URBAN DIFFERENTIAL FERTILITY DURING THE DEPRESSION[1]

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THE existence of fertility differentials between social classes has already been demonstrated by many competent studies. Observers have reported quite uniformly that the poor, the foreign-born, and the manual workers have a much higher birth rate than the better paid native-born white-collar workers; but they have not been able to reach any such degree of agreement as to the relationship between the two variables fertility and social class; that is, whether the social classes arise from fertility differentials, or whether the birth rate is just one of the many traditions that have arisen and been perpetuated within the social classes. This problem has remained unsolved chiefly because static social data are not susceptible to unequivocal interpretation without resort to elaborate statistical procedures of intercorrelation which are often inappropriate to the amount and refinement of the available data, and because most studies of the differential birth rate have been made in periods of relative economic stability. The situation created by the depression, in which large numbers of families were suddenly catapulted from their accustomed position into a lower social stratum, offers particular advantages for an inquiry into the dynamics of the relation between fertility and social class. Social change is the traditional laboratory of the social sciences.

Early in 1933, the Milbank Memorial Fund and the United States Public Health Service undertook a joint study of the effect of the depression upon certain biological characteristics of the population. The primary purpose of this study was to discover the relation between income changes and sickness, but some data were collected at the same time relative to fertility during the four-year

[1] From the Office of Statistical Investigations, United States Public Health Service. The writers are indebted to William T. Parker for his assistance in compiling the data.

depression period. Although these data fall far short of exploiting fully the opportunities offered by the depression for fundamental research into problems of differential fertility, they do show something of what happens to the birth rate of a group when its economic status is reduced, and thus make a small but definite contribution to the large body of descriptive data already collected.

The method and scope of the survey were described fully in the first paper of the Health and Depression series,[2] and the interested reader is referred to it for a complete statement. At risk of repetition, however, a few of the salient features of the survey are summarized here again. The data were collected in a house-to-house canvass of about 1,000 white families in districts which were poor but not exclusively slums, in each of eight cities: Baltimore, Birmingham, Brooklyn, Cleveland, Detroit, New York City (Manhattan), Pittsburgh, and Syracuse. The units of study were geographical areas. An effort was made to select areas whose populations would lie somewhere in the lower third of the population of the given city, and which would include a fair number of families who were receiving relief. Districts in which one or two nationalities predominated, or which were exclusively slums, or which were not predominantly white were always excluded. Insofar as possible, contiguous areas within each city were canvassed.

Once the areas were selected, every white family living in each survey area was covered regardless of the family's economic status. The facts recorded concerning each family include the number of births in each year in the period 1929-1932, the age of the mother, her nativity, the nativity of the head of the family and his occupation, the family income and relief status in each of the above named years, the employment status of the wage earners, and the marital history of the woman during the four-year period.[3]

[2] Perrott, G. St. J. and Collins, Selwyn D.: Relation of Sickness to Income and Income Change. *Public Health Reports,* May 3, 1935, 50, No. 18, pp. 595-622. Reprint No. 1684.

[3] Complete marriage and fertility data were obtained, but only those facts relating to the years 1929-1932 were coded and tabulated by the United States Public Health Service. The Milbank Memorial Fund, however, has analyzed these data in considerably more detail.

A report based upon a preliminary and incomplete tabulation of these data has already been made.[4] The data of this report, unadjusted for nativity or occupation, indicated that families which dropped from comparative comfort in 1929 to poverty in 1932, were more fertile than those which suffered no such loss of income. Similarly, unemployment and a high birth rate were found to be associated. Of the families living on a poverty level in 1932, those which were on relief had a birth rate one-half again as high as those not on relief. Tentative explanations of these relationships were offered.

The present paper will add to the preliminary findings the support of a greater mass of data as well as a more detailed analysis. The characteristics of the surveyed population will be described first, and then the fertility differentials found will be discussed. In the third section of the report, some data will be presented concerning the dynamics of the relationship between the birth rate and economic status. The final section will deal with the fertility problem presented by the relief population.

The Surveyed Population. The economic status of the surveyed populations in the eight separate cities differs somewhat from one city to the next. The distribution of surveyed families in each city was as shown in the accompanying table.

