

Sickness and the Depression¹: A Preliminary Report upon a Survey of Wage-Earning Families in Birmingham, Detroit, and Pittsburgh

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THE ORDINARY BAROMETERS OF ILL HEALTH—DEATH RATES and reports of communicable diseases—do not indicate that harmful effects of the depression upon the health of the population as a whole have taken place. The comfortable conclusion is drawn by many that the physical well-being of the American people not only has not suffered but, in view of the continued decline in mortality, may have been benefited, by the economic catastrophe.

Such a conclusion, based upon mortality statistics alone, obviously is open to question. Death rates are not sensitive indices of the immediate effects of deleterious conditions. Even if they were, existing mortality and population records are not available in such form as to yield the very essential information as to whether any economic group has experienced a higher mortality than other groups. What we need, in appraising the depression's cost in ill health, are more efficient indices of physical and mental impairment in order to determine whether or not population groups whose economic status was most severely affected are suffering damages to health and what the nature and extent of these damages are. Only in this way can reasonably accurate appraisal be made.

Among the now well recognized indices of ill health are records of sickness. When properly obtained and analyzed, they reveal some of the reactions of human beings to immediate environmental factors in a far

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more sensitive degree than the gross death rate or even mortality by cause can possibly do. Since no national system for the registration of sickness exists, special records must be collected, a difficulty not without its advantages since it permits information to be obtained for such groups and in such detail as may be desired. One phase of the study of health and the depression by the United States Public Health Service and the Milbank Memorial Fund utilized this method extensively. A sickness and mortality survey was made in 1933 of some 12,000 wage-earning families which had suffered from the depression in varying degrees of severity. Among the more important specific purposes of the survey were the following:

1. To ascertain whether or not there is any association between income changes during the depression and ill health as measured by morbidity and mortality.
2. If such an association exists, to discover what kinds of sickness and causes of death are chiefly responsible for the association.
3. To determine the amount and kinds of medical care received by various economic classes of the people.

Ten localities were included in the survey. The present paper gives some of the preliminary results for the first three cities for which tabulations have been made—Birmingham, Detroit, and Pittsburgh.

Method and Scope of the Study

Selection of Localities. Large cities were selected for the survey, with two exceptions, because unemployment and the privation incident to unemployment were known to be greater in the such places. Eight cities were selected as follows: (1) New York, (2) Brooklyn, (3) Syracuse, (4) Pittsburgh, (5) Detroit, (6) Cleveland, (7) Baltimore, and (8) Birmingham. In addition, a survey was made in a number of coal-mining camps in the vicinity of Morgantown, West Virginia, and in cotton-mill villages near Greenville, South Carolina. In the ten localities about 12,000 families were enumerated.

Selection of Families. Districts were selected in the poorer sections of the cities. Well-to-do sections were avoided because the dwellers in these areas, however much their incomes may have decreased, were presumably living above any scale that might involve real deprivation of the things necessary to health. On the other hand, slum areas were also avoided. The

survey was interested mainly in individuals who were unemployed and on restricted incomes because of the depression, as distinguished from those of the "unemployable" type who are subjects for charity in both good and bad times.

Living side by side with families of the unemployed were families, even in these poor districts, who were still in reasonably comfortable circumstances, that is, had apparently adequate food, clothing, and shelter. These "comfortable" families serve as a control group whose illness record can be compared with that of families in a state of comparative poverty for one or more years prior to the survey. It should be emphasized that in the selected districts every family was included unless the information was refused and refusals were exceedingly rare.

Nature of Information Obtained. The information called for in the inquiry included: (a) occupation, income, and regularity of employment of each wage-earner for each year from 1929 to 1932, as well as family income from sources other than wages; (b) nativity, racial stock, and education of husband and wife; (c) a complete census of the household with birth date, sex, and marital status of each member; (d) illness of each member during the three months prior to the enumerator's visit, together with the extent of medical, hospital, nursing, and dental care.

Method of Obtaining the Information. For each city, a local supervisor was assigned by the Public Health Service or the Milbank Fund. The supervisors were already experienced in the collection and tabulation of data of the kind here considered, but to secure accuracy and uniformity they were given an intensive training in the meaning of the items on this schedule and the methods of recording the data.

Enumerators were hired locally. It was possible to secure very capable men and women for the work, partly because of the prevailing economic conditions. The enumerators were given a preliminary period of training to familiarize them with the schedule and were taken by the local supervisor to interview several families before making any visits alone. They were instructed and encouraged to be thorough rather than rapid in their work.

