083	25.9
7	.0350	.0033	.0376	75,209	2,826	2,583	243	24,537	32.6	73,787	1,959,257	26.1
8	.0321	.0036	.0351	72,383	2,539	2,283	256	21,954	30.3	71,106	1,885,470	26.0
9	.0324	.0040	.0357	69,844	2,496	2,222	274	19,671	28.2	68,588	1,814,364	26.0
10	.0291	.0039	.0325	67,348	2,186	1,928	258	17,449	25.9	66,249	1,745,776	25.9
11	.0270	.0044	.0309	65,162	2,015	1,733	282	15,521	23.8	64,149	1,679,527	25.8
12	.0232	.0047	.0275	63,147	1,737	1,444	293	13,788	21.8	62,275	1,615,378	25.6
13	.0210	.0053	.0260	61,410	1,594	1,273	321	12,344	20.1	60,609	1,553,103	25.3
14	.0184	.0052	.0233	59,816	1,395	1,088	307	11,071	18.5	59,116	1,492,494	25.0
15	.0156	.0072	.1077	58,421	6,294	4,306	1,988	9,983	17.1	276,070	1,433,378	24.5
20	.0113	.0109	.1051	52,127	5,477	2,788	2,689	5,677	10.9	246,689	1,157,308	22.2
25	.0070	.0170	.1131	46,650	5,275	1,539	3,736	2,889	6.2	219,799	910,619	19.5
30	.0039	.0248	.1337	41,375	5,531	752	4,779	1,350	3.3	192,717	690,820	16.7
35	.0012	.0368	.1730	35,844	6,202	196	6,006	598	1.7	163,223	498,103	13.9
40	.0012	.0524	.2351	29,642	6,969	156	6,813	402	1.4	130,009	334,880	11.3
45	.0012	.0725	.3082	22,673	6,988	114	6,874	246	1.1	94,823	204,871	9.0
50	.0012	.1070	.4178	15,685	6,554	73	6,481	132	0.8	60,569	110,048	7.0
55	.0012	.1567	.5459	9,131	4,985	38	4,947	59	0.6	31,570	49,479	5.4
60	.0012	.2303	.9999	4,146	4,146	21	4,125	21	0.5	17,909	17,909	4.3

[1]Death rates are the sum of rates for males and females; see appendix.

Table 5. Duration-of-marriage table for remarriages: United States, 1975

Duration of marriage at beginning of interval in years	Divorce rate during interval	Death rate during interval[1]	Proportion of marriages surviving to start of interval that terminate during interval	Of 100,000 marriages contracted:				Percent of marriages terminated by divorce in this and all later intervals	Stationary population		Expected number of years of marriage remaining at beginning of interval
				Number surviving to start of interval	Number terminated during interval		Number terminated by divorce in this and all later intervals		In duration interval	In this and all later intervals	
					By death or divorce	By divorce	By death				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0	.0427	.0116	.0529	100,000	5,285	4,156	1,129	48,925	48.9	97,333	1,589,521	15.9
1	.0675	.0111	.0756	94,715	7,160	6,149	1,011	44,769	47.3	91,088	1,492,188	15.8
2	.0612	.0121	.0707	87,555	6,188	5,167	1,021	38,620	44.1	84,423	1,401,100	16.0
3	.0559	.0149	.0684	81,367	5,562	4,391	1,171	33,453	41.1	78,553	1,316,677	16.2
4	.0505	.0163	.0646	75,805	4,898	3,703	1,195	29,062	38.3	73,329	1,238,124	16.3
5	.0480	.0176	.0635	70,907	4,502	3,294	1,208	25,359	35.8	68,631	1,164,795	16.4
6	.0452	.0184	.0616	66,405	4,092	2,908	1,184	22,065	33.2	64,337	1,096,164	16.5
7	.0449	.0203	.0631	62,313	3,933	2,708	1,225	19,157	30.7	60,325	1,031,827	16.6
8	.0393	.0208	.0583	58,380	3,405	2,227	1,178	16,449	28.2	56,660	971,502	16.6
9	.0313	.0192	.0492	54,975	2,708	1,678	1,030	14,222	25.9	53,610	914,842	16.6
10	.0368	.0229	.0580	52,267	3,028	1,867	1,161	12,544	24.0	50,738	861,232	16.5
11	.0336	.0249	.0568	49,239	2,798	1,607	1,191	10,677	21.7	47,826	810,494	16.5
12	.0250	.0230	.0469	46,441	2,177	1,134	1,043	9,070	19.5	45,344	762,668	16.4
13	.0230	.0307	.0523	44,264	2,314	991	1,323	7,936	17.9	43,097	717,324	16.2
14	.0183	.0258	.0431	41,950	1,810	751	1,059	6,945	16.6	41,038	674,227	16.1
15	.0161	.0308	.2090	40,140	8,391	2,880	5,511	6,194	15.4	178,904	633,189	15.8
20	.0124	.0402	.2313	31,749	7,342	1,731	5,611	3,314	10.4	139,586	454,285	14.3
25	.0085	.0419	.2228	24,407	5,437	917	4,520	1,583	6.5	107,872	314,699	12.9
30	.0053	.0638	.2921	18,970	5,542	425	5,117	666	3.5	80,200	206,827	10.9
35	.0019	.0742	.3165	13,428	4,250	106	4,144	241	1.8	55,844	126,627	9.4
40	.0019	.1020	.4052	9,178	3,719	68	3,651	135	1.5	35,792	70,783	7.7
45	.0019	.1228	.4639	5,459	2,532	39	2,493	67	1.2	20,311	34,991	6.4
50	.0019	.1661	.5683	2,927	1,664	19	1,645	28	1.0	9,899	14,680	5.0
55	.0019	.2531	.7206	1,263	910	7	903	9	0.7	3,570	4,781	3.8
60	.0019	.2896	1.0000	353	353	2	351	2	0.6	1,211	1,211	3.4

