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W. AVERELL HARRIMAN, Secretary

BUREAU OF THE CENSUS

J. C. CAPT, Director



POPULATION

DIFFERENTIAL FERTILITY

1940 AND 1910

Fertility by
Duration of Marriage

Based upon tabulations from the Sixteenth and Thirteenth Censuses of the
United States : 1940 and 1910

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SIXTEENTH CENSUS OF THE UNITED STATES: 1940

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- II Characteristics of the Population, by States.
- III The Labor Force—Occupation, Industry, Employment, and Income, by States.
- IV Characteristics by Age—Marital Status, Relationship, Education, and Citizenship, by States.

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Volume

- I Data for Small Areas, by States.
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- A report for each of 60 tracted cities and suburbs.
- Unincorporated Communities.
- Institutional Population, 14 Years Old and Over.

*Families (Including Housing Data):

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- Tenure and Rent.
- Income and Rent.
- Characteristics of Rural-Farm Families.
- Types of Families.
- Size of Family and Age of Head.
- Employment Status.
- Family Wage or Salary Income in 1939.

*Differential Fertility, 1940 and 1910:

- Fertility for States and Large Cities.
- Standardized Fertility Rates and Reproduction Rates.
- Women by Number of Children Under 5 Years Old.
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- Fertility by Duration of Marriage.

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*Nativity and Parentage of the White Population:

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*The Labor Force (Sample Statistics):

- Employment and Personal Characteristics.
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- Wage or Salary Income in 1939.
- Education, Occupation, and Household Relationship of Males 18 to 44 Years Old.
- Industrial Characteristics.
- Occupational Characteristics.
- Usual Occupation.

*Education:

- Educational Attainment of Children by Rental Value of Home.
- Comparative Occupation Statistics for the United States, 1870 to 1940.
- Estimates of Labor Force, Employment, and Unemployment in the United States, 1940 and 1930.
- Housing—Characteristics by Type of Structure.
- Housing—Index of Reports.

FOREWORD

This report is based on tabulations of samples of the census returns for 1940 and 1910. It presents statistics for native white and Negro women by number of children ever born and duration of marriage in relation to social and economic characteristics. Practically all work on this subject was laid aside during the war because of shortage of manpower, and pressure for other types of statistics required for war purposes. These statistics are useful not only for the study of differential fertility among women married comparable lengths of time but also for the study of differential marriage patterns among women of various groups. Statistics for 1910 are included in order to show the changes in fertility which have occurred in the course of a generation. The transcription, coding, and punching of the sample of the population returns for 1910 were performed by New York City Work Projects Administration Project No. O.P. 65-2-97-48 (Census Records and Research Project), sponsored by the Bureau of the Census.

This report was prepared by Wilson H. Grabill, under the supervision of Dr. Leon E. Truesdell, Chief, Population Division, Howard G. Brunsman, Assistant Chief, and Dr. Henry S. Shryock, Jr., Chief of General Population Statistics. The sampling procedures were under the direction of Dr. W. Edwards Deming, Mathematical Adviser.

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FERTILITY BY DURATION OF MARRIAGE

INTRODUCTION

GENERAL

This report presents statistics on the lifetime fertility of women with unbroken marriages, for native whites and Negroes 15 to 74 years old in the United States, according to social and economic characteristics of the woman and her family. The data are based on tabulations of samples of the returns of the Sixteenth and Thirteenth Censuses of Population, taken as of April 1, 1940, and April 15, 1910, respectively.¹ Women with unbroken marriages (those who were married only once and whose husbands were reported as members of the household) are classified according to duration of marriage, age, and number of children ever born, in relation to education of the woman (last full grade of school completed) and employment status and occupation of the husband. Statistics are presented for the United States, urban and rural, and for regions. In addition, supplementary statistics for women of each marital status are presented for the United States as a whole, in order to show the general relation between fertility for women with unbroken marriages and fertility for all women.

Differences in the rates of reproduction of various social and economic groups have played an important part in determining the characteristics of the present population, and they will have a significant influence on the future composition of the population. The statistics presented in this report are designed to throw further light on the magnitude of these differences in the fertility of various population groups. They also show the extent to which the differences in fertility are a result of variations in marriage patterns. Finally, they make it possible to compare the fertility of various groups with identical marital duration and thus approximately measure the quantitative effect of differential family limitation practices. These statistics and the data given in the reports described below will contribute to a better understanding of the processes of population growth and of how and why the historical decline in fertility has come about, as well as its potential effects upon the size and composition of the population.

