# THE RELATIONSHIP BETWEEN EDUCATION

# AND

# HUMAN WELFARE

# THE RELATIONSHIP BETWEEN EDUCATION AND HUMAN WELFARE

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# CHAPTER I

## INTRODUCTION

In March, 1945, the National Education Association of the United States published a letter[1] calling the attention of school leaders to an important research study prepared and recently published by the Committee on Education of the United States Chamber of Commerce. The letter, N. E. A. Leaders Letter No. 34, summarized the booklet entitled, Education—An Investment in People.[2] These publications mark a definite revival of interest in the relationship between education and human welfare, but even more important, they indicate that both school men and business leaders are now convinced that "education is an essential investment for the advance of agriculture, industry, and commerce."[3]

Purpose of the Study. In the editorial introduction to Education as Cause and as Symptom, by Edward L. Thorndike, Alfred L. Hall-Quest says:

> Few questions in educational research equal in importance the one concerned with the effects of schooling on the welfare of the individual and society. Answers to this question may involve arguments for or against the increase of the school tax, and such modifications of educational content and method as the answers seem to justify.[4]

The purpose of this study is to continue the type of research done by Ayres, Bagley, Thorndike, and the Committee on Education of the United

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[1] National Education Association of the United States, "N.E.A. Leaders Letter No. 34," March, 1945.

[2] United States Chamber of Commerce, Education—An Investment in People.

[3] National Education Association of the United States, op. cit., p.1.

[4] Alfred L. Hall-Quest, Editorial Introduction to Education as Cause and as Symptom, by Edward L. Thorndike, p. vii.

States Chamber of Commerce to determine the degree of relationship which exists between the education provided by a state and the welfare of the people in that state, and to compare this relationship with that which exists between various types of wealth and human welfare to find which factors are most closely related to the well-being of society.

Method. The first step in the solution of this problem is to establish an index number for each of the forty-eight states which will represent that state's relative position in regard to the factors to be correlated.

The relationships desired involve scores for:

1. Education
2. Standard of Living
3. Physical Health and Care
4. Mental Health and Care
5. Per Capita Agricultural Wealth
6. Per Capita Industrial Wealth
7. Per Capita Value of Natural Resources Produced
8. Absence of Crime
9. Religion

In addition to these index numbers, scores are also needed for the per cent of the population which is urban and the per cent rural, per cent native white and per cent Negro, Army rejections for mental disease, per cent of state's inductees who were classified IV-F, church membership, physical health (omitting care), and mental health (omitting care).

The standard of living, physical health and care, and mental health and care scores are combined to form a "human welfare" score, and

agricultural wealth, industrial wealth, and natural resources are added to obtain a score called "combined wealth."

Each of the nine principal index numbers listed above is obtained as the average of several standard scores on factors indicative of a state's standing in education, standard of living, etc. The score on each factor is found by dividing the state's individual deviation from the mean by the standard deviation for the forty-eight states, multiplying this quotient by ten to eliminate fractions, and then adding fifty to eliminate negative signs. This type of score is generally called a "T" score. It measures each state in terms which are comparable and which place an equal weight on all factors being considered in the final index. By this system a score of 50.0 indicates that the state is exactly on the mean, a score of 40.0 indicates that it is one standard deviation below the mean, etc., while 60.0 is one standard deviation above the mean, 70.0 is two above, etc.

The index numbers obtained by averaging the scores (arithmetic mean) on the individual factors are used to determine correlations between all the groups of factors suspected of having any degree of causal relationship. Among these are correlations which show the relationship between education and standard of living, education and physical health and care, education and mental health and care, and education and the composite score called "human welfare"; correlations which reveal the degree of relationship between education and <u>per capita</u> agricultural wealth, <u>per capita</u> industrial wealth, <u>per capita</u> value of the principal natural resources produced, and the composite score called "combined wealth"; and correlations between education and crime, and education and religion.

In addition to the correlations between education and the index numbers for the other groups, correlations indicating the degree of relationship between standard of living and physical and mental well-being, crime, and religion are shown. An attempt is made to show whether the standard of living and the physical and mental health of a state are more closely related to the quality of its educational system or to its agricultural and industrial wealth and its natural resources.

A cross-tabulated summary of all correlations figured is shown in the section entitled "Summary and Conclusions." In all, there are approximately seventy correlations. These enable the reader to see not only the relationship existing between education and all the other factors, but to compare this relationship with that existing between standard of living or physical health, for example, and the other index numbers.

A more detailed description of the mathematical and statistical procedure is given in connection with the discussion of each index number.

Definition of Terms. For the most part, the terms used in this study are those commonly found in any standard textbook on statistics and, consequently, require no additional discussion. The terms which are more or less peculiar to this study may be defined as follows:

Education Index or Score: The average of the "T" scores of the twelve factors listed below and described in detail in Chapter II.

1. Average length of school term in days.
2. Average number of days attended by each pupil enrolled.
3. Per cent of pupils enrolled attending daily.
4. Per cent that high school attendance was of total attendance.

5. Per cent of persons 7 to 13 years old attending school.
6. Median school years completed by adults 25 years old and over.
7. Per cent of adult population 25 years old and over who have completed no school years (reversed).
8. Per cent of adult population 25 years old and over who have completed less than five years of school (reversed).
9. Number of pupils in average daily attendance per teacher (reversed).
10. Average annual expenditure per child attending.
11. Average annual expenditure per teacher for salaries.
12. Value of school property per pupil in average daily attendance.

Standard of Living Index or Score: The average of the "T" scores on the thirteen factors listed below and described in detail in Chapter III.

1. Per cent of dwelling units with running water.
2. Per cent of dwelling units with private bath and flush toilets.
3. Per cent of dwelling units with electric lighting.
4. Per cent of dwelling units reporting no refrigeration equipment (reversed).
5. Per cent of occupied dwelling units with radio.
6. Per cent of occupied dwelling units having more than two persons per room (reversed).
7. Number of people per passenger car (reversed).
8. Number of telephones per 1000 population.
9. Circulation of 18 nationally advertised magazines per 1000 population.
10. Per capita income.
11. Per capita retail sales.

12. Median wage or salary income of wage or salary workers except those on public emergency work, 1940.

13. Per cent of children 14-17 years old in labor force (reversed).

Physical Health and Care Index: The average of the "T" scores on the eleven factors listed below and described in detail in Chapter IV.

1. Infant death rate, including stillbirths (reversed).
2. Child death rate, ages 1 to 4 (reversed).
3. Adult death rate, ages 25 to 34 (reversed).
4. Death rate from typhoid and paratyphoid fever (reversed).
5. Death rate from appendicitis (reversed).
6. Death rate from pellagra (reversed).
7. Death rate from syphilis (reversed).
8. Average number of class IV-F registrants, 18 through 37 years of age on December 1, 1943, and June 1, 1944, as a per cent of total living registrants (reversed).
9. Death rate from motor vehicle accidents and other accidents (reversed).
10. General hospital beds per 1000 population.
11. Number of doctors and dentists per 1000 population.

Mental Health and Care Index: The average of the "T" scores on the seven factors listed below and described in detail in Chapter IV.

1. Patients in State, County, and City Hospitals for mental disease per 100,000 population 15 years old and over (reversed).
2. First admissions of patients in hospitals for mental disease per 100,000 (reversed).
3. Care of patients--mental patients per employee (all types--full-time) in State Hospitals.

4. Crowding—Per cent excess of hospital patients over rated capacity (reversed).
5. Suicide rate per 100,000 population (reversed).
6. Rate of rejection for mental deficiency per 1000 registrants examined, January, February, and March, 1943 (reversed).
7. Rate of rejection for mental disease per 1000 registrants examined, January, February, and March, 1943 (reversed).

Agricultural Wealth Index: Per capita value of farm products sold, traded, or used, 1939, as a standard "T" score.

Industrial Wealth Index: Per capita amount of value added by manufacture, 1939, as a standard "T" score.

Natural Resources Index: Per capita value of minerals (1940) and lumber produced (1942), as a standard "T" score.

Combined Wealth Index: Total per capita value of agriculture, industry, and natural resources, as a standard "T" score.

Human Welfare Index: Composite score for standard of living, physical health and care, and mental health and care, weighted at 13, 11, and 7, the number of factors in each index, respectively.

Crime Index: Average of the "T" scores on the eight factors listed below and described in detail in Chapter VI.

1. Homicide rate per 100,000 population (reversed).
2. Murder and nonnegligent manslaughter, per 100,000 (reversed).
3. Robbery, per 100,000 population (reversed).
4. Aggravated assault, per 100,000 (reversed).
5. Burglary, breaking, or entering, per 100,000 population (reversed).
6. Larceny—theft, per 100,000 population (reversed).

7. Auto theft, per 100,000 population (reversed).

8. Felony prisoners received from states in 1940 per 100,000 population (reversed).

Religion Index: Average of the "T" scores on the two factors listed below and described in detail in Chapter VI.

1. Value of church edifices per capita as a per cent of per capita income.

2. Church membership, all denominations, per 100 population.

"T" Score: The score obtained by dividing each individual deviation from the arithmetic mean by the standard deviation, multiplying this quotient by 10, and adding 50.

Reversed: In this problem a score above 50.0 always indicates that the state in question ranks above the mean. In undesirable qualities, such as homicide, murder, per cent illiteracy, etc., all signs were changed at the time the means of the distributions were subtracted from the individual scores of the states. Thus a score of more than 50.0 always represents a relatively good condition, while a score of less than 50.0 indicates that the state is relatively low in the factor being considered. Since all "crime" scores have been reversed, the higher the score, the less "criminal" the citizens of the state.

Related Studies. The first important study relating directly to the problem involved here was done by Leonard P. Ayres and was reported in a Russell Sage Foundation Education Monograph published in 1920. This monograph, An Index Number for State School Systems, gives an educational score for each of the states for the years 1890, 1900, 1910, 1916, and 1918. The scores are based on data published in the annual reports of the United States Bureau of Education. The scores were based on ten factors

which were thought to be indicative of the quality of the educational system of each state. These factors were:

1. Per cent of school population attending school daily.
2. Average days attended by each child of school age.
3. Average number of days schools were kept open.
4. Per cent that high school attendance was of total attendance.
5. Per cent that boys were of girls in high school.
6. Average annual expenditure per child attending.
7. Average annual expenditure per child of school age.
8. Average annual expenditure per teacher employed.
9. Expenditure per pupil for purposes other than teachers' salaries.
10. Expenditure per teacher for salaries.[5]

The index number for each state was obtained by averaging the scores for each of the ten factors. The method of weighting each factor was such that the figures, though not comparable, were given approximately uniform value in the total. For example, in figuring factor one, the per cent of school population attending daily, the item was included as a straight per cent figure. In figuring factor three, the average number of days schools were kept open, the actual number of days was divided by two to make the score nearer 100. Factor six, the average annual expenditure per child attending, was entered in dollars at its face value, etc.

Table 1 shows the ranks of the states as shown by the index number for the five periods and the actual index numbers for 1918, the last year studied.[6]

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[5] Leonard P. Ayres, An Index Number for State School Systems, pp. 6-7.

[6] Ibid., pp. 47-53.

TABLE 1--Ranks of States as Shown by Ayres' Index Numbers for Five Periods and Index Numbers of States in 1918.

| STATE | RANK | | | | | Index |
|---|---|---|---|---|---|---|
| | 1890 | 1900 | 1910 | 1916 | 1918 | 1918 |
| Alabama | 44 | 48 | 45 | 46 | 49 | 31 |
| Arizona | 14 | 32 | 18 | 4 | 3 | 66 |
| Arkansas | 42 | 45 | 46 | 43 | 50 | 30 |
| California | 3 | 4 | 2 | 1 | 2 | 71 |
| Canal Zone | .. | .. | .. | .. | 28 | 55 |
| Colorado | 7 | 8 | 13 | 19 | 14 | 59 |
| Connecticut | 6 | 5 | 12 | 8 | 11 | 60 |
| Dist. of Columbia | 1 | 3 | 3 | 2 | 5 | 64 |
| Delaware | 27 | 33 | 34 | 35 | 38 | 42 |
| Florida | 29 | 40 | 42 | 50 | 40 | 38 |
| Georgia | 46 | 44 | 44 | 45 | 47 | 33 |
| Hawaii | .. | .. | .. | .. | 23 | 57 |
| Idaho | 37 | 34 | 20 | 14 | 18 | 59 |
| Illinois | 15 | 13 | 11 | 21 | 24 | 57 |
| Indiana | 25 | 16 | 17 | 16 | 17 | 59 |
| Iowa | 18 | 23 | 30 | 23 | 7 | 62 |
| Kansas | 21 | 31 | 24 | 24 | 27 | 55 |
| Kentucky | 35 | 36 | 40 | 39 | 45 | 35 |
| Louisiana | 43 | 43 | 39 | 42 | 46 | 34 |
| Maine | 24 | 27 | 31 | 30 | 35 | 47 |
| Maryland | 12 | 19 | 33 | 34 | 37 | 43 |
| Massachusetts | 2 | 1 | 4 | 7 | 9 | 61 |
| Michigan | 16 | 18 | 19 | 18 | 10 | 60 |
| Minnesota | 26 | 21 | 21 | 20 | 19 | 58 |
| Mississippi | 39 | 46 | 47 | 49 | 51 | 30 |
| Missouri | 33 | 30 | 32 | 32 | 34 | 50 |
| Montana | 9 | 10 | 7 | 3 | 1 | 76 |
| Nebraska | 31 | 17 | 22 | 25 | 22 | 57 |
| Nevada | 11 | 7 | 5 | 10 | 16 | 59 |
| New Hampshire | 19 | 26 | 28 | 31 | 30 | 54 |
| New Jersey | 8 | 9 | 6 | 5 | 4 | 66 |
| New Mexico | 48 | 37 | 38 | 33 | 31 | 53 |
| New York | 4 | 2 | 8 | 12 | 13 | 59 |
| North Carolina | 45 | 49 | 48 | 47 | 48 | 31 |
| North Dakota | 34 | 22 | 27 | 22 | 15 | 59 |
| Ohio | 13 | 12 | 14 | 11 | 12 | 60 |
| Oklahoma | .. | 39 | 35 | 37 | 36 | 44 |
| Oregon | 30 | 28 | 15 | 17 | 20 | 58 |
| Pennsylvania | 10 | 15 | 16 | 15 | 21 | 58 |
| Porto Rico | .. | .. | .. | 44 | 42 | 36 |
| Rhode Island | 5 | 6 | 10 | 13 | 26 | 56 |
| South Carolina | 47 | 47 | 49 | 48 | 52 | 29 |
| South Dakota | 32 | 25 | 26 | 29 | 29 | 55 |
| Tennessee | 41 | 41 | 43 | 41 | 44 | 35 |
| Texas | 36 | 38 | 37 | 36 | 39 | 41 |
| Utah | 28 | 11 | 9 | 9 | 8 | 61 |
| Vermont | 23 | 20 | 29 | 28 | 32 | 52 |
| Virginia | 38 | 42 | 41 | 40 | 43 | 35 |
| Washington | 20 | 14 | 1 | 6 | 6 | 64 |
| West Virginia | 40 | 35 | 36 | 38 | 41 | 38 |
| Wisconsin | 17 | 24 | 23 | 27 | 33 | 51 |
| Wyoming | 22 | 29 | 25 | 26 | 25 | 57 |