Both the supervisor and the enumerators worked under written instructions so that the surveys would be done in as comparable a manner as possible in all cities. In addition, one of us (G.S.P.) acted as a general supervisor and visited all but two of the communities either to start the work (select districts, enumerators, et cetera) or to check the selections made by the local supervisor.

The Population Surveyed

Number. In the three cities included in this preliminary paper, schedules were obtained from about 3,500 white families. The families here considered are those for which the employment and wage record and other income facts were sufficiently complete to permit the computation of fairly exact incomes for each year from 1929 to 1932, and for which other information was reasonably complete. There were 2,566 families, including 11,330 individuals.

Occupational Composition. The population was largely of the wage-earning class. The usual occupation of the chief wage-earner in 1929 was that of skilled laborer in 59 per cent of the families; unskilled, 19 per cent; clerical and salesmen, 13 per cent; dealers, merchants, et cetera, 7 per cent; professional, 2 per cent. In 1932, in 18 per cent of the families, the chief wage-earner was without employment throughout the year.

Considering all the wage-earners in the family, the data show that in 1929 only one per cent of the families had no employed workers, 16 per cent had only part-time workers, and 83 per cent had one or more full-time workers. In 1932, the percentages were 12 per cent with no employed workers, 40 per cent with part-time workers only, and 48 per cent with full-time workers. The same downward change is evident here as in the per capita and family income, one, of course, being the cause of the other.

Nativity and Racial Stock. In 54 per cent of the families, the household head was native white of native parents; in 14 per cent, of foreign or mixed parents; and in 32 per cent, foreign born. The racial stock of the group of foreign or mixed parents was largely English, Irish, and German, while that of the foreign-born group was more evenly distributed among English, Irish, Italian, Polish, and Slavic.

Economic History of Families, 1929–1932

Meaning of Income. Income as computed in this study includes all receipts from any source—salary, royalties, interest, pension, savings, borrowed funds, gifts, and public and private relief. In the case of families given a weekly food ticket from welfare institutions, its value was included in the family income. Free or unpaid rent was not included because of incomplete data on this item.

TABLE 1
 Percentage Distribution according to Total Income of Families (1) in the
 Surveyed Population for 1929 and 1932, (2) as Estimated for All Cities of
 100,000 and over and (3) as Estimated for the United States

Total Family Income per Annum	Surveyed Group in Birmingham, Detroit, and Pittsburgh		Cities of 100,000 and over ¹ in United States, 1928–1931	United States 1928 ²
	1929	1932		
Under \$1,200	25.2	69.3	7	21.3
\$1,200–\$2,000	34.5	21.6	27	34.0
\$2,000–\$3,000	22.7	7.0	27	21.5
\$3,000 and over	17.6	2.1	39	23.2
Total	100.0	100.0	100	100.0

¹Falk, I. S.; Klem, Margaret C.; and Sinai, Nathan: *The Incidence of Illness and the Receipt and Costs of Medical Care among Representative Families*. Publication No. 26, Committee on the Costs of Medical Care. Chicago, University of Chicago Press.

²Reed, Louis S.: *The Ability to Pay for Medical Care*. Publication No. 25, Committee on the Costs of Medical Care. Chicago, University of Chicago Press.

Family Incomes in 1929 and 1932. No attempt was made to select districts in which the income distribution of the surveyed families would be representative of the cities as a whole. The plan, as already outlined, was to include sections having families who, in normal times, were in moderate circumstances but who, in large numbers, had been reduced to poverty or near poverty during the depression. A rough idea of the income distribution of the surveyed group in 1929 and 1932 as compared with large cities and the entire United States may be obtained from Table 1.

It will be seen that even in 1929 the surveyed population as compared with the total population of large cities contained a considerable excess of families below \$1,200 in annual income (25 per cent as compared with 7 per cent) and a deficiency of families over \$3,000 (18 per cent as compared with 39 per cent). The closer agreement with the estimate for the United States in 1928 is simply fortuitous. The total population of the United States contains a larger proportion of low incomes than the population in cities of 100,000 or more inhabitants because of the dwellers in small towns and rural areas where money income, and the

general level of prices are lower. Negroes are also a low-income group that live largely in rural areas.