Related reports on fertility.—This is the fifth of a series of reports based on sample tabulations of the 1940 and 1910 fertility data. The general title of this series is "Differential Fertility, 1940 and 1910." The specific titles and the contents of the other reports in this series are indicated below:

1. *Fertility for States and Large Cities:* Limited data on fertility for women in a large number of areas, including States, cities of 250,000 inhabitants or more, and the metropolitan districts of cities of 1,000,000 or more are presented in this report. Women are classified by number of children ever born, number of children under 5 years old, and number of children 5 to 9 years old, with cross-classifications by age, color, and marital status of the woman, but not by social and economic characteristics such as education and value or rental of the home. Statistics on age at marriage and on duration of marriage are also presented, although not in combination with number of children.

2. *Standardized Fertility Rates and Reproduction Rates:* This is a supplement to the first report and gives fertility rates and related measures derived from the data presented in that report. The measures shown include number

¹ The 1940 Population Census schedule and the instructions to enumerators are reproduced in Part I of Volumes III and IV of the Sixteenth Decennial Census Reports on Population. The 1910 Population Census schedule is reproduced in Volume I of the Thirteenth Decennial Census Reports on Population.

of children ever born and number of children under 5 years old per 1,000 women, standardized for age, marital status, and color of the woman, and for urban-rural residence. In addition, the report gives gross and net reproduction rates, average annual age-specific birth rates, data on mean length of generation, intrinsic rates of natural increase, and intrinsic birth and death rates, all of which were derived from data for women by number of children under 5 years old and 5 to 9 years old presented in the report on fertility for States and large cities.

3. *Women by Number of Children Under 5 Years Old:* This report presents national and regional statistics relating to differences in the fertility of women classified by social and economic characteristics. In it the fertility of women is measured by the number of their children under 5 years old at the time of the census, and the data reflect the conditions of fertility during the 5 years preceding the census date, whereas the data in the present report refer to lifetime fertility. The social and economic characteristics shown in the third report include nativity of parents, education, migration, region of birth, and employment status of the woman; tenure and monthly rental value of the home; relationship of the woman to the household head; and occupation, education, and region of birth of the husband.

4. *Women by Number of Children Ever Born:* This report, like the present one, contains national and regional statistics relating to differences in the lifetime fertility of women classified by social and economic characteristics. It differs from the present report in several respects. First, it contains a considerable amount of data for women of every marital status, whereas the present report is largely limited to data for women married once, husband present. Second, it contains data on a larger number of social and economic characteristics, but these characteristics are not shown in relation to duration of marriage. The social and economic characteristics shown in the fourth report include parentage, birthplace, length of residence in the United States, education (last full grade of school completed), literacy, and monthly rental value of the home. These statistics, unlike those in the third report, permit the study of childlessness and of completed fertility.

Related reports on population.—The 1940 Population report entitled "The Labor Force (Sample Statistics)—Employment and Family Characteristics of Women" contains sample data on the labor force status of women by age, color, and marital status, cross-classified with number of children under 5 years old and 5 to 9 years old. Figures are shown for the United States by regions, urban and rural, and for the metropolitan districts of 100,000 inhabitants or more.

The series of reports entitled "Families" contains sample data on families by number of children under 10 years old, under 18 years old, and under 21 years old. The report in that series which contains the most statistics relating to fertility is entitled "Types of Families"; and presents figures on families by marital status, age, color, and sex of head, and number of children under 18 years old, cross-classified by age of wife for families with married male heads, number of children under 10 years old, size of family, education of head, monthly rental value of home, and other characteristics.

Valuable source materials on fertility for areas smaller than those presented in the reports on fertility are contained in Volumes II and IV of the Sixteenth Census Reports on Population, entitled "Characteristics of the Population" and

"Characteristics by Age—Marital Status, Relationship, Education, and Citizenship," respectively, and in the series of Population and Housing reports entitled "Statistics for Census Tracts." From data on individuals classified by age and sex in those reports, ratios of children to women of childbearing age and reproduction rates computed by the so-called "indirect method" can be derived. The measures of fertility which may be computed from those source materials, however, are not so precise as those shown in the present series of reports on differential fertility.