Ayres summarizes his findings in this way:

> In general the index number should be regarded as reliable rather than precise. Its methods are rigid and impartial, but not considerate or interpretative. It measures results without considering causes. The purpose of the index number is to make it possible for state school systems to measure their progress from year to year and to compare their attainments with those of their neighbors.[7]

Another early and very important study dealing with education and human well-being was presented in the book, Determinism in Education, which the author, Dr. William C. Bagley, describes as "A series of papers on the relative influence of inherited and acquired traits in determining intelligence, achievement, and character."[8]

> Papers III, IV, and V assemble evidence chiefly of a statistical character revealing the close correlation between past provisions for mass education and the present-day levels of social stability, intelligence, economic efficiency, and leadership; and the less close but still positive correlation between past provisions for mass education and present-day levels of basic morality and respect for fundamental law.....the justification of universal education must be sought and can be found in social statistics.[9]

Bagley was interested in proving that mass education and not advanced education for a few is the thing which leads to human welfare. He studied the principal nations of the world and presents convincing data to show that the nations that rank highest in civilization and progress are those in which the masses are given an elementary education.

In his study of education in the United States, Bagley found a high positive correlation between the school facilities afforded by the states and their proportionate production of prominent men of 1920, and that the correlation was highest for school ratings of 1880, the year most of the leaders were in school.

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[7] Ibid., pp. 69-70.

[8] William C. Bagley, Determinism in Education, preface.

[9] Ibid., p. 6.

Close resemblance was also found to exist between *per capita* income and school ratings when these people were in school, and between school facilities and *per capita* savings-bank deposits.[10]

In discussing the great differences in state averages on the Army Alpha tests of 1918, Bagley says:

> It becomes of the very greatest importance, then to know whether the difference is due solely to native or inherited facts, or whether, in part at least, it is explicable in terms of educational opportunity and the other forms of environment stimulus.....if the latter is the case.....we may be able to take part of the energy that has been so freely expressed in bemoaning the "low intelligence" of the American people and direct it toward the improvement of the public schools.[11]

Bagley, himself, is convinced that the proportion that schooling contributes to the median score is probably not less than one half.[12]

In Appendix C in *Determinism in Education*, he presents a number of tables showing the median scores, deviation from mean, and standard scores (deviation from mean divided by standard deviation) for each of the forty-eight states. Among the tables are those showing scores of draft contingents on Army Alpha tests, 1918; *per capita* circulation of ten widely-read magazines; *per capita* circulation of thirteen "highbrow" magazines; birthplaces of famous persons; birthplaces of prisoners in Federal penitentiaries; infrequency of homicide; venereal disease in certain draft quotas; *per capita* income; *per capita* savings-bank deposits to *per capita* income; and ranks of the states on certain combinations of these factors intended to give an index for intelligence and

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[10] *Ibid.*, p. 89.

[11] *Ibid.*, p. 68.

[12] *Ibid.*, p. 76.

leadership, morality and respect for fundamental law, and economic efficiency.

In Appendix D Bagley gives ratings of the states on factors 1, 2, 3, 4, and 7 of the Ayres list for 1880, 1890, 1900, 1910, and 1920.

One of the most recent, and perhaps the most comprehensive, studies of the relationship of education and human welfare is the study made by Edward L. Thorndike and reported in his book, Education as Cause and as Symptom. Dr. Thorndike's study is supplementary to the one undertaken by Dr. Bagley but his conclusions are radically different.

Dr. Bagley presented data to show that the quality of a state's school system was perhaps the most important factor in determining its welfare status twenty years later when the products of those schools had become the statesmen, businessmen, and leaders of society. Dr. Thorndike attaches less causal effect to schooling. He is an hereditarian, and he suggests in this and other writings[13] that the white immigrants into the South were of lower quality than those who came to the North and "that the explanation of inter-state differences may reach far back of the war (Civil War) and reconstruction."[14]

Dr. Thorndike bases his conclusions upon thirty-six items of fact which he says are indicative of the "goodness of life" in the forty-eight states.

These thirty-six factors, with the approximate weight given to each, are quoted directly from his book:[15]

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[13]Edward L. Thorndike, "Sectional Variations in Welfare," Journal of Sociometry, Vol. VII, November, 1944, p. 388.

[14]Ibid., p. 394.

[15]Edward L. Thorndike, Education as Cause and as Symptom, pp. 6-7.

## Constituents of the G Score or Index

| Items of Health | Approximate Weight States |
|---|---|
| Infant death rate (reversed) | 13 |
| General death rate (reversed) | 9 |
| Typhoid death rate (reversed) | 5 1/2 |
| Appendicitis death rate (reversed) | 3 1/2 |
| Puerperal-disease death rate (reversed) | 5 1/2 |
| **Items of Education** | |
| Per capita public expenditures for schools | 8 |
| Per capita public expenditures for teachers' salaries | 7 |
| Per capita public expenditures for textbooks and supplies | 8 |
| Per capita public expenditures for libraries and museums | 6 |
| Percentage of persons 16-17 years old attending school | 4 1/4 |
| Percentage of persons 18-20 years old attending school | 7 1/2 |
| Average salary of public-school teachers | 7 1/2 |
| **Economic and "Social" Items** | |
| Rarity of extreme poverty | 6 1/4 |
| Rarity of less extreme poverty | 6 1/2 |
| Infrequency of gainful employment for boys 10-14 years old | 4 1/2 |
| Infrequency of gainful employment for girls 10-14 years old | 5 1/2 |
| Average wage of workers in factories | 4 |
| Frequency of home ownership (per capita number of homes owned) | 6 |
| **Items of Health** | |
| Per capita support of the Y. M. C. A. | 6 |
| Excess of physicians, nurses, and teachers over male domestic servants | 6 |
| **Creature Comforts** | |
| Per capita domestic installations of electricity | 5 1/2 |
| Per capita domestic installations of gas | 7 |
| Per capita number of automobiles | 5 |
| Per capita domestic installations of telephones | 10 |
| Per capita domestic installations of radios | 6 1/2 |
| **Other Items** | |
| Per cent of illiteracy in the total population | 4 |
| Per capita circulation of *Better Homes and Gardens*, *Good Housekeeping*, and *The National Geographic* Magazines | 6 |
| Per capita circulation of the *Literary Digest* | 5 1/2 |
| Death rate from syphilis (reversed) | 4 |
| Death rate from homicide (reversed) | 3 1/2 |
| Death rate from automobile accidents (reversed) | 3 1/2 |
| Per capita value of asylums, schools, libraries, museums, and parks owned by the public | 6 |
| Ratio of value of schools, etc., to value of jails, etc. | 3 |
| Per capita value of public property minus public debt | 5 |

Dr. Thorndike uses the Ayres index and the index prepared by Dr. Bagley as measures of education in the states. His correlations of various items of support and utilization of education with the "G" score for each state were listed as follows:[16]

| | |
|---|---|
| Public expenditures for the maintenance and operation of schools (including costs of building) per capita | .92½ |
| Public expenditure for teachers' salaries per capita | .92½ |
| Public expenditure for textbooks and supplies per capita | .59 |
| Average salary of teachers, supervisors, and principals | .61 |
| Percentage of persons 16 to 17 years old attending school | .78 |
| Percentage of persons 18, 19, or 20 years old attending school | .50 |
| **Items of Creature Comfort with G Score** | |
| Number of automobiles per capita | .75 |
| Number of telephones per capita | .63 |
| Number of radios per capita | .75 |
| Number of wired homes per capita | .50 |
| Public expenditures for recreation per capita | .66 |
| Public expenditures for libraries and museums per capita | .51 |
| **Items of Health** | |
| Infant death rate | .89½ |
| Deaths per capita from typhoid (reversed) | .79 |
| Deaths per capita from puerperal diseases (reversed) | .79 |
| Deaths per capita from homicide (reversed) | .72 |

Thorndike says that "there is no evidence in the correlations themselves that the items of support and utilization of education cause most of the welfare than that the lowness of the infant death rate or the frequency of radios cause most of welfare."[17]

> The fact is that a correlation coefficient, or the correspondence between the rank order of states in two measures, or any other statement of the degree of parallelism or similarity between the states, cities, families, groups of any sort, or individuals is only very rarely a measure of the degree to which one causes the other. It is ordinarily a measure of the total result of actions upon the first of the two by the second and whatever it implies and of the actions upon the second by the first and whatever it implies. To get at causation or determination of either by the other, one must penetrate below the correlation itself.[18]

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[16] Edward L. Thorndike, op. cit., p. 13.

[17] Ibid., p. 12.

[18] Ibid., p. 14.

Thorndike found his G score for 1930 to have a correlation of .64 with the Ayres index for 1900 and a correlation of .85 with the Ayres index for 1930. When correlated with the Bagley index for 1900 he found a correlation of .81½ and with the Bagley index for 1930 a correlation of .89.[19]

In addition to the G score, Thorndike has developed a "P" score for each state. This is an index supposed to represent the "personal qualities" of a population. The factors, quoted directly, are:[20]

| Item | Approximate Weight States |
|---|---|
| Per capita number of graduates from public high schools in 1934 | 1.6 |
| Percentage which public expenditures for the maintenance of libraries was of the total public expenditures | 0.6 |
| Percentage of illiteracy (reversed) | 1.0 |
| Percentage of illiteracy among those aged 15-24 (reversed). | 1.0 |
| Per capita number of homes owned | 1.6 |
| Per capita number of physicians, nurses, and teachers minus male domestic servants | 1.25 |
| Per capita number of telephones | 1.0 |
| Number of male dentists divided by number of male lawyers | 0.6 |
| Per capita number of deaths from syphilis | 1.0 |
| Per capita number of deaths from homicide | 1.0 |

After a very careful analysis, using the methods of multiple correlations and path coefficients, he arrives at the following conclusion:

> The analysis of the causation of the differences among states in G of 1930 makes approximately the following allotment of causation of the difference between one state and another in G for 1930, letting E denote an educational index and P a personal-qualities index:
>
> 16 per cent to what is in E and not in P
> 38 per cent to what is in P and not in E
> 28 per cent to what is common to E and P
> 18 per cent to forces not represented in E or P.

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[19] Ibid., p. 15.

[20] Ibid., p. 45.

> If one-fifth of the allotment to what is common to E and P is given to E and four-fifths to P, we have 21½ per cent due to the quantity and quality of the state's public education in 1900, 60½ per cent to the quality of its population in 1900, and 18 per cent to other causes.
>
> This estimate of the potency of education upon welfare a generation later is very different from that which most readers would be led to make from Bagley's facts.[21]

There are a number of rather obvious fallacies or errors in Thorndike's scores. For example:

In his G score under "Items of Health" is included the "general death rate." This rate is given a weight of nine. Publications containing the vital statistics of the United States, issued by the Department of the Census, specifically warn against the use of the general death rate as a measure of the wholesomeness of any city or state. It is evident that all persons will eventually enter the "general death rate" because this rate includes all deaths at all ages and from all causes. The test of the wholesomeness of a state is the age at which its citizens die, giving due consideration to race and sex, and never the general death rate. An agricultural state, where the birth rate is almost invariably high and outward migration of youth a generally accepted fact, would always have a high general death rate as compared with an industrial area with a low birth rate and a large inward migration of youth from the farms.

In his section called "Creature Comforts" there are a number of errors. The per capita basis should not have been used for installations of electricity, gas, telephones, or radios. In agricultural areas, and particularly in the Southeastern States, large families are the rule.

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[21] Ibid., pp. 42-43.

If there are eight persons in a Georgia family and all reside in the parental home, only one installation of gas, electricity, radio, or telephone is necessary. Do they live any less well than the four-person family of Rhode Island or Massachusetts simply because they have one installation of gas for eight whereas the New England family has one installation for four? Evidently they do not. The basis should have been the per cent of dwelling units with gas and electricity, and the per cent of occupied dwelling units with radio and telephone.