The table shows also the tremendous drop in income experienced by the surveyed population from 1929 to 1932. In 1932, 69 per cent of the families received incomes less than \$1,200 per year as compared with 25 per cent in 1929. Only 9 per cent of the families had incomes over \$2,000 in 1932 as compared with 40 per cent in 1929.

Per Capita Income Changes. For the purposes of this investigation, family income per capita was used as the basis of classifying the households because it was felt that this represented economic status better than the total family income which takes no account of size of family. It was realized that for strict accuracy, a figure-taking account of not only the size of the family but also the age and sex of its members, such as "income per adult male unit," might be better than income per capita. However, previous studies have shown close correlation between per capita income and these other derived units and it was felt that the accuracy of the four-year income record was not sufficient to justify the more refined calculations.

Table 2 and Figure 1 show the population grouped according to annual per capita income for the years 1929 to 1932. For convenience in discussion, the individual income classes have been combined into three groups and designated as follows:

"POOR"—Under \$150 per capita per year

"MODERATE"—\$150—\$424 per capita per year

"COMFORTABLE"—\$425 and over per capita per year

These names have no significance other than as convenient labels indicating a rising scale of per capita income.

It will be seen that the "poor" group (income less than \$150 per capita) constituted only 10 per cent of the total in 1929 but rose to 45 per cent in 1932, while the group with "comfortable" income (\$425 or more per capita) dropped from 47 per cent of the total in 1929 to 13 per cent in 1932. The percentage in the "moderate" class (\$150—\$424) did not change greatly. This does not mean that individuals in this group in 1929 suffered no diminution in income during succeeding years, but that as some dropped into the low-income group, others from the higher class took their places.

The change from one income class to another is better shown in Figure 2 where the income history of the three groups of individuals

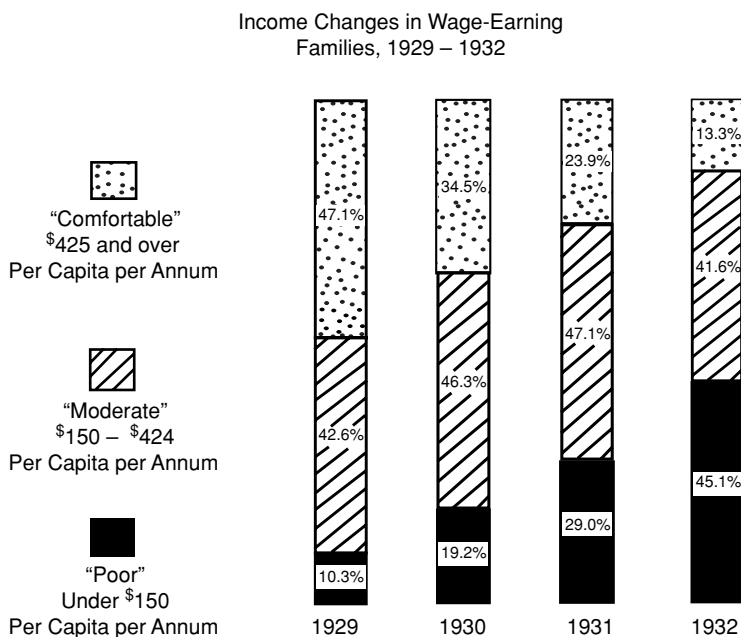
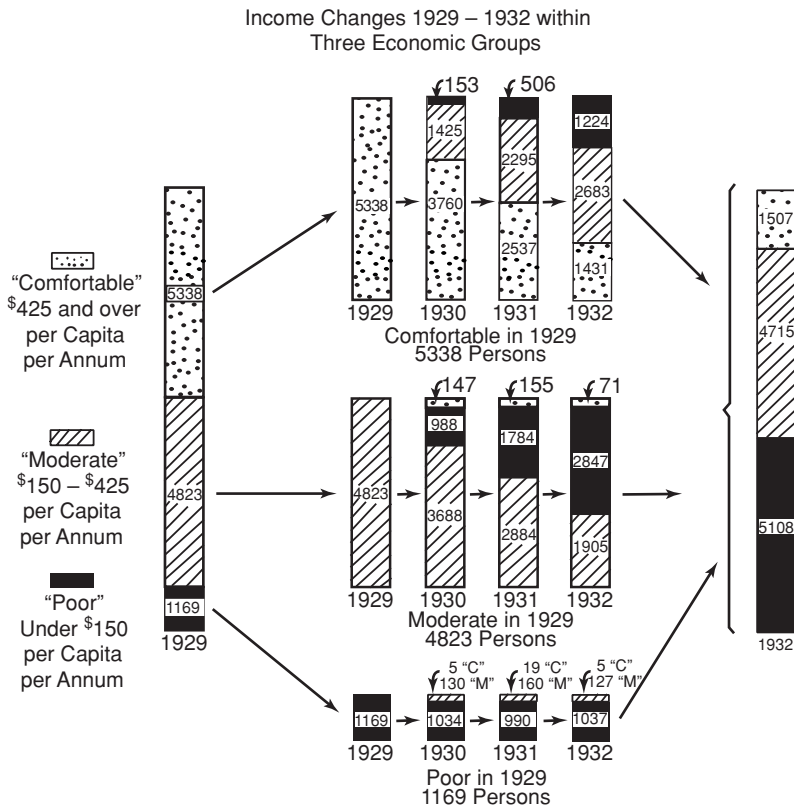


