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Chapter Author: Clyde V. Kiser

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Differential Fertility in the United States

CLYDE V. KISER

MILBANK MEMORIAL FUND

DIFFERENTIAL fertility consists of the group differences in human fertility associated with such factors as nativity, color, residence, socio-economic status, and psychological characteristics. This paper briefly considers past trends in certain types of differential fertility, but it is concerned mainly with recent developments and patterns. It is restricted to the United States, but a companion article on certain countries of Europe has been prepared by Gwendolyn Z. Johnson of the United Nations.[1]

Development of Fertility Differentials

Various theories have been advanced in the past regarding the reasons for group differences in human fertility. Less than thirty years ago, there was a respectable body of opinion to the effect that group differences in fertility reflected differences in biological capacity to reproduce. Gini was a leading proponent of this interpretation,[2] and so was Pearl until the data from his own study convinced him that group differences in fertility could be accounted for in large measure by differences in the use of contraceptives.[3]

The development of differential fertility has often been explained somewhat as follows:

Contraceptive practice finds its first acceptance and extensive use among the so-called "upper" urban classes. It later spreads outward to

[1] Gwendolyn Z. Johnson, paper in this volume.

[2] C. Gini, "The Cyclical Rise and Fall of Population" in *Population*, Harris Foundation Lectures, University of Chicago Press, 1929, p. 25.

[3] The extent of the shift in Pearl's point of view may be seen by comparing two statements:

"It is probable that the very harshness and inadequacy of the human environment which is the inevitable and indeed necessary concomitant of real poverty, tends perhaps directly, and certainly indirectly through psychological reactions, to produce a high birth rate among human beings. And, on the other hand, it seems to me to be equally clear that the probably super-optimal environment, biologically speaking, which even moderate wealth is able to command, tends both directly and indirectly to low fertility and even a good deal of actual sterility." R. Pearl, *The Biology of Population Growth*, Knopf, 1925, p. 167. "*It is that if it were not for the effect of contraceptive efforts and the practice of criminal abortion, together with correlated habits as to postponement of marriage, there would apparently be little or no significant differential fertility as between economic, educational, or religious classes of urban American married couples.*" R. Pearl, *The Natural History of Population*, Oxford University Press, 1939, p. 244. (Italics Pearl's.)

the rural areas and downward to the "middle" and "lower" socio-economic classes. The process is accompanied first by an expansion and later by a contraction of class differences in fertility.

To what extent have actual trends in fertility differentials in the United States conformed to this model? What are the trends in differentials according to (*a*) urban-rural and other characteristics of residence, (*b*) nativity and color, (*c*) socio-economic status, and (*d*) religion?

Fertility Differentials by Residence

Urban-Rural Residence. Urban-rural differentials in fertility in this country probably existed even in Colonial times. According to Grabill, as early as 1703 the fertility ratios were substantially lower in New York County (at the Southern tip of Manhattan Island) than in the remainder of the Colony of New York (which was practically all rural).[4]

In his "Observations Concerning the Increase of Mankind, the Peopling of Countries &c", published in 1755, Benjamin Franklin was concerned mainly with the rapid increase of population in America as a whole. In explaining it, he likened Europe to the cities and America to the country and displayed a knowledge of the tendency for marriages to be earlier and more prolific in rural than in urban areas.[5]

It should be emphasized that the existence of differential fertility in Colonial times is in no way incompatible with the theory of the role of contraception. Some methods of contraception are very old and studies have repeatedly affirmed the effectiveness even of simple methods in reducing fertility. However, such factors as differences in age at marriage were probably responsible for a considerable part of the early differentials in fertility, such as the urban-rural differentials in New York in 1703.

Charts 1–3 adapted from Grabill's computations from Census data for the years 1800–1840 and 1910–1950 point up in general the similarity of urban and rural declines in fertility ratios during the period 1810–1940.[6] The absolute declines in fertility ratios during this period were somewhat more marked in rural than in urban areas. Hence, on an absolute basis, there was a little *narrowing* of the urban-rural differential in fertility ratios. Charts 1–3 were plotted on semi-logarithmic scales, however, and on a relative basis there was a little widening of the urban-rural differential in fertility ratios from 1810 to 1940.

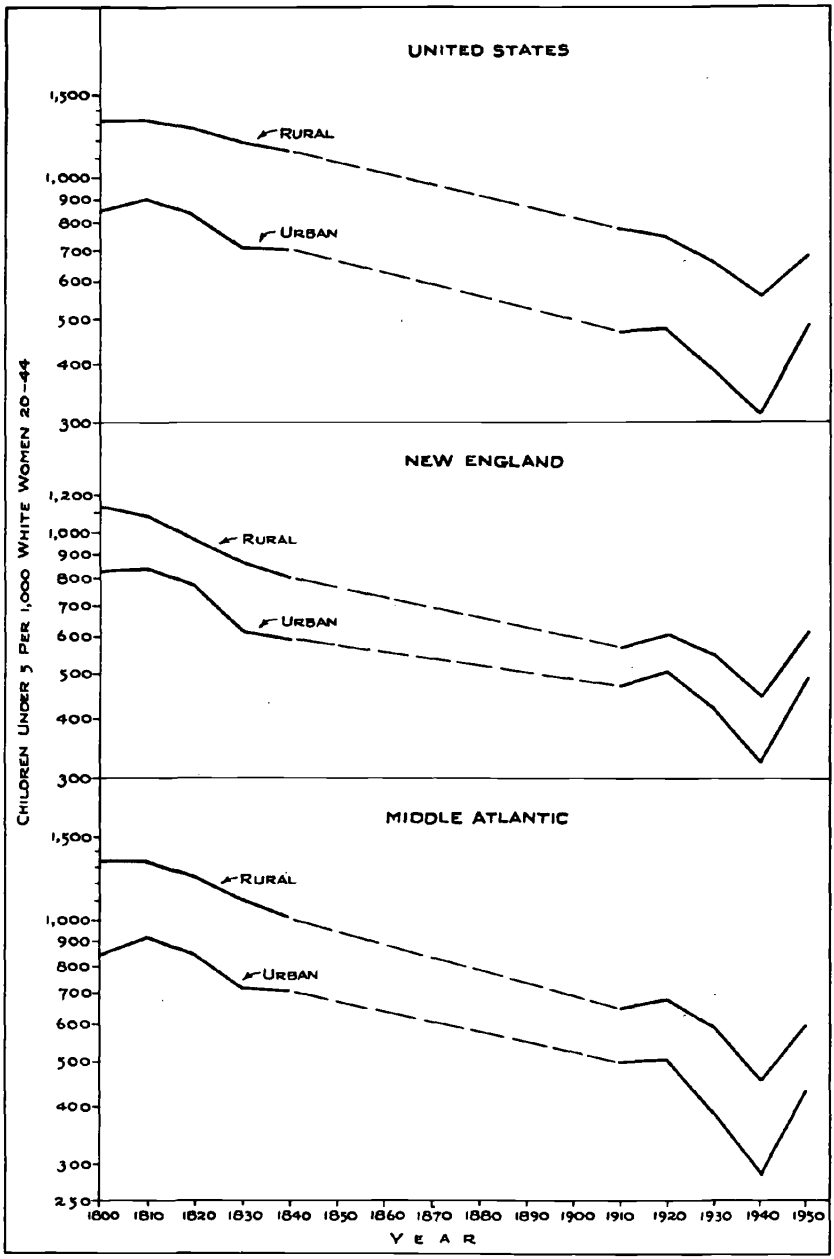
[4] In 1703, the number of children under 16 years old per 1,000 white women 16 years old and over was 1,906 for New York County and 2,446 for the remainder of the Colony or State of New York. See W. H. Grabill, C. V. Kiser, and Pascal K. Whelpton, *The Fertility of American Women*, Wiley, p. 12.

[5] See Carl Van Doren, *Benjamin Franklin*, Viking, 1938, p. 216.

[6] Grabill, Kiser, and Whelpton, *op. cit.*, pp. 17–18.

CHART 1

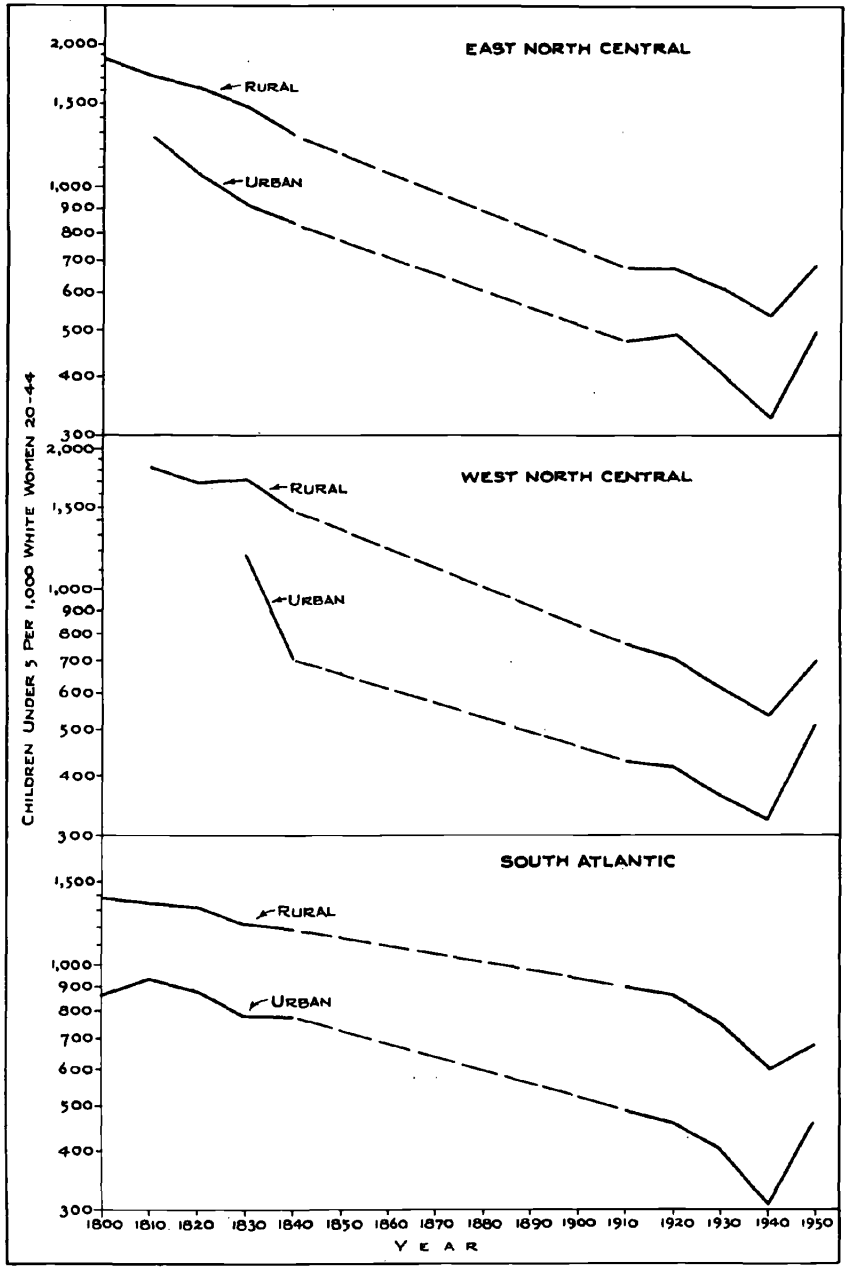
Ratio of Children to Adult Females, by Urban-Rural Residence, United States, New England, and Middle Atlantic, 1800–1840 and 1910–1950



Source: Adapted from W. H. Grabill, C. V. Kiser, and P. K. Whelpton, *The Fertility of American Women*, for the Social Science Research Council in cooperation with the Census Bureau, 1958, p. 17.

CHART 2

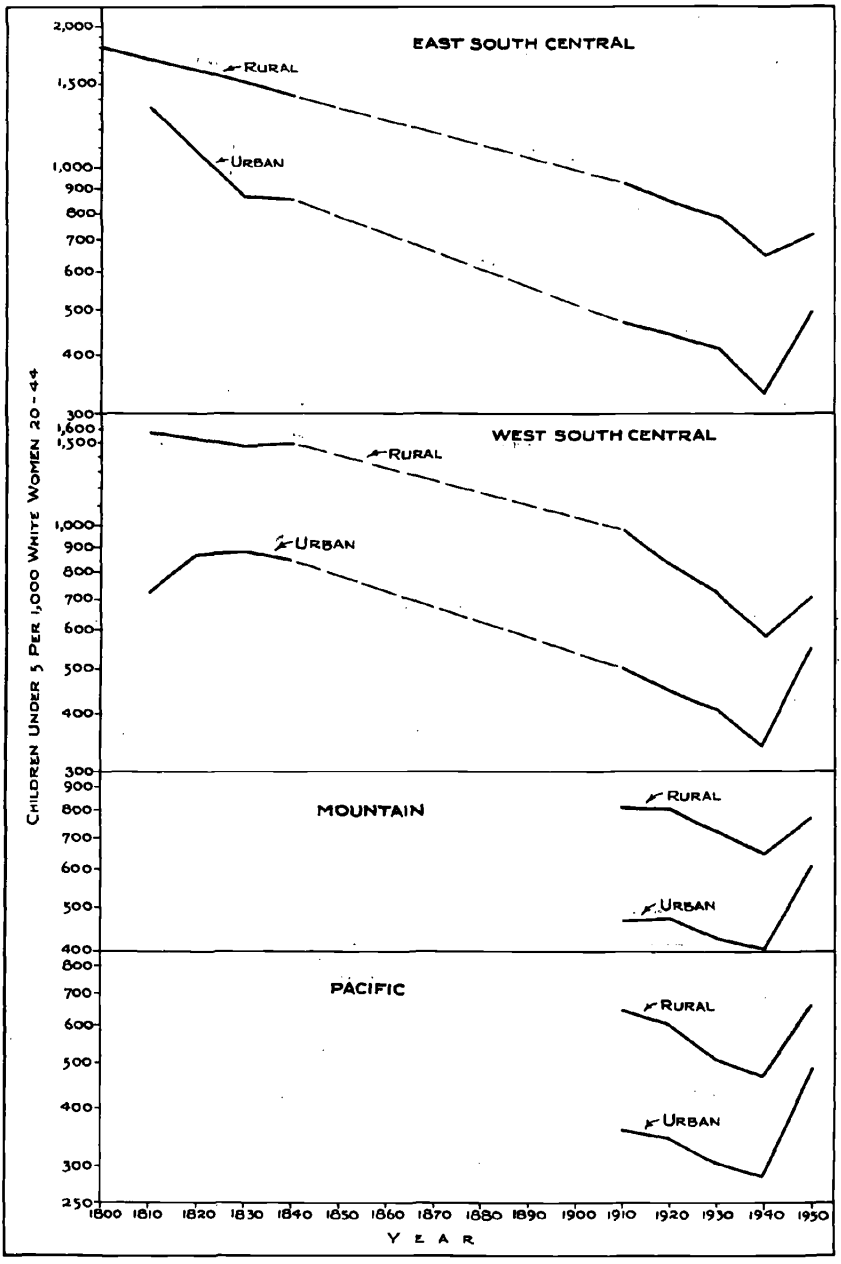
Ratio of Children to Adult Females by Urban-Rural Residence, North Central and South Atlantic, 1800–1840 and 1910–1950



Source: Same as for Chart 1.