Another error is the inclusion of gas installations at all. The use of gas frequently depends upon its availability and not upon the wealth of the people. Many persons using coal or oil for heat and electricity for cooking find this as satisfactory as gas.

Under "Economic and Social Items" Thorndike lists per capita number of homes owned. This is an obvious error for the reason given above. A family of eight does not need to have two homes to be as well housed as a family of four with one home. In addition, it is doubtful if home ownership is a valid criterion of human welfare. Many wealthy families choose to live in rented homes. Would their "goodness of life" be increased by ownership? Possibly not.

Thorndike's P score includes at least three factors which are definitely a part of any state's true education index. These are: (1) Per capita number of graduates from public high schools (given greatest weight of any except per capita number of homes owned), (2) Percentage of illiteracy (reversed), and (3) Percentage of illiteracy among those aged 15-24 (reversed). It also includes the per capita number of teachers.

The weights which Thorndike uses are perhaps based upon some system of reasoning, but this system is not evident. Under "Creature Comforts" in his G score, electricity is weighted at 5½ and the telephone at 10. Certainly a telephone is a luxury in a rural community as compared with electric lights and refrigeration. Automobiles are weighted at 5. Are automobiles less essential to the average person than a telephone at 10 or a radio at 6½?

Any score which is composed of factors which so poorly represent the degree of human welfare must be of doubtful quality no matter how complicated the statistical procedure used in determining the score. The extent to which education is a causal factor in human well-being, therefore, is still unsettled.

Another of the more recent pieces of research on the value of education to society was reported in School and Society for May 19, 1945, in an article called "Educational Achievement as Compared with Money Spent on Schools." The writers, K. S. Davenport and H. H. Remmers[22] of Purdue University, were given permission to use certain data from the Army-Navy Qualifying Test for Civilians. This test was designed to be used to select young men between the ages of 17 and 21 to be trained to be officers in special Army and Navy schools.

The test was given in April, 1943. A total of approximately 316,000 young men 17 to 21 years of age, all high school graduates or within two or three months of graduation and from every state in the Union, took the examination. Of this number, slightly more than 304,000 were eligible, and their scores were used by Davenport and Remmers in

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[22]K. S. Davenport and H. H. Remmers, School and Society, Vol. 61, No. 1586, pp. 333-335.

determining the relationship between the mean state scores and certain educational financial data. The number taking the test in each state ranged from 280 to 36,492, with a mean of 6,315 per state.

Correlations were obtained between the mean scores for each state and three important educational financial factors. These correlations were reported as follows:[23]

Correlation Between State Mean on A-12 and V-12 Test and Certain Data from Blose and Alves:

(All r's corrected for broad groupings)

| | |
|---|---|
| State mean and average teacher's salary | .63 ± .06 |
| State mean and average total per-pupil cost | .77 ± .04 |
| State mean and average current per-pupil cost | .80 ± .03 |

Davenport and Remmers feel that these correlations are significant and express this point of view:

> The conclusion which must be drawn from these figures is that, in general, the more that was spent in a state on education, both for capital outlay and for current expenses, the more the pupils of the state achieve on such a test as the one given. And when one considers that the test covered only those topics almost universally considered to be fundamental to all learning, that is reading, verbal understanding, basic mathematics, and science, then such a conclusion as the one drawn becomes of utmost importance to those directly in charge of school finance.[23]

The mean scores for the states were found to range from 58.5 to a high of 84.8, and current per-pupil costs were reported as ranging from $32.98 to $171.89.

They conclude that there is not equality of educational opportunity in the United States and that one of the factors which will tend to equalize opportunity is the equalization of financial support. They point out the fact, often overlooked, that inequality in financial support is due to differences in economic power and not to a difference in desire or effort on the part of the people of a state.

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[23] Ibid., p. 335.

They also show that the mobility of American people makes it necessary that the richer states, as a matter of self-interest, contribute toward the support of education in the poorer states. New York, with a superior school system, has 10 per cent illiteracy because of the high rate of illiteracy of immigrants from the other states.[24] Not only does New York get their wealth through nonresident ownership, but she also gets their uneducated masses---uneducated because of the lack of wealth in the states of their birth. "Low standards of living in any state inevitably affect the economic and social well-being of all states."[25]

In addition to the article of May 19, 1945, a second article showing the relationship between A-12 and V-12 test achievement and other educational data of the type considered by Ayres and found in the United States Office of Education publications, and a third article reporting the relationship between the test scores and the social well-being of the state are promised.

A fourth study, already mentioned, is the one prepared for the United States Chamber of Commerce by Paul L. Good,[26] Chairman of its Committee on Education. It is called Education---An Investment in People, and it presents a number of hatched maps of the United States which show that the welfare of any state is closely related to the provision which it makes for public education.

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[24] Ibid., p. 335.

[25] Ibid., p. 335

[26] Paul L. Good, Education---An Investment in People, United States Chamber of Commerce.

# CHAPTER II

## AN EDUCATION INDEX FOR THE FORTY-EIGHT STATES

The first education index for the forty-eight states was prepared by Leonard P. Ayres and published as a Russell Sage Foundation Monograph entitled An Index Number for State School Systems. This monograph, which was described in the previous chapter, was based on the annual reports of the United States Bureau of Education covering the period from 1870 to 1918. It represents the first attempt to rank the states objectively on the quality and quantity of education provided, and has been widely used in subsequent publications.

Dr. William C. Bagley used a modified version of the Ayres index in his study of Determinism in Education. This modified version included the first, second, third, fourth, and seventh factors. Bagley explained the reason for his use of these five factors and the elimination of the other factors as follows:

> The first three indicate the "reach" and "holding power" of the schools by recording the per cent of the school population enrolled in the public schools, the per cent of those enrolled who are in average daily attendance, and the average number of days that the schools are open each year. The fourth component is based on the per cent that high school enrollment is of elementary school enrollment. The seventh records the amount spent upon schools per capita of school population. Three of the Ayres financial components are omitted, as well as his fourth (actually fifth) component which is based on the ratio of boys to girls in the high school. For our purpose, it did not seem fair to let so much weight fall upon the financial components, particularly in view of the differences in cost of living in the different parts of the country.[27]

Dr. Bagley actually omitted four of Ayres' five financial items in addition to the item showing the ratio of boys to girls. His principal purpose in reducing the number of items from ten to five was

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[27] William C. Bagley, Determinism in Education, p. 181.

to reduce the emphasis on financial items, and to reduce the number of factors dealing with high schools, which placed weight on high school attendance as opposed to elementary school attendance.

A standard score procedure was used by Dr. Bagley but was not used by Ayres. This is a rather serious criticism of the Ayres index. Since Ayres did not use standard scores but rather an average of more or less arbitrarily weighted components, his scores place considerably more weight on some factors than on others. For example, the index numbers for the entire United States for 1910 on the ten components were as follows:[28]

| Component | Index item 1910 | Component | Index item 1910 |
|---|---|---|---|
| 1 | 52.65 | 6 | 33.23 |
| 2 | 41.46 | 7 | 17.50 |
| 3 | 78.75 | 8 | 33.95 |
| 4 | 21.40 | 9 | 26.87 |
| 5 | 77.85 | 10 | 40.44 |

It is clear that component 1 was given approximately three times the weight of component 7, and factors 3 and 5 were given more than four times the weight of factor 7 and almost as much weight as any two other factors.

The standard score which Bagley uses "is obtained by computing the deviations of each original score from the average of all the scores, and then dividing each resulting deviation by the standard deviation."[29] The chief advantage of this score lies in the fact, as Bagley points out, that "ratings are always expressed in comparable terms no matter how widely the units of the several measures may vary in magnitude."[30]

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[28]Leonard P. Ayres, An Index Number for State School Systems, p. 21.

[29]William C. Bagley, op. cit., p. 181.

[30]Ibid., p. 182.

The principal objections to the standard scores used by Bagley are that the numbers obtained have both positive and negative signs and vary from only about —3.00 to +3.00 with a majority (in a normal distribution about 68.27%) of the numbers between —1.00 and +1.00. To eliminate these two disadvantages, the scores which are used in the present study are obtained in the same manner as those used by Bagley but each score has been multiplied by 10 to increase its size and 50 has been added to eliminate the negative signs in all cases except where the deviation of an individual score is more than five standard deviations below the mean.

The twelve factors used in this study to provide an index number of the quality and quantity of education provided by each state are listed below:

1. Average length of school term in days.
2. Average number of days attended by each pupil enrolled.
3. Per cent of pupils enrolled attending daily.
4. Per cent that high school attendance was of total attendance.
5. Per cent of persons 7-13 years old attending school.
6. Median school years completed by adults 25 years old and over.
7. Per cent of adult population 25 years old and over who have completed no school years (reversed).
8. Per cent of adult population 25 years old and over who have completed less than 5 years of school (reversed).
9. Number of pupils in average daily attendance per teacher (reversed).
10. Average annual expenditure per child attending.
11. Average annual expenditure per teacher for salaries.
12. Value of school property per pupil in average daily attendance.

Data for these twelve factors are presented in the Statistical Summary of Education, 1939-40, Volume II, Chapter I, published by the United States Office of Education, and in the United States Census for Population, Volume II, for 1940. All data are for 1940 or for the 1939-1940 school year. These years are used because they are the last years for which comparable data are available, and because they represent a more nearly normal condition than the more recent "war years."

The following explanation of data presented is given in the Statistical Summary of Education, 1939-40.

> In its various publications the U. S. Office of Education presents data for individual schools and for States. It is obviously impossible in a brief summary of statistics on education to include detailed data. Because of the widespread interest in State data for public day schools, however, two tables have been included in this chapter which make possible comparisons among the States with regard to provisions for public education. The U. S. Office of Education does not attempt to rank the States with regard to either quantity or quality of educational offerings, but it does collect data which show the range among the States with regard to certain measurable characteristics.....The great differences among the States are the result of many factors, such as geographic distances, urban-rural distributions, racial differences, and financial ability. Only when the affecting factors are taken fully into account can the variations by States be correctly interpreted.[31]

The "T" scores for each of the twelve factors, together with the original data, are shown on the following pages. All intermediate figures have been omitted to conserve space. The steps involved in arriving at the "T" score from the original data are therefore briefly reviewed:

1. Obtain the total of the column of original data.
2. Divide by 48 (the number of states) to obtain the mean.
3. Subtract the mean from each of the original scores to obtain the deviation from the mean, using negative signs where the score is less than the mean.

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[31] U. S. Office of Education, Statistical Summary of Education, 1939-40, Vol. II, Chap. I, pp. 21-22.

4. Square the deviations.

5. Obtain the total of the squared deviations and divide by 48.

6. Extract the square root of this quotient.

7. Divide each of the deviations obtained in step 3 by the figure obtained in step 6 and multiply by 10.

8. Add 50 to each score.

The result is a "T" score which will average 50 in all cases since the deviations above and below the mean must equal zero and we have divided them all by the same number, multiplied them all by the same number (still equal to zero), and finally added 50 to each. This will cause the total of the 48 scores to equal 2400 in each case, except where rounding numbers causes a difference which is ordinarily less than .5 above or below 2400. This provides an automatic check on steps 1, 2, 3, 7, and 8. Steps 4, 5, and 6 must be rechecked, and steps 1, 2, 3, 7, and 8 must be refigured where the total of the "T" scores varies to any extent from 2400.

Table 2 shows the average (mean) number of days schools were kept open during the 1939-40 school year. The range is from 145.7 days in Mississippi to 187.6 days in Maryland. The "T" scores range from 16.20 for Mississippi, more than three standard deviations below the mean, to 66.31 for Maryland. The average length of the school term for the entire United States if 175.0. The mean of the individual scores for the 48 states is 173.96. This indicates that the more populous states have longer school terms than the states with fewer people. The deviations in this case and in all others in this study are taken from the average of the 48 states individually.

TABLE 2--Average Length of School Term in Days, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Average School Term in Days | Standard T Score |
|---|---|---|
| Alabama | 153.5 | 25.53 |
| Arizona | 168.9 | 43.95 |
| Arkansas | 158.6 | 31.63 |
| California | 176.6 | 53.16 |
| Colorado | 171.9 | 47.54 |
| Connecticut | 183.1 | 60.93 |
| Delaware | 182.1 | 59.74 |
| Florida | 167.5 | 42.27 |
| Georgia | 162.2 | 35.94 |
| Idaho | 174.5 | 50.65 |
| Illinois | 184.6 | 62.73 |
| Indiana | 170.0 | 45.26 |
| Iowa | 176.6 | 53.16 |
| Kansas (Data for 1937-38) | 172.4 | 48.13 |
| Kentucky | 159.1 | 32.23 |
| Louisiana | 169.0 | 44.07 |
| Maine | 177.7 | 54.47 |
| Maryland | 187.6 | 66.31 |
| Massachusetts | 179.7 | 56.87 |
| Michigan | 183.0 | 60.81 |
| Minnesota | 172.8 | 48.61 |
| Mississippi | 145.7 | 16.20 |
| Missouri | 179.1 | 56.15 |
| Montana | 171.8 | 47.42 |
| Nebraska | 176.0 | 52.44 |
| Nevada | 174.1 | 50.17 |
| New Hampshire | 176.2 | 52.68 |
| New Jersey | 185.2 | 63.44 |
| New Mexico | 175.0 | 51.24 |
| New York | 184.3 | 62.37 |
| North Carolina | 164.3 | 38.45 |
| North Dakota | 172.7 | 48.49 |
| Ohio | 180.5 | 57.82 |
| Oklahoma (Data for 1937-38) | 175.6 | 51.96 |
| Oregon | 174.3 | 50.41 |
| Pennsylvania | 181.6 | 59.14 |
| Rhode Island | 180.0 | 57.22 |
| South Carolina | 163.0 | 36.89 |
| South Dakota | 174.9 | 51.12 |
| Tennessee | 166.3 | 40.84 |
| Texas | 171.9 | 47.54 |
| Utah | 174.8 | 51.00 |
| Vermont | 179.2 | 56.27 |
| Virginia | 180.2 | 57.46 |
| Washington | 178.7 | 55.67 |
| West Virginia | 176.1 | 52.56 |
| Wisconsin | 180.3 | 57.58 |
| Wyoming | 176.7 | 53.28 |

Average: U. S., 175.0; 48 States, 173.96; Standard Deviation, 8.36

The average length of the school term is clearly an indication of the quantity of education provided. However, many of the states which are leaders in education have made no serious attempt to have the schools kept open for more than nine 20-school-day months. This would give a maximum of 180 days. Where the state average is more than this figure, it is evident that the school year is not the usual nine school months.