	All Incomes	Per Cent of Families with Total Annual Income of		
		Under $1,200	$1,200-$1,999	$2,000 and Over
Baltimore	100	28	45	27
Birmingham	100	20	37	43
Brooklyn	100	11	38	51
Cleveland	100	35	36	30
Detroit	100	24	37	39
New York	100	25	39	37
Pittsburgh	100	28	38	34
Syracuse	100	36	39	25
Total: Eight Cities	100	26	39	35

4 Sydenstricker, Edgar and Perrott, G. St. J.: Sickness, Unemployment and Differential Fertility. The Milbank Memorial Fund *Quarterly*, April, 1934, xii, No. 2, pp. 126-133.

When the data for all eight cities are combined they show that the sample studied is overweighted with foreign-born and with skilled workers, as compared with the total United States urban population, and that its median income in 1929 was just 86.8 per cent of the median income of the total urban United States in that year. (*See* Table 1.) All of these facts constitute a warning that the findings of the present study pertain only to middle-class urban work-

Table 1. Woman-years observed in the surveyed population, classified by nativity, family income, and occupation of head of family; and the United States urban population, classified by nativity of married women 15-44 years of age, family income, and occupation. (Per cent distribution.)

Characteristic	Surveyed Population			United States Urban Population
	Native-Native	Others	Total	
Family Income in 1929	—	—	100.0	100.0[1]
Under $600	—	—	6.9	4.0
$ 600 - 1,199	—	—	19.5	17.4
1,200 - 1,999	—	—	38.5	32.0
2,000 - 2,999	—	—	24.2	21.1
3,000 - 3,999	—	—	7.3	10.2
4,000 and Over	—	—	3.6	15.3
Median			$1,650	$1,900
Nativity of White Married Women			100.0	100.0
Native of Native Parentage	—	—	44.2	52.5
Native of Foreign or Mixed	—	—	21.1	26.4
Foreign-Born	—	—	34.7	21.1
Type of Occupation of Head of Family[2]	100.0	100.0	100.0	100.0[3]
White Collar	22.9	16.6	19.4	41.3
Skilled	64.9	59.8	62.1	31.9
Unskilled	12.2	23.6	18.5	26.8

[1]From America's Capacity to Consume by Maurice Leven, Harold G. Moulton, and Clark Warburton. Washington, D. C., The Brookings Institution, 1934.

[2]This classification may be compared roughly with Dr. Alba M. Edwards' socio-economic grouping of occupations by combining his professional workers, wholesale and retail dealers, other proprietors, managers, and officials, and clerks and kindred workers to form a white-collar class; by combining skilled workers and foremen, semi-skilled workers not in manufacturing, and servants to form a skilled class; and by combining laborers and factory operatives to form an unskilled class.

[3]All white nonagricultural workers in the United States.

ers' families (weighted as they are with the artisan class, a large proportion of which is foreign-born, with its somewhat lower than average income), rather than to the general urban population of this country.

The married women whose birth rates we are studying lived in families whose incomes were curtailed drastically in the period 1929-1932. (*See* Table 2.) Three-quarters of the women in families with incomes of $2,000 or over and of $1,200 to $1,999 in 1929 were in families whose incomes had dropped into a lower income class by 1932. The number in families with incomes of less than $1,200 is 218 per cent higher when the 1932 income classification is used than when the 1929 income classification is used. Thus the population whose fertility is recorded here is one whose economic status underwent marked changes during the four years of the study.

Only women who lived with their husbands continuously in the years 1929 to 1932 have been included in this study. Those who were not married in 1929 and those who were separated from their husbands at any time during the four-year period have been excluded. In this way, the indirect effect of economic change on fertility through its effect on marital history has been eliminated. The re-

Table 2. Woman-years observed classified according to family income in 1929 and in 1932.

Item	Year	Income Level		
		$2,000 and Over	$1,200-$1,999	Under $1,200
Woman-Years Observed	1929	5,783	7,323	3,610
	1932	1,314	3,936	11,466
Per Cent Distribution	1929	34.6	43.8	21.6
	1932	7.9	23.5	68.6
Per Cent Change in Size of Class, 1929 to 1932		−77.3	−46.3	+217.6
Per Cent of 1929 Class in Lower Income Range in 1932		77.3	72.4	—

maining fertility differentials, therefore, are due to practices of family limitation, or to biological differences in capacity for reproduction.

The birth rate[5] of the surveyed population was somewhat higher than that for the total United States birth registration area, despite the fact that the latter population includes a large proportion of rural dwellers whose birth rate is known to be higher than that characterizing urbanites. The average annual birth rate in the surveyed population was 135 for the period 1929-1932[6] as compared with a rate of 126 in the birth registration area from 1929-1931.