Availability of unpublished data.—The statistics shown in the tables represent most of the detail obtained in the tabulations on which this report is based. Some of the data which were tabulated, however, have not been shown in the tables, partly because of space limitations and partly because of the comparatively large sampling errors that are to be expected in a more detailed cross-classification for categories containing small numbers of persons. These unpublished data include the distribution of women by number of children ever born in relation to education of the woman and to employment status and occupation of the husband. They also include fertility statistics by urban-rural residence for native whites in each region, and for Negroes in the South, and materials on single years of duration of marriage.

The unpublished statistics, so far as the figures are large enough to be significant, can be made available upon request, for the cost of preparing and reproducing them. Requests for these data, addressed to the Director of the Census, Washington 25, D. C., will receive a prompt reply, including an estimate of the cost of preparing the figures.

DEFINITIONS OF TERMS AND EXPLANATIONS

Children ever born.—In the classification of women by number of children ever born, all children ever born alive to a woman during her lifetime were counted, including children by any former marriage. Although this question was not asked of women reported as single, the statistics are not limited strictly to legitimate fertility. Partly for this reason and partly because of multiple births, certain of the tables show a few women with more children ever born than would have been expected solely on the basis of the length of time such women have been married.

In the computation of the fertility rates shown in this report, only data for women reporting on number of children ever born have been used. In 1940, reports on number of children ever born were made by 96.1 percent of the native white women 15 to 74 years old who were married once and whose husbands were present in the household. The corresponding figure for 1910 was 93.6 percent. Somewhat smaller proportions of Negroes and of women of other marital statuses reported on number of children ever born. There is evidence that those women who did not report were, on the average, less fertile than the ones who did report.² In the case of the fertility rates shown separately for each marital status, the effect of omitting the women who did not report on number of children ever born is to overstate the fertility rate. The amount of overstatement is greatest in the age group 15 to 19 years and becomes progressively less in successively older groups. For the age group 15 to 19 years, the fertility rates shown for women of each marital status may be about 12 percent higher than the true rates; for women 20 to 24 years old the rates may be 6 percent too high; for women 40 to 44 years they may be 2 percent too high. For women over 50 years of age, the overstatement is probably negligible, and some of the rates may even be slightly too low.

In the case of the rates for women of all marital statuses combined (shown only in tables 41 to 46), the effect of omitting the women who did not report is to understate the fertility rates in the younger age groups and to overstate them in the older ones. In calculating the rates for women of all marital status classes combined, the numerator of the rate was taken as the total number of children reported and the denominator

was taken as the number of single women (assumed to be childless) plus the number of women ever married who reported on children ever born. This procedure involves the implicit assumption that the fertility of women who did not report was intermediate between that of single women and that of ever married women who reported on children. In the age group 15 to 19 years, in which most of the women are single, the resulting fertility rates for all marital status classes combined are definitely too low. For women 20 years old and over the rates for all marital status classes combined may be slightly too high or slightly too low, depending on age; but they are considered to be more precise than the separate rates for women of the individual marital statuses.

Data on number of children ever born reflect the lifetime fertility of women, in contrast to their current fertility as measured by birth statistics or by number of young children. The data on children ever born thus do not reflect the fertility conditions prevailing at any given date but rather the cumulative effect of fertility conditions over a period of years. A comparison of the data for women of identical age groups in 1940 and 1910 nonetheless gives a fair indication of the changes in the fertility of women in the course of a generation.

The distribution of women by number of children as shown in tables 1 to 4 represents the maximum frequency detail tabulated in the counts upon which this report is based. The terminal class was thus "10 or more" and, in computing the total number of children ever born to a group of women, mean values had to be used for this group. An abridged classification, combining women who reported 5 and 6 children and combining those who reported 7 to 9 children, was tabulated for education and occupation detail. In such instances, mean values had to be used also for the groups 5 and 6 and 7 to 9 children.³ This abridged classification has not been published, however (see section on "Availability of unpublished data").