The figures include both white and colored schools in all states where separate schools are maintained. As a general rule, colored schools in these states remain open for fewer days than do the schools for white children but both figures are below the national average of 175.0 for the entire United States or 173.96 for the 48 states weighting each state average at 1.

If the scores in the "Standard T Score" column are summed, the total will be found to be 2399.82. This indicates a total difference of only .18 between the total obtained and 2400, the theoretical total. This difference is due to the fact that decimals have been carried to only two places.

Table 3 shows the average number of days attended by each pupil enrolled. These scores range from 116.1 days attended in Mississippi to 167.9 days attended in Maryland. The "T" scores range from 21.06 to 64.09 for the same states. It will be noted that the score for the State of Mississippi is approximately three standard deviations below the mean while that of Maryland is only one and one-half standard deviations above. Since the average "T" score is always 50, this shows a heavy concentration slightly above the mean. Actually 30 of the 48 states have scores above the mean.

It is evident that states which had short school terms would

TABLE 3--Average Number of Days Attended by Each Pupil Enrolled, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Average Days Attended | Standard T Score |
|---|---|---|
| Alabama | 126.7 | 29.87 |
| Arizona | 135.5 | 37.18 |
| Arkansas | 127.2 | 30.28 |
| California | 157.0 | 55.03 |
| Colorado | 154.7 | 53.12 |
| Connecticut | 166.7 | 63.09 |
| Delaware | 162.6 | 59.68 |
| Florida | 148.2 | 47.72 |
| Georgia | 128.3 | 31.20 |
| Idaho | 152.8 | 51.54 |
| Illinois | 161.5 | 58.77 |
| Indiana | 149.4 | 48.72 |
| Iowa | 153.1 | 51.79 |
| Kansas | 151.6 | 50.55 |
| Kentucky | 129.9 | 32.52 |
| Louisiana | 142.2 | 42.74 |
| Maine | 161.4 | 58.69 |
| Maryland | 167.9 | 64.09 |
| Massachusetts | 161.5 | 58.77 |
| Michigan | 162.5 | 59.60 |
| Minnesota | 153.9 | 52.46 |
| Mississippi | 116.1 | 21.06 |
| Missouri | 153.2 | 51.88 |
| Montana | 157.5 | 55.45 |
| Nebraska | 154.8 | 53.21 |
| Nevada | 149.5 | 48.80 |
| New Hampshire | 156.8 | 54.87 |
| New Jersey | 164.0 | 60.85 |
| New Mexico | 140.4 | 41.25 |
| New York | 158.8 | 56.53 |
| North Carolina | 146.5 | 46.31 |
| North Dakota | 154.2 | 52.71 |
| Ohio | 166.8 | 63.17 |
| Oklahoma | 139.3 | 40.33 |
| Oregon | 153.4 | 52.04 |
| Pennsylvania | 163.5 | 60.43 |
| Rhode Island | 157.4 | 55.37 |
| South Carolina | 130.3 | 32.86 |
| South Dakota | 154.1 | 52.62 |
| Tennessee | 137.7 | 39.00 |
| Texas | 144.4 | 44.57 |
| Utah | 158.5 | 56.30 |
| Vermont | 155.8 | 54.04 |
| Virginia | 156.8 | 54.87 |
| Washington | 148.0 | 47.56 |
| West Virginia | 160.1 | 57.61 |
| Wisconsin | 164.1 | 60.93 |
| Wyoming | 148.5 | 47.97 |

Average: U. S., 151.7; 48 States, 150.94; Standard Deviation, 12.04

necessarily rank low in the average number of days attended by each pupil enrolled.

A comparison of the column of original data in Table 2 with that of Table 3 shows that students in Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, Michigan, New Jersey, Ohio, Pennsylvania, West Virginia, and Wisconsin attend an average of more than 160 days a year while the average pupil in Alabama, Arkansas, Kentucky, or Mississippi could not possibly attend school for as much as eight full school months if he attended every day that schools were open.

Both Tables 2 and 3 are expressed in terms of days and, taken together, indicate the amount of schooling made available and the extent to which students make use of their opportunities.

Table 4 shows the per cent of pupils enrolled attending daily. These figures may be derived from Tables 2 and 3, but the "T" scores are, of course, not the same as for either of the factors. They indicate in a more definite and exact way the extent to which students take advantage of the schooling offered.

Scores range from 92.4 per cent in Ohio to 79.1 per cent in Georgia. Colorado, Connecticut, Maine, Montana, Ohio, Pennsylvania, Utah, West Virginia, and Wisconsin all have an average daily attendance of 90 per cent or better. Oklahoma, Georgia, Mississippi, and South Carolina have less than 80 per cent of the students enrolled attending daily, and Arizona, Arkansas, and New Mexico have only 80.2 per cent of their pupils to answer the daily roll call.

The reason for nonattendance may be poor roads in winter weather, long distances to schools, poor health, or disinterest. It is a well-known fact that attendance at school is a middle-class tradition

TABLE 4--Per Cent of Pupils Enrolled Attending Daily, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Per Cent Attending Daily | Standard T Score |
|---|---|---|
| Alabama | 82.5 | 38.90 |
| Arizona | 80.2 | 32.75 |
| Arkansas | 80.2 | 32.75 |
| California | 88.9 | 56.02 |
| Colorado | 90.0 | 58.96 |
| Connecticut | 91.2 | 62.17 |
| Delaware | 89.1 | 56.82 |
| Florida | 88.5 | 54.95 |
| Georgia | 79.1 | 29.81 |
| Idaho | 87.6 | 52.54 |
| Illinois | 87.5 | 52.27 |
| Indiana | 87.9 | 53.34 |
| Iowa | 86.7 | 50.13 |
| Kansas | 87.9 | 53.34 |
| Kentucky | 81.6 | 36.50 |
| Louisiana | 84.2 | 43.45 |
| Maine | 90.8 | 61.10 |
| Maryland | 89.5 | 57.62 |
| Massachusetts | 89.9 | 58.69 |
| Michigan | 88.8 | 55.75 |
| Minnesota | 88.7 | 55.48 |
| Mississippi | 79.7 | 31.42 |
| Missouri | 85.5 | 46.93 |
| Montana | 91.7 | 63.50 |
| Nebraska | 87.8 | 53.07 |
| Nevada | 85.9 | 47.99 |
| New Hampshire | 89.0 | 56.28 |
| New Jersey | 88.6 | 55.21 |
| New Mexico | 80.2 | 32.75 |
| New York | 86.2 | 48.80 |
| North Carolina | 89.1 | 56.55 |
| North Dakota | 89.3 | 57.09 |
| Ohio | 92.4 | 65.37 |
| Oklahoma | 79.3 | 30.35 |
| Oregon | 88.0 | 53.61 |
| Pennsylvania | 90.1 | 59.22 |
| Rhode Island | 87.4 | 52.01 |
| South Carolina | 79.9 | 31.95 |
| South Dakota | 88.1 | 53.88 |
| Tennessee | 82.8 | 39.71 |
| Texas | 84.0 | 42.91 |
| Utah | 90.7 | 60.83 |
| Vermont | 86.9 | 50.67 |
| Virginia | 87.0 | 50.93 |
| Washington | 82.8 | 39.71 |
| West Virginia | 90.9 | 61.36 |
| Wisconsin | 91.0 | 61.63 |
| Wyoming | 84.0 | 42.91 |

Average: U. S., 86.7; 48 States, 86.65; Standard Deviation, 3.74.

and nonattendance common in lower-class communities. The states which rank lowest are those having a large lower-class population of Negroes or Mexicans, while those with better than 90 per cent attendance have less than 5.0 per cent Negro population, except in the case of West Virginia, which has 6.2 per cent Negroes.

The five states having the largest percentages of Negroes, Mississippi, South Carolina, Louisiana, Georgia, and Alabama, have an average daily attendance of 79.7 per cent, 79.9 per cent, 84.2 per cent, 79.1 per cent, and 82.5 per cent, respectively. The five states having the lowest percentage of Negroes, Idaho, South Dakota, Vermont, New Hampshire, and North Dakota, have an average daily attendance of 87.6, 88.1, 86.9, 89.0, and 89.3, respectively. These states have one-tenth of one per cent Negroes or less. Maine, Montana, Oregon, and Utah have only 0.2 per cent Negroes and average daily attendance scores of 90.8, 91.7, 88.0, and 90.7, respectively.

Table 5 shows the per cent that high school attendance was of total attendance. This score indicates the "holding power" of the school. If all students remained in school from the time they enrolled until they finished high school, the four high school grades would have approximately 33 1/3 per cent of the total enrollment. Deaths, "failures," and grade skipping would, of course, have some effect on the relationship of the number in grade school to the number in high school. However, the principal reasons that no state has a score of 33 1/3 per cent are that students do not remain in school for the twelve years because they must go to work, because they are not capable of doing the work, or because they are not interested in school.

TABLE 5--Per Cent that High School Attendance Was of Total Attendance, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Per Cent of Total Enrollment in Secondary Grades | Standard T Score |
|---|---|---|
| Alabama | 14.6 | 30.09 |
| Arizona | 20.2 | 40.46 |
| Arkansas | 15.7 | 32.13 |
| California | 30.4 | 59.35 |
| Colorado | 26.2 | 51.57 |
| Connecticut | 30.3 | 59.17 |
| Delaware | 27.3 | 53.61 |
| Florida | 21.0 | 41.94 |
| Georgia | 17.1 | 34.72 |
| Idaho | 28.3 | 55.46 |
| Illinois | 30.1 | 58.80 |
| Indiana | 29.4 | 57.50 |
| Iowa | 27.7 | 54.35 |
| Kansas | 29.8 | 58.24 |
| Kentucky | 16.1 | 32.87 |
| Louisiana | 21.0 | 41.94 |
| Maine | 24.5 | 48.53 |
| Maryland | 23.6 | 46.76 |
| Massachusetts | 31.3 | 61.02 |
| Michigan | 29.6 | 57.87 |
| Minnesota | 28.7 | 56.20 |
| Mississippi | 12.3 | 25.83 |
| Missouri | 25.1 | 49.54 |
| Montana | 29.8 | 58.24 |
| Nebraska | 29.4 | 57.50 |
| Nevada | 28.1 | 55.09 |
| New Hampshire | 28.6 | 56.02 |
| New Jersey | 29.8 | 58.24 |
| New Mexico | 17.6 | 35.65 |
| New York | 32.0 | 62.31 |
| North Carolina | 22.8 | 45.28 |
| North Dakota | 24.5 | 48.43 |
| Ohio | 30.6 | 59.72 |
| Oklahoma | 22.8 | 45.28 |
| Oregon | 32.3 | 62.87 |
| Pennsylvania | 29.5 | 57.69 |
| Rhode Island | 26.7 | 52.50 |
| South Carolina | 18.0 | 36.39 |
| South Dakota | 27.9 | 54.72 |
| Tennessee | 16.7 | 33.98 |
| Texas | 25.7 | 50.65 |
| Utah | 31.6 | 61.57 |
| Vermont | 21.2 | 42.31 |
| Virginia | 20.1 | 40.28 |
| Washington | 31.9 | 62.13 |
| West Virginia | 20.3 | 40.65 |
| Wisconsin | 29.8 | 58.24 |
| Wyoming | 29.0 | 56.76 |

Average, 48 States, 25.35; Standard Deviation, 5.40

The scores range from a low of 12.3 per cent in Mississippi to 32.3 per cent in Oregon. California, Connecticut, Illinois, Massachusetts, New York, Ohio, Oregon, Utah, and Washington all have more than 30 per cent of their total attendance in high schools, while Alabama, Arkansas, and Mississippi have less than 16 per cent in their high schools. The "T" scores range from 25.83 for Mississippi to 62.87 for Oregon.

All of the four factors in Tables 2, 3, 4, and 5 were used by Ayres in his original state index numbers; however, "T" scores were not used.

Table 6 shows the per cent of persons 7 to 13 years old attending school. Most data show the per cent of persons 5 to 17 or 5 to 19 years old attending school. Because of widely divergent views in regard to the importance of kindergarten training and differences in compulsory school laws in the various states, the more commonly used figures of 5 to 19 are not used here. All states require school attendance of persons between the ages of 7 and 13, and the per cent scores show the per cent attending of the total required by law to attend school. The range is from 62.7 per cent in Kentucky to 97.9 per cent in Utah. Connecticut, Idaho, Nebraska, and Wisconsin all have scores of 97.8 per cent. Kentucky's score of 62.7 per cent is unbelievably low. As a matter of fact, it is so low that it is more than six standard deviations below the mean. This causes it to have a "T" score of —10.78. Such a score is so low that it would not occur once in ten thousand cases. These figures are given in the United States Census reports, and they have been carefully checked. The per cent shown, 62.7 per cent, is not a typographical error.