[1]Death rates are the sum of rates for males and females; see appendix.

Table 6. Duration-of-marriage table for all marriages: United States, 1975

Duration of marriage at beginning of interval in years	Divorce rate during interval	Death rate during interval[1]	Proportion of marriages surviving to start of interval that terminate during interval	Of 100,000 marriages contracted:				Percent of marriages terminated by divorce in this and all later intervals	Stationary population		Expected number of years of marriage remaining at beginning of interval
				Number surviving to start of interval	Number terminated during interval		Number terminated by divorce in this and all later intervals		In duration interval	In this and all later intervals	
					By death or divorce	By divorce	By death				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
0	.0215	.0055	.0266	100,000	2,664	2,121	543	47,780	47.8	98,662	2,351,177	23.5
1	.0415	.0053	.0457	97,336	4,450	3,946	504	45,659	46.9	95,093	2,252,515	23.1
2	.0471	.0052	.0510	92,886	4,733	4,262	471	41,713	44.9	90,499	2,157,422	23.2
3	.0478	.0059	.0523	88,153	4,609	4,103	506	37,451	42.5	85,828	2,066,923	23.4
4	.0465	.0060	.0511	83,544	4,273	3,785	488	33,348	39.9	81,389	1,981,095	23.7
5	.0452	.0064	.0503	79,271	3,987	3,492	495	29,563	37.3	77,261	1,899,706	24.0
6	.0401	.0065	.0455	75,284	3,428	2,950	478	26,071	34.6	73,557	1,822,445	24.2
7	.0368	.0065	.0424	71,856	3,045	2,588	457	23,121	32.2	70,323	1,748,888	24.3
8	.0333	.0066	.0391	68,811	2,691	2,246	445	20,533	29.8	67,456	1,678,565	24.4
9	.0322	.0073	.0387	66,120	2,561	2,088	473	18,287	27.7	64,831	1,611,109	24.4
10	.0304	.0072	.0369	63,559	2,345	1,896	449	16,199	25.5	62,379	1,546,278	24.3
11	.0280	.0079	.0353	61,214	2,159	1,684	475	14,303	23.4	60,128	1,483,899	24.2
12	.0235	.0077	.0307	59,055	1,814	1,366	448	12,619	21.4	58,144	1,423,771	24.1
13	.0214	.0100	.0309	57,241	1,769	1,206	563	11,253	19.7	56,352	1,365,627	23.9
14	.0184	.0092	.0272	55,472	1,510	1,007	503	10,047	18.1	54,713	1,309,275	23.6
15	.0156	.0108	.1237	53,962	6,673	3,943	2,730	9,040	16.8	252,761	1,254,562	23.2
20	.0114	.0148	.1228	47,289	5,807	2,527	3,280	5,097	10.8	221,613	1,001,801	21.2
25	.0072	.0198	.1263	41,482	5,238	1,397	3,841	2,570	6.2	194,023	780,188	18.8
30	.0040	.0281	.1483	36,244	5,374	670	4,704	1,173	3.2	167,426	586,165	16.2
35	.0020	.0391	.1858	30,870	5,735	279	5,456	503	1.6	139,522	418,739	13.6
40	.0008	.0555	.2453	25,135	6,167	88	6,079	224	0.9	109,537	279,217	11.1
45	.0008	.0745	.3137	18,968	5,951	63	5,888	136	0.7	79,033	169,680	8.9
50	.0008	.1087	.4216	13,017	5,488	40	5,448	73	0.6	50,120	90,647	7.0
55	.0008	.1589	.5500	7,529	4,141	21	4,120	33	0.4	25,930	40,527	5.4
60	.0008	.2313	.9999	3,388	3,388	12	3,376	12	0.4	14,597	14,597	4.3