CHART 3

Ratio of Children to Adult Females by Urban-Rural Residence, South Central, Mountain, and Pacific, 1800–1840 and 1910–1950



Source: Same as for Chart 1.

On the basis of the theory stated above, one might have expected some initial widening of the urban-rural differential followed by some narrowing thereafter. In their previous analyses, both Woofter and Westoff commented upon the gap between preconception and actuality with respect to trends in this differential during 1910–1940.[7]

Whatever may have been the precise nature of the trends prior to 1940, there was a decided narrowing of the urban-rural differential between 1940 and 1950. This occurred while most fertility ratios were increasing. The percentage increase was much higher for urban women (54 per cent) than for rural women (22 per cent). With certain exceptions, the trends described above for the total United States apply to the separate geographic divisions. They were also found for several of the European countries studied by Gwendolyn Z. Johnson.

According to a recent Census report based upon a Current Population Survey conducted in March, 1957, the urban-rural differential in fertility continued to narrow slightly after the 1950 Census. As shown in Chart 4, the increase in the standardized fertility rate for ever-married women of childbearing age during 1950–1957 was 24 per cent for urban women, 9 per cent for rural-nonfarm women, and 11 per cent for rural-farm women. In 1950, the standardized fertility rate for ever-married women of childbearing age in urban areas was 24 per cent lower than that for rural-nonfarm women and 39 per cent lower than that for rural-farm women. In 1957, the corresponding rate for urban women was 14 per cent below that of rural-nonfarm women and 31 per cent below that for rural-farm women.[8]

Urban-rural differentials in fertility were a little wider for women of "all marital classes" than for "ever-married women" because more women get married, and marry younger, in rural than in urban areas. Thus, in 1957, the standardized fertility rate for women of "all marital classes" in the childbearing ages was 20 per cent lower in urban than in rural-nonfarm areas. It was 34 per cent lower for urban women than for rural-farm women. (See Chart 4.)

[7] See T. J. Woofter, "Trends in Rural and Urban Fertility Rates," *Rural Sociology*, Vol. 13, no. 1, March 1948, pp. 3–9, also C. F. Westoff, "Differential Fertility in the United States: 1900 to 1952," *American Sociological Review*, Vol. 19, no. 5, October 1954, pp. 549–561.

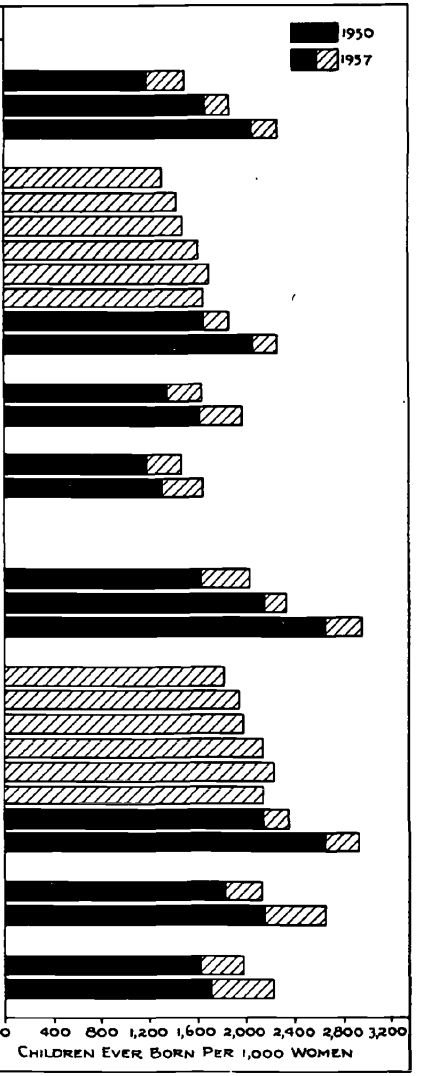
Note: Both of the above authors have emphasized the deficiencies of the fertility ratios as measures of trends in urban and rural fertility. Among these are variations in time and by urban-rural residence of (a) completeness of enumeration of children, (b) mortality of children, and (c) age and marital status of women. Woofter has also described the complications introduced by urban-rural migration.

[8] Bureau of the Census, "Fertility of the Population: March 1957," *Current Population Reports*, August 8, 1958, Series P-20, no. 84, pp. 2, 10.

CHART 4

United States Fertility Rates, White and Nonwhite, by Residence, 1950 and 1957

	Fertility Rate	
All Marital Classes	1950	1957
Urban	1,195	1,504
Rural Nonfarm	1,681	1,881
Rural Farm	2,064	2,275
Urbanized Area 3+ Million		1,302
Urbanized Area 1-3 Million		1,426
Urbanized Area 250000-1Million		1,491
Urbanized Area Under 250,000		1,618
Other Urban 25,000+		1,695
Other Urban 2,500-25,000		1,663
Rural Nonfarm	1,681	1,881
Rural Farm	2,064	2,275
White	1,366	1,637
Nonwhite	1,624	1,990
Urban White	1,181	1,484
Urban Nonwhite	1,303	1,642
Ever Married Women		
Urban	1,626	2,009
Rural Nonfarm	2,142	2,331
Rural Farm	2,648	2,928
Urbanized Area 3+ Million		1,820
Urbanized Area 1-3 Million		1,937
Urbanized Area 250,000-1Million		1,974
Urbanized Area Under 250,000		2,128
Other Urban 25,000+		2,207
Other Urban 2,500-25,000		2,150
Rural Nonfarm	2,142	2,331
Rural Farm	2,648	2,928
White	1,824	2,130
Nonwhite	2,136	2,653
Urban White	1,612	1,979
Urban Nonwhite	1,720	2,220



(Rates given for women 15–44 years old, all marital classes, standardized for age.)
Source: *Current Population Reports*, Series P-20, No. 84, pp. 9–10.

Geographic Area. In general, fertility rates are highest in the South and lowest in the Northeast. However, much of the high fertility of the South is related to the fact that a high proportion of the population is rural and nonwhite. As indicated in Table 1 and Chart 5, regional differences in the fertility rates of urban white women in 1950 were not of much consequence although the rates were relatively low in the Northeast for

TABLE 1

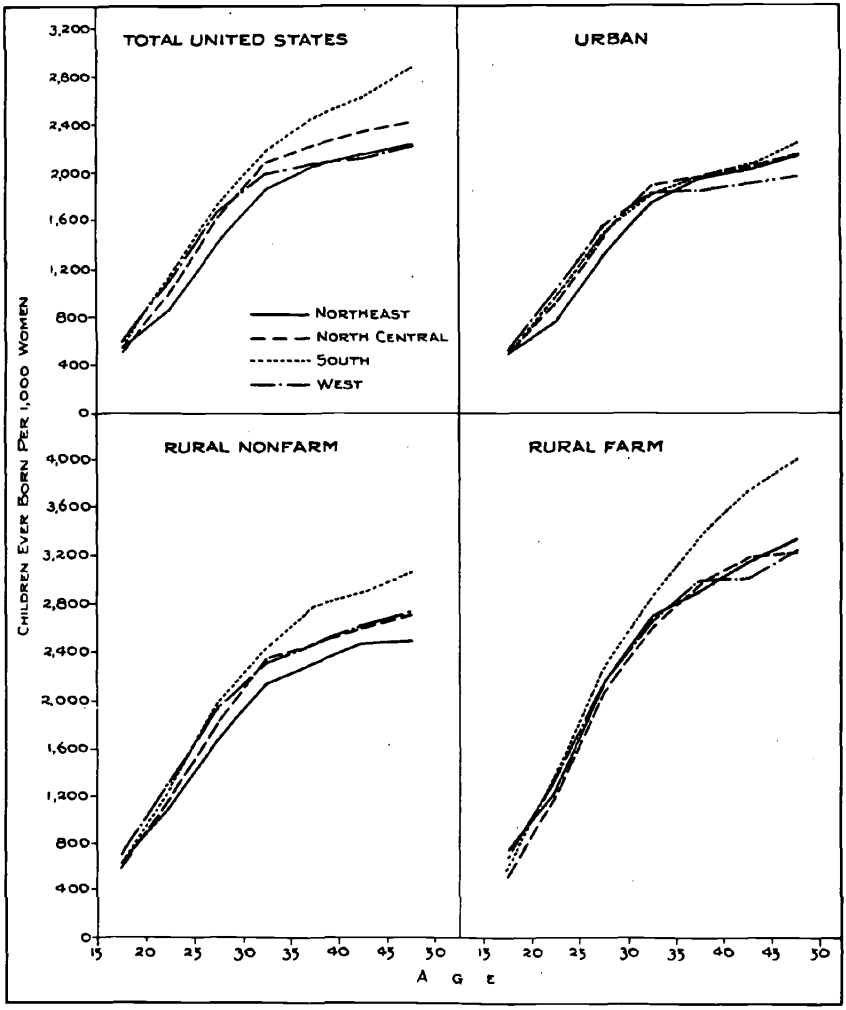
Children Ever Born per 1,000 Women Ever-Married, by Age, Color, Region, and Urban-Rural Residence, United States, 1950

	WHITE					NONWHITE				
Age	*United States*	*North East*	*North Central*	*South*	*West*	*United States*	*North East*	*North Central*	*South*	*West*
					Regional Total					
15–19	548	554	515	550	594	917	893	928	929	726
20–24	1,028	855	1,010	1,130	1,108	1,473	1,270	1,377	1,561	1,274
25–29	1,620	1,423	1,632	1,758	1,672	1,932	1,415	1,653	2,177	1,643
30–34	2,034	1,862	2,084	2,180	1,988	2,272	1,730	1,690	2,623	1,983
35–39	2,218	2,049	2,231	2,459	2,069	2,476	1,677	1,827	2,873	2,145
40–44	2,329	2,147	2,331	2,631	2,130	2,660	1,843	2,054	3,063	2,189
45–49	2,456	2,237	2,423	2,873	2,211	2,803	2,217	2,226	3,107	2,619
					Urban					
15–19	502	503	490	493	539	901	879	950	903	741
20–24	910	775	914	977	1,019	1,320	1,251	1,346	1,348	1,221
25–29	1,454	1,336	1,488	1,502	1,547	1,632	1,390	1,599	1,774	1,474
30–34	1,821	1,762	1,885	1,819	1,824	1,806	1,674	1,562	1,991	1,735
35–39	1,943	1,959	1,977	1,942	1,846	1,879	1,619	1,721	2,063	1,809
40–44	2,022	2,035	2,044	2,053	1,906	2,057	1,789	1,941	2,259	1,715
45–49	2,141	2,141	2,153	2,257	1,963	2,263	2,159	2,122	2,370	2,210
					Rural Nonfarm					
15–19	612	628	582	599	686	946	—	—	964	—
20–24	1,218	1,098	1,175	1,272	1,305	1,687	—	—	1,693	1,498
25–29	1,857	1,674	1,809	1,962	1,950	2,469	—	2,579	2,482	2,395
30–34	2,325	2,149	2,344	2,423	2,315	2,930	—	—	2,923	2,861
35–39	2,543	2,311	2,477	2,773	2,461	3,255	—	—	3,219	3,642
40–44	2,661	2,458	2,589	2,886	2,599	3,328	2,739	—	3,318	—
45–49	2,776	2,479	2,691	3,075	2,727	3,166	—	—	3,108	—
					Rural Farm					
15–19	589	730	504	598	686	927	—	—	936	—
20–24	1,304	1,239	1,207	1,380	1,363	1,902	—	—	1,916	—
25–29	2,167	2,150	2,065	2,257	2,177	2,947	—	—	2,967	—
30–34	2,732	2,695	2,603	2,874	2,677	3,963	—	—	3,976	—
35–39	3,137	2,901	2,968	3,359	2,984	4,508	—	—	4,540	—
40–44	3,403	3,155	3,185	3,722	3,009	4,719	—	—	4,758	—
45–49	3,582	3,348	3,218	3,998	3,240	4,869	—	—	4,868	—

Source: 1950 Census of Population, Fertility, *Special Report*, P–E, no. 5C, Tables 1 and 32.