TABLE 6--Per Cent of Persons 7-13 Years Old Attending School, United States, By States, 1939-40. Source: U. S. Census, Population, Vol. II, p. 82.

| STATE | Per Cent of Persons 7-13 Attending School | Standard T Score |
|---|---|---|
| Alabama | 92.4 | 44.88 |
| Arizona | 91.2 | 42.63 |
| Arkansas | 89.1 | 38.70 |
| California | 97.7 | 54.82 |
| Colorado | 97.1 | 53.69 |
| Connecticut | 97.8 | 55.00 |
| Delaware | 97.3 | 54.07 |
| Florida | 93.4 | 46.76 |
| Georgia | 91.9 | 43.95 |
| Idaho | 97.8 | 55.00 |
| Illinois | 97.4 | 54.25 |
| Indiana | 97.2 | 53.88 |
| Iowa | 97.6 | 54.63 |
| Kansas | 97.7 | 54.82 |
| Kentucky | 62.7 | --10.78 |
| Louisiana | 92.4 | 44.88 |
| Maine | 97.6 | 54.63 |
| Maryland | 96.6 | 52.75 |
| Massachusetts | 97.5 | 54.44 |
| Michigan | 97.7 | 54.82 |
| Minnesota | 97.7 | 54.82 |
| Mississippi | 88.3 | 37.20 |
| Missouri | 95.7 | 51.07 |
| Montana | 97.3 | 54.07 |
| Nebraska | 97.8 | 55.00 |
| Nevada | 97.0 | 53.50 |
| New Hampshire | 96.9 | 53.32 |
| New Jersey | 97.1 | 53.69 |
| New Mexico | 93.5 | 46.95 |
| New York | 97.0 | 53.50 |
| North Carolina | 95.2 | 50.13 |
| North Dakota | 96.7 | 52.94 |
| Ohio | 97.5 | 54.44 |
| Oklahoma | 96.7 | 52.94 |
| Oregon | 96.6 | 52.75 |
| Pennsylvania | 97.4 | 54.25 |
| Rhode Island | 97.5 | 54.44 |
| South Carolina | 93.7 | 47.32 |
| South Dakota | 97.5 | 54.44 |
| Tennessee | 90.8 | 41.89 |
| Texas | 94.1 | 48.07 |
| Utah | 97.9 | 55.19 |
| Vermont | 97.3 | 54.07 |
| Virginia | 93.4 | 46.76 |
| Washington | 94.3 | 48.44 |
| West Virginia | 95.9 | 51.44 |
| Wisconsin | 97.8 | 55.00 |
| Wyoming | 97.6 | 54.63 |

Average, 48 States, 95.13; Standard Deviation, 5.34.

Table 7 shows the median school years completed by adults 25 years old and over. Utah ranks first with 10.2 years of school and a "T" score of 75.07. Louisiana ranks last with a median of 6.6 years of schooling and a "T" score of only 25.75. California, Massachusetts, Nevada, Oregon, Utah, Washington, and Wyoming have median scores of 9.0 or better, while Alabama, Georgia, Louisiana, Mississippi, and South Carolina have scores of 7.1 or less.

Table 8 shows the per cent of adult population 25 years old and over who have completed no school years. The per cent scores range from 12.8 per cent for Louisiana to 0.6 per cent for Iowa. Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, Oregon, South Dakota, Utah, Vermont, Washington, Wisconsin, and Wyoming all have less than 2 per cent who have had no schooling. For the most part, these are farming and ranching states with large native white populations. Out of fourteen states with 90 per cent or more native white population, only one, Kentucky, has a larger per cent of adults with no schooling than the national average of 3.7 per cent, and only three have as much as 2 per cent with no schooling. Iowa and Idaho, which rank first and second, respectively, in the per cent of native white also rank first and second in the per cent (reversed) of adults with no schooling.

The "T" scores on this factor range from 14.73 for Louisiana to 61.65 for Iowa. Kentucky and West Virginia, neighboring mountain states, are the only states with 90 per cent or more native white population which have "T" scores of less than 50.0; they have scores of 48.19 and 49.73, respectively. Alabama, Florida, Georgia, Louisiana, Mississippi, and South Carolina all have less than 70 per cent native white populations and all except Florida rank more than one standard deviation below the mean.

If persons with less than four years of schooling are considered of practically no value to the Army or Navy, it is evident that those with no schooling would contribute far less than their maximum potential value to society as civilians. The lives of more than six per cent of the people over 25 years of age are thus being at least partially wasted in Alabama, Arizona, Georgia, Louisiana, Mississippi, New Mexico, and South Carolina. Since all of these states have large populations of the minority races, Negro and Mexican, it is quite possible that those responsible for education and school attendance do not consider the loss as great as it would be if the illiterates were all of the "white" race.

Not only is there likely to be a decrease in economic efficiency, but there is actually a very high correlation between the infant mortality rate and the number of persons 25 years old and over who have had no schooling. Alabama, Arizona, Georgia, Louisiana, Mississippi, New Mexico, and South Carolina all have infant mortality rates of more than 100 per 1000 live births. Texas is the only other state which has an infant mortality rate above 100 and it is 100.1. Most of the other states have rates of approximately 65 to 70 with a national average of 76.66.

It has been said that the children of a state are its most valuable natural resource. The states of the South and Southwest are unquestionably wasting the lives of children. If there is a causal relationship between illiteracy and the infant mortality rate, it is quite possible that the loss due to deaths of infants less than one year of age would be greater than the cost of educating the parents so that they would be capable of properly caring for their offspring.

TABLE 7--Median School Years Completed by Adults 25 Years Old and Over, United States, By States, 1940. Source: U. S. Census, Population, Vol. II, p. 84.

| STATE | Median School Years Completed | Standard T Score |
|---|---|---|
| Alabama | 7.1 | 32.60 |
| Arizona | 8.6 | 53.15 |
| Arkansas | 7.5 | 38.08 |
| California | 9.9 | 70.96 |
| Colorado | 8.9 | 57.26 |
| Connecticut | 8.5 | 51.78 |
| Delaware | 8.5 | 51.78 |
| Florida | 8.3 | 49.04 |
| Georgia | 7.1 | 32.60 |
| Idaho | 8.9 | 57.26 |
| Illinois | 8.5 | 51.78 |
| Indiana | 8.5 | 51.78 |
| Iowa | 8.7 | 54.52 |
| Kansas | 8.7 | 54.52 |
| Kentucky | 7.7 | 40.82 |
| Louisiana | 6.6 | 25.75 |
| Maine | 8.9 | 57.26 |
| Maryland | 8.0 | 44.93 |
| Massachusetts | 9.0 | 58.63 |
| Michigan | 8.6 | 53.15 |
| Minnesota | 8.5 | 51.78 |
| Mississippi | 7.1 | 32.60 |
| Missouri | 8.3 | 49.04 |
| Montana | 8.7 | 54.52 |
| Nebraska | 8.8 | 55.89 |
| Nevada | 9.6 | 66.85 |
| New Hampshire | 8.7 | 54.52 |
| New Jersey | 8.4 | 50.41 |
| New Mexico | 7.9 | 43.56 |
| New York | 8.4 | 50.41 |
| North Carolina | 7.4 | 36.71 |
| North Dakota | 8.3 | 49.04 |
| Ohio | 8.6 | 53.15 |
| Oklahoma | 8.4 | 50.41 |
| Oregon | 9.1 | 60.00 |
| Pennsylvania | 8.2 | 47.67 |
| Rhode Island | 8.3 | 49.04 |
| South Carolina | 6.7 | 27.12 |
| South Dakota | 8.5 | 51.78 |
| Tennessee | 7.7 | 40.82 |
| Texas | 8.5 | 51.78 |
| Utah | 10.2 | 75.07 |
| Vermont | 8.8 | 55.89 |
| Virginia | 7.7 | 40.82 |
| Washington | 9.1 | 60.00 |
| West Virginia | 7.8 | 42.19 |
| Wisconsin | 8.3 | 49.04 |
| Wyoming | 9.2 | 61.37 |

Average: U. S., 8.4; 48 States, 8.37; Standard Deviation, .73.

TABLE 8--Per Cent of Adult Population 25 Years Old and Over Who Have Completed No School Years, United States, By States, 1940. Source: 16th U. S. Census, Population, Vol. II, p. 84

| STATE | Per Cent Completing No School Years | Standard T Score |
|---|---|---|
| Alabama | 6.7 | 38.19 |
| Arizona | 8.9 | 29.73 |
| Arkansas | 3.9 | 48.96 |
| California | 2.5 | 54.35 |
| Colorado | 2.3 | 55.12 |
| Connecticut | 4.7 | 45.88 |
| Delaware | 3.3 | 51.27 |
| Florida | 4.0 | 48.58 |
| Georgia | 6.5 | 38.96 |
| Idaho | 0.9 | 60.50 |
| Illinois | 2.7 | 53.58 |
| Indiana | 1.3 | 58.96 |
| Iowa | 0.6 | 61.65 |
| Kansas | 1.1 | 59.73 |
| Kentucky | 4.1 | 48.19 |
| Louisiana | 12.8 | 14.73 |
| Maine | 2.1 | 55.88 |
| Maryland | 2.8 | 53.19 |
| Massachusetts | 4.1 | 48.19 |
| Michigan | 2.4 | 54.73 |
| Minnesota | 1.4 | 58.58 |
| Mississippi | 6.6 | 38.58 |
| Missouri | 1.9 | 56.65 |
| Montana | 1.6 | 57.81 |
| Nebraska | 1.0 | 60.12 |
| Nevada | 2.9 | 52.81 |
| New Hampshire | 2.4 | 54.73 |
| New Jersey | 4.3 | 47.42 |
| New Mexico | 10.7 | 22.81 |
| New York | 5.6 | 42.42 |
| North Carolina | 5.8 | 41.65 |
| North Dakota | 2.1 | 55.88 |
| Ohio | 2.0 | 56.27 |
| Oklahoma | 2.5 | 54.35 |
| Oregon | 1.0 | 60.12 |
| Pennsylvania | 4.1 | 48.19 |
| Rhode Island | 5.2 | 43.96 |
| South Carolina | 7.9 | 33.58 |
| South Dakota | 1.2 | 59.35 |
| Tennessee | 4.2 | 47.81 |
| Texas | 5.3 | 43.58 |
| Utah | 1.5 | 58.19 |
| Vermont | 1.6 | 57.81 |
| Virginia | 5.4 | 43.19 |
| Washington | 1.2 | 59.35 |
| West Virginia | 3.7 | 49.73 |
| Wisconsin | 1.7 | 57.42 |
| Wyoming | 1.9 | 56.65 |

Average: U. S., 3.7; 48 States, 3.63; Standard Deviation, 2.60.

It should be noted that Connecticut, New York, Massachusetts, and Rhode Island, in spite of large amounts spent on schooling and a high rank on most other education factors, have 4.7 per cent, 5.6 per cent, 4.1 per cent, and 5.2 per cent of their adults with no schooling. Pennsylvania and New Jersey also rank below the mean on this factor. Much of this is due to immigration of Southern workers to the large industrial cities in these states. It is definite proof that no state can be entirely unconcerned about the provisions for education in other states, and it may indicate the need for a national system of education.

Table 9 shows the per cent of adult population 25 years old and over who have completed less than 5 years of school. This factor is included because of the Army's recent emphasis on "functional" literacy.

It was found that persons with less than four years of education were "functionally" illiterate; that is, they could not read well enough to understand orders and were therefore considered to be of no value in a military organization. It will be noticed that according to these standards, better than 25 per cent of the adults 25 years old and over in Alabama, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, and South Carolina are unfit for military duty from the standpoint of education alone, and in Louisiana and South Carolina more than one-third of the adults are functionally illiterate. Iowa and Idaho again have the best scores. Oregon, Kansas, Nebraska, Utah, Vermont, and Washington also rank well above the mean.

The inclusion of this factor places a great deal of emphasis on literacy, but this, in the opinion of Bagley and others, is one of the best indications of the state's provisions for education. It is at least an indication of past provisions.