[1]Death rates are the sum of rates for males and females; see appendix.

Table 7. Duration-of-marriage table for first marriages with divorce as the only form of marital disruption: United States, 1975

Duration of marriage at beginning of interval in years	Divorce rate during interval	Proportion of marriages surviving to start of interval that terminate during interval	Of 100,000 marriages contracted:		Cumulative percent of marriages ended by divorce (from table 4)
			Number surviving to start of interval	Cumulative percent ended by divorce	
	(1)	(2)	(3)	(4)	(5)
0	.0131	.0130	100,000	0.0	0.0
1	.0330	.0325	98,699	1.3	1.3
2	.0428	.0419	95,495	4.5	4.5
3	.0454	.0444	91,494	8.5	8.5
4	.0454	.0444	87,433	12.6	12.5
5	.0444	.0434	83,552	16.4	16.3
6	.0389	.0382	79,924	20.1	19.9
7	.0350	.0344	76,874	23.1	22.9
8	.0321	.0316	74,230	25.8	25.5
9	.0324	.0319	71,885	28.1	27.7
10	.0291	.0287	69,593	30.4	30.0
11	.0270	.0266	67,597	32.4	31.9
12	.0232	.0229	65,797	34.2	33.6
13	.0210	.0208	64,288	35.7	35.1
14	.0184	.0182	62,952	37.0	36.3
15	.0156	.0750	61,804	38.2	37.4
20	.0113	.0549	57,167	42.8	41.7
25	.0070	.0344	54,026	46.0	44.5
30	...	...	52,168	47.8	46.1

Table 8. Duration-of-marriage table for remarriages with divorce as the only form of marital disruption: United States, 1975

Duration of marriage at beginning of interval in years	Divorce rate during interval (1)	Proportion of marriages surviving to start of interval that terminate during interval (2)	Of 100,000 marriages contracted: Number surviving to start of interval (3)	Of 100,000 marriages contracted: Cumulative percent ended by divorce (4)	Cumulative percent of marriages ended by divorce (from table 5) (5)
0	.0427	.0418	100,000	0.0	0.0
1	.0675	.0653	95,820	4.2	4.2
2	.0612	.0594	89,565	10.4	10.3
3	.0559	.0544	84,248	15.8	15.5
4	.0505	.0492	79,668	20.3	19.9
5	.0480	.0469	75,745	24.3	23.6
6	.0452	.0442	72,195	27.8	26.9
7	.0449	.0439	69,004	31.0	29.8
8	.0393	.0385	65,975	34.0	32.5
9	.0313	.0308	63,432	36.6	34.7
10	.0368	.0361	61,477	38.5	36.4
11	.0336	.0330	59,256	40.7	38.2
12	.0250	.0247	57,298	42.7	39.9
13	.0230	.0227	55,884	44.1	41.0
14	.0183	.0181	54,613	45.4	42.0
15	.0161	.0773	53,623	46.4	42.7
20	.0124	.0601	49,475	50.5	45.6
25	.0085	.0416	46,501	53.5	47.3
30	...	...	44,567	55.4	48.3

Table 9. Duration-of-marriage table for all marriages with divorce as the only form of marital disruption: United States, 1975