CHART 5

Ratio of Children to White Women Married at Least Once, by Age, Region, and Urban-Rural Residence, 1950



women 20–34 and in the West for women 35–49 years old. In rural-nonfarm areas, fertility rates were rather conspicuously high for the South among white women 30–49 years old and low for those in the Northeast. In rural-farm areas, fertility rates for the South were relatively high among women 25–49 years old but otherwise there was not much in the way of regional variation in fertility of whites.

Among nonwhites, the high position of the South and low position of the Northeast with respect to fertility was especially pronounced. It persisted in large measure when the analysis was restricted to urban women.

Size of Place. As indicated in Chart 4, the fertility rates among urban women were inversely associated with size of place. The splicing of the "urbanized areas" and "other urban" places in the classification affords a virtual continuum of urban places by size, since the urbanized areas comprise "(*a*) cities of 50,000 or more inhabitants and (*b*) the densely settled urban fringe, including both incorporated and unincorporated areas, surrounding these cities." The "other urban" areas include places of 2,500–49,999 population.

Central City versus Suburbs. Within metropolitan areas, fertility rates tend to be lower in the Central City than in the "other urban" areas. The fertility rates for ever-married white women in the five largest metropolitan districts set up for use in the 1940 Census of Population were as follows:[9]

METROPOLITAN DISTRICT	CHILDREN EVER BORN PER 1,000 EVER-MARRIED WHITE WOMEN 45–49 YEARS OLD (1940)	
	Central City	*Other Urban*
Chicago	2,473	2,574
Detroit	2,642	2,818
Los Angeles	1,820	2,220
New York—Northeastern New Jersey	2,535	2,608
Philadelphia	2,729	2,575

Likewise, in the "Growth of American Families" Study, to be discussed later, the average number of births among white married women 18–39 years old in 1955 was 1.7 per woman among those in the twelve largest cities and 2.1 per woman in the suburbs of those largest cities. The average was 1.9 for those in "other cities of 50,000 or more" and 2.1 for those in the suburbs of the "other cities."[10] The relatively high fertility

[9] From Grabill, Kiser, and Whelpton, *op. cit.*, p. 99.

[10] Ronald Freedman, Pascal K. Whelpton, and Arthur A. Campbell, *Fertility Planning, Sterility, and Population Growth*, McGraw-Hill, 1959, p. 310.

of the suburbs, of course, is partly selective. The suburbs tend to select as well as to encourage large families. Some of the suburban women had their first children in Central Cities.

Fertility by Type of Housing. Closely akin to the differences in fertility between the "Central Cities" and "Other Urban" parts of Metropolitan areas are those by type of dwelling unit. This is illustrated by data concerning number of children under five years old per 1,000 urban women 15 to 49 years old, standardized for age, as found in a Current Population Survey in April, 1947.[11]

TYPE OF HOUSING	FERTILITY RATIO
Structures without Business	483
1 dwelling unit	510
2 dwelling unit	474
3+ dwelling unit	435
Structures with Business	420

Again it is realized that selective factors help to account for the differentials in fertility by type of housing. Single-family houses may attract as well as stimulate larger families. Couples may move from apartments to houses when they have children.

Significance of Trends by Residence. In assessing the significance of trends in fertility by residence, the increasing urbanization of our population should be kept in mind. In 1810, only 7.3 per cent were urban; in 1950, the proportion urban was 59 per cent by the old definition and 64 per cent by the new definition. This trend reflects both rural to urban migration and the graduation of some areas from rural to urban status. Furthermore, it should be remembered that to some extent the recent narrowing of the urban-rural differential in fertility reflects the standardizing and leveling influences of the automobile, surfaced roads, movies, radio, television, and school consolidation. The sharp demarcation between city and country no longer exists. Instead, the suburban pattern of life has come to the fore.

Differentials by Nativity and Color

Nativity. Foreign-born white women in the United States now show relatively low fertility compared to the period around 1910 when immigration was large and heavily weighted by women from Southern and Eastern Europe. At that time the foreign born were much more fertile than native whites of comparable age and residence.[12] In 1950, in

[11] *Current Population Reports*, Series P-20, no. 18, Table 13.

[12] See Joseph A. Hill, "Fecundity of American Women," a section in *Reports of the Immigration Commission*, Vol. 28, 1911, pp. 731–826.

contrast, the fertility of the few foreign-born white women was much the same as that of native whites of comparable age and residence (see Table 2).

TABLE 2

Children Ever Born per 1,000 Women Ever-Married, by Age, Nativity, Color, and Urban-Rural Residence, United States, 1950

Age	Native-White	Foreign-Born White	Negro	Other Races	Native-White	Foreign-Born White	Negro	Other Races
	United States				*Urban*			
15–19	547	661	921	—	501	554	901	—
20–24	1,029	998	1,474	1,459	910	934	1,327	1,061
25–29	1,628	1,401	1,931	1,965	1,460	1,325	1,639	1,373
30–34	2,040	1,839	2,250	2,829	1,824	1,746	1,797	2,126
35–39	2,223	2,128	2,450	3,505	1,937	2,028	1,868	2,696
40–44	2,335	2,273	2,619	4,173	2,001	2,183	2,040	3,115
45–49	2,457	2,452	2,767	4,171	2,096	2,369	2,250	3,158
	Rural Nonfarm				*Rural Farm*			
15–19	610	—	967	—	586	—	931	—
20–24	1,218	1,247	1,678	1,806	1,305	1,222	1,906	—
25–29	1,860	1,730	2,472	2,433	2,171	1,831	2,950	2,892
30–34	2,327	2,190	2,895	3,375	2,734	2,573	3,977	3,760
35–39	2,542	2,569	3,202	3,960	3,136	3,251	4,530	—
40–44	2,661	2,665	3,236	4,699	3,408	3,259	4,701	—
45–49	2,773	2,808	3,093	—	3,587	3,460	4,840	—

Source: 1950 Census of Population, Fertility, *Special Report*, P–E, no. 5c, Table 12.

Color. In 1957, nonwhites in the United States numbered about 19 millions and constituted about 11 per cent of the population. Some 96 per cent of them are Negro. The others, in order of numerical importance, are American Indians, Japanese, Chinese, and "all other." The fertility rate of each of these groups probably is higher than that of the whites. In fact, as indicated in Table 2, the fertility rates of the "other races" combined surpassed those of the Negroes in 1950 except within rural-farm areas.

There are no adequate data on fertility differentials by color in the United States prior to 1850. However, the fertility ratios of nonwhites since then have been higher than those for whites. To some extent, this has been due to the greater concentration of nonwhites in the rural-farm areas of the South. However, even within those areas the fertility of nonwhites has tended to surpass that of whites.

In contrast to the recent narrowing of fertility differentials by nativity, there has been a widening of differentials by color. This has been the result of rather dramatic increases in the fertility of young nonwhite

married women in urban areas since 1940. Thus the 1940–1950 increases in the fertility of urban ever-married women 15–19 years old was 33 per cent for nonwhites and 3 per cent for whites. At ages 20–24, the increase was 34 per cent for nonwhites and 15 per cent for whites. At ages 25–29 and 30–34, the percentage increases were larger for whites than for nonwhites. At ages 35–49, there were *decreases* in fertility during 1940–1950 for both whites and nonwhites. These changes reflect low birth rates during the economic depression of the 1930's and the relatively high birth rates of the postwar period. The women who were 35 to 49 years old in 1950 bore many of their children in the 1930's when birth rates were low.

During 1950–1957, the increase in the standardized fertility rate of urban ever-married women, 15–44 years old, was 23 per cent for whites and 29 per cent for nonwhites. The standardized rate for nonwhites surpassed that for whites by 7 per cent in 1950 and by 12 per cent in 1957. (See Chart 4.)

In the past, nonwhites in this country have been characterized by having both a relatively high proportion of childless families and a relatively high proportion of large families (4 or more children). Because of the high proportion with large families, the nonwhites have been able to overcome the handicap of the childless to exhibit higher average levels of fertility than the whites. The 1950 Census revealed a striking reduction in proportions childless among the nonwhites. Presumably, much of this reduction in childlessness was a sequel to the decrease in the prevalence of venereal disease that has taken place since 1940. There has also been a general betterment of the economic, social, and civil status of Negroes in this country since 1940.[13]

Differentials by Socio-Economic Status

Early Origin. Fertility differentials by socio-economic status are also of long duration. Jaffe found that a rather marked inverse relation of reproduction rates to "plane of living" existed among white women in selected urban and rural areas of the United States during 1800–1840. Writing in 1940, he stated, "it is likely that fertility differentials were as large at the beginning of the nineteenth century as they are today. Consequently, it may well be assumed that they had been in existence since the beginning of the eighteenth century, if not earlier. . . ."[14]

[13] See Clyde V. Kiser, "Fertility Trends and Differentials Among Nonwhites in the United States," *Milbank Memorial Fund Quarterly*, Vol. 36, no. 2, April 1958, pp. 149–197.

[14] A. J. Jaffe, "Differential Fertility in the White Population in Early America," *Journal of Heredity*, xxxi, no. 9, September 1940, p. 411.

Note: Jaffe's index of fertility was the standardized gross reproduction rate computed

Bash's recent study indicated the existence of certain types of fertility differentials in Madison County, New York, in 1865. Foreign-born wives and the wives of unskilled laborers had relatively high fertility. Among the farmers, fertility showed a slight inverse correlation to cash value of farm and to value of tools and machinery.[15]

Analyses of completed fertility rates in the 1911 Census of England and Wales, by age of wife and occupation group of husband, have yielded impressive indications of a widening of class differences in fertility in that country during the last quarter of the nineteenth century.[16] Analyses of similar materials from the 1910 Census of the United States have not yielded as impressive results as the British data. However, they do indicate steeper declines in the completed fertility of wives of professional and other white-collar workers during the period of about 1885–1910 than among wives of laboring men.

A study of age-specific fertility rates of a sample of northern native-white women 45 years of age and older in the 1910 Census led Sallume and Notestein to conclude that declines in size of completed families extended back well into the nineteenth century and that the declines probably had been somewhat more rapid in the "upper" than in the "lower" occupational groups.[17]

Trends 1900–1910. The writer's study of fertility among comparable groups of women of childbearing age in the 1900 and 1910 Censuses indicated some expansion of class differences in fertility during the first decade of the century among native-white women in the East North Central States.[18] However, since the 1900–1910 comparisons were

from census data by an indirect method. His "plane of living" index was based upon somewhat different criteria for the three cities and rural areas that were studied. For New York and Boston, wards were classified into three groups on the basis of ownership of real or personal property. For Providence, individual households were classified into three groups, according to amount of taxable property. For New York rural areas, counties were classified by amount of agricultural land and livestock per person 10 years old and over. For rural areas in Georgia, North Carolina, and South Carolina, the counties were classified by proportion of slaves in the population.

[15] Wendell H. Bash, "Differential Fertility in Madison County, New York, 1865," *Milbank Memorial Fund Quarterly*, Vol. 33, no. 2, April 1955, pp. 161–186.

[16] See J. W. Innes, *Class Fertility Trends in England and Wales, 1876–1934*, Princeton University Press, 1938, pp. 37–69.

F. W. Notestein, "Class Differences in Fertility," *Annals of the American Academy of Political and Social Science*, Vol. 188, November 1936, p. 27. A chart from Notestein's article has been reproduced as Chart 4 in Gwendolyn Johnson's paper in the present volume.

[17] Xarifa Sallume and Frank W. Notestein, "Trends in the Size of Families Completed Prior to 1910 in Various Social Classes," *American Journal of Sociology*, Vol. 38, no. 3, November 1932, p. 408.

[18] C. V. Kiser, "Trends in the Fertility of Social Classes from 1900 to 1910," *Human Biology*, Vol. 5, no. 2, May 1933, pp. 256–273.

restricted to one geographic division, we do not know certainly that similar trends existed in other areas of the country.

Trends since 1910. Because intercensal comparisons for the country as a whole are available for periods since 1910, we can talk with much more confidence about trends in class differentials since then. We can say with assurance that (*a*) a small net change toward contraction is revealed by comparison of 1910 and 1940 census data, (*b*) a marked narrowing of the differential occurred during 1940–1950 concerning fertility of women under 35 years old, (*c*) some widening may have occurred during 1940–1950 in class differences in completed fertility, that is, in the fertility of women 40–44 and 45–49 years of age.

Furthermore, whereas the earlier trend toward convergence arose mainly from differential declines in fertility (somewhat more rapid declines in the "lower" than in the "upper" socio-economic classes), the 1940–1950 convergence arose from differential *increases* in fertility (more pronounced increases in the "upper" than in the "lower" socio-economic classes).

Since the question on children ever born was not asked in the Censuses of 1920 and 1930, it is not possible to pinpoint the date of any possible change from enlargement of differentials during 1900–1910 to contraction during the 1910–1940 period. Possibly, a turning point came in the twenties.[19] However, there probably was no single point of change. The time that changes occurred might well have varied by characteristics considered, by age, by area, and by other factors.