TABLE 9--Per Cent of Adult Population 25 Years Old and Over Who Have Completed Less Than 5 Years of School, United States, By States, 1940. Source: U. S. Census, Population, Vol. II, p. 84.

| STATE | Per Cent Completing Less Than 5 Years | Standard T Score |
|---|---|---|
| Alabama | 28.9 | 32.27 |
| Arizona | 19.4 | 43.52 |
| Arkansas | 23.1 | 39.14 |
| California | 8.1 | 56.90 |
| Colorado | 9.0 | 55.84 |
| Connecticut | 11.2 | 53.23 |
| Delaware | 12.9 | 51.22 |
| Florida | 18.5 | 44.59 |
| Georgia | 30.1 | 30.85 |
| Idaho | 5.2 | 60.34 |
| Illinois | 9.6 | 55.13 |
| Indiana | 7.7 | 57.38 |
| Iowa | 4.1 | 61.64 |
| Kansas | 6.1 | 59.27 |
| Kentucky | 20.2 | 42.58 |
| Louisiana | 35.7 | 24.22 |
| Maine | 7.4 | 57.73 |
| Maryland | 15.3 | 48.38 |
| Massachusetts | 10.1 | 54.54 |
| Michigan | 10.2 | 54.42 |
| Minnesota | 7.5 | 57.61 |
| Mississippi | 30.2 | 30.73 |
| Missouri | 10.3 | 54.30 |
| Montana | 7.4 | 57.73 |
| Nebraska | 6.0 | 59.39 |
| Nevada | 8.8 | 56.07 |
| New Hampshire | 8.1 | 56.90 |
| New Jersey | 12.0 | 52.29 |
| New Mexico | 27.3 | 34.17 |
| New York | 12.1 | 52.17 |
| North Carolina | 26.2 | 35.47 |
| North Dakota | 10.8 | 53.71 |
| Ohio | 8.4 | 56.55 |
| Oklahoma | 13.5 | 50.51 |
| Oregon | 5.2 | 60.34 |
| Pennsylvania | 12.3 | 51.93 |
| Rhode Island | 13.7 | 50.27 |
| South Carolina | 34.7 | 25.41 |
| South Dakota | 7.2 | 57.97 |
| Tennessee | 21.7 | 40.80 |
| Texas | 18.8 | 44.23 |
| Utah | 5.5 | 59.98 |
| Vermont | 6.1 | 59.27 |
| Virginia | 23.2 | 39.02 |
| Washington | 5.9 | 59.51 |
| West Virginia | 16.5 | 46.96 |
| Wisconsin | 9.4 | 55.36 |
| Wyoming | 7.1 | 58.09 |

Average: U. S., 13.5; 48 States, 13.93; Standard Deviation, 8.45.

Table 10 shows the number of pupils in average daily attendance per teacher. This is intended to be a measure of crowding in classes and may be a valid measure of education. However, it has a fundamental weakness in the fact that many of the states which rank highest on this factor are those which are most sparsely settled. Many of the schools in these states are small rural schools with very few students. It will be noted that Iowa, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming have fewer than 20 pupils per teacher. All of these states may be described as "plains" or "mountain" states, and all have large rural areas, very few cities of any size, and many small, rural schools.

The ideal class size has not been definitely determined and it is doubtful if classes of fewer than 20 students are better than those of 25 or less. However, it is evident that after a certain point the teacher's effectiveness decreases as the number of pupils under her increases.

The number of pupils per teacher ranges from 15.3 in South Dakota to 32.2 in North Carolina. Mississippi, with 32.1, is the only other state in the United States with more than 30.0 pupils per teacher. The national average is 25.2 and the mean of the 48 states individually is 24.6.

Table 11 shows the average annual expenditure per pupil in average daily attendance for current expense, including interest. This is the first of three financial items included in the education index. Ayres' index included five financial factors out of ten, and has been criticized for this undue emphasis on the amount spent for education with no consideration of relative costs of food, fuel, clothing, and other essentials.

TABLE 10--Number of Pupils in Average Daily Attendance per Teacher, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Number of Pupils Per Teacher | Standard T Score |
|---|---|---|
| Alabama | 29.2 | 37.61 |
| Arizona | 26.1 | 45.96 |
| Arkansas | 29.1 | 37.88 |
| California | 27.6 | 41.92 |
| Colorado | 22.3 | 56.19 |
| Connecticut | 26.6 | 44.61 |
| Delaware | 24.1 | 51.35 |
| Florida | 24.8 | 49.46 |
| Georgia | 25.6 | 47.31 |
| Idaho | 23.5 | 52.96 |
| Illinois | 23.8 | 52.15 |
| Indiana | 27.5 | 42.19 |
| Iowa | 19.5 | 63.74 |
| Kansas | 19.6 | 63.47 |
| Kentucky | 26.2 | 45.69 |
| Louisiana | 26.8 | 44.07 |
| Maine | 24.1 | 51.35 |
| Maryland | 29.8 | 35.99 |
| Massachusetts | 25.4 | 47.85 |
| Michigan | 26.3 | 45.42 |
| Minnesota | 21.5 | 58.35 |
| Mississippi | 32.1 | 29.80 |
| Missouri | 22.7 | 55.12 |
| Montana | 18.9 | 65.35 |
| Nebraska | 17.6 | 68.85 |
| Nevada | 20.1 | 62.12 |
| New Hampshire | 22.9 | 54.58 |
| New Jersey | 23.5 | 52.96 |
| New Mexico | 28.0 | 40.84 |
| New York | 23.8 | 52.15 |
| North Carolina | 32.2 | 29.53 |
| North Dakota | 17.2 | 69.93 |
| Ohio | 25.7 | 47.04 |
| Oklahoma | 24.0 | 51.62 |
| Oregon | 22.8 | 54.85 |
| Pennsylvania | 27.4 | 42.46 |
| Rhode Island | 26.4 | 45.15 |
| South Carolina | 25.6 | 47.31 |
| South Dakota | 15.3 | 75.05 |
| Tennessee | 26.6 | 44.61 |
| Texas | 24.7 | 49.73 |
| Utah | 28.0 | 40.84 |
| Vermont | 21.3 | 58.89 |
| Virginia | 27.9 | 41.11 |
| Washington | 25.9 | 46.50 |
| West Virginia | 28.9 | 38.42 |
| Wisconsin | 23.7 | 52.42 |
| Wyoming | 18.5 | 66.43 |

Average: U. S., 25.2; 48 States, 24.6; Standard Deviation, 3.71.

TABLE 11--Average Annual Expenditure per Child Attending for Current Expense, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Expenditure per Pupil | Standard T Score |
|---|---|---|
| Alabama | $ 37.03 | 33.76 |
| Arizona | 102.03 | 54.65 |
| Arkansas | 34.18 | 32.84 |
| California | 150.15 | 70.12 |
| Colorado | 97.38 | 53.16 |
| Connecticut | 114.54 | 58.68 |
| Delaware | 110.10 | 57.25 |
| Florida | 65.67 | 42.97 |
| Georgia | 43.13 | 35.72 |
| Idaho | 81.65 | 48.10 |
| Illinois | 121.09 | 60.78 |
| Indiana | 89.18 | 50.52 |
| Iowa | 90.32 | 50.89 |
| Kansas | 87.84 | 50.09 |
| Kentucky | 48.90 | 37.58 |
| Louisiana | 60.66 | 41.36 |
| Maine | 64.78 | 42.68 |
| Maryland | 90.29 | 50.88 |
| Massachusetts | 116.66 | 59.36 |
| Michigan | 100.67 | 54.22 |
| Minnesota | 104.20 | 55.35 |
| Mississippi | 31.23 | 31.90 |
| Missouri | 83.80 | 48.79 |
| Montana | 110.89 | 57.50 |
| Nebraska | 77.10 | 46.64 |
| Nevada | 136.45 | 65.72 |
| New Hampshire | 93.61 | 51.95 |
| New Jersey | 148.54 | 69.60 |
| New Mexico | 79.59 | 47.44 |
| New York | 169.90 | 76.47 |
| North Carolina | 44.39 | 36.13 |
| North Dakota | 74.70 | 45.87 |
| Ohio | 103.83 | 55.23 |
| Oklahoma | 67.89 | 43.68 |
| Oregon | 101.85 | 54.60 |
| Pennsylvania | 106.05 | 55.95 |
| Rhode Island | 116.53 | 59.32 |
| South Carolina | 42.65 | 35.57 |
| South Dakota | 90.71 | 51.02 |
| Tennessee | 45.61 | 36.52 |
| Texas | 70.83 | 44.63 |
| Utah | 81.74 | 48.13 |
| Vermont | 86.20 | 49.56 |
| Virginia | 50.37 | 38.05 |
| Washington | 108.56 | 56.75 |
| West Virginia | 65.25 | 42.83 |
| Wisconsin | 93.82 | 52.02 |
| Wyoming | 110.00 | 57.22 |

Average: U. S., 94.03; 48 States, 87.55; Standard Deviation, 31.11.

Amounts spent range from $31.23 in Mississippi to $169.90 in New York. Alabama, Arkansas, and Mississippi all spend less than $40 per year on each pupil in average daily attendance. California, Illinois, Nevada, New Jersey, and New York are the only states which spend more than $120 per pupil.

Transportation costs in sparsely settled states and fuel costs in some of the far northern states must certainly increase the per pupil cost without adding to the quantity or quality of education provided, but, in general, the amount spent per pupil should be considered a valid factor in any education index so long as financial items do not represent a disproportionate part of the total.

Table 12 shows the average annual expenditure per teacher for salaries. Original data include the salaries of principals and supervisors as well as regular classroom teachers. The amounts paid vary from $559 in Mississippi to $2604 per teacher in New York. Arkansas is the only other state which pays its average teacher less than $600 per year, while California, Massachusetts, and New Jersey are the only other states to pay more than $2,000 per year. In spite of the fact that New York pays her teachers nearly five times as much as Mississippi, the per cent of adults with no schooling in New York is 5.6 per cent and only slightly worse, 6.6 per cent, in Mississippi.

Table 13 shows the value of school property per pupil in average daily attendance. This is the third of the financial factors included in the index, and it has the same basic weakness as the other two. School property in cities is more valuable than the same property would be in rural areas due both to the value of building sites and higher building costs. In addition, school buildings in cold states must be

TABLE 12--Average Salary of Principals, Supervisors, and Teachers, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Average Salary of Principals Supervisors, and Teachers | Standard T Score |
|---|---|---|
| Alabama | $ 744 | 38.35 |
| Arizona | 1544 | 55.99 |
| Arkansas | 584 | 34.82 |
| California | 2351 | 73.79 |
| Colorado | 1393 | 52.66 |
| Connecticut | 1861 | 62.99 |
| Delaware | 1684 | 59.08 |
| Florida | 1012 | 44.26 |
| Georgia | 770 | 38.92 |
| Idaho | 1057 | 45.25 |
| Illinois | 1700 | 59.43 |
| Indiana | 1433 | 53.54 |
| Iowa | 1017 | 44.37 |
| Kansas | 1014 | 44.30 |
| Kentucky | 826 | 40.16 |
| Louisiana | 1006 | 44.13 |
| Maine | 894 | 41.66 |
| Maryland | 1642 | 58.15 |
| Massachusetts | 2037 | 66.87 |
| Michigan | 1576 | 56.70 |
| Minnesota | 1276 | 50.08 |
| Mississippi | 559 | 34.27 |
| Missouri | 1159 | 47.50 |
| Montana | 1184 | 48.05 |
| Nebraska | 829 | 40.22 |
| Nevada | 1557 | 56.28 |
| New Hampshire | 1258 | 49.68 |
| New Jersey | 2093 | 68.10 |
| New Mexico | 1144 | 47.17 |
| New York | 2604 | 79.38 |
| North Carolina | 946 | 42.80 |
| North Dakota | 745 | 38.37 |
| Ohio | 1587 | 56.94 |
| Oklahoma | 1014 | 44.30 |
| Oregon | 1333 | 51.34 |
| Pennsylvania | 1640 | 58.11 |
| Rhode Island | 1809 | 61.84 |
| South Carolina | 743 | 38.32 |
| South Dakota | 807 | 39.74 |
| Tennessee | 862 | 40.95 |
| Texas | 1079 | 45.74 |
| Utah | 1394 | 52.68 |
| Vermont | 981 | 43.57 |
| Virginia | 899 | 41.77 |
| Washington | 1706 | 59.57 |
| West Virginia | 1170 | 47.74 |
| Wisconsin | 1379 | 52.35 |
| Wyoming | 1169 | 47.72 |

Average: U. S., $1441; 48 States, $1272.31; Standard Deviation, $453.34.

TABLE 13--Value of School Property per Pupil in Average Daily Attendance, United States, By States, 1939-40. Source: Statistical Summary of Education, 1939-40, Vol. II, Chap. I.

| STATE | Value in Dollars | Standard T Score |
|---|---|---|
| Alabama | $ 102 | 33.53 |
| Arizona | 264 | 45.76 |
| Arkansas | 116 | 34.58 |
| California | 415 | 57.16 |
| Colorado | 338 | 51.34 |
| Connecticut | 475 | 61.69 |
| Delaware | 566 | 68.56 |
| Florida | 258 | 45.30 |
| Georgia | 138 | 36.24 |
| Idaho | 278 | 46.81 |
| Illinois | 517 | 64.86 |
| Indiana | 345 | 51.87 |
| Iowa | 311 | 49.30 |
| Kansas | 358 | 52.85 |
| Kentucky | 151 | 37.22 |
| Louisiana | 182 | 39.57 |
| Maine | 239 | 43.87 |
| Maryland | 336 | 51.19 |
| Massachusetts | 498 | 63.42 |
| Michigan | 424 | 57.84 |
| Minnesota | 440 | 59.04 |
| Mississippi | 123 | 35.11 |
| Missouri | 294 | 48.02 |
| Montana | 384 | 54.82 |
| Nebraska | 339 | 51.42 |
| Nevada | 424 | 57.84 |
| New Hampshire | 366 | 53.46 |
| New Jersey | 564 | 68.41 |
| New Mexico | 178 | 39.26 |
| New York | 611 | 71.95 |
| North Carolina | 150 | 37.15 |
| North Dakota | 353 | 52.48 |
| Ohio | 399 | 55.95 |
| Oklahoma | 201 | 41.00 |
| Oregon | 377 | 54.29 |
| Pennsylvania | 395 | 55.65 |
| Rhode Island | 446 | 59.50 |
| South Carolina | 137 | 36.17 |
| South Dakota | 346 | 51.95 |
| Tennessee | 96 | 33.07 |
| Texas | 256 | 45.15 |
| Utah | 341 | 51.57 |
| Vermont | 277 | 46.74 |
| Virginia | 179 | 39.34 |
| Washington | 377 | 54.29 |
| West Virginia | 206 | 41.38 |
| Wisconsin | 520 | 65.08 |
| Wyoming | 280 | 46.96 |

Average: U. S., $346; 48 States, $320.21; Standard Deviation, $132.45.

much better built and must have thicker walls, more expensive heating plants, and much more insulation than buildings in the South. This would cause the Southern States, especially those bordering on the Gulf of Mexico, to appear at a greater disadvantage than actually exists.