Duration of marriage at beginning of interval in years	Divorce rate during interval (1)	Proportion of marriages surviving to start of interval that terminate during interval (2)	Of 100,000 marriages contracted: Number surviving to start of interval (3)	Of 100,000 marriages contracted: Cumulative percent ended by divorce (4)	Cumulative percent of marriages ended by divorce (from table 6) (5)
0	.0215	.0213	100,000	0.0	0.0
1	.0415	.0407	97,873	2.1	2.1
2	.0471	.0460	93,894	6.1	6.1
3	.0478	.0467	89,574	10.4	10.3
4	.0465	.0454	85,394	14.6	14.4
5	.0452	.0442	81,514	18.5	18.2
6	.0401	.0393	77,911	22.1	21.7
7	.0368	.0361	74,849	25.2	24.7
8	.0333	.0328	72,144	27.9	27.2
9	.0322	.0317	69,782	30.2	29.5
10	.0304	.0299	67,570	32.4	31.6
11	.0280	.0276	65,547	34.5	33.5
12	.0235	.0232	63,737	36.3	35.2
13	.0214	.0212	62,257	37.7	36.5
14	.0184	.0182	60,939	39.1	37.7
15	.0156	.0750	59,828	40.2	38.7
20	.0114	.0554	55,339	44.7	42.7
25	.0072	.0354	52,272	47.7	45.2
30	...	...	50,424	49.6	46.6

Table 10. Duration-of-marriage table for first marriages with death as the only form of marital disruption: United States, 1975

Duration of marriage at beginning of interval in years	Death rate during interval[1]	Number of marriages surviving to start of interval	Stationary population		Expected number of years of marriage remaining at beginning of interval	Years of marriage lost due to divorce
			In duration interval	In this and all later intervals		
	(1)	(2)	(3)	(4)	(5)	(6)
0	.0028	100,000	99,860	4,142,956	41.4	15.6
1	.0031	99,720	99,566	4,043,096	40.5	15.3
2	.0030	99,412	99,263	3,943,530	39.7	14.6
3	.0029	99,114	98,970	3,844,267	38.8	13.6
4	.0032	98,827	98,669	3,745,297	37.9	12.4
5	.0034	98,511	98,344	3,646,628	37.0	11.3
6	.0035	98,177	98,005	3,548,284	36.1	10.2
7	.0033	97,834	97,673	3,450,279	35.3	9.2
8	.0036	97,511	97,336	3,352,606	34.4	8.4
9	.0040	97,161	96,967	3,255,270	33.5	7.5
10	.0039	96,773	96,585	3,158,303	32.6	6.7
11	.0044	96,397	96,185	3,061,718	31.8	6.0
12	.0047	95,973	95,748	2,965,533	30.9	5.3
13	.0053	95,523	95,271	2,869,785	30.0	4.7
14	.0052	95,018	94,772	2,774,514	29.2	4.2
15	.0072	94,526	464,222	2,679,742	28.3	3.8
20	.0109	91,183	443,715	2,215,520	24.3	2.1
25	.0170	86,347	413,894	1,771,805	20.5	1.0
30	.0248	79,310	372,952	1,357,911	17.1	0.4
35	.0368	70,061	319,967	984,959	14.1	0.2
40	.0524	58,286	256,382	664,992	11.4	0.1
45	.0725	44,852	188,110	408,610	9.1	0.1
50	.1070	31,214	120,868	220,500	7.1	0.1
55	.1567	18,281	63,371	99,632	5.5	0.1
60	.2303	8,351	36,261	36,261	4.3	0.0

[1]Death rates are the sum of rates for males and females; see appendix.

Table 11. Duration-of-marriage table for remarriages with death as the only form of marital disruption: United States, 1975

Duration of marriage at beginning of interval in years	Death rate during interval[1]	Number of marriages surviving to start of interval	Stationary population		Expected number of years of marriage remaining at beginning of interval	Years of marriage lost due to divorce
			In duration interval	In this and all later intervals		
	(1)	(2)	(3)	(4)	(5)	(6)
0	.0116	100,000	99,422	2,684,366	26.8	10.9
1	.0111	98,847	98,300	2,584,944	26.2	10.4
2	.0121	97,756	97,167	2,486,644	25.4	9.4
3	.0149	96,580	95,864	2,389,477	24.7	8.5
4	.0163	95,151	94,380	2,293,613	24.1	7.8
5	.0176	93,613	92,794	2,199,233	23.5	7.1
6	.0184	91,980	91,139	2,106,439	22.9	6.4
7	.0203	90,303	89,393	2,015,300	22.3	5.7
8	.0208	88,488	87,574	1,925,907	21.8	5.2
9	.0192	86,667	85,840	1,838,333	21.2	4.6
10	.0229	85,019	84,053	1,752,493	20.6	4.1
11	.0249	83,094	82,068	1,668,440	20.1	3.6
12	.0230	81,050	80,125	1,586,372	19.6	3.2
13	.0307	79,207	78,004	1,506,247	19.0	2.8
14	.0258	76,813	75,831	1,428,243	18.6	2.5
15	.0308	74,856	346,885	1,352,412	18.1	2.3
20	.0402	64,172	290,670	1,005,527	15.7	1.4
25	.0419	52,487	236,768	714,857	13.6	0.7
30	.0638	42,567	182,227	478,089	11.2	0.3
35	.0742	30,941	129,250	295,862	9.6	0.2
40	.1020	21,350	83,622	166,612	7.8	0.1
45	.1228	12,821	47,903	82,990	6.5	0.1
50	.1661	6,938	23,565	35,087	5.1	0.1
55	.2531	3,024	8,577	11,522	3.8	0.0
60	.2896	853	2,945	2,945	3.5	0.1

[1]Death rates are the sum of rates for males and females; see appendix.