Fertility Differentials in the Depression. In the families studied, the birth rate among native women of native parentage was 133, while the rate for other women was 136. This fertility differential according to nativity is statistically not significant and is much smaller than that found by other studies, doubtless due to the greater occupational homogeneity of the population included in the present study.

Even in a population as homogeneous in income as that studied in the Health and Depression Study, fertility varies with occupation about as would be expected from studies of larger, more heterogeneous groups. Table 3 shows that the birth rate is lowest in the white-collar class and highest in the unskilled. This gradation of fertility from a low in the white-collar class to a high in the unskilled group persists when the data are made specific for nativity, but the occupational differential is less in the case of the women of foreign or mixed parentage. (This difference between the occupational ranges

5 All of the birth rates discussed in this paper are the ratio between the total number of live births and the number of married women 15 to 44 years of age in the population for one year during the stated period, usually 1929-1932. The rates are expressed as the number of births per 1,000 woman-years observed. All rates have been adjusted to the age distribution of the total United States registration area, 1930. Unless there is an express statement to the contrary in the text, all of the rates discussed are at least three times their probable errors, and all differences between rates which are discussed are at least three times the probable error of that difference.

6 This rate is 139 for the years 1929-1931. The rate for 1929-1932 becomes 126 if women are included (for the period of exposure to risk of pregnancy) who were separated from their husbands between 1929 and 1932.

Type of Occupation	All Nativities	Native-Native	Others
	Birth rates per 1,000 woman-years		
All Classes			
Adjusted for Occupation and Age	134	134	134
Adjusted Only for Age	135	133	136
White Collar	111	105	118
Skilled	134	134	135
Unskilled	168	178	156
	Woman-years observed		
All Classes	16,716	7,498	9,218
White Collar	3,259	1,741	1,518
Skilled	10,423	4,864	5,559
Unskilled	3,034	893	2,141

Table 3. Birth rates (1929-1932) of women classified by 1929 occupation of head of family and by nativity. (Rate "all nativities" adjusted for nativity as well as for age.)

of the birth rates of these two nativity groups is not of statistically significant magnitude.) Among women of foreign or mixed parentage, the differential between the white-collar and the skilled workers is not significantly large. Table 3 also shows that even the small fertility differential according to nativity disappears when adjustments are made for differences in the occupational distributions of the two groups.

In Table 4, the four-year average birth rate is shown for women classified first according to annual family income in 1929 and second according to annual family income in 1932. (*See also* Figure 1.) Grouped according to 1929 income, the birth rates of the three income classes all differed significantly from one another for all occupations, the rate being lowest among families with incomes of $2,000 and over and highest among those whose incomes amounted to less than $1,200.

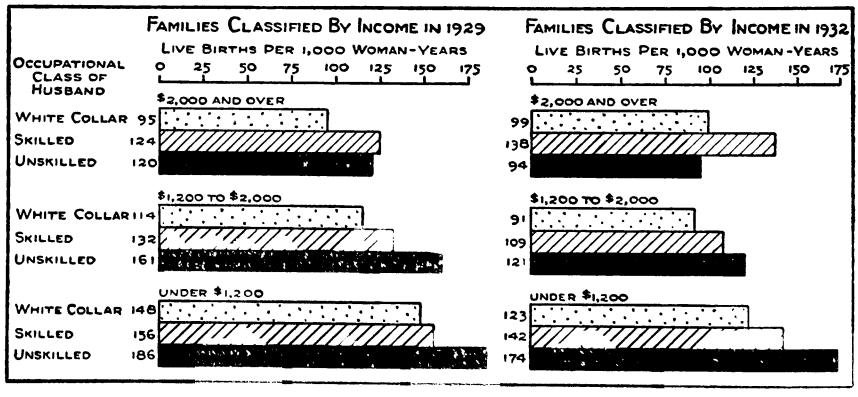
When families are classified according to 1932 income, a somewhat modified picture is presented. It will be remembered that in 1932 the lower income group (under $1,200) included over three

Income Class	Birth Rates per 1,000				Woman-Years Observed			
	All Classes	White Collar	Skilled	Unskilled	All Classes	White Collar	Skilled	Unskilled
1929								
$2,000 and Over	111	95	124	120	5,783	1,543	3,752	488
$1,200 to $1,999	132	114	132	160	7,323	1,255	4,643	1,425
Under $1,200	161	148	156	186	3,610	461	2,028	1,121
1932								
$2,000 and Over	110	99	138	94	1,314	551	691	72
$1,200 to $1,999	105	91	109	121	3,936	1,055	2,425	456
Under $1,200	143	123	142	174	11,466	1,653	7,307	2,506