FIGURE 1. Percentage Distribution of the Surveyed Population according to Annual Family Income per Capita for Each of the Years 1929–1932. The population includes 11,330 individuals in 2,566 families in Birmingham, Detroit, and Pittsburgh.

in 1929 is traced through each year to 1933. It is seen that only about one-fourth of the individuals in families comfortably off in 1929 retained that status in 1932 and nearly an equal number had become poor. Over half of those in moderate circumstances in 1929 had fallen into the “poor” category by 1932. Nine out of ten persons classified as “poor” in 1929 remained in that class throughout the period. Obviously very few persons enjoyed an increasing income during the depression and a very large percentage suffered a drop in income.

The chart (Figure 2) suggests a method of classifying the families for purposes of comparing illness rates into groups having different types of economic history during the depression. Two broad groups might be made: (1) families suffering no material change of income from 1929 to 1932; (2) families whose income changed between 1929 and 1932. Class 1 can be further divided into (a) comfortable, 1929–1932; (b) moderate, 1929–1932; and (c) poor, 1929–1932. Class 2, disregarding the



The chart is designed to show graphically how families changed from one income class to another during the three years following 1929.

Thus, it is seen that of the 5,338 individuals who were comfortable (per capita income of \$425 or more) in 1929, 3,760, or 70 per cent, had this income in 1930; 2,537, or 48 per cent, in 1931; and only 1,431, or 27 per cent, were still “comfortable” in 1932. This drop in the number in the comfortable group of 1929 was made up of 2,683, or 50 per cent, who had dropped to the “moderate” class (\$150–424) by 1932 and 1,224, or 23 per cent, who had dropped to the “poor” group (under \$150).

In the same way, the history may be followed of the 4,823 individuals in the “moderate” income group in 1929. By 1932, only 1,905, or 40 per cent, of these were still in the “moderate” group, 2,847, or 59 per cent, had fallen into the “poor” group, and only 71, or one per cent, had risen to the “comfortable” group.

Of the 1,169 who were “poor” in 1929, 127, or 11 per cent, had risen to “moderate” circumstances in 1932, and only 5 persons (one family) to “comfortable” circumstances. The other 89 per cent remained “poor” in 1932.

FIGURE 2. Annual Shifts (1930–1932) in Number of Individuals in Each of Three Broad Income Classes of Family Income per Capita in 1929. The population includes 11,330 persons in 2,566 families in Birmingham, Detroit, and Pittsburgh.

relatively few families whose incomes rose or oscillated up and down, could be divided into a large number of groups each defined by an economic status rating and the time the family experienced that status. For example, we might have families with a depression history as follows: (1) comfortable, 1929; poor, 1930, 1931, 1932; (2) comfortable, 1929, 1930; poor, 1931, 1932; and so on. The number of groups feasible to use in a sickness study obviously depends upon the size of the population being studied. In the present report, which covers only 11,000 individuals, a few of these groups have been used to describe the depression experience or history in a manner as specific as possible without giving too small a population to be significant for statistical study. As other cities are added to the tabulations, depression history groups will be made increasingly specific.