Table 12. Duration-of-marriage table for all marriages with death as the only form of marital disruption: United States, 1975

Duration of marriage at beginning of interval in years	Death rate during interval[1]	Number of marriages surviving to start of interval	Stationary population		Expected number of years of marriage remaining at beginning of interval	Years of marriage lost due to divorce
			In duration interval	In this and all later intervals		
	(1)	(2)	(3)	(4)	(5)	(6)
0	.0055	100,000	99,726	3,854,688	38.5	15.0
1	.0053	99,452	99,189	3,754,962	37.8	14.7
2	.0052	98,926	98,669	3,655,773	37.0	13.8
3	.0059	98,413	98,123	3,557,104	36.1	12.7
4	.0060	97,834	97,541	3,458,981	35.4	11.7
5	.0064	97,249	96,938	3,361,440	34.6	10.6
6	.0065	96,628	96,315	3,264,502	33.8	9.6
7	.0065	96,002	95,691	3,168,187	33.0	8.7
8	.0066	95,380	95,066	3,072,496	32.2	7.8
9	.0073	94,753	94,408	2,977,430	31.4	7.0
10	.0072	94,064	93,726	2,883,022	30.6	6.3
11	.0079	93,389	93,021	2,789,296	29.9	5.7
12	.0077	92,654	92,298	2,696,275	29.1	5.0
13	.0100	91,943	91,485	2,603,977	28.3	4.4
14	.0092	91,028	90,611	2,512,492	27.6	4.0
15	.0108	90,195	439,015	2,421,881	26.9	3.7
20	.0148	85,453	411,839	1,982,866	23.2	2.0
25	.0198	79,358	377,781	1,571,027	19.8	1.0
30	.0281	71,878	335,285	1,193,246	16.6	0.4
35	.0391	62,456	283,650	857,961	13.7	0.1
40	.0555	51,366	224,275	574,311	11.2	0.1
45	.0745	38,919	162,462	350,036	9.0	0.1
50	.1087	26,815	103,433	187,574	7.0	0.0
55	.1589	15,572	53,722	84,141	5.4	0.0
60	.2313	7,036	30,419	30,419	4.3	0.0

[1]Death rates are the sum of rates for males and females; see appendix.

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APPENDIX

TECHNICAL NOTES

Divorce Data by Duration of Marriage

The term "divorce," as used in this report, covers those types of judicial decrees that, according to the law of the State where they are rendered, dissolve the bonds of matrimony and permit the spouses to remarry. This includes decrees of absolute divorce, of annulment, and of marriage dissolution; the last type of decree has replaced divorces in many States in recent years. Excluded are all types of limited decrees, such as legal separations, divorces from bed and board, separate maintenance, and other similar arrangements. The number of annulments granted is very small for all years under consideration and represents only a small percent of the combined total of divorces and annulments.

Annual divorce statistics by duration of marriage at time of decree are available from the reporting States (table I) for the time period covered by this report, 1950-77. Since 1961, the reporting States have composed the divorce-registration area (DRA).[c] Each year, States in the DRA submit to the National Center for Health Statistics (NCHS) either microfilm copies of all divorce certificates or computer tapes of precoded items for all divorces. Duration data for 1960-77 are based on annual systematic sampling of divorce certificates by NCHS and are subject to sampling variability. Sample sizes and sampling errors are available in annual editions of *Vital Statistics of the United States,* Vol. III—Marriage and Divorce.[1] National estimates of divorces by duration of marriage were prepared on the assumption that the percent distribution of divorces by duration was the same in the United States as in the reporting States combined. Cases with duration not stated were distributed proportionally in each data year. This adjustment was comparatively negligible, because duration of marriage is better reported than any other statistical variable routinely used in tabulations of divorce data: The "not stated" category for the reporting States comprises between 1 and 4 percent of the total each year.