Childless women and mothers.—Childless women are defined as those who reported that they had never had a child born alive. Mothers are those who reported one or more children ever born. Both an increase in the proportion of women who are childless and a decrease in the average number of children per mother have contributed to the historical decline in the birth rate. Between 1910 and 1940, the proportion of married, widowed, and divorced women 50 to 74 years old who were childless nearly doubled, increasing from 8 percent in 1910 to 15 percent in 1940. In the same period, the average number of children ever born per mother of this age declined from 5.7 to 4.0.*

Duration of marriage.—In the 1940 census, women who were married or who had ever been married were asked their age at first marriage. For the purposes of this report, the data on age at first marriage were converted into data on duration of marriage in completed years by subtracting the age at marriage from the age at the time of the census. The duration obtained for a given woman by such subtraction is subject to an error as great as one year in terms of completed years of marriage. For instance, a woman who married at age 23 two days before the census, and who became 29 on the following day, would be classified as having completed one year of marriage, although she had actually been married only two days. Each error of this type affects the number of women in two successive single years of duration. For a given duration interval, however, there is a tendency for the erroneous exclusion of some women to be compensated by the erroneous inclusion of other women. No subtractions were necessary with data for 1910 as that census included a direct query on duration of marriage.

Data on duration of marriage provide an indication of the length of time during which a woman could have had one or more legitimate live births. Many of the fertility differentials

² See the Sixteenth Census report entitled "Women by Number of Children Ever Born," table A-2.

³ In the report, "Differential Fertility, 1940 and 1910—Women by Number of Children Ever Born," the abridged classification was used throughout. Consequently, the total numbers of children ever born shown in that report differ slightly in some instances from the corresponding figures in the present report, which are in part based on fuller detail.

* Statistics cited are for women of all races. See the Sixteenth Census report entitled "Fertility for States and Large Cities," tables 3 and 4.

for social and economic groups are in part a result of differences in the average length of time for which women in each group have been married. Examples of variations in marriage durations for various groups of women are given in the table below, which shows the median duration of marriage for native white and Negro women 50 to 54 years old in 1940 by urban-rural residence, education of the woman, and employment status and occupation of the husband. The median duration of marriage is that duration which divides the women into two equal groups, one-half of whom have been married for a shorter time and one-half of whom have been married for a longer time than the median.

MEDIAN DURATION OF MARRIAGE (IN YEARS) FOR NATIVE WHITE AND NEGRO WOMEN 50 TO 54 YEARS OLD, MARRIED ONCE AND HUSBAND PRESENT, BY EDUCATION OF WOMAN AND EMPLOYMENT STATUS AND MAJOR OCCUPATION GROUP OF HUSBAND, FOR THE UNITED STATES, WITH URBAN-RURAL RESIDENCE FOR NATIVE WHITE WOMEN: 1940

(Statistics based on Sample C)

EDUCATION OF WOMAN AND EMPLOYMENT STATUS AND OCCUPATION OF HUSBAND	NATIVE WHITE				Negro
	Total	Urban	Rural-nonfarm	Rural-farm	
YEARS OF SCHOOL COMPLETED BY WOMAN					
Total.....	30.7	30.0	31.0	31.5	32.0
Grade school: Less than 5 years.....	32.2	31.7	32.4	32.5	32.3
5 and 6 years.....	31.8	31.2	32.1	32.3	32.3
7 and 8 years.....	31.0	30.5	31.4	31.5	31.6
High school: 1 to 3 years.....	30.5	30.1	30.8	31.1	31.1
4 years.....	29.2	28.9	29.8	30.1	30.8
College: 1 year or more.....	27.8	27.8	27.8	27.7	29.2
School years not reported.....	30.5	29.8	30.9	31.1	31.8
EMPLOYMENT STATUS AND MAJOR OCCUPATION GROUP OF HUSBAND					
Total.....	30.7	30.0	31.0	31.5	32.0
Husband employed.....	30.6	29.8	30.8	31.4	31.9
Professional and semiprofessional workers.....	28.7	28.5	29.3	30.1	30.4
Farmers and farm managers.....	31.4	30.3	31.1	31.4	32.3
Proprietors, managers, and officials, except farm.....	29.9	29.5	30.5	31.1	30.3
Clerical, sales, and kindred workers..	29.3	29.1	30.3	29.1	30.4
Craftsmen, foremen, and kindred workers.....	30.6	30.3	30.9	31.4	31.7
Operatives and kindred workers.....	30.8	30.5	31.4	31.2	31.3
Service workers.....	30.8	30.7	31.2	31.1	31.6
Farm laborers and foremen.....	31.9	31.5	31.6	32.2	31.9
Laborers, except farm and mine.....	31.2	30.9	31.6	31.6	31.9
Occupation not reported.....	30.4	30.3	30.5	30.8	32.4
Husband unemployed.....	31.2	30.7	31.6	32.0	32.5
Husband not in labor force.....	31.2	30.8	31.6	31.8	32.3