Illness and 1932 Income

Inquiry was made about illness from all diseases and accidents, including mild as well as severe cases. What was included as illness was to a considerable extent a matter of what the informant (usually the housewife) remembered and designated as such. Hence the records of disabling cases are probably better measures of real sickness than are the total cases, because the disabling illnesses are more likely to be accurately and completely reported. A case sufficiently severe to be disabling or confine the individual to his bed within three months of the interview is very likely to be remembered while many of the minor ailments are forgotten and are consequently not mentioned to the enumerator.

Illnesses are classified as having (1) onset within the survey period, and (2) onset prior to the survey period. Each of these groups is shown as (a) all cases, (b) disabling cases, consisting of those causing inability to carry on their usual activities, and (c) cases in which the patient was confined to bed for one or more days. All bed cases are included in the disabling class.

The illness rates are for the three-month period of the survey and are not reduced to an annual basis. The "survey period" refers to the three months prior to the enumerator's visit; it is the period of time for which illness data were recorded.²

²See footnote to Table 3 for calendar months included, et cetera.

TABLE 3
 Illness and 1932 Income—Incidence of Illness as Related to 1932 Family Income per Capita in Canvassed White Families in Birmingham, Detroit, and Pittsburgh. The group comprised 2,566 families, including 11,330 individuals.

Annual Family Income per Capita in 1932	Illness Rate per 1,000 Persons for Three-Month Survey Period ¹						Population Observed
	Onset within Period			Onset Prior to Period			
	Total	Disabling	Bed	Total	Disabling	Bed	
Under \$150	151	103	94	75	44	32	5,108
\$150–\$249	143	104	94	66	38	31	2,490
\$250–\$424	136	84	74	70	43	33	2,225
\$425 and over	127	77	64	85	46	32	1,507

¹The survey period refers to the three months prior to the enumerator's visit. The canvass in each city required from three to four weeks. The dates of the canvass were slightly different in each city but were between March 20, 1933, and May 15, 1933, for all three cities.

In Table 3 and Figure 3 the incidence of illness is shown for four groups of the surveyed population classified according to annual per capita income in 1932 to show the relation between economic status and illness as it was found in 1933. Inspection of the table and graph shows a lower illness rate³ for the higher income groups, when illnesses with onset within the survey period are considered. Illnesses with onset prior to the survey period (largely chronic cases) show no relation to income. For illnesses occurring within the survey period, the disabling case rate among the two lower income groups (under \$250) is 35 per cent higher and the bed case rate 47 per cent higher than among the group having \$425 and over annual per capita income. The poor in 1932

³Crude rates are given in this report although it is fully realized that crude rates in vital statistics often give rise to erroneous conclusions. Three possible sources of error in the present study occur to the writers: (1) variation in age distribution in the different income and "depression history" groups; (2) variation in family size in these groups (illnesses may not be completely reported in large families); (3) possible concentration of sickly individuals in the lower income groups who were the first to feel the effects of the depression because of the handicap of a tendency to sickness.

Preliminary tabulations have been made to investigate these possible sources of error and so far no adjustments found necessary have changed the trends observed in the crude rates. Later papers including more cities will present data on these points.

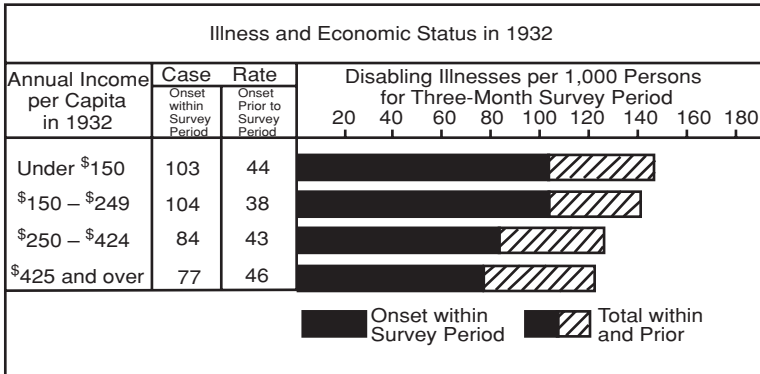


FIGURE 3. Disabling Illness during a Three-Month Period in the Early Spring of 1933 in Wage-Earning Families Classified according to Income per Capita in 1932, in Birmingham, Detroit, and Pittsburgh

in the surveyed group are obviously subject to more illness than their more fortunate neighbors in relatively comfortable circumstances.