Estimating Divorce and Death Rates

Duration-specific divorce and death rates were estimated according to the general procedures developed by Preston.[8] The death rates were calculated separately for males and females by taking a weighted average of age-specific death rates for persons in a particular duration-of-marriage category. The duration-specific sets of weights were prepared by the author from public-use data tapes of the June 1975 Current Population Survey (CPS) conducted by the U.S. Bureau of the Census.[9] Since death rates for married persons were not available, the weights comprised the 1975 distribution of the then-married male and female population cross-classified by age, by duration of marriage, by marriage order. The age-specific rates were derived from the official U.S. life table of 1977[17] for the 1976-77 duration-of-marriage tables 1 and 3 and from the life table of 1975[18] for the 1975 duration-of-marriage tables 4-6 and 10-12. The mortality rates shown in the duration-of-marriage tables are actually the sum of the separately calculated rates for males and females in each interval of duration.

Although it can be expected that the 1977 age distribution of the married population by

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[c]See footnote *a* in the text.

NOTE: A list of references follows the text.

Table I. Available data on divorces, by duration of marriage: Each State and the District of Columbia, 1950-77

[X denotes that data are available]

State	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
Number of States	16	19	23	23	23	23	23	24	12	16	U.S.	20	21	22
Alabama			X	X	X	X	X	X	X	X	X	X	X	X
Alaska										X	X	X	X	X
Arizona											(1)			
Arkansas											(1)			
California											(1)			
Colorado											(1)			
Connecticut	X	X	X	X	X	X	X	X			(1)			
Delaware		X		X	X	X	X	X			(1)			
District of Columbia											(1)			
Florida	X	X	X	X	X	X	X	X			(1)			
Georgia			X	X	X	X	X	X	X	X	X	X	X	X
Hawaii											X	X	X	X
Idaho	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Illinois											(1)			
Indiana											(1)			
Iowa	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Kansas			X	X	X	X	X	X		X	X	X	X	X
Kentucky											(1)			
Louisiana											(1)			
Maine	X	X	X	X	X	X	X	X			(1)			
Maryland											X	X	X	X
Massachusetts			X								(1)			
Michigan	X	X	X	X	X	X	X	X			(1)	X	X	X
Minnesota											(1)			
Mississippi	X	X	X	X	X	X	X	X			(1)			
Missouri	X	X	X	X	X	X	X	X			(1)	X	X	X
Montana		X	X	X	X	X	X	X	X	X	X	X	X	X
Nebraska	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nevada											(1)			
New Hampshire	X	X	X	X	X	X	X	X			(1)			
New Jersey											(1)			
New Mexico											(1)			
New York											(1)			
North Carolina											(1)			
North Dakota	X	X	X	X	X	X	X	X			(1)			
Ohio			X	X	X	X	X	X			(1)		X	X
Oklahoma											(1)			
Oregon	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pennsylvania										X	X	X	X	X
Rhode Island											(1)			X
South Carolina											(1)			
South Dakota	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tennessee	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Texas											(1)			
Utah								X	X	X	X	X	X	X
Vermont		X	X	X	X	X	X	X			(1)			
Virginia	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Washington											(1)			
West Virginia											(1)			
Wisconsin										X	X	X	X	X
Wyoming	X	X	X	X	X	X	X	X	X	X	X	X	X	X

See footnotes at end of table.

duration of marriage would differ somewhat from that for 1975, we should not expect to find any differences that would seriously affect the tables. For example, Preston[8] found that a uniform 30-percent increase in all mortality rates in his 1969 duration-of-marriage table would lower the proportion that would end in divorce from 35.0 percent to 34.0 percent. Thus the marriage-duration tables presented in this report are quite robust with respect to mortality changes and the weighting procedure.

Duration-specific divorce rates for the projections and for the 1976-77 marriage-duration tables were acquired by taking an average of the

Table I. Available data on divorces, by duration of marriage: Each State and the District of Columbia, 1950-77—Con.