The data in Tables 3–4 and Charts 6–10 regarding trends in fertility differentials by occupation and education are from the previously cited monograph *The Fertility of American Women.*[20] Two related measures or indexes of trends in fertility differentials by occupation and education are used, those of "average deviation" and "relative variation." These are respectively described as "(*a*) the average of the per cent deviations of the fertility rates of the seven nonagricultural occupational classes . . . from the base rate for the total age group, regardless of the direction of that deviation, and (*b*) the relative spread of the fertility rates by occupational class obtained by expressing the fertility rate of each occupational class within an age group as a per cent of the base rate for the total age group."[21]

[19] Notestein's analysis of 1930 Census data for the East North Central States on children under 10 years old per couple married 5–9 years, by monthly rental-value of the dwelling unit (and other factors) yielded the now-familiar reversal from "inverse" to "direct" relation of fertility ratios to rental-value within the brackets of highest rental value. See Frank W. Notestein, "Differential Fertility in the East North Central States," *Milbank Memorial Fund Quarterly*, Vol. 16, no. 2, April 1938, pp. 173–191.

[20] Grabill, Kiser, and Whelpton, *op. cit.*, pp. 173–179, pp. 253–261.

[21] *ibid.*, p. 173.

As indicated in Table 3, within urban areas, the average deviations for women under 45 years old tended to be *somewhat* lower in 1940 than in 1910. They tended to be *much* lower in 1950 than in 1940. By age, the most striking reductions in average deviations during 1940–1950 (that is, fertility differentials by occupation) occurred in age groups 25–39.

TABLE 3

Index of Average Deviation of Fertility Rates by Occupation of the Husband, Native-White Women in 1910 and 1940 and White Women in 1950, 15 to 49 Years Old, Married Once and Husband Present, by Residence and Age of the Woman

Residence and Age of Woman	*1910*	*1940*	*1950*
Urban			
15–19	11.1	13.3	12.8
20–24	16.3	16.8	12.7
25–29	17.7	16.0	9.6
30–34	16.3	15.2	7.4
35–39	16.2	15.2	9.5
40–44	16.7	15.0	13.5
45–49	15.7	15.1	17.1
Rural Nonfarm			
15–19	11.6	18.8	11.3
20–24	15.0	16.8	13.1
25–29	16.2	19.9	11.7
30–34	14.7	18.5	12.4
35–39	15.2	18.8	16.3
40–44	14.6	18.1	18.2
45–49	13.0	18.4	19.7

The figure for any specified age group is the average of the percentage deviations (regardless of direction) of the fertility rates of seven non-agricultural groups from the base rate for the total age group. The base rates for age groups were standardized for occupational composition. The standard used was the occupational distribution of the non-agricultural husbands of white women of given age in 1950.

Source: Grabill, Kiser, and Whelpton, *op. cit.*, p. 174.

Among urban women of completed fertility (45–49 years old) the average deviations in fertility by occupation were a little larger in 1950 than in 1940.[22]

The extent of the narrowing of fertility differentials by occupation during 1940–1950 was about the same among rural-nonfarm as among

[22] In his analysis of differential fertility in the United States since 1900, Westoff also found some enlargement in the occupational differentials in *completed fertility* during the 1910–1952 period. He found a contraction in fertility differentials during 1940–1952 among women of reproductive age. See C. F. Westoff, "Differential Fertility in the United States: 1900 to 1952," *American Sociological Review*, Vol. 19, no. 5, October 1954, pp. 549–561.

urban women. However, among the rural-nonfarm women there was slight enlargement rather than slight contraction of fertility differentials by occupational class during the earlier period, 1910–1940.

TABLE 4

Index of Average Deviation of Fertility Rates by Education of the Woman, Native-White Women in 1940 and White Women in 1950, 15 to 49 Years Old, Total Women and Ever-Married Women, by Residence and Age of Woman

Residence and Age of Woman	*Total Women*		*Ever-Married Women*	
	1940	1950	1940	1950
Urban				
15–19	59.5	42.9	31.1	30.5
20–24	64.5	50.1	39.2	33.3
25–29	39.4	24.4	28.4	19.2
30–34	29.7	14.9	21.8	11.3
35–39	26.0	15.8	19.1	11.6
40–44	24.5	20.1	18.4	16.0
45–49	24.2	25.8	18.0	22.2
Rural Nonfarm				
15–19	57.4	38.1	—	—
20–24	63.9	41.0	38.3	28.2
25–29	42.2	27.0	32.7	24.4
30–34	33.6	19.2	27.8	17.6
35–39	29.7	21.7	25.5	21.0
40–44	27.9	24.0	25.1	22.9
45–49	25.8	29.5	23.0	27.8
Rural Farm				
15–19	63.2	41.1	—	—
20–24	64.3	38.6	27.1	27.8
25–29	41.0	23.5	28.9	20.9
30–34	30.6	17.8	24.8	16.2
35–39	29.4	21.1	24.4	19.7
40–44	24.5	24.0	21.6	22.8
45–49	24.7	26.0	22.7	25.5

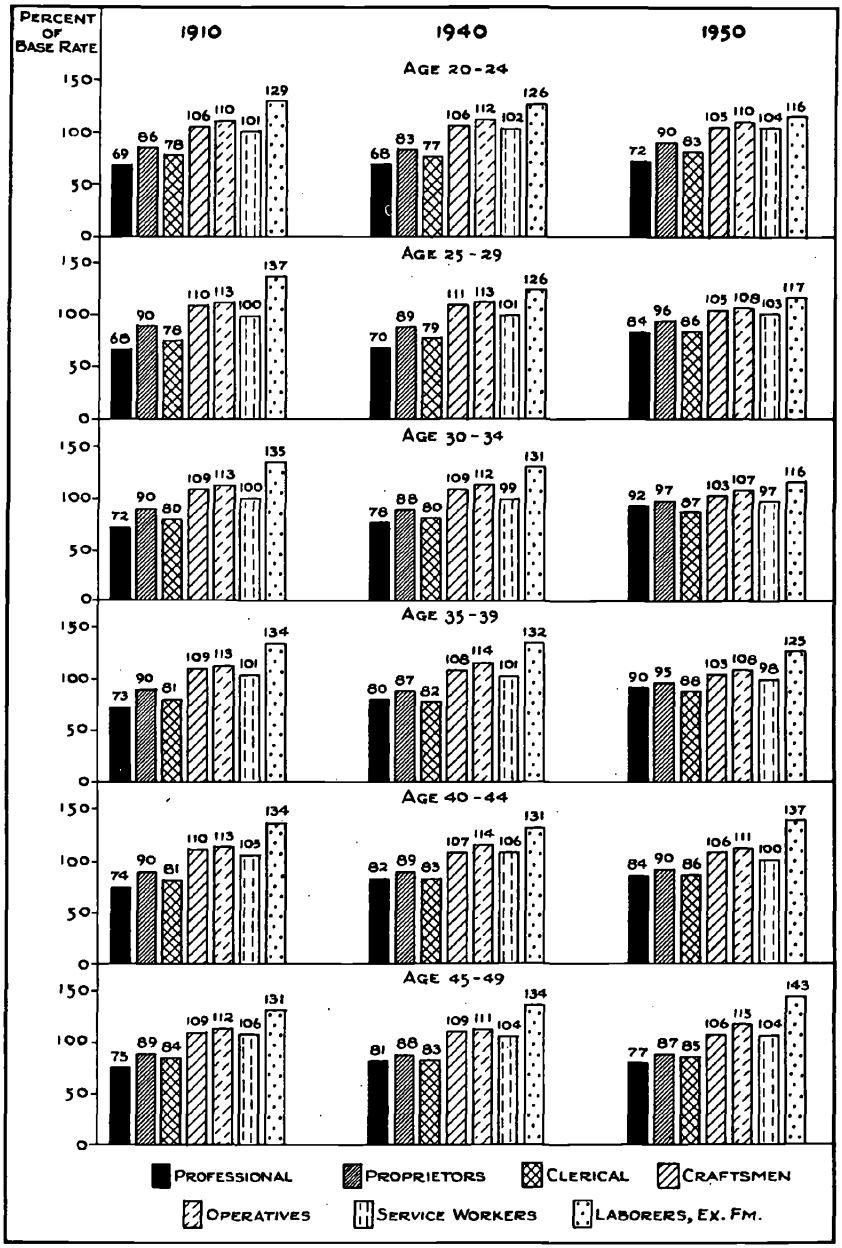
The figure for any specified age group is the average of the percentage deviations (regardless of direction) of the fertility rates for five educational groups from the base rate for the total age group. The base rates for age groups were standardized for educational composition. The standard used was the educational distribution of white women of given age in 1950.

Source: Grabill, Whelpton, and Kiser, *op. cit.*, p. 253.

Charts 6–7 exhibit the relative variations in fertility rates by occupation of the husband in 1910, 1940, and 1950. As already indicated, this device sacrifices the convenience of the average deviation but it portrays in detail the direction and relative range of the variations in the fertility rates by occupation. The use of "relative variations" permits comparison

CHART 6

Fertility Rates for Urban White Women by Occupation of Husband, 1910, 1940, and 1950

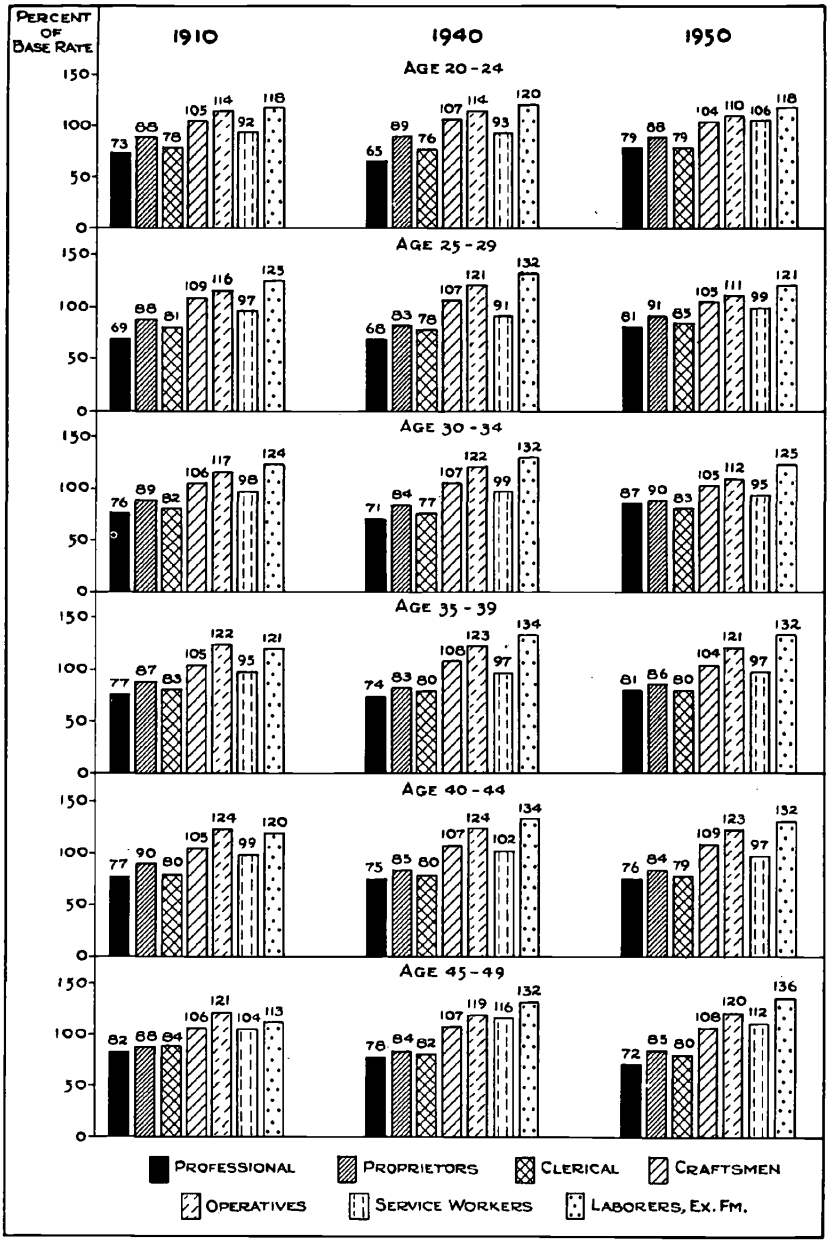


Cumulative rates for women of specified age (married once and husband present) in each occupational class, as per cent of base rate for total age group considered (base rate = 100).

Source: See Grabill, Kiser, and Whelpton, *op. cit.*, pp. 176–177.