Table 4. Average annual birth rates (1929-1932) of women classified by 1929 occupation of head of household and family income in 1929 and in 1932. (Rates all classes standardized for occupation as well as for nativity and age.)

times as many women as in 1929, the result of accessions during the depression period of women from families formerly in the higher income classes. Classified according to 1929 income, the birth rate of the $1,200-$1,999 group is 19 per cent higher, and that of the group under $1,200 is 45 per cent higher than that of the highest income class ($2,000 and over); regrouped according to 1932 income, the difference between the two higher income classes has disappeared (the rate for the $1,2000 to $1,999 class being much lower when income in 1932 is considered than when 1929 income

Fig. 1. Fertility differentials 1929-1932 according to 1929 occupation, and income in 1929 and in 1932. (Rates adjusted for age and nativity.)



is the criterion) and the lowest income group exhibits a birth rate only 30 per cent higher than that of the highest income group. These facts suggest that families in the $1,200-$1,999 class in 1929, whose incomes declined, had a considerably higher birth rate than that of other families in the group. This conclusion is substantiated by data shown later in Table 7 where it is indicated that families whose incomes dropped from $1,200-$1,999 to less than $1,200 had a higher birth rate than the families whose incomes were $1,200-$1,999 both in 1929 and in 1932.

Since the two upper 1932 income classes are not significantly different from one another with respect to their birth rates, they have been combined to facilitate a comparison of occupational differentials in fertility which would take account of nativity and significant differences in income. Table 5 shows that the birth rate is lowest in the white-collar classes, and highest in the unskilled classes in each nativity and income group, although this difference is not always significant according to the probable error test. Particularly is the

Table 5. Average annual birth rates (1929-1932) among women classified by nativity, family income in 1932, and 1929 occupation of head of household.

Occupation	All Nativities		Native-Native		Others	
	$1,200+	−$1,200	$1,200+	−$1,200	$1,200+	−$1,200
	BIRTH RATES					
All Occupations	108	143	106	144	113	145
White Collar	95	123	100	110	91	139
Skilled	114	142	110	143	120	140
Unskilled	119	174	111	184	128	162
	WOMAN-YEARS OBSERVED					
All Occupations	5,250	11,466	2,586	4,912	2,664	6,554
White Collar	1,606	1,653	919	822	687	831
Skilled	3,116	7,307	1,542	3,322	1,574	3,985
Unskilled	528	2,506	125	768	403	1,738

difference not significant among families with 1932 incomes of $1,200 or more. In every occupational and nativity group there is an inverse relation between income and fertility, which is statistically significant when data for all nativities or for all occupations are combined.

Table 5 also shows that the greater occupational differential found among native women of native parentage in Table 3 is confined to the class with annual incomes of less than $1,200, in which class this difference is significant.

Income History 1929-1932	Birth Rate		Difference
	1929-1930	1931-1932	
$1,200+ to $1,200+	116	98	18 ± 6[1]
1,200+ to −1,200	142	124	18 ± 6
−1,200 to −1,200	179	138	41 ± 8

[1]The probable error of the difference.

Table 6. Changes in the birth rates (1929-1930 to 1931-1932) of women in families classified according to income history 1929-1932. (Rates adjusted for age, nativity, and 1929 occupation of head of family.)

Birth Rate and Income Change. A population such as the one now under observation, of which a large proportion has suffered severe sudden economic losses, offers a good opportunity to investigate the theory that practices of family limitation are indulged in by the upper section of working class families to maintain their standards of living.[7] With data for such a population, it is possible to discover whether or not the birth rate of families which met economic reverses declined more in the period in which these reverses took place than did the birth rates of other families.[8] Table 6 compares the difference between the average annual birth rates for 1929-1930 and 1931-1932 in three income history classes. (*See* Figure 2.) In all families the average annual birth rate[9] for 1931-1932 was lower than it had been for 1929-1930; but the birth rate in families with $1,200 or more in 1929 and less than $1,200 in 1932 declined no more than the birth rate in other families with incomes of $1,200 or

7 It will be assumed that fertility differentials are more largely social than biological, since special studies of this question tend toward this conclusion.

8 The mere fact of a decline in the birth rate of families with incomes which dropped would be of little significance in view of the general decline in the birth rate throughout the country.