[X denotes that data are available]

State	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Number of States	22	22	22	22	26	28	28	29	29	29	29	29	29	29
Alabama	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Alaska	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Arizona														
Arkansas														
California					X	X	X	X	X	X	X	X	X	X
Colorado														
Connecticut					X	X	X	X	X	X	X	X	X	X
Delaware														
District of Columbia														
Florida														
Georgia	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hawaii	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Idaho	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Illinois					X	X	X	X	X	X	X	X	X	X
Indiana														
Iowa	X	X	X	X	X	X	X	X	X	X	X	X		
Kansas	X	X	X	X	X	X	X	X	X	X	X	X		
Kentucky						X	X	X	X	X	X	X		
Louisiana														
Maine														
Maryland	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Massachusetts														
Michigan	X	X	X	X	X	X	X	X	X	(2)	(2)	X	X	X
Minnesota														
Mississippi														
Missouri	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Montana	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nebraska	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nevada														
New Hampshire														
New Jersey														
New Mexico														
New York						X	X	X	X	X	X	X	X	X
North Carolina														
North Dakota														
Ohio	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oklahoma														
Oregon	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pennsylvania	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rhode Island	X	X	X	X	X	X	X	X	X	X	X	X	X	X
South Carolina								X	X	X	X	X	X	X
South Dakota	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tennessee	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Texas														
Utah	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Vermont					X	X	X	X	X	X	X	X	X	X
Virginia	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Washington														
West Virginia														
Wisconsin	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wyoming	X	X	X	X	X	X	X	X	X	X	X	X	X	X

[1]Data included in the U.S. total, but not available for the State.
[2]1973 and 1974 data from Michigan exclude Wayne County.

duration-specific divorce rates for 1976 and 1977, which were calculated in three steps. First, the DRA distribution of divorce by duration in 1976 and 1977 was applied to the 1976 and 1977 national divorce totals,[2] respectively, to obtain national estimates of divorces by duration for these two calendar years.

Second, duration-specific estimates of the 1975 population of married couples were obtained from a combination of marriage and divorce vital statistics[1,2,12] and the June 1975 CPS public-use data tapes.[9] A tabulation of the 1975 CPS population of married women by duration of marriage was compared with vital statis-

tics estimates of the number of marriages remaining intact in 1975 from cohorts of prior years. (The vital statistics estimates were made with a Lexis diagram, diminishing original cohorts by national estimates of marriages ended by divorce and by death from the year when the cohort marriages were contracted to 1975.) The CPS figures were considerably different from the vital statistics estimates at the lower durations. A decision was made to substitute vital statistics estimates for the CPS estimates only in the single-year-duration intervals of 0 to 11 years.

Third, the 1976 and 1977 populations of married couples (i.e., married women) by duration were estimated by updating the 1975 estimates of the married-couple population (derived in step 2) to 1976 and then to 1977. This update was accomplished by using a Lexis diagram, in which the 1975 number of marriages in each duration interval was diminished by national estimates of marriages ended by divorce and by death in 1975-77. Death rates for 1977 (described above) were used for this latter purpose. The duration-specific divorce estimates derived in step 1 were divided by the appropriate married-couple population estimates to obtain the duration-specific divorce rates for 1976 and 1977, and then these two sets of rates were averaged to produce the divorce rates shown in table 1.

Reliability of Estimates

The duration-specific divorce rates described above are subject to both sampling and nonsampling errors. Sampling errors arise from (1) the use of divorce data obtained by sampling divorce records provided to NCHS by States in the DRA,[1] and (2) the use of population data estimated from the June 1975 CPS.[9] Estimates of sampling errors have not been prepared for the various rates or tables shown in this report, due to the complex procedures used for estimating rates and calculating duration-of-marriage tables. Nonsampling errors, which may contribute to bias in the estimates, could be present to the extent that the national distribution of divorces by duration of marriage differs from that for the DRA. Although it is not possible to directly verify the assumption that the two distributions are the same, it may be noted that the 1975 divorce rate for the DRA as a whole was 4.5 divorces per 1,000 population, compared with a rate of 5.5 for the non-DRA States. This suggests that the national duration-specific rates derived for 1975, as well as for 1976-77, may be biased downward, and consequently that the proportion of marriages ending in divorce is slightly underestimated in the detailed tables. Further information on the bias inherent in using data from the DRA may be found in research reported by Preston and McDonald[5] and by Carlson.[19]

Duration-of-Marriage Tables and Cohort Projection Method

Tables 1 and 4-6 were prepared using the same procedure as that used by Preston[8] to prepare a duration-of-marriage table for 1969. Tables 1 and 4-6 have the same format: They are triple-decrement tables in which marriages are subject to dissolution by divorce as well as by death of either spouse. Tables 3 and 10-12 are double-decrement tables in which marriages are subject to dissolution only through the death of a spouse. Tables 2 and 7-9 are associated single-decrement tables (ASDT's) in which marriages are subject to dissolution only by divorce through the first 30 years of marriage duration. The following discussion will refer to table 1 specifically, but the same or analogous procedures were used for the other triple-decrement tables, the mortality double-decrement tables, and the ASDT's.