CHART 7

Fertility Rates for Rural Nonfarm White Women by Occupation of Husband, 1910, 1940, and 1950

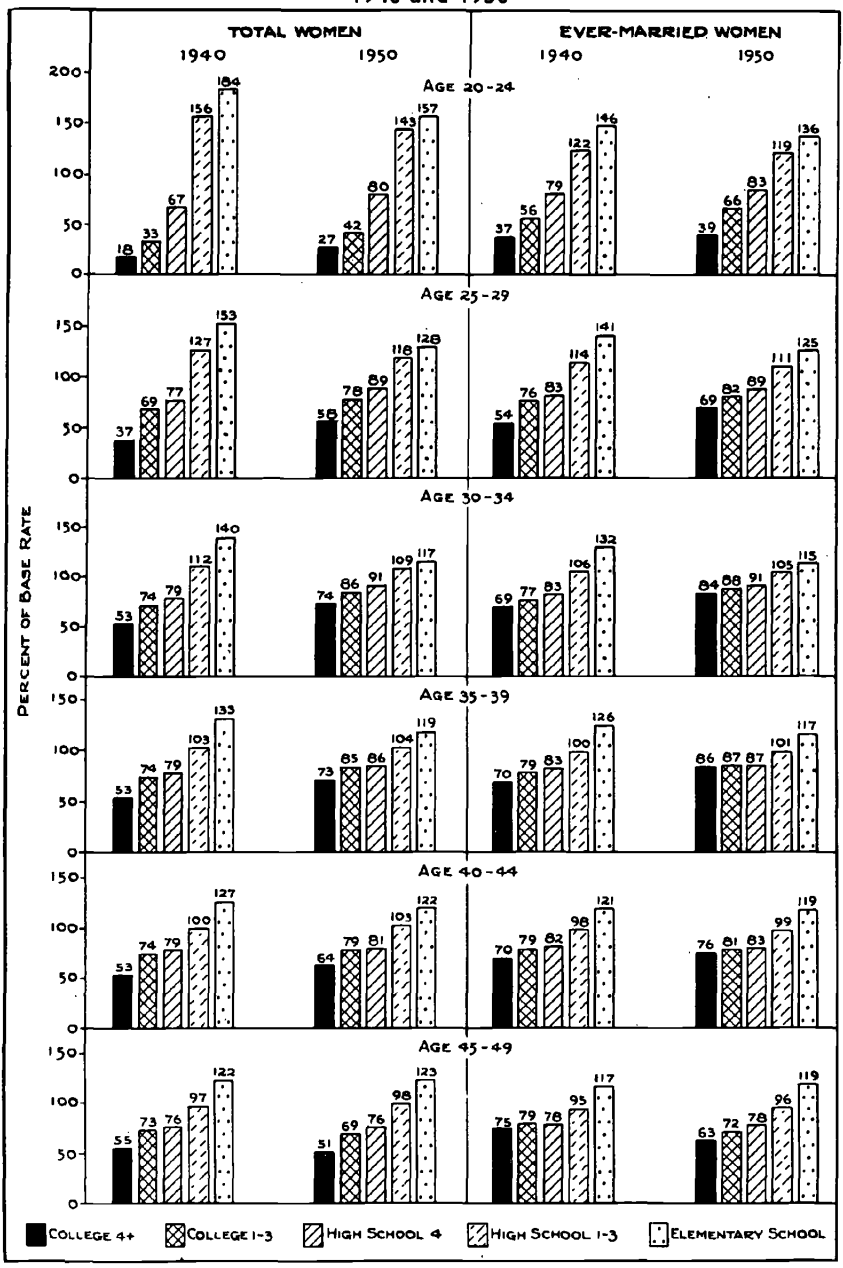


Cumulative rates for women of specified age (married once and husband present) in each occupational class, as per cent of base rate for total age group considered (base rate = 100).

Source: Same as for Chart 6.

CHART 8

Fertility Rates for Urban White Women by Education of Woman, 1940 and 1950

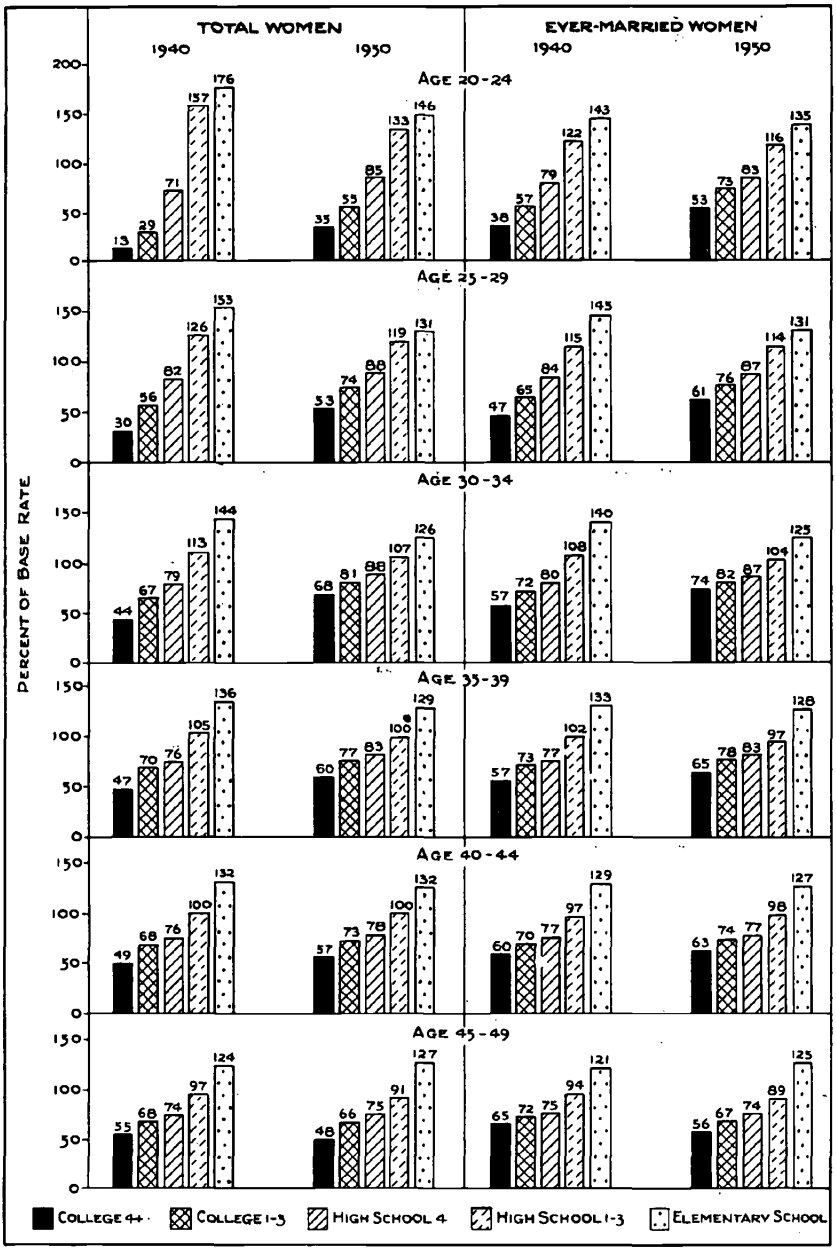


Cumulative rates for women of specified age and marital status in each educational class, as per cent of base rate for total age and marital status group considered (base rate = 100).

Source: See Grabill, Kiser, and Whelpton, *op. cit.*, pp. 256–257.

CHART 9

Fertility Rates for Rural Nonfarm White Women by Education of Woman, 1940 and 1950

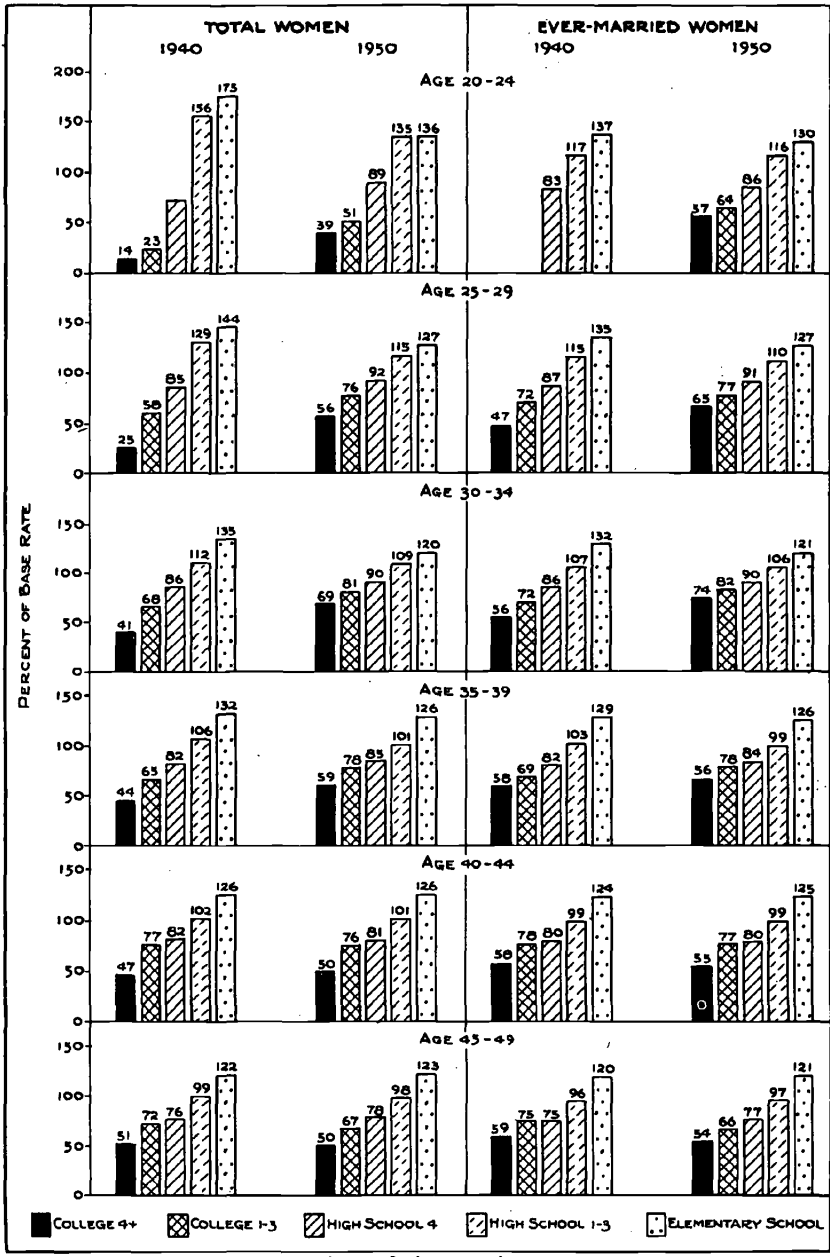


Cumulative rates for women of specified age and marital status in each educational class, as per cent of base rate for total age and marital status group considered (base rate = 100).

Source: Same as for Chart 8.

CHART 10

Fertility Rates for Rural Farm White Women by Education of Woman, 1940 and 1950



Cumulative rates for women of specified age and marital status in each educational class, as per cent of base rate for total age and marital status group considered (base rate = 100).

Source: Same as for Chart 8.

of the spread of the fertility rates at different times without the complications of secular trends in the general levels of absolute rates. Again, it will be noted that whereas the relative range of the fertility rates of urban women by occupation of the husband tends to be a little smaller in 1940 than in 1910, it tends to be much smaller in 1950 than in 1940 *except at oldest ages*. In other words, except among women of virtually completed fertility (40–44 and 45–49) the rates were much more homogeneous by occupational class in 1950 than in 1940. Among rural-nonfarm women under 45, the relative spread of the fertility rates by occupational class tended to be larger in 1940 than in 1910 but was smaller in 1950 than in 1940. Among rural-nonfarm and urban women 45–49, there was still a trend toward expansion of occupational differentials in fertility during 1940–1950.[23]

Table 4 and Charts 8–10 present the trends in fertility differentials by educational attainment of the women. The data are restricted to 1940 and 1950 because census questions on highest grade in school completed were not asked prior to 1940. However, data are given for "all women" as well as for ever-married women. Again, the average deviations and the relative variations of the fertility rates by educational attainment of the women tended to be much smaller in 1950 than in 1940.[24] The average deviations tended to be somewhat larger by education of the wife than by occupational group of the husband. The following factors may be involved: (*a*) education relates to wife and the wife may tend to be more concerned with family planning than is the husband, (*b*) educational attainment of the adult is, in the nature of the case, less changeable in time than is occupational group, (*c*) age of wife at marriage probably is more closely associated with her own educational attainment than with occupational group of the husband at time of the census, and (*d*) agricultural people in urban and rural-nonfarm areas are absent in the classifications by occupation but present in the classifications by education. The last-mentioned statement is important in that agricultural workers tend to be characterized at once by high fertility and low educational attainment.

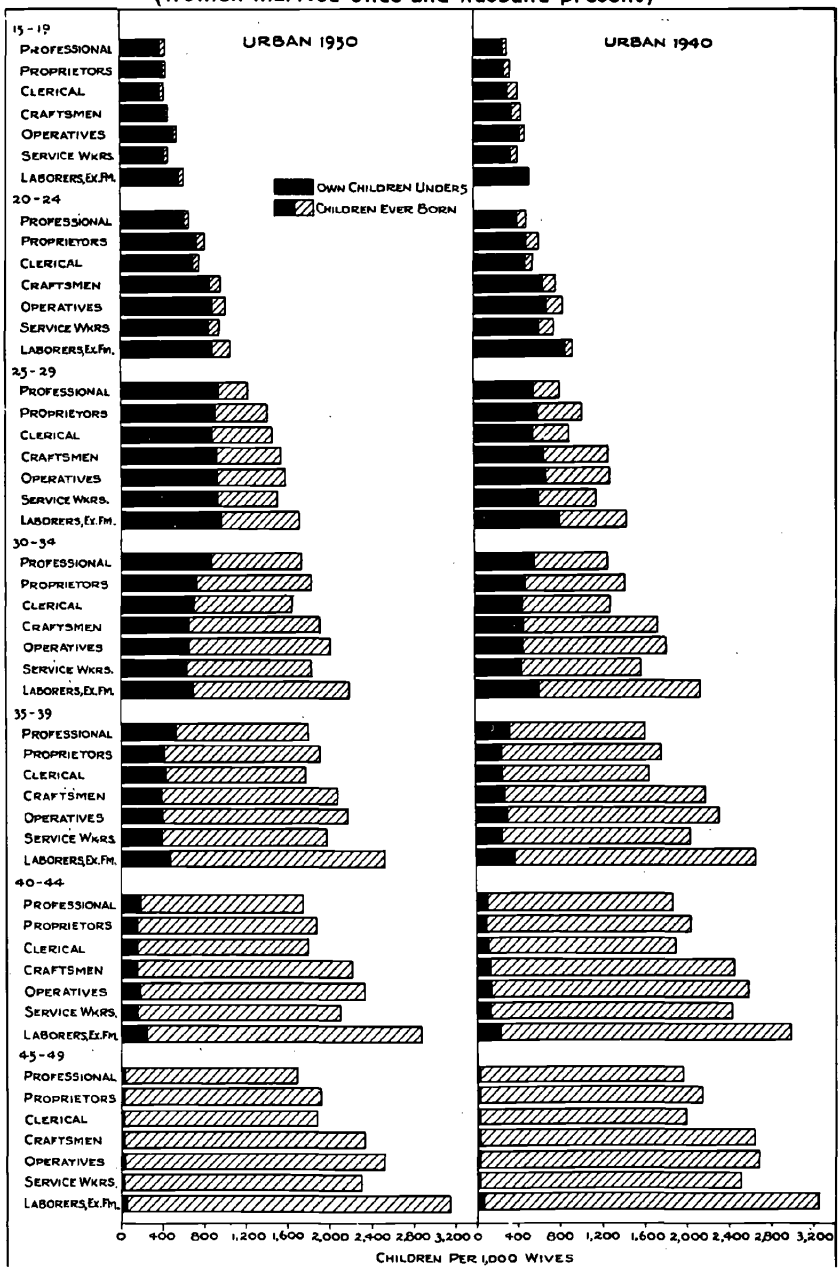
Fertility Ratios in 1950

Owing to the recency of the increases in fertility rates, it is well to examine some materials less affected by past conditions than are the data relating to children ever born in 1950. Chart 11 shows number of own children under 5 per 1,000 urban white women of given age in comparison with

[23] *ibid.*, pp. 175–179. [24] *ibid.*, pp. 253–261.