9 These birth rates have been adjusted for age, nativity, and occupation.

more in 1929. In both of these groups of families the decline was no more than three times its probable error; however, in families with incomes of less than $1,200 in 1929, the decrease in the birth rate was more than twice as large as in the other two income classes, and exceeded five times its probable error.

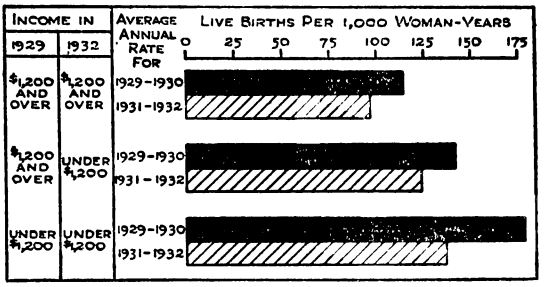


Fig. 2. Average annual birth rates, 1929-1930 and 1931-1932, in families classified according to income in 1929 and 1932. (Rates adjusted for age, occupation, and nativity.)

Analysis of the birth rates according to a more detailed income history is shown in Table 7. The greatest decline in birth rate between 1929-1930 and 1931-1932 is exhibited by two groups whose income status did not change during the period, that is, the groups whose incomes were $2,000 and over and under $1,200, respectively, during the four years. This decline was greater than that exhibited by any of the groups whose incomes dropped during the period. While many of the individual class differences in birth rates between 1929-1930 and 1931-1932 as shown in Table 7 are not significant, considered as a whole the data afford no evidence that families with diminishing incomes attempt to maintain their accustomed standard of living by drastic reductions in birth rate.

The Fertility of the Relief Population. A corollary to the theory that curtailment of the birth rate contributes to the prosperity of a group of families has been the old *laissez-faire* philosophy of social welfare, because of the belief that such expedients as granting relief lower the living standards of the whole population through removing the incentive to family limitation. Exponents of this theory are wont to cite the high birth rate of the relief population as proving the case. We shall now consider the pertinence of their evidence.

The relief population has a materially higher birth rate than the

Income History		Birth Rate		Difference
1929	1932	1929-1930	1931-1932	
$2,000+	$2,000	130	85	45± 12[1]
2,000+	1,200-$1,999	108	106	2± 10
2,000+	−1,200	122	101	21± 8
1,200-$1,999	1,200- 1,999	109	107	2± 9
1,200- 1,999	−1,200	146	130	16± 6
−1,200	−1,200	180	138	42± 8

[1]The probable error.

Table 7. Changes in the birth rates 1929-1930 to 1931-1932 of women in families classified according to detailed income history, 1929-1932. (Rates adjusted for age, nativity, and 1929 occupation of head of family.)

nonrelief population, even when the rates are made specific for nativity, income, and occupation (Table 8). The relief birth rate is much higher than the nonrelief in every category. For all classes, the relief birth rate is slightly more than one and one-half times as high as the nonrelief birthrate.

The relief-nonrelief fertility differential shown in Table 8 is not

Table 8. Average annual birth rates (1929-1932) among women in families with incomes of less than $1,200 in 1932, classified by nativity, relief status in 1932, and 1929 occupation of the head of household. (Rates all classes adjusted for nativity and occupation as well as for age.)

Occupation	All Nativities			Native-Native			Others		
	Total	Non-relief	Relief	Total	Non-relief	Relief	Total	Non-relief	Relief
	Birth rates								
All Occupations	143	121	191	144	114	198	145	128	184
White Collar	123	110	180	110	91	186	139	130	174
Skilled	142	118	184	143	119	180	140	116	188
Unskilled	174	141	217	185	142	238	162	140	193
	Woman-years observed								
All Occupations	11,466	7,677	3,789	4,912	3,191	1,721	6,554	4,486	2,068
White Collar	1,653	1,327	326	822	654	168	831	673	158
Skilled	7,307	4,858	2,449	3,322	2,101	1,221	3,985	2,757	1,228
Unskilled	2,506	1,492	1,014	768	436	332	1,738	1,056	682

a product of the relief experience however as can be seen from Table 9. In 1929 when less than 5 per cent of the 1932 relief women were receiving relief, the difference in birth rate between those who were and were not receiving relief in 1932 (230 compared with 129) was even greater than the difference shown in Table 8 for the four-year depression period.