Property values range from $96 in Tennessee to $611 per pupil in New York. The states which have less than $140 in property per pupil in average daily attendance are Alabama, Arkansas, Georgia, Mississippi, South Carolina, and Tennessee. As might be expected, these are largely rural, agricultural states in the warmest region of the nation.

The fact that the figures are "per pupil in average daily attendance" gives some advantage to states where attendance is poor. Perhaps the figures should be "per child of school age." This fact may partly offset the advantage given Northern States, which are colder and generally more urban, since the states which rank lowest in this factor are also the ones which generally rank low in attendance.

The United States Office of Education points out an important fact in regard to financial data which should be noted here:

> In all financial data by States which show wide variation in support, the point should not be lost sight of that by and large the States which spend the smallest amounts per pupil actually make the greatest efforts to support public education. Because they have a larger than average number of children to support per person of working age and a lower than average per capita income, they cannot provide educational facilities comparable to those provided by wealthier States.[32]

Many states could not spend as much money per pupil in average daily attendance as does New York even if every dollar of tax revenue were spent on education and all other governmental functions entirely

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[32] U. S. Office of Education, Statistical Summary of Education, 1939-40, Vol. II, Chap. I, pp. 24-25.

discontinued. Perhaps one reason for the relative poverty of the South is the migration of young workers out of the agricultural areas of the South and into the industrial areas of the North. Since 1910 there has been a heavy migration of white workers into New York, Michigan, Ohio, New Jersey, Illinois, and Pennsylvania, and a large outward migration from Arkansas, Oklahoma, Missouri, Georgia, and Alabama. Negro workers, and their families, have left Georgia, South Carolina, Mississippi, Alabama, Arkansas, and other Southern states to go to New York, Illinois, Michigan, Pennsylvania, Ohio, and New Jersey.

Of an increase of approximately 200,000 persons in the population of Michigan attributable to migration, 1920 to 1930, almost half were between the ages of 15 to 29. Of the six age groups over 55, only one showed a surplus, or, in other words, in only one group did the number coming into the state exceed the number going out.[33] Thus it seems that many people are educated in one state but make their productive contribution to society in another. The South is the principal loser in this exchange, and the industrial areas of the North, as has been shown, make the most important gains. This continuing process cannot but work to the detriment of the agricultural state which is already overburdened with a high birth rate, poor living conditions, poorer physical health, and absentee ownership of most of the state's valuable natural resources. These factors probably have more to do with a state's welfare than the fact that some early settler came from an English debtor's prison or any other hereditary factor suggested by Thorndike.

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[33] C. Warren Thornthwaite, Internal Migration in the U. S., pp. 9, 13, 20.

Table 14 shows the totals of the "T" scores of the states on the 12 factors included in the index. These totals are divided by 12 to get the final "Education Index" shown in column 3. It is believed that this index is as accurate as any which has yet been prepared. It is based on twelve factors as compared with ten used by Ayres and five by Bagley. Standard scores on each factor make it possible to record a state's relative standing much more accurately than any arbitrary method of weighting or any system based on ranking. All figures have been carefully checked, and, in spite of the vast amount of calculation necessary to arrive at each score, it is believed that the scores are free from any mathematical error which would have any practical effect on the final scores.

The final index numbers are rounded to one decimal place to reduce the amount of labor involved in figuring correlations. This has practically no effect on the correlation figures given in the latter part of this study.

Chart 1 shows how the forty-eight states rank in regard to the quantity and quality of education provided. These ranks may be compared with those found by Ayres in 1890, 1900, 1910, 1916, and 1918 which are presented in Table 1. The fact that a high degree of correlation exists is readily evident. To make comparisons with following charts more easily made, all states below the mean are shown in red and states above the mean are white.

TABLE 14 — The Education Index

| STATE | Total on 12 Factors | Education Index | Rank |
|---|---|---|---|
| Alabama | 415.58 | 34.6 | 47 |
| Arizona | 525.73 | 43.8 | 38 |
| Arkansas | 431.79 | 36.0 | 44 |
| California | 703.58 | 58.6 | 2 |
| Colorado | 646.45 | 53.9 | 24 |
| Connecticut | 679.22 | 56.6 | 7 |
| Delaware | 674.43 | 56.2 | 10 |
| Florida | 557.84 | 46.5 | 35 |
| Georgia | 436.22 | 36.4 | 43 |
| Idaho | 636.41 | 53.0 | 26 |
| Illinois | 684.53 | 57.0 | 5 |
| Indiana | 624.94 | 52.1 | 30 |
| Iowa | 650.17 | 54.2 | 19 |
| Kansas | 649.31 | 54.1 | 22 |
| Kentucky | 415.58 | 34.6 | 46 |
| Louisiana | 450.91 | 37.6 | 42 |
| Maine | 627.85 | 52.3 | 29 |
| Maryland | 630.24 | 52.5 | 27 |
| Massachusetts | 688.65 | 57.4 | 4 |
| Michigan | 665.33 | 55.4 | 14 |
| Minnesota | 658.36 | 54.9 | 15 |
| Mississippi | 364.70 | 30.4 | 48 |
| Missouri | 614.99 | 51.2 | 32 |
| Montana | 674.46 | 56.2 | 9 |
| Nebraska | 653.75 | 54.5 | 16 |
| Nevada | 673.24 | 56.1 | 11 |
| New Hampshire | 648.99 | 54.1 | 23 |
| New Jersey | 700.62 | 58.4 | 3 |
| New Mexico | 483.09 | 40.3 | 40 |
| New York | 708.46 | 59.0 | 1 |
| North Carolina | 496.16 | 41.3 | 39 |
| North Dakota | 624.94 | 52.1 | 31 |
| Ohio | 681.65 | 56.8 | 6 |
| Oklahoma | 556.73 | 46.4 | 36 |
| Oregon | 667.22 | 55.6 | 13 |
| Pennsylvania | 650.69 | 54.2 | 18 |
| Rhode Island | 640.62 | 53.4 | 25 |
| South Carolina | 428.89 | 35.7 | 45 |
| South Dakota | 653.64 | 54.5 | 17 |
| Tennessee | 480.00 | 40.0 | 41 |
| Texas | 558.58 | 46.5 | 34 |
| Utah | 671.35 | 55.9 | 12 |
| Vermont | 629.09 | 52.4 | 28 |
| Virginia | 533.60 | 44.5 | 37 |
| Washington | 649.48 | 54.1 | 21 |
| West Virginia | 572.87 | 47.7 | 33 |
| Wisconsin | 677.07 | 56.4 | 8 |
| Wyoming | 649.99 | 54.2 | 20 |

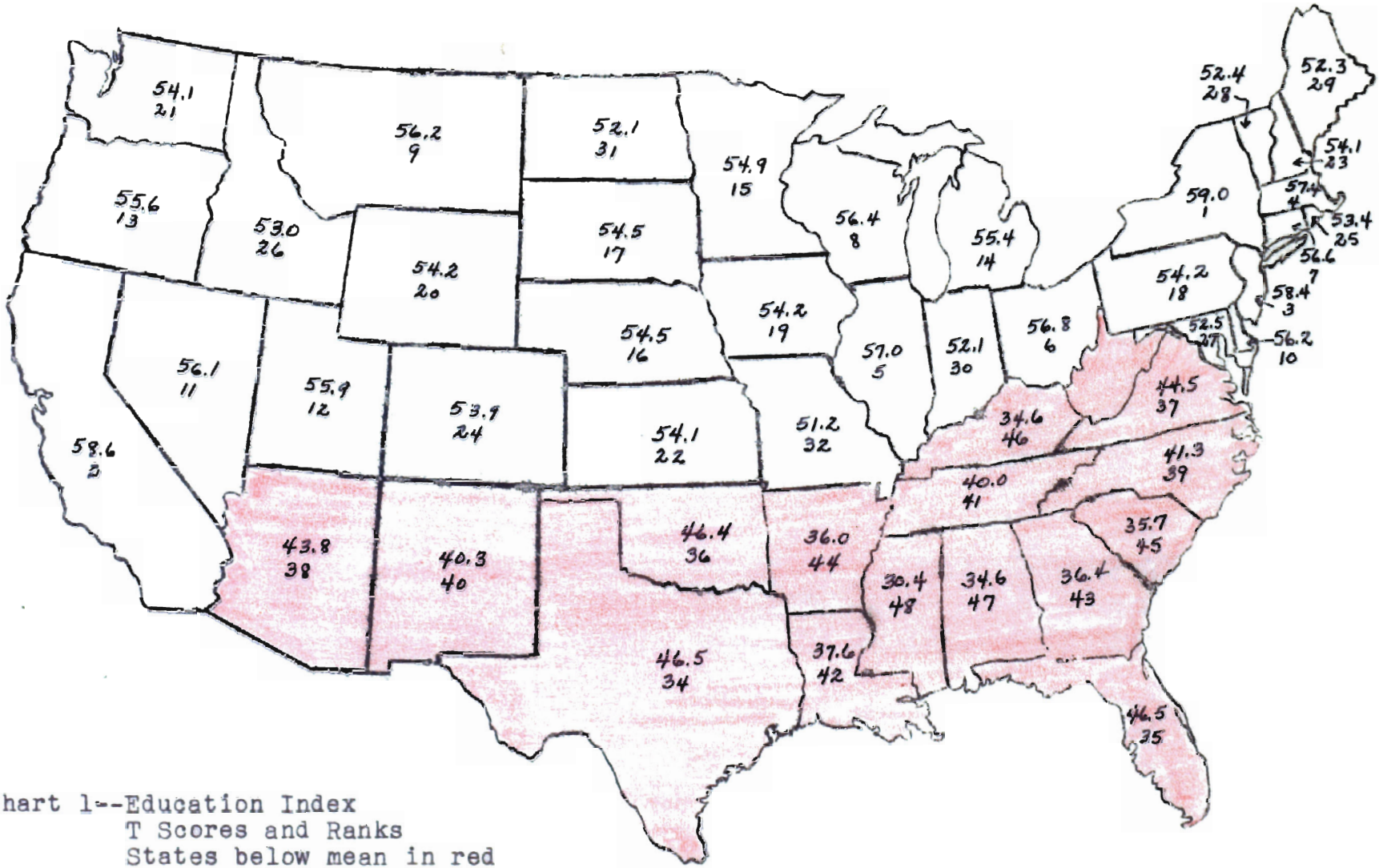


Chart 1--Education Index
T Scores and Ranks
States below mean in red

# CHAPTER III

## THE STANDARD OF LIVING IN THE FORTY-EIGHT STATES

One of the principal purposes of this study is to compare the education index of the forty-eight states with the standard of living in these states. To arrive at a standard of living index which may be correlated with the education index and the other indices, thirteen items are used. A standard "T" score is obtained for each of these factors and the average of the thirteen scores made on these items, each weighted at 1, is used as the index.

Data for these scores are obtained from the United States Census, 1940, Housing; Automobile Facts and Figures; Education--An Investment in People; World Almanac; Statistical Abstract of the United States, 1943; and United States Census, 1940, Volume II, Population.

The thirteen sets of data are:

1. Per cent of dwelling units with running water.
2. Per cent of dwelling units with private bath and flush toilet.
3. Per cent of dwelling units with electric lighting.
4. Per cent of dwelling units reporting no refrigeration equipment (reversed).
5. Per cent of occupied units with radio.
6. Per cent of occupied units having more than two persons per room (reversed).
7. Number of persons per passenger car (reversed).
8. Number of telephones per 1000 population.
9. Circulation of 18 nationally advertised magazines per 1000 population.
10. Per capita income payments.

11. Per capita retail sales.

12. Median wage or salary income of wage or salary workers, except those on Public Emergency Work.

13. Per cent of children 14-17 in labor force (reversed).

It will be seen that the first eight items come under what Thorndike has called "creature comforts," item 9 is a generally recognized and widely used measure of the standard of living, items 10, 11, and 12 show the financial well-being of the people of the state, and item 13 indicates the extent to which children are required to work. This last factor has been reversed to give a better score to states where it is not necessary for children less than 17 years of age to work or contribute toward the family maintenance.

The original data and the "T" scores on each factor are presented in Tables Nos. 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, and 27. All standard scores are obtained by the same method as the "T" scores in the education index. The individual deviations from the mean are divided by the standard deviation of the distribution, the quotient is multiplied by 10 and then added to 50 to make all signs positive. As before, a score of 50.0 is at the mean, 40.0 is one standard deviation below the mean and 60.0 is one standard deviation above the mean, 30 is two standard deviations below the mean and 70.0 is two above, etc.