Columns 1 and 2 in table 1 show the duration-specific divorce and death rates calculated according to the procedure described in the previous section. Column 3 is then derived by assuming that risks of divorce and death are constant in each duration interval: The proportion of marriages surviving to the start of an interval that are disrupted during the interval, ${}_nq_x$, is calculated by

$$ {}_nq_x = 1 - e^{-n({}_nm_x^D + {}_nm_x^S)} $$

where

n = number of years in the duration interval beginning at x,

${}_nm_x^D$ = annual divorce rate during interval

beginning at exact duration x years, and

$_nm_x^S$ = annual rate of disruption of marriage by death of either spouse during interval beginning at exact duration x years.

(In the mortality double-decrement tables, 3 and 10-12, it is assumed that $_nm_x^D$ equals 0; in the ASDT's for divorce only, tables 2 and 7-9, it is assumed that $_nm_x^S$ equals 0, at least through 30 years of duration.)

Column 4 is derived by starting with an arbitrary radix (size of synthetic cohort) of 100,000 and successively decrementing by the number of marriages terminating in the interval, as shown in column 5. Columns 6 and 7 (which add to column 5 in each duration year) are derived by apportioning entries in column 5 in proportion to the ratio of a particular rate to the sum of rates. This procedure follows from the assumption that each rate is constant in the interval.[8] (In the mortality double-decrement tables, the number of divorces in an interval is identically 0 because the risk of divorce $_nm_x^D$ is 0. The analogous statement holds for the ASDT's for divorce.)

Column 8 is the reverse sum of marriages ended by divorce: For each duration interval, the figure in column 8 shows the sum of all marriages ended by divorce (column 6) in this and all later duration intervals. Column 9 shows for each duration interval beginning at year x the percent of marriages remaining at exact duration x that will end in divorce during the interval beginning year x and all later years. Column 9 is calculated by dividing the entry in column 8 by the corresponding entry in column 4.

Column 10 is interpretable as the stationary population[d] of marriages existing in each duration interval. Alternatively, column 10 is the "marriage years" lived in the interval by the couples existing at the beginning of the interval. The formula for each entry in column 10 (except the last) is, in traditional notation,

$$_nL_x = \frac{l_x\,(1 - e^{-nK})}{K}$$

where

n = number of years in the duration interval beginning at x,
l_x = entry in column 4 at duration x, and
$K = {}_nm_x^D + {}_nm_x^S$.

This formula for $_nL_x$ follows from the assumption that each rate is constant in the interval. (In the mortality double-decrement tables, the value of K would be identically $_nm_x^S$ because the risk of divorce $_nm_x^D$ is 0. The analogous statement holds for the ASDT's for divorce.)

Column 11 is the reverse sum of column 10: For each duration interval, the figure in column 11 shows the sum of all "marriage years" in this and all later duration intervals. Column 12 is the expectation of duration of marriage at the beginning of each stated duration interval, that is, the expected number of years of marriage remaining before dissolution by divorce or death. Each entry in column 12 is obtained by dividing the entry in column 11 by the corresponding entry in column 4.

In the mortality double-decrement tables, 3 and 10-12, column 6 is the difference between the entry in column 5 of the double-decrement table and the corresponding entry in column 12 of the corresponding triple-decrement table.

In the ASDT's for divorce (tables 2 and 7-9, which do not show expected durations of marriage), column 5 is derived from column 6 of the corresponding triple-decrement table.

The procedure for calculating the projected proportion of cohort marriages that will eventually end in divorce (shown in table A) is analogous to the above procedure for calculating a triple-decrement duration table. A duration-of-marriage table is employed, taking as a radix the number of marriages in the cohort estimated to be intact as of July 1, 1977. The projection

[d]Suppose that a group of 100,000 marriages—like that assumed in columns 10 and 11 of table 1—is contracted each year and that the proportion dissolving in each such group in each year of duration throughout the existence of the marriages is exactly that shown in column 3 of table 1. If there were no migration and if the newly contracted marriages were evenly distributed over the year, the survivors of these marriages would constitute what is called a "stationary population"—stationary because in such a population the number of marriages existing in any given year of duration would never change.

begins at the particular duration interval the cohort has reached as of July 1, 1977. In other words, the duration table takes up with the cohort at the point where actual cohort experience ends. The projected remainder of the cohort that would end in divorce is then added to the number known (i.e., estimated from annual divorce statistics) to have ended in divorce as of July 1, 1977. This total yields the figures in the last column of table A, the projected proportion of cohort marriages that will eventually end in divorce.

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