However, it may be argued that a large percentage of the individuals who were poor in 1932 were the chronically poor, the unemployables, so to speak, who were perhaps in a state of poverty *because* of illness and that this group with a very high illness rate raises the average rate of the poor in 1932. To investigate this point, a further analysis of the illness rate was made from the point of view of changes in family income.

Illness and Income Change

In this analysis the individuals were divided into six categories, according to economic status in 1929 and 1932, as follows:

- I. Individuals experiencing lowered family income per capita between 1929 and 1932 were classified as:
 - 1. Comfortable in 1929 and poor in 1932;
 - 2. Moderate in 1929 and poor in 1932;
 - 3. Comfortable in 1929 and moderate in 1932.

- II. Individuals who had not experienced lowered family income between 1929 and 1932 were classified as:

1. Comfortable in 1929 and 1932;
2. Moderate in 1929 and 1932;
3. Poor in 1929 and 1932.

The results are given in Table 4 and Figure 4. Here we see a significant difference between the disabling illness rate of Group I and Group II, 102 as compared with 87, and the interesting fact appears that persons who suffered lowered income had a higher sickness rate than those whose economic status did not change greatly. In fact, the highest illness rate in Group I was experienced by individuals whose fortunes had suffered the greatest change, namely, the group classified as comfortable in 1929 but poor in 1932. This group, with a rate of 128 per 1,000, showed an incidence of disabling illness 60 per cent higher than the rate (80) of their more fortunate neighbors who were equal in status in 1929 but suffered no drop in income by 1932, that is, the "comfortable in 1929 and 1932" group. The group which dropped from comfortable to moderate showed a 15 per cent higher disabling illness rate than the comfortable group which experienced no drop in income. The group which dropped from moderate to poor shows about the same illness rate as the group which had been in moderate circumstances throughout the four years.

The same trends are observed for the total illnesses which had their onset within the survey period, and even the addition of the cases with onset prior to the survey period (largely chronic) does not obscure the fact that a relatively severe drop in economic status appears to be associated with a high illness rate.

Illness and Unemployment

In Table 5 and Figure 5 is shown the relation between unemployment and the illness rate. For this purpose the surveyed population was divided into three groups of individuals from families having (1) no employed workers; (2) one or more part-time workers but no full-time workers; (3) one or more full-time workers with or without additional part-time workers. As might be expected from the relation between illness in 1933 and 1932 income, the illness rate is highest in the families having no employed workers (122 disabling cases per 1,000) and lowest in households having full-time workers (88 per 1,000). The group with no employed workers has a higher illness rate than the group with annual per capita

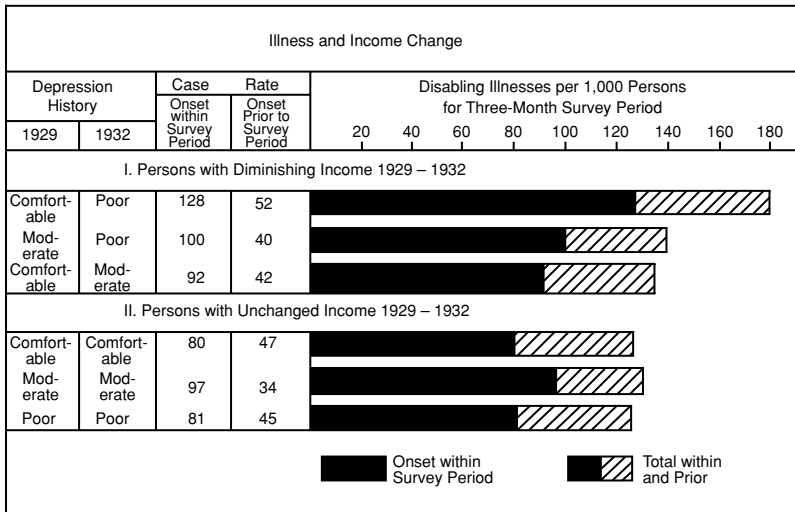
TABLE 4
Illness and Change in Economic Status, Birmingham, Detroit, and Pittsburgh, 1929-1932

1929	Depression History ¹		Case Rate per 1,000 Persons for Three-Month Survey Period						Population Observed
	1932		Onset within Period			Onset Prior to Period			
	Total	Disabling	Bed	Total	Disabling	Bed			
I. Individuals with Diminished Income, 1929-1932									
Comfortable	189	128	114	88	52	39	1,224		
Moderate	141	100	93	63	40	28	2,847		
Comfortable	142	92	81	75	42	33	2,683		
Total	150	102	92	72	43	32	6,754		
II. Individuals with Unchanged Income, 1929-1932									
Comfortable	130	80	66	87	47	33	1,431		
Moderate	136	97	88	56	34	27	1,905		
Poor	134	81	75	91	45	35	1,037		
Total	133	87	78	75	41	31	4,373		

¹ Comfortable—\$425 and over per capita per year.