CHART 11

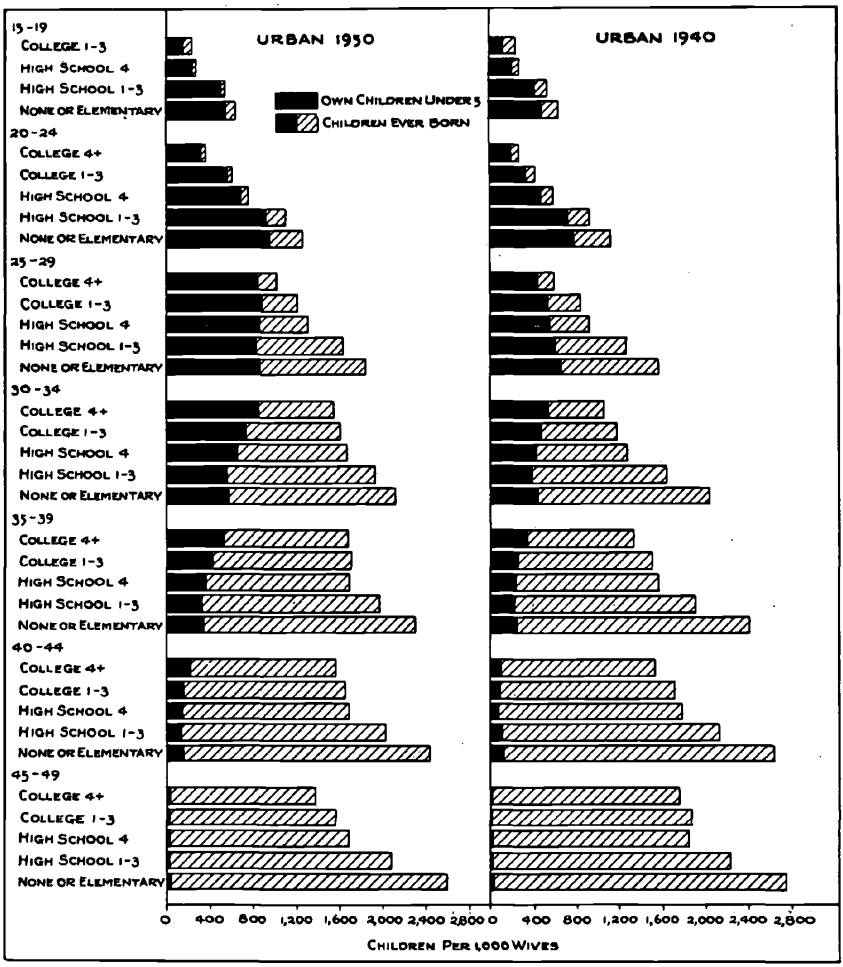
Ratio of Children to Urban White Women by Age of Wife and Occupation of Husband, 1940 and 1950
(women married once and husband present)



Source: Adapted from Grabill, Kiser, and Whelpton, *op cit.*, pp. 131–132, 156–157.

CHART 12

Ratio of Children to Urban White Women by Age and Education of Woman, 1940 and 1950
(women married at least once)



Source: Grabill, Kiser, and Whelpton, *op. cit.*, pp. 205–228.

number of children ever born to these same women, by occupation of husband. The data are shown for 1940 and 1950 and relate to urban white women classified as "married once and husband present." Chart 12 presents the same type of materials by educational attainment of the woman but this time the data relate to "ever-married" women.

Several situations are pointed up by the two charts. In the first place, whereas the rates based upon children ever born naturally increase with age, those based upon children under 5 tend to reach a maximum at ages 25–29 and then to decline; they reach very low levels at ages 45–49. In the second place, and again in the nature of the case, whereas the number of children under 5 is almost the same as the number of children ever born among women 15–19 years of age, it constitutes decreasing proportions at successively older ages; children under 5 form only a tiny fraction of children ever born among women 45–49 years old. The third and most important point is the nature of the relation of the two types of measures to socio-economic status at successive ages of the women. Thus among women under 25 the cumulative fertility rates and the fertility ratios both exhibit the inverse relation of fertility to socio-economic status. At ages 25–29, the fertility rates are inversely related to occupational and educational status but the fertility ratios differ little by these variables. Among women 30–34 and 35-39, there is a prominent *inverse* relation of cumulative fertility rates to occupation and education and a fairly prominent *direct* relation of fertility ratios to those measures of socio-economic status. The direct relation of fertility ratios to educational attainment at these ages is especially pronounced.

Does the direct relation of fertility ratios to educational attainment among women 30–34 and 35–39 years old portend a more general trend toward this type of relationship? There are several lines of evidence that this is not the case. In the first place, if this were the case, one would expect the direct relation to show first at younger ages. As already noted, at ages 20–24, both the fertility rates (children ever born) and the fertility ratios (children under 5) are *inversely* related to educational attainment. In the second place, the direct relation of fertility ratios to education at ages 30–39 existed in 1940, albeit not to the same extent as in 1950. In the third place, as will be seen later, some of the recent Current Population Survey data suggest a resurgence rather than a weakening of the inverse relation of fertility to educational attainment.

In general, the sharp direct relation of fertility ratios to education at ages 30–39 arises in large part from differences by education in duration of marriage. As indicated by skeleton figures in Table 5, duration of marriage is inversely related to educational attainment among the white women 30–34 years of age. The average number of children under 5 was higher among the college graduates than the elementary school group because a larger proportion of the former were just beginning their families. Among women 30–34 years old and married 0–5 years there

TABLE 5

Children Ever Born per 1,000 Women 30–34 Years Old by Duration of Marriage and Educational Attainment. White Women, Married Once and Husband Present, United States, 1950

Education of Woman	*All Durations*	*Duration of Marriage* Under 5 Years	5–9 Years	10–14 Years	15–19 Years	20+ Years
			Per Cent Distribution of Women			
College 4+	100.0	16.4	52.9	28.2	2.2	0.3
College 1–3	100.0	12.9	43.3	38.9	4.7	0.3
High School 4	100.0	10.8	34.5	46.8	7.4	0.4
High School 1–3	100.0	7.6	22.1	50.8	18.7	0.7
Elementary	*100.0*	*7.8*	*19.9*	*47.6*	*23.2*	*1.4*
Elementary 7–8	100.0	8.4	20.3	48.8	21.3	1.1
Elementary < 7	100.0	6.2	18.8	44.5	28.3	2.3
			Fertility Rate			
College 4+	1,667	832	1,657	2,097	—	—
College 1–3	1,790	860	1,656	2,174	2,290	—
High School 4	1,841	744	1,574	2,181	2,399	—
High School 1–3	2,169	843	1,577	2,329	2,902	—
Elementary	*2,590*	*926*	*1,730*	*2,716*	*3,563*	—
Elementary 7–8	2,429	880	1,678	2,603	3,321	—
Elementary < 7	3,025	1,098	1,882	3,053	4,057	—

Source: adapted from Bureau of the Census, "Fertility by Duration of Marriage: 1950," *Special Report*, Series PC–14, no. 22, September 7, 1956, pp. 8–9.

TABLE 6

Children Ever Born, Children Under 5 Years Old, and Children Five Years of Age and Older, per 1,000 Ever-Married Women 30–34 Years Old, by Education of the Woman, White Women in Urban Areas of the United States, 1940 and 1950

Education of Woman	1940[a] *Children Ever Born*	*Children Under 5*	*Other Children Ever Born*	1950[b] *Children Ever Born*	*Children Under 5*	*Other Children Ever Born*
College 4+	1,070	555	515	1,559	861	698
College 1–3	1,192	481	711	1,626	755	871
High School 4	1,287	428	859	1,687	662	1,025
High School 1–3	1,639	400	1,239	1,933	562	1,371
Elementary	2,046	445	1,601	2,134	589	1,545

[a] 1940 Census of Population: Population, Differential Fertility 1940 and 1910: Women by Number of Children Ever Born, 1945, Table 49; *ibid.*: Women by Number of Children Under 5 Years Old, 1945, Table 25.

[b] 1950 Census of Population: Fertility, *Special Report*, P–E, no. 5C, Tables 20 and 44.

The data for 1940 relate to native-white women and those for 1950 to white women. The urban areas are those defined by each Census. The numbers of "other children ever born" are derived by subtraction.

was an inverse relation of children ever born to educational status. As indicated in Table 6 there is a strong inverse relation indeed between educational attainment and number of children *5 years of age and over* among women 30–34 years of age.

The most recent comprehensive data on differential fertility in the United States are those collected in the March, 1957 Current Population Survey. The Current Population Survey periodically covers a sample of some 35,000 households. The sample is fractionally rotated at given intervals and it is designed to be fairly representative of the United States. In fact, the numbers in the published reports are generally inflated to the size of the estimated total population of the universe considered, although, of course, the computed sampling errors are based upon the actual numbers.

The March, 1957 Current Population Survey included questions on children ever born, occupation of the husband, income of the husband during the preceding year, and education of the wife. Chart 13, based upon comparable materials from 1957 and 1952 Current Population Surveys, presents fertility rates by husband's occupation group and by husband's income during the preceding year. The fertility rates relate to children ever born per 1,000 women (married and husband present) 15–44 years old (standardized for age).

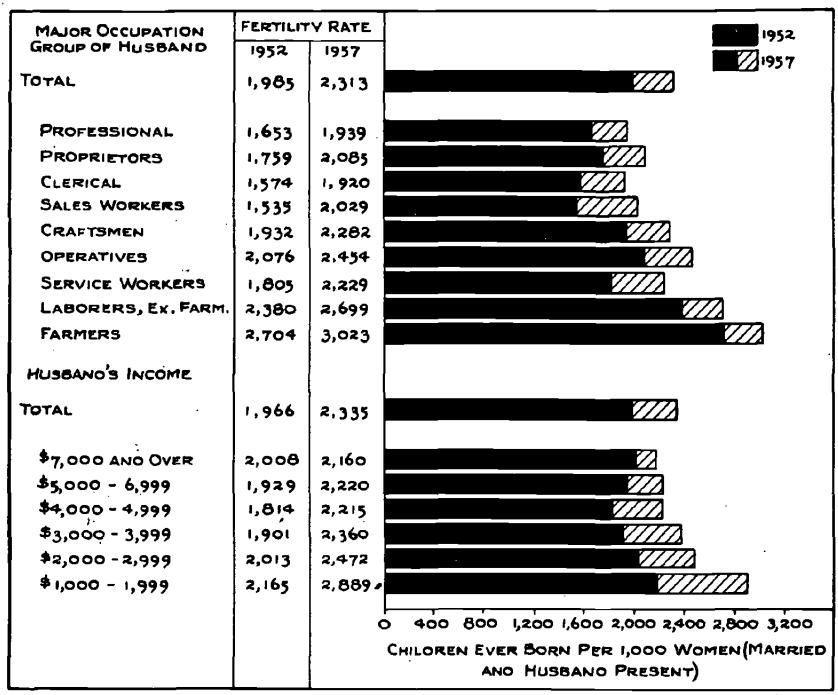
On the basis of Chart 13, it would appear that the inverse relation of fertility to occupational and income status of the husband was a little stronger in 1957 than in 1952. The apparent enlargement of the differentials by income was quite pronounced. The *Current Population Reports* stated: "The first data tabulated by the Bureau of the Census on children ever born by income of the husband were those for 1952 (*Current Population Reports*, Series P-20, no. 46). At that time, it was noted that fertility rates for wives 15 to 44 years old, standardized for age, were fairly similar at different income levels. By 1957, there had been more increase in fertility of women whose husbands' incomes were below $5,000 than among wives whose husbands' incomes were $5,000 or more per year. . . . Accordingly, a strong pattern of relatively more children among people with little income than among people with more income has been at least temporarily re-established."[25] However, in view of the small size of the sample in the Current Population Survey and the lack of controls by color or urban-rural residence, the apparent absence of differentials in 1952 may not be real.

Some of the weakness mentioned above is absent in the data by education

[25] *Current Population Reports*, Series P–20, no. 84, August 8, 1958, p. 3.