Standardized fertility rates.—Fertility rates standardized for duration of marriage are shown in several tables of this report. They have been standardized on the basis of combined data for native whites and Negroes in the entire United States in 1940. Two separate standards were used for each of the twelve age groups shown; one for all women and one for mothers, or twenty-four sets in all.⁶

The unstandardized rates for two or more social and economic groups of women of identical age may be compared and then the standardized rates compared. Where the difference between the standardized rates is much less than that between the unstandardized rates, there is evidence that the factors associated with duration of marriage are the chief cause for the original difference between the unstandardized rates. Where there is little change, other factors (particularly differential family limitation practices) are the cause of most of the original differences. If desired, the standardized rates may be compared among themselves as measures of fertility with comparable duration of marriage.

An example of the use of the standardized rates is as follows: Negro women 25 to 29 years old, married once and husband present, had 1,964 children ever born per 1,000 women in 1940. The corresponding rate for native whites was 1,479 per 1,000 women. How much of the difference between the two

rates is due to the factors associated with earlier marriage among Negroes than among the native whites and how much is due to other factors (chiefly family limitation)? The corresponding standardized rates are 1,706 for Negroes and 1,501 for whites. Thus, standardization reduces the difference in fertility for the two races from 1,964 - 1,479 = 485 to 1,706 - 1,501 = 205. About half of the original difference in fertility was therefore due to factors reflected by earlier marriage among Negroes than among the native whites.

In certain of the groups for which standardized rates were computed, it was necessary to use duration-specific fertility rates based on very few observations and hence subject to large sampling errors. Fortunately, the unreliable rates usually occurred at duration levels for which the corresponding standard proportions were very small, so that even great changes in the unreliable rates would have had little effect on the final result. In rare instances there were no women at one or two of the duration intervals. In such cases arbitrary duration-specific rates were substituted. These arbitrary duration-specific rates were selected with due consideration of data for comparable groups and of other specific rates in the particular group.

The standardized rates involving one or more component duration-specific rates based on few observations have not been marked to indicate this fact. Instead, all of the standardized rates and also the corresponding unstandardized rates have been evaluated on the basis of their overall reliability. The overall reliability of a given rate is a more important consideration than is the reliability of any component rate or rates. The method of evaluating the reliability of each rate is described in the section on "Nature of the sample data" below.

Race and nativity.—Fertility statistics in this report are shown only for native white and Negro women. Persons of Mexican birth or ancestry who were not definitely Indian or of other nonwhite race were returned as white in 1940 and in 1910. In the classification by nativity, a person born in the United States or in any of its territories or possessions is counted as native. Likewise included as native is the small group of persons who, although born in a foreign country or at sea, were American citizens by birth because their parents were American citizens.

Age.—The age classification is based on the age of the person at her last birthday before the date of the census, that is, the age of the person in completed years. In the 1940 census tabulations, when the age of a person was not reported, it was estimated on the basis of other information on the Population schedule, such as marital status, school attendance, employment status, age of other members of the family, etc. The 1910 data in this report do not include the small number of persons whose age was not reported. No data on fertility were tabulated from either census for women under 15 years old or 75 years old and over.

Since fertility is more highly correlated with age than with any other demographic variable, all of the detailed tables showing women by number of children present the figures cross-classified with the age of the woman.

Marital status.—The statistics on marital status in this report refer to the marital status at the time the census was taken. In most of the detailed tables of this report, fertility data are shown only for women married once, husband present, since the classification by duration of marriage is of great value only for this marital status. Supplementary tables at the end of the report contain limited data for single women; widowed and divorced women; married women with husband absent; and women married more than once, husband present; as well as for women married once, husband present.