Year First Received Relief	1929	1930	1931	1932
	BIRTH RATES			
1929	293	317	137	117
1930	274	198	252	183
1931	204	187	232	176
1932	203	152	172	162
No Relief Received	129	138	107	108
	WOMAN-YEARS OBSERVED			
1929	52	51	46	45
1930	139	137	135	133
1931	315	310	306	299
1932	553	534	523	509
No Relief Received	1,933	1,871	1,814	1,761

Table 9. Annual birth rates among families with incomes of less than $1,200 a year, according to their relief history.

The high birth rate of the relief population is quite probably due to the manner in which families are selected for relief.[10] Large families and those with recent births are more likely to need relief than others; and families in which there are many children or in which there were recent births must have had a higher birth rate in any given prior period than those in which there are few children. (It is also likely that the 1932 relief population continued to have a higher birth rate after 1932 since it was composed of families which had had a high birth rate in the past.) That the occurrence of the birth itself may be the cause which reduces the family to relief status is the probable significance of Table 10 and Figure 3 which shows that the average annual birth rate of the relief population declined less from 1929-1930 to 1931-1932 than did that of the non-relief population, since we know that more than four-fifths of the relief population received no relief prior to 1931.

SUMMARY

The findings of the Health and Depression Study relate only

[10] This point was made in Sydenstricker, Edgar and Perrott, G. St. J.: Sickness, Unemployment and Differential Fertility. The Milbank Memorial Fund *Quarterly*, April, 1934, xii, No. 2, pp. 126-133.

to the white, urban working class population, and may be summarized as follows:

1. The fertility differentials[11] observed when families are classified according to their incomes in times of more normal business activity are found to a modified degree when families are classified according to their incomes in 1932 after four years of severe economic depression had passed. That is, birth rates, generally, are lower in the higher income classes, and among the white-collar occupations. Rates among native women of native parentage are not appreciably different from rates among other women. Differentials according to 1932 income are most clear cut between families with incomes of $1,200 or more and those with incomes of under $1,200. Further subdivision of the group with incomes of $1,200 or more did not produce additional fertility differentials when 1932 incomes were considered although it did when 1929 incomes were the basis of classification.

Relief Status, 1932	1929-1930	1931-1932
	BIRTH RATES	
Relief	199	181
Nonrelief	131	107
	WOMAN-YEARS OBSERVED	
Relief	1,940	1,849
Nonrelief	3,963	3,714

Table 10. Average annual birth rates, 1929-1930 and 1931-1932, among families with incomes of less than $1,200 per year, according to relief status. (Rates adjusted for age, nativity, and occupation.)

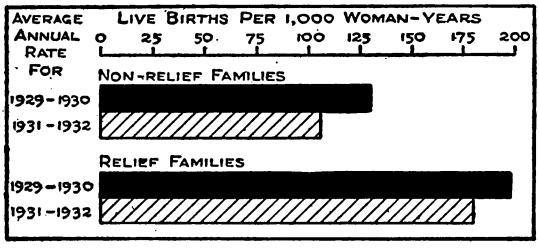


Fig. 3. Average annual birth rate, 1929-1930 and 1931-1932, in families with incomes of less than $1,200 in 1932, according to relief status in that year. (Rates adjusted for age, occupation, and nativity.)

2. The birth rate[11] of those who were in moderate circumstances in 1929 but who had become poor by 1932 is midway between the

[11] The birth rates to which reference is made are average annual birth rates, 1929-1932, unless there is an express statement to the contrary.

birth rate of those who were already poor in 1929 and the birth rate of those who continued in moderate circumstances in 1932. The decline in the birth rate from 1929-1930 to 1931-1932 was about the same in both groups of families in moderate circumstances in 1929, and was most pronounced among families which were poor both in 1929 and 1932. These facts led to the conclusion that these families did not regulate their birth rates in accordance with their immediate economic circumstances. Family limitation is probably a social custom rather than an economic expedient.

3. The average birth rate (1929-1932) among families on relief in 1932 is much higher than that in nonrelief families even when the comparison is limited to poor families. However, the relief-nonrelief differential is still greater if the birth rates for the year 1929 only are compared, when only 5 per cent of the relief families had begun to receive relief. It is safe, therefore, to conclude that the receipt of relief had not stimulated propagation up to 1932. Instead it should be considered that families with a high birth rate are much more likely to need relief than other families, because (1) they already have more children to support than other families, and (2) the occurrence of the birth itself may be the precipitating cause which renders an otherwise self-supporting family dependent.