CHART 13

United States Fertility Rates by Occupation and Income of Husband, April 1952 and March 1957
(rates for women 15–44 years old, standardized for age; husband's income for previous calendar year)



MAJOR OCCUPATION GROUP OF HUSBAND	FERTILITY RATE 1952	1957
TOTAL	1,985	2,313
PROFESSIONAL	1,653	1,939
PROPRIETORS	1,759	2,085
CLERICAL	1,574	1,920
SALES WORKERS	1,535	2,029
CRAFTSMEN	1,932	2,282
OPERATIVES	2,076	2,454
SERVICE WORKERS	1,805	2,229
LABORERS, EX. FARM.	2,380	2,699
FARMERS	2,704	3,023
HUSBAND'S INCOME		
TOTAL	1,966	2,335
$7,000 AND OVER	2,008	2,160
$5,000 - 6,999	1,929	2,220
$4,000 - 4,999	1,814	2,215
$3,000 - 3,999	1,901	2,360
$2,000 - 2,999	2,013	2,472
$1,000 - 1,999	2,165	2,889

Source: *Current Population Reports*, Series P-20, No. 84, pp. 11–12.

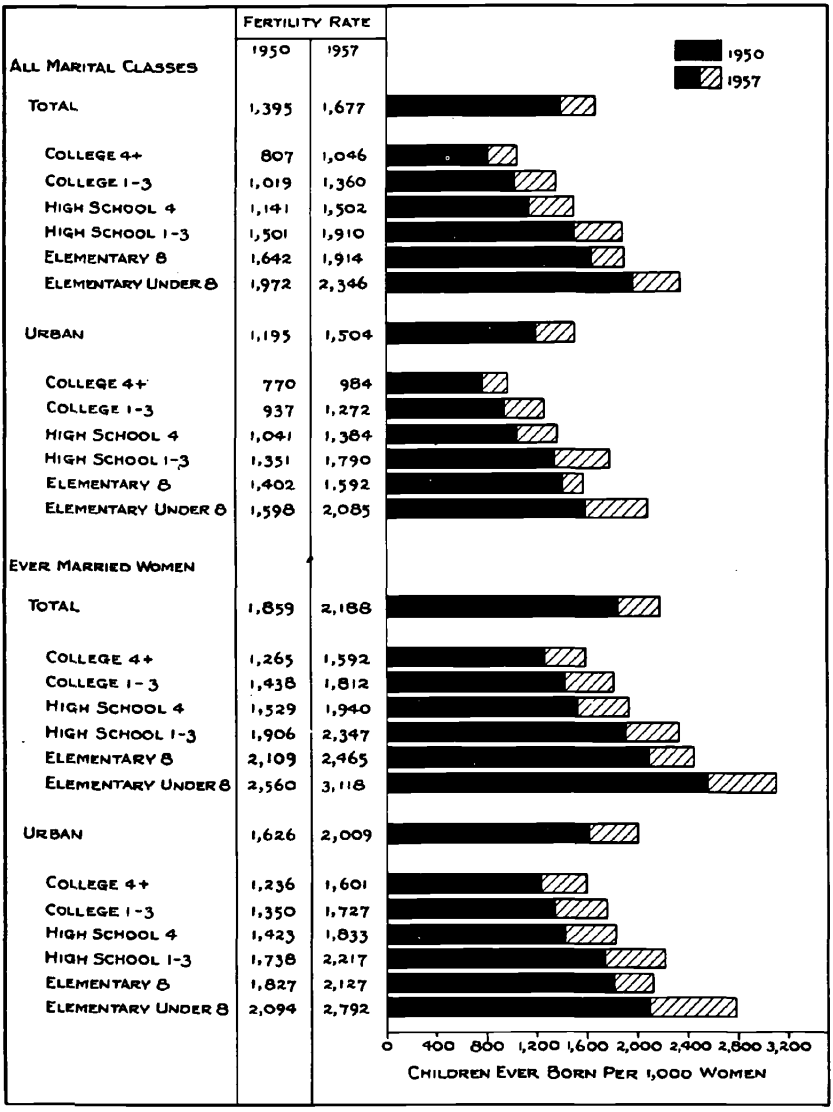
in Chart 14. In this instance, the data are available for urban areas separately, as well as for the total country. Also in this instance, the 1957 Current Population Survey data are compared with a sound body of earlier materials, those from the 1950 Census. However, in this case, too, "fertility differentials by education tended to widen rather than narrow in the period from 1950 to 1957."[26]

It will be noted that the range of the variation is smaller within urban areas than within the United States as a whole because the groups with lowest education are more heavily weighted by rural people than are those of high education. It will also be noted that for both 1950 and 1957 the range of variations in general fertility rates relating to all marital

[26] *ibid.*, p. 2.

CHART 14

United States Fertility Rates by Woman's Marital Status and Education, April 1950 and March 1957
(women 15–44 years old, standardized for age)



	Fertility Rate	
	1950	1957
All Marital Classes		
Total	1,395	1,677
College 4+	807	1,046
College 1-3	1,019	1,360
High School 4	1,141	1,502
High School 1-3	1,501	1,910
Elementary 8	1,642	1,914
Elementary Under 8	1,972	2,346
Urban	1,195	1,504
College 4+	770	984
College 1-3	937	1,272
High School 4	1,041	1,384
High School 1-3	1,351	1,790
Elementary 8	1,402	1,592
Elementary Under 8	1,598	2,085
Ever Married Women		
Total	1,859	2,188
College 4+	1,265	1,592
College 1-3	1,438	1,812
High School 4	1,529	1,940
High School 1-3	1,906	2,347
Elementary 8	2,109	2,465
Elementary Under 8	2,560	3,118
Urban	1,626	2,009
College 4+	1,236	1,601
College 1-3	1,350	1,727
High School 4	1,423	1,833
High School 1-3	1,738	2,217
Elementary 8	1,827	2,127
Elementary Under 8	2,094	2,792

Source: *Current Population Reports*, Series P-20, No. 84, p. 10.

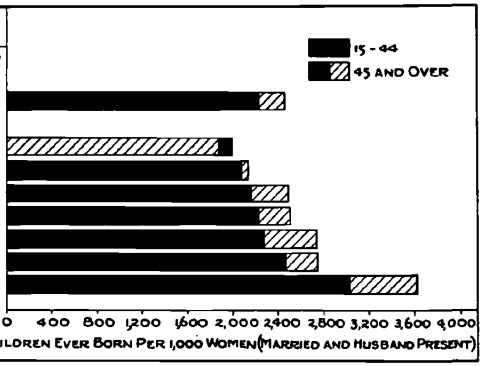
classes was wider than that relating to ever-married women. As previously stated, the reason is that marriage still tends to be earlier and more likely in the lower than in the upper educational groups.

In Chart 15, fertility rates are presented according to status of the women with respect to all three of the criteria of socio-economic status in 1957, namely education, occupation, and income. Thus, Group A is

CHART 15

Fertility Rates for Urban and Rural Nonfarm Women by Combination of Woman's Education and Husband's Occupation and Income, 1957 (rates standardized for age of woman; husband's income, 1956)

Combined Ranking By Education, Income and Occupation	Distribution of Women		Fertility Rate	
	15-44	45 and Over	15-44	45 and Over
Total	100.0	100.0	2,228	2,460
Group A	22.0	20.4	1,989	1,873
Group B	26.0	21.5	2,075	2,124
Group C	4.9	5.6	2,158	2,482
Group D	13.1	12.2	2,221	2,496
Group E	9.2	7.6	2,275	2,744
Group F	19.6	24.4	2,464	2,744
Group G	5.2	8.3	3,028	3,607



Source: *Current Population Reports*, Series P-20, No. 84, p. 3.

composed of women who were "Status 1" in all three characteristics. The women were at least graduates of high school. Their husbands were in professional, managerial, or proprietary occupations in 1957, and earned $5,000 or more in 1956. At the other extreme, Group G is composed of women of "Status 3" in all three characteristics. Specifically, they are women with less than 8 years of schooling. Their husbands were operatives, service workers, or laborers in 1957, and earned under $3,500 in 1956. The standardized fertility rate for women 15–44 years old was only about two-thirds as high for Group A as for Group G.[27] However,

[27] The description of all groups in Chart 15 is as follows:
Group A: Status 1 in all three characteristics.
Group B: Status 2 in any one or two characteristics, status 1 in other(s), no status 3.
Group C: Status 2 in all three characteristics.
Group D: Status 3, status 2, and status 1.
Group E: Status 3 in any one or two characteristics, status 1 in other(s), no status 2.
Group F: Status 3 in any one or two characteristics, status 2 in other(s), no status 1.
Group G: Status 3 in all three characteristics.
See *ibid.*, p. 3.

the range of variations in the fertility rates is much reduced if the high fertility of Group G (comprising only 5 per cent of the total) is ignored. In general, the chart again emphasizes that the inverse relation of fertility to socio-economic status is still with us.

Differentials by Religion

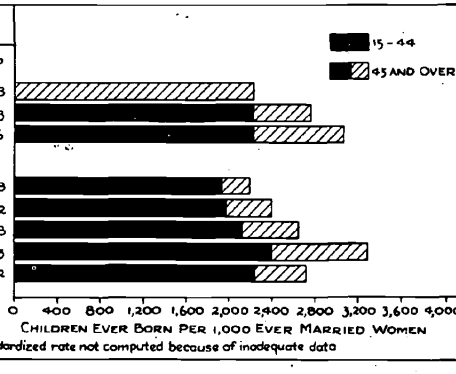
Although a question regarding religious affiliation is asked in the censuses of many other countries, it has never been asked of individuals in the regular United States Census. However, the question was included in the above-mentioned Current Population Survey of March, 1957. According to that sample, about two-thirds (66.2%) of the people 14 years of age and over in the United States were Protestant, 25.7% were Catholic, 3.2% were Jewish, and the remainder were "other religion, no religion, and religion not reported."[28]

Chart 16 presents fertility rates by religion, as given in the 1958 *Statistical Abstract of the United States*. A point of immediate interest is that

CHART 16

United States Fertility Rates by Religion, 1957
(rates standardized for age of woman)

Religion	Number Women (Thousands) 15–44	Number Women (Thousands) 45 and over	Fertility Rate 15–44	Fertility Rate 45 and over
Jewish	746	905	*	2,218
Protestant	18,159	16,550	2,206	2,753
Roman Catholic	6,999	5,319	2,210	3,056
Protestant, by denomination				
Presbyterian	1,495	1,443	1,922	2,188
Lutheran	1,762	1,870	1,967	2,382
Methodist	3,668	3,795	2,115	2,638
Baptist	6,020	4,224	2,381	3,275
Other Protestant	5,214	5,216	2,234	2,702



* Standardized rate not computed because of inadequate data

Source: Sample from Current Population Survey of March, 1957; *Statistical Abstract of the United States*, Bureau of the Census, 1958, p. 41.

in the United States as a whole the standardized fertility rate for ever-married women under 45 years old was almost precisely the same for Protestants as for Catholics. However, two factors may tend to conceal a somewhat higher fertility of Catholics than of Protestants of similar residence and color. In the first place, the Catholics are more heavily

[28] *Current Population Reports*, Series P–20, no. 79, February 2, 1958, p. 6.

concentrated in urban areas than are the Protestants. In the second place, the Catholics are predominantly white, whereas the Protestants are both white and Negro.

As indicated, the fertility rate of women 45 years old and over was 3,056 for the Catholics, 2,753 for the Protestants, and 2,218 for the Jews. The wide Protestant–Catholic differential in fertility among the women past the childbearing age probably reflects former fertility differentials by nativity. The Indianapolis Study revealed that among native whites in that area the age-specific fertility rates for Catholic married women were about the same as those for Protestant married women under age 30. At later ages, the rates for Catholics became rather progressively higher than those of the Protestants. The present data are not restricted to natives, but the factor of nativity *per se* is no longer a source of fertility differentials among women of childbearing age.

As a group, the Jews are characterized by lower fertility than the Protestants and Catholics.[29] This group is more largely concentrated in the large cities than the others. It is also characterized by relatively high occupational and educational status and by relatively liberal attitudes toward contraception.

Within the Protestant group, the observed ranking of Presbyterians, Lutherans, Methodists, and Baptists in order named from low to high fertility may reflect in varying degrees fertility differentials by color, urban-rural, and socio-economic status.

Other studies have affirmed the relatively high fertility of the Catholics[30] and low fertility of the Jews, relative to that of urban white Protestants.[31] In the previously-mentioned Household Survey of Indianapolis, the fertility rate (standardized for age with wife 15–44) of native-white couples was 18 per cent higher for the Catholics than for the Protestants. The rate for Jewish couples was 25 per cent lower than that for Protestants. The Catholic–Protestant mixed marriages were 10 per cent less fertile than the Protestant couples.[32]

Kirk's analysis of Catholic populations and infant baptisms in 1953, as reported in the *Official Catholic Directory* yielded a crude birth rate of about

[29] Although the standardized fertility rate for the Jewish women of childbearing age is not shown, the unstandardized rates for ever-married women 15–44 years old in 1957 were Catholic 2,282, Protestant 2,220, and Jewish 1,749. *Statistical Abstract of the United States, 1958*, Bureau of the Census, 1958, p. 41.

[30] John L. Thomas, *The American Catholic Family*, Prentice-Hall, 1956, pp. 141–147.

[31] Ben B. Seligman, "Some Aspects of Jewish Demography," in *The Jews*, The Free Press, Marshall Sklare, ed., 1958, pp. 63–69.