A married woman was classified as "married, husband present" if the husband was reported as a member of the household in which the woman was enumerated; otherwise she was classified as "married, husband absent." The group "married, husband absent" includes married women whose families had been broken by separation (often preceding divorce), immigrants whose

⁶ The standardized rates were computed by taking the duration-specific fertility rates for women in a particular group and by multiplying each of these rates by the standard proportion of women at corresponding duration levels; the sum of these products was the standardized rate for the particular group.

husbands remained abroad, wives of persons enumerated as inmates of institutions, and women whose usual place of residence was not the same as that of their husbands, including wives of some soldiers, sailors, men in labor camps, etc. The group "widowed and divorced" does not include all women who had ever been widowed or divorced since some of them had remarried.

Urban and rural areas.—Urban population, as defined by the Bureau of the Census in 1940, is, in general, that residing in cities and other incorporated places having 2,500 inhabitants or more. The remainder of the population is classified as rural and is subdivided into the rural-farm population, which comprises all rural residents living on farms, without regard to occupation, and the rural-nonfarm population, which comprises the remaining rural population. (For further details, see Volume I of the 1940 Population reports.) In the recent compilation of the 1910 fertility data, the 1940 rules of classification as urban or rural, which differ in a few States from those used in the 1910 census reports, have been applied as far as possible. The residence classification in every case refers to residence at the time of the census. Because of migration it may not represent the residence of a given woman at the time her children were born.

This report and the others in the series of reports on differential fertility contain the only data for 1910 on rural-farm and rural-nonfarm residence ever tabulated by the Bureau of the Census. The rural-farm figures shown for 1910 are somewhat too small and the rural-nonfarm figures are somewhat too large for exact comparability with the corresponding figures for 1940, but the comparability is adequate for an analysis of the fertility differentials involved. Farm residence could be identified from the 1910 Population schedule only for members of the household of the person responsible for the operation of the farm. Households located on farms, but containing no member responsible for the operation of the farm, were returned as nonfarm homes in 1910. The number of such households, however, was probably less than 10 percent of all households located on farms in 1910.

Education.—In the 1940 census, for the first time, a question on the formal educational attainment of each person was included. The question on the schedule referred to the last full grade that the person had completed in the regular school system—public, private, or parochial school, college, or university. The statistics on educational attainment shown in this report pertain mainly to persons who had completed their formal education.

Employment status of husband.—Statistics on the fertility of women classified by employment status of the husband are shown only for 1940. The husband was classified as employed, unemployed, or not in the labor force, on the basis of his activity during the census week of March 24 to 30, 1940. He was classified as employed if he was at work for pay or profit, or at unpaid work on a family farm or business enterprise during the census week, or if he had a job or business from which he was temporarily absent. He was classified as unemployed if he was on public emergency work (WPA, NYA, CCC, etc.) or if he was without work of any kind and was seeking work. Husbands who were not at work, not seeking work, and without a job were classified as not in the labor force; this category includes those who were retired, those who were permanently disabled or too old to work, and those not seeking work for other reasons.

Characteristics such as employment status and major occupation group generally vary for a given individual over a period of time. Such characteristics may be properly used with data on children ever born only if their instability is borne in mind. They are of value in the study of differential fertility because they are at least indices of the general social and economic status of the family. For example, most husbands unemployed during the census week of March 23 to 30, 1940, were not unemployed at all previous dates but this class may nonetheless be considered as a group comprised very largely of persons from the lower social and economic bracket. Similarly, many "farmers and farm managers" were at one time "farm laborers

and foremen" and they may have had many of their children while in the latter major occupation group. The "farmers and farm managers" in 1940 or in 1910 nonetheless form a select group in comparison with the "farm laborers and foremen" at the same date, especially for the study of fertility among their wives of comparable age.

Major occupation group of husband.—Statistics on the fertility of women classified by major occupation group of the husband are included in this report for 1940 and 1910.

The 10 major groups shown represent principal subdivisions of the 451 specific occupation titles used in the 1940 census. The specific occupations included in each of the 10 major groups are listed in the tables on occupation presented in Volume III of the Sixteenth Census Reports on Population, entitled "The Labor Force." The 1910 statistics on occupation shown in this report have been classified according to the system used for the 1940 census returns rather than according to the different system used at the time of the 1910 census.