Moderate—\$150-\$424 per capita per year.

Poor—under \$150 per capita per year.



Comfortable—\$425 and over per capita per year.

Moderate—\$150–424 per capita per year.

Poor—under \$150 per capita per year.

FIGURE 4. Disabling Illness during a Three-Month Period in the Early Spring of 1933 in Wage-Earning Families Classified according to Change in per Capita Income, in Birmingham, Detroit, and Pittsburgh, 1929–1932

TABLE 5
Illness and Unemployment, Birmingham, Detroit, and Pittsburgh

Employed Workers in the Family	Case Rate per 1,000 Persons for Three-Month Survey Period							Population Observed
	Onset within Period			Onset Prior to Period				
	Total	Disabling	Bed	Total	Disabling	Bed		
No employed workers	160	122	114	91	55	40	1,402	
Part-time workers (one or more; no full-time)	157	98	89	70	40	30	4,561	
Full-time workers (one or more; zero or more part-time)	127	88	77	72	42	32	5,367	

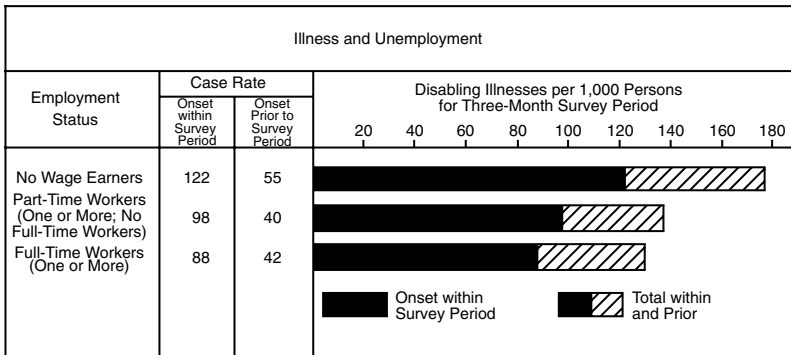


FIGURE 5. Disabling Illness during a Three-Month Period in the Early Spring of 1933 in Families Classified according to the Employment of Wage-Earning Members, in Birmingham, Detroit, and Pittsburgh

income under \$150 (Table 3)—122 as against 103 disabling cases per 1,000 persons.

Summary

Records of illness in 1933 and of economic history from 1929 to 1932 have been collected on over 12,000 families in eight large cities, one group of coal-mining communities, and a group of cotton-mill villages. The present paper presents preliminary results of the survey in three cities—Birmingham, Detroit, and Pittsburgh. This group comprised 2,566 families including 11,330 individuals.

The results show a higher incidence of disabling illness among individuals in the lower income classes than among individuals with higher incomes. The highest illness rate is reported by a group which was in reasonably comfortable circumstances in 1929 but which had dropped to comparative poverty by 1932; the rate of this group is 60 per cent higher than that of their more fortunate neighbors who were equal in economic status in 1929 but suffered no drop in income by 1932. The group of individuals who may be described as “chronically poor,” that is, individuals who were in a condition of poverty even in 1929, showed a relatively low sickness rate as compared with the group which had fallen into straitened circumstances as a result of the economic depression. The rate of disabling illness reported among individuals from families of the unemployed was 39 per cent higher than that of the group having

full-time wage-earners and 25 per cent higher than that of the group containing part-time but no full-time workers.

The foregoing findings are generally true for the surveyed group in each of the cities as well as for the total of the three cities.

As regards the significance of the findings, the writers have purposely refrained from drawing conclusions as to their broad implications and the reader is cautioned to exercise similar restraint. For example, how large a proportion of the entire wage-earning population in urban areas in the United States has suffered increased illness obviously cannot be estimated from the experience recorded in the samples surveyed in three cities only. Nor is it possible to suggest any specific interpretations of increased illness rates in terms of impaired vitality until the nature of the sickness experienced is considered. Conclusions and interpretations of this kind should await more complete analysis of the entire volume of data collected.