[32] Pascal K. Whelpton and Clyde V. Kiser, *Social and Psychological Factors Affecting Fertility*, Vol. 1. *The Household Survey in Indianapolis*, Milbank Memorial Fund, 1946, p. 7.

35 for Catholics in that year. Because of certain biases in the data, however, Kirk believed the computed rate was too high. Consequently, he estimated the actual rate for Catholics to be about 29 or 30 (as compared with a rate of about 25 for the United States as a whole in 1953). His estimate of a higher *crude birth rate* during 1953 for all Catholics than for all Protestants is not necessarily at variance with the comparisons given in Chart 16, regarding *children ever born to ever-married women of childbearing age*. Kirk summarized his study as follows: "(1) the Catholic population of the United States continues to have a substantially higher birth rate than the non-Catholic population; (2) the narrowing of religious differentials predicted in the 1930's has not in fact occurred; (3) the Catholic population has contributed disproportionately to the sustained high birth rate in the United States since the Second World War."[33]

The first phase of the Study of the Future Fertility of Two-Child Families, has indicated that native-white Catholic couples had their first and second children more quickly after marriage than did the native-white non-Catholic two-child families. Furthermore, the Catholic couples expressed desires for and expectations of larger families than did the non-Catholic couples. In fact, differentials in "fertility desires" were much larger by religion than by socio-economic status.[34]

Special studies have documented the high fertility of other religious groups, such as the Mormons[35] and the Hutterites.[36]

Materials from Growth of American Families

Through the courtesy of Ronald Freedman, Pascal K. Whelpton, and Arthur A. Campbell, some unpublished tables on differential fertility

[33] Dudley Kirk, "Recent Trends of Catholic Fertility in the United States," in *Current Research in Human Fertility*, Milbank Memorial Fund, 1955, p. 104.

[34] The Study of the Future Fertility of Two-Child Families is a partially longitudinal study of 1,165 native-white couples in seven of the eight metropolitan areas of two million or more population in 1950 who had their second child in September, 1956. Initial interviews with these couples were held early in 1957. Second visits will be made in the spring of 1960. The study is under the technical direction of the Office of Population Research of Princeton University. It is sponsored by the Milbank Memorial Fund, with funds from the Carnegie Corporation of New York, the Population Council, and the Milbank Fund.

[35] E. Huntingdon and L. F. Whitney, *The Builders of America*, Morrow, 1927, p. 342. (Based chiefly on a study of persons listed in the 1926–1927 edition of *Who's Who in America*.)

[36] J. W. Eaton and A. J. Mayer, *Man's Capacity to Reproduce: The Demography of a Unique Population*, The Free Press, 1954, 59 pp. (Reprinted from *Human Biology*, September 1953, Vol. 25, no. 3, pp. 206–264.)

C. Tietze, "Reproductive Span and Rate of Reproduction among Hutterite Women," *Fertility and Sterility*, Vol. 8, no. 1, January–February 1957, pp. 89–97.

based upon the recent study "Growth of American Families"[37] were made available to the writer for this analysis.

The GAF materials include two indexes of fertility—"births by 1955" and "most likely expected total births." In both cases, the average numbers are given by birth cohort equivalent to cumulative rates for the age groups 18–24, 25–29, 30–34, and 35–39. They are given by religion, fertility-planning status, and a variety of socio-economic attributes such as education of the woman and occupation and income of the husband.

The GAF materials on religion in relation to fertility are of particular interest. In the first place, the average numbers of births by 1955 were virtually the same for the white Protestant and Catholic wives of specific age. A refinement of the cohort-specific rates by duration of marriage yielded somewhat higher averages of "births by 1955" for the Catholics than for the Protestants. This was due to the fact that the wife's age at marriage tended to be somewhat lower for the Protestants than for the Catholics.

The average numbers of "most likely expected total births" were consistently larger for the Catholic than for the Protestant wives. The Protestant–Catholic differential in expected total births was largest for the youngest couples and smallest for the oldest couples. Thus, if "expectations" are fulfilled, the Protestant–Catholic differentials in completed fertility will be wider than those in incompleted fertility. The authors believe, however, that the tendency to overstate expectations was somewhat greater for Catholics than for Protestants. The wives of "other" religions (mainly Jewish) were characterized by relatively low average numbers of "births by 1955" and "most likely expected total births."

The average number of "births by 1955" tended to be inversely related to wife's education. Wives of grade school status had, on the average, about one child more than did those of college status. This held true for each cohort for the combined religions. It held true for Protestants and Catholics for the combined cohorts.

Among the older cohorts, fertility expectations were also inversely related to education. Among the youngest cohorts, however, the wives

[37] "Growth of American Families" is a study of fertility and fertility expectations in relation to various characteristics and motivations among some 2,700 white married women 18–39 years of age in 1955, when the field work was done. The sample was designed to be representative of such women in the United States. The study is jointly sponsored by the Scripps Foundation for Research in Population Problems of Miami University and the Survey Research Center of the University of Michigan. It is supported by the Rockefeller Foundation.

The materials utilized in the present report are from a book now available: Ronald Freedman, Pascal K. Whelpton, and Arthur A. Campbell, *Family Planning, Sterility, and Population Growth*, McGraw-Hill, 1959.

who had gone to college expected more births than those with only a grade school education. Although the expectations of neither group may be realized, the data suggest the further narrowing of educational differences in fertility.

The differentials in births by husband's income were not of much consequence. The data for all cohorts combined suggest some positive relation of average number of "births by 1955" to husband's income. However, this reflects the correlation of income with age; the suggestions of a direct relation melt away in the cohort-specific analyses. Fertility expectations tend to be inversely related to husband's income within the two older cohorts and not systematically related to income among the two younger cohorts.

The differentials in fertility and fertility expectation tend to be somewhat sharper by husband's occupation than by husband's income. One reason may be the segregation of the "farmers," a group of characteristically high fertility, in the classification by occupation. Among the 1916–1920 cohort (wives aged 35–39) there was a sharp inverse relation of "births to 1955" and fertility expectations to husband's occupation. Among the younger women, the range of variation in fertility by occupation was narrow.

Summary

Of the various types of differentials discussed, perhaps those by nativity have most completely disappeared.

Except for women of virtually completed fertility, the decade of the forties was one of sharp contraction of differentials, owing to the tendency for the increases in fertility to be largest among groups previously characterized by lowest fertility.

Since 1950, there has been a further convergence of the urban-rural differentials but this is not the case with certain other types of differentials. According to data collected in the Current Population Survey in 1957 the fertility differentials by occupation have "persisted," those by income have become "re-established" since 1952, and those by education have "widened rather than narrowed" since 1950. The more adequate data from the 1960 Census may not confirm the trends indicated by the Current Population Survey data. On the other hand, in view of the very pronounced increases in the fertility, say, of college graduates during 1940–1950, it seems natural to expect a slackening of the trend toward convergence or a temporary period of widening. In the author's view, there will be still further convergence in the future. However, cyclical changes

from convergence to divergence and back again probably will be more common in the future, as increasing proportions of people learn to control their fertility effectively.

COMMENT

ROBERT GUTMAN, Rutgers, The State University

Clyde V. Kiser's summary of the findings of research in the field of differential fertility is so comprehensive and his evaluation of the findings so judicious that I feel there is nothing that I can add of a substantive nature to what he has said in his paper. With your permission, I would like to turn my attention to some general methodological considerations in the field of differential fertility.

As I see research in the field, there appear to have been two distinct ways of approaching the phenomenon of group differences in fertility. In one approach, we tend to regard the groups whose fertility differences we are studying as discrete universes of facts, we compute summary measures to describe what is going on in each of these universes with regard to fertility, and we then compare these summary measures.

For instance, if we are studying the fertility of different occupational groups in the American population, we will compute the mean parity of each of the groups or the number of children born to one thousand women of a certain age in each of the groups. Then, as Kiser does for Table 3 of his paper, we will compute the number of children born per one thousand women for all the groups taken together, determine the amount of deviation of the rate for each of the groups from the average rate for all the groups, and express this deviation as a percentage of the average rate for all the groups. If then, in turn, we average these percentage deviations, and repeat the entire computation for a similar set of groups at another point in time, we are in a position to say whether group differences in fertility have been converging, diverging or whether they have remained at the same distance from one another.

No matter whether we proceed in the particular way that is reported in Kiser's paper or in some other way, and regardless of whether we are interested or not in the problem of converging rates, there is not anything about this procedure which indicates that we view the various occupational groups as other than distinct universes of fertility phenomena.

There is another approach, however, which is based on the assumption that the different subgroups of the population are really samples drawn from a single universe of phenomena. This approach is implicit in the kind of differential fertility analysis that one finds in the Indianapolis

Study, or in a variety of studies that are based on data obtained from sources other than census enumerations. It is expressed in numerous ways, two of the most obvious of which in the Indianapolis study are the use of correlation analysis, both simple and multiple correlation, and factor analysis. Although the question has rarely been raised in studies of differential fertility, the logical outcome of this approach would be to ask: what proportion of the variation in the fertility of the total population or the full set of groups can be attributed to the variation between the groups; and what proportion is to be ascribed to the variations within each of the occupational groups?

It would appear from Kiser's summary that the large majority of studies of differential fertility have been conducted with the first approach in mind. That is to say, there is nothing in the way in which most studies in the field are carried out which would suggest that the researchers necessarily think of the groups they are investigating as other than separate universes of facts.

There are several reasons for this situation, most of them of a historical kind. The definition of the groups as discrete universes was perfectly appropriate for considering questions about how fertility, along with other demographic characteristics and processes, varied by social group. The same assumption was probably adequate also for the earliest quasi-scientific investigations of differential fertility—the studies by researchers with interests in eugenics during the last century and the early decades of this century who wished to ascertain the relative reproductivity of the more and less talented segments of the population.

It is only when we come to regard the study of differential fertility as a means of approaching the larger question of the causes of fertility variation in the population as a whole that the assumption of samples drawn from a single universe becomes relevant. For in order to answer this question, it is essential to know not only that there *are* fertility differences by social group but also to know the magnitude of these differences and the direction in which they are moving. What is really crucial for understanding the role of occupational, educational, nativity, residential, and racial factors as determinants of fertility is to ask *what proportion* of the total variance of fertility is the result of the differences in fertility between particular groups.

As I have indicated, there are studies in which the importance of this question has been recognized. But there are also many in which it has not, especially studies based on census data. And even in the studies which have analyzed their groups as if they were samples drawn from the

same universe, the implications of this approach have not been pursued to their logical conclusions. How often do we come across a statement which indicates the amount of the total variance which can be explained in terms of a particular coefficient of correlation? Seldom! How often do we find statements which tell us what proportion of the total variance in a population is the consequence of group differences along the dimensions studied and what proportion is the result of differences within these groups? Even less often, and in the case of the numerous studies based on census data, never at all! For census studies, perhaps it made sense once upon a time to excuse these deficiencies in statistical analysis by claiming that the data, at least the published data, were inadequate for this purpose. But given the excellent tables presented in the recent monograph, *The Fertility of American Women* (Wiley, 1958), such as those which show the distribution of parity in 1940 and 1950 in terms of educational attainment of the mother, this excuse is no longer tenable.

If we make it a habit to think of differential fertility in terms of the model of the analysis of variance, it will be helpful to us in several respects. In the first place, it may offer a convenient way of coping with the low correlation coefficients which regularly turn up in studies of fertility variation. These coefficients seem to be low regardless of the number of reasonable controls which are used in analyzing the data. As a consequence, there has been an unfortunate tendency among demographers—we are all guilty of this fault—to ascribe importance to the few factors which are not so low as most of the others, even though the factors which are more closely related to fertility are not high in absolute terms. This tendency deludes other demographers, other social scientists, and the lay reader. If we habitually indicated the small proportion of the total variance which can be attributed to each of the correlation coefficients, it would be harder for the demographer to confuse himself, and it is also less likely that the reader would be misled.

In the second place, the investigation of differential fertility in terms of the analysis of variance could develop some new information about the sources of fertility variation. Consider this question as an example: To what extent was the convergence in differential fertility by educational attainment that occurred between 1940 and 1950 produced by changes in the frequency distributions of parity within each of the educational groups? We have tended to assume that the convergence which took place in mean parity among the different groups during this period was accompanied by a similar convergence in the variances of the distributions within each group. But are we sure? May not the reduction in

inter-group differences have been accompanied by a divergence of intra-group variances? If the intra-group variances did converge, did they converge for all the groups to the same degree? Then we must also admit the possibility that the variances remained the same or did not converge, while the area under the distribution curves taken up with mothers of two parity or three parity became similar. What I am suggesting, in other words, is that our understanding of the dynamics of the trends of differential fertility between 1940 and 1950 might well be considerably enhanced if we knew something about the role of inter-group and intra-group differences as factors which contribute to the changes in the total variance of the population.

Finally, the study of differential fertility as a problem in the analysis of variance might sensitize us to future changes in the factors affecting fertility. We seem to be entering a phase in the history of differential fertility where the traditional group differences are disappearing. This does not, of course, mean that fertility variation will disappear from the population considered as a whole. There will still be childless married women, mothers of one child, of two and three children, etc. What the disappearance of the traditional group differences probably does indicate is that occupational, residential, educational, nativity, and color groups are coming to account for a smaller proportion of the total variance of the population. If this is so, would it not be the path of wisdom to convince ourselves of the fact, to know how much the contribution of inter-group differences is being reduced and the rate at which this decline is taking place? Then, too, we will be in a position to keep our eyes open to the sources of intra-group differences; or perhaps better still, we will be able to revise in a systematic fashion the criteria we use in selecting the groups whose inter-group differences have been the historical concern of the study of differential fertility.