The 1940 statistics on occupation are for employed husbands and refer to their current occupation, whereas the 1910 statistics are for gainful workers and may refer either to the husband's current occupation or to his usual occupation. Gainful workers are persons who reported an occupation at which they earned money or money equivalent, or assisted in the production of marketable goods, regardless of their employment status at the time of the census. Thus, the occupation statistics for 1910 are not exactly comparable with the figures for 1940; but the comparison is adequate for an analysis of the fertility differentials involved.

Nature of the sample data.—The fertility statistics shown in this report are based on tabulations of samples of women 15 years old and over enumerated in the 1940 and 1910 censuses, identified as Sample C and Sample W, respectively. Sample C was designed so that in certain portions of the areas shown, a 2-1/2 percent sample was used (multiplied by a uniform factor of 40), and elsewhere a 5-percent sample was used (multiplied by a uniform factor of 20). Sample W was designed so that in the North and the South an 8-percent sample was used (multiplied by a uniform factor of 12.5) and in the West a somewhat larger sample.

Exact agreement is not to be expected between these tabulations and the corresponding tabulations of the complete counts, but the sample data nevertheless indicate the relationships among the various characteristics involved. With regard to the individual numbers in the tables, comparisons thus far made for Sample C indicate that 95 percent of the numbers above 25,000 will differ from those given by the complete count by less than 5 percent, 95 percent of those between 10,000 and 25,000 will differ by less than 10 percent, and 95 percent of those between 2,500 and 10,000 will differ by less than 20 percent. Somewhat larger variations may occur in the case of numbers below 2,500, but even here the majority of the differences are less than 15 percent.

Similar comparisons made for Sample W indicate that 95 percent of the numbers above 10,000 will differ from those given by the complete count by less than 5 percent, 95 percent of those between 3,000 and 10,000 will differ by less than 10 percent, and 95 percent of those between 800 and 3,000 will differ by less than 20 percent. Somewhat larger variations may occur for numbers below 800, but even here the majority of the differences are less than 15 percent.

The sampling error of a fertility rate (that is, the error in the number of children ever born per 1,000 women of a specified class which may be expected because of sampling variability) depends not only on the number of women of the specified class included in the sample but also on the variability in the distribution of women of that class by number of children ever born. The sampling error usually affects the units digit of the rate and sometimes affects also the tens digit. For example, in the case of the rate for Negro women married once, husband present, 25 to 29 years old in 1940 (1,924 children ever born per 1,000 women) the sampling error is less than 40.

The coefficient of variation is an indication of the possible percent difference between a published number (or rate) based on sample data and the corresponding number (or rate) that would have been obtained from a complete count. The percent difference between a published figure and the figure from a complete count would be less than the coefficient of variation in about 68 percent of all cases, less than twice the coefficient of variation in about 95 percent of all cases, and less than three times the coefficient of variation in about 99.7 percent of all cases. The examples given above for 95 percent of all cases indicate the value of twice the coefficient of variation for numbers in this report.

In tables 9 to 14 and 29 to 34, some rates standardized for duration of marriage and also the corresponding unstandardized rates have been marked by asterisks. Two asterisks attached to a rate indicate a coefficient of variation of 5.0 percent or more, one asterisk indicates a coefficient of variation of 2.5 to 4.9 percent, and no asterisk indicates a coefficient of variation of less than 2.5 percent. Thus if no asterisk is attached, in 68 percent of the cases the published figure will differ from that obtained from a complete count by less than

2.5 percent and in 95 percent of the cases, by less than 5.0 percent. For instance, in 95 out of 100 cases, a published rate of 900 having no asterisk attached would differ from the rate that would have been obtained from a complete count by less than 5.0 percent (twice the coefficient of variation) of 900 or by less than 45.

The coefficients of variation were approximated for most of the fertility rates as direct computation of individual coefficients would have required a prohibitive amount of labor. The method was as follows: Coefficients of variation were computed for selected fertility rates, and then the coefficients were correlated with the corresponding rate values and base sizes. As the degree of correlation was quite high, it was considered justifiable to construct tables showing the expected value of the coefficient of variation, given the value of a fertility rate and the size of its base. Two such tables were constructed, one for 1940 and one for 1910. From these tables it was possible to assign asterisks to each fertility rate by an inspection of the value of the rate and the size of its base, without actually computing all coefficients of variation.