Table 15 shows the per cent of dwelling units with running water. This is believed to be one of the best indications of the average standard of living in any state since running water is considered almost a necessity for cleanliness and health. The scores range from 22.4 per cent in Mississippi to 96.1 per cent in Massachusetts. States having fewer than 50 per cent of the homes with running water are Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, North

TABLE 15—Per Cent of Dwelling Units with Running Water, United States, By States, 1940. Source: U. S. Census, Housing, 1940, p. 77.

| STATE | Per Cent with Running Water | Standard T Score |
|---|---|---|
| Alabama | 33.8 | 35.83 |
| Arizona | 63.4 | 50.29 |
| Arkansas | 24.7 | 31.38 |
| California | 93.9 | 65.20 |
| Colorado | 66.5 | 51.81 |
| Connecticut | 93.8 | 65.15 |
| Delaware | 75.5 | 56.21 |
| Florida | 66.2 | 51.66 |
| Georgia | 37.8 | 37.78 |
| Idaho | 59.5 | 48.39 |
| Illinois | 78.9 | 57.87 |
| Indiana | 62.2 | 49.71 |
| Iowa | 58.0 | 47.65 |
| Kansas | 56.0 | 46.68 |
| Kentucky | 37.9 | 37.83 |
| Louisiana | 43.6 | 40.62 |
| Maine | 69.2 | 53.13 |
| Maryland | 79.3 | 58.06 |
| Massachusetts | 96.1 | 66.27 |
| Michigan | 77.7 | 57.28 |
| Minnesota | 60.3 | 48.78 |
| Mississippi | 22.4 | 30.26 |
| Missouri | 58.5 | 47.90 |
| Montana | 55.5 | 46.43 |
| Nebraska | 59.2 | 48.24 |
| Nevada | 73.9 | 55.42 |
| New Hampshire | 82.4 | 59.58 |
| New Jersey | 94.6 | 65.54 |
| New Mexico | 39.5 | 38.61 |
| New York | 93.5 | 65.00 |
| North Carolina | 39.1 | 38.42 |
| North Dakota | 30.6 | 34.26 |
| Ohio | 77.1 | 56.99 |
| Oklahoma | 46.4 | 41.99 |
| Oregon | 79.6 | 58.21 |
| Pennsylvania | 85.8 | 61.24 |
| Rhode Island | 94.4 | 65.44 |
| South Carolina | 34.9 | 36.37 |
| South Dakota | 40.7 | 39.20 |
| Tennessee | 39.4 | 38.57 |
| Texas | 55.6 | 46.48 |
| Utah | 82.6 | 59.68 |
| Vermont | 84.8 | 60.75 |
| Virginia | 50.6 | 44.04 |
| Washington | 82.9 | 59.82 |
| West Virginia | 50.0 | 43.74 |
| Wisconsin | 66.6 | 51.86 |
| Wyoming | 59.2 | 48.24 |

Average: U. S., 69.9; 48 States, 62.8; Standard Deviation, 20.46.

Dakota, Oklahoma, South Carolina, South Dakota, and Tennessee. On the education index Alabama ranks 47; Louisiana, 42; Mississippi, 48; New Mexico, 40; North Carolina, 39; Oklahoma, 36; South Carolina, 45; and Tennessee, 41. South Dakota ranks 17 and North Dakota ranks 31. The fact that they have running water in less than one-half of the homes is probably largely due to the severe winter weather and the almost total absence of cities of any size.

The states which rank at the top of the education index, New York, California, New Jersey, and Massachusetts have running water in 93.5, 93.9, 94.6, and 96.1 per cent of the dwelling units, respectively.

It is not claimed that education causes people to desire to install running water, nor that education provides them with the money to pay for the installation, but it is perfectly clear that there is a high degree of relationship between education and the existence of running water in homes. This same relationship may be noted with regard to the other factors in the standard of living index. It is quite possible that the relationship is not causal, and that high scores on both are due to some third factor or group of factors. Is it agricultural wealth, industrial wealth, natural resources, or a combination of these? Possibly so.

Table 16 shows the per cent of dwelling units with private bath and flush toilets. As may be expected, the results are much the same as those found in the preceding table. Mississippi ranks lowest with 14.0 per cent and California ranks first with 83.5 per cent. Massachusetts is second with 82.7 per cent.

The four states which rank 1, 2, 3, and 4 in the education index, New York, California, New Jersey, and Massachusetts, have scores of 82.2, 83.5, 81.4, and 82.7 per cent while the four states at the bottom end of

TABLE 16--Per Cent of Dwelling Units with Private Bath and Flush Toilets, United States, By States, 1940. Source: U. S. Census, Housing, 1940, p. 73.

| S T A T E | Per Cent with Private Bath and Flush Toilets | Standard T Score |
|---|---|---|
| Alabama | 19.7 | 35.86 |
| Arizona | 46.2 | 49.64 |
| Arkansas | 16.5 | 34.19 |
| California | 83.5 | 69.03 |
| Colorado | 46.3 | 49.69 |
| Connecticut | 81.3 | 67.89 |
| Delaware | 59.6 | 56.60 |
| Florida | 53.8 | 53.59 |
| Georgia | 23.7 | 37.94 |
| Idaho | 38.5 | 45.63 |
| Illinois | 63.8 | 58.79 |
| Indiana | 45.6 | 49.32 |
| Iowa | 41.8 | 47.35 |
| Kansas | 39.9 | 46.36 |
| Kentucky | 26.2 | 39.24 |
| Louisiana | 32.8 | 42.67 |
| Maine | 45.0 | 49.01 |
| Maryland | 60.5 | 57.07 |
| Massachusetts | 82.7 | 68.62 |
| Michigan | 62.4 | 58.06 |
| Minnesota | 45.5 | 49.27 |
| Mississippi | 14.0 | 32.89 |
| Missouri | 43.0 | 47.97 |
| Montana | 36.9 | 44.80 |
| Nebraska | 42.4 | 47.66 |
| Nevada | 56.3 | 54.89 |
| New Hampshire | 60.7 | 57.18 |
| New Jersey | 81.4 | 67.94 |
| New Mexico | 27.3 | 39.81 |
| New York | 82.2 | 68.36 |
| North Carolina | 23.7 | 37.94 |
| North Dakota | 19.5 | 35.75 |
| Ohio | 61.9 | 57.80 |
| Oklahoma | 32.8 | 42.67 |
| Oregon | 61.2 | 57.44 |
| Pennsylvania | 62.7 | 58.22 |
| Rhode Island | 76.2 | 65.24 |
| South Carolina | 21.2 | 36.64 |
| South Dakota | 25.4 | 38.82 |
| Tennessee | 24.3 | 38.25 |
| Texas | 37.9 | 45.32 |
| Utah | 60.7 | 57.18 |
| Vermont | 58.6 | 56.08 |
| Virginia | 35.1 | 43.86 |
| Washington | 64.4 | 59.10 |
| West Virginia | 34.4 | 43.50 |
| Wisconsin | 51.2 | 52.24 |
| Wyoming | 41.0 | 46.93 |

Average: U. S., 54.7; 48 States, 46.9; Standard Deviation, 19.23.

the education index, numbers 45, 46, 47, and 48, South Carolina, Alabama, Kentucky, and Mississippi, have scores of 21.2, 19.7, 26.2, and 14.0 per cent, respectively. It seems evident that where education is best people have the money and the desire for cleanliness and convenience. Where education is poorest, one or both of these conditions is absent.

Table 17 shows the per cent of dwelling units with electric lighting. It will be noticed that Tables 15, 16, and 17 are all based on the per cent of dwelling units and not on the domestic installations per capita as was done in the Thorndike G score. This is a definite improvement in data and presents a much fairer comparison for rural areas where large families are the rule.

Electric lighting is generally considered the best means of lighting, and it is believed that electricity is usually available in all towns of any size in the entire nation. The per cent scores range from 28.3 in Mississippi to 97.7 in Rhode Island. Massachusetts ranks second with 97.6 per cent. California, Connecticut, New Jersey, and New York also have electricity in more than 96 per cent of the dwelling units in each state.

Only Alabama, Arkansas, Georgia, Louisiana, Mississippi, New Mexico, and South Carolina have fewer than half their homes with electric lighting.

Table 18 shows the per cent of occupied dwelling units reporting no refrigeration equipment. No notice is taken of the type of equipment in use, and it may vary from the latest type of electric or gas refrigerator to a hole in the ground by a cool spring or a window box on the north side of the house. It is believed that some type or system of refrigeration is a part of the "American way of life" and that homes which have no means of preserving butter, eggs, and milk, etc. are definitely below the

TABLE 17--Per Cent of Dwelling Units with Electric Lighting, United States, By States, 1940. Source: U. S. Census, Housing, 1940, p. 84.

| STATE | Per Cent with Electric Lighting | Standard T Score |
|---|---|---|
| Alabama | 43.4 | 34.11 |
| Arizona | 70.5 | 48.82 |
| Arkansas | 32.8 | 28.36 |
| California | 96.0 | 62.67 |
| Colorado | 77.6 | 52.68 |
| Connecticut | 96.5 | 62.94 |
| Delaware | 81.8 | 54.96 |
| Florida | 66.5 | 46.65 |
| Georgia | 46.6 | 35.85 |
| Idaho | 79.1 | 53.49 |
| Illinois | 89.9 | 59.35 |
| Indiana | 84.0 | 56.15 |
| Iowa | 76.7 | 52.19 |
| Kansas | 71.5 | 49.36 |
| Kentucky | 52.4 | 39.00 |
| Louisiana | 48.9 | 37.10 |
| Maine | 80.4 | 54.20 |
| Maryland | 85.9 | 57.18 |
| Massachusetts | 97.6 | 63.53 |
| Michigan | 92.1 | 60.55 |
| Minnesota | 75.8 | 51.70 |
| Mississippi | 28.3 | 25.91 |
| Missouri | 70.6 | 48.88 |
| Montana | 70.7 | 48.93 |
| Nebraska | 70.5 | 48.82 |
| Nevada | 80.8 | 54.41 |
| New Hampshire | 87.0 | 57.78 |
| New Jersey | 96.6 | 62.99 |
| New Mexico | 49.2 | 37.26 |
| New York | 96.4 | 62.88 |
| North Carolina | 54.4 | 40.08 |
| North Dakota | 53.8 | 39.76 |
| Ohio | 90.6 | 59.73 |
| Oklahoma | 55.1 | 40.46 |
| Oregon | 85.8 | 57.13 |
| Pennsylvania | 92.3 | 60.66 |
| Rhode Island | 97.7 | 63.59 |
| South Carolina | 46.2 | 35.63 |
| South Dakota | 56.6 | 41.28 |
| Tennessee | 50.9 | 38.18 |
| Texas | 59.0 | 42.58 |
| Utah | 93.9 | 61.53 |
| Vermont | 80.2 | 54.09 |
| Virginia | 60.6 | 43.45 |
| Washington | 90.9 | 59.90 |
| West Virginia | 69.1 | 48.06 |
| Wisconsin | 83.9 | 56.10 |
| Wyoming | 70.9 | 49.04 |

Average: U. S., 78.7; 48 States, 72.67; Standard Deviation, 18.42.

TABLE 18--Per Cent of Occupied Dwelling Units Reporting No Refrigeration Equipment, United States, By States, 1940 (Standard T Score Reversed). Source: U. S. Census, Housing, 1940, p. 91.

| S T A T E | Per Cent Reporting No Refrigeration Equipment | Standard T Score |
|---|---|---|
| Alabama | 53.0 | 38.48 |
| Arizona | 34.9 | 49.62 |
| Arkansas | 54.9 | 37.31 |
| California | 21.6 | 57.81 |
| Colorado | 38.2 | 47.59 |
| Connecticut | 5.2 | 67.91 |
| Delaware | 10.6 | 64.58 |
| Florida | 26.7 | 54.67 |
| Georgia | 44.3 | 43.84 |
| Idaho | 49.9 | 40.39 |
| Illinois | 18.7 | 59.60 |
| Indiana | 29.0 | 53.26 |
| Iowa | 41.4 | 45.62 |
| Kansas | 27.9 | 53.93 |
| Kentucky | 47.8 | 41.68 |
| Louisiana | 41.8 | 45.38 |
| Maine | 27.3 | 54.30 |
| Maryland | 10.4 | 64.71 |
| Massachusetts | 4.2 | 68.52 |
| Michigan | 22.9 | 57.01 |
| Minnesota | 38.4 | 47.47 |
| Mississippi | 60.6 | 33.80 |
| Missouri | 29.3 | 53.07 |
| Montana | 48.2 | 41.44 |
| Nebraska | 38.4 | 47.47 |
| Nevada | 33.4 | 50.55 |
| New Hampshire | 14.7 | 62.06 |
| New Jersey | 4.5 | 68.34 |
| New Mexico | 61.4 | 33.31 |
| New York | 8.7 | 65.75 |
| North Carolina | 45.7 | 42.98 |
| North Dakota | 70.1 | 27.95 |
| Ohio | 20.5 | 58.49 |
| Oklahoma | 34.1 | 50.12 |
| Oregon | 47.8 | 41.68 |
| Pennsylvania | 19.5 | 59.11 |
| Rhode Island | 3.4 | 69.02 |
| South Carolina | 49.9 | 40.39 |
| South Dakota | 60.4 | 33.93 |
| Tennessee | 40.5 | 46.18 |
| Texas | 30.9 | 52.09 |
| Utah | 38.1 | 47.65 |
| Vermont | 30.6 | 52.27 |
| Virginia | 34.0 | 50.18 |
| Washington | 46.6 | 42.42 |
| West Virginia | 45.7 | 42.98 |
| Wisconsin | 35.6 | 49.19 |
| Wyoming | 44.2 | 43.90 |

Average: U. S., 27.4; 48 States, 34.48; Standard Deviation, 16.45.

minimum standard in this respect. It is realized, however, that refrigeration equipment is not nearly so necessary in Montana or North Dakota as it is in Texas or Louisiana and some injustice is done these far Northern states on this factor. But, since some of the other factors considered tend to favor these areas, it is likely that the combined score on all factors represents very nearly the true relative standings.

The range in regard to refrigeration equipment is from 70.1 per cent with no refrigeration in North Dakota to 3.4 per cent in Rhode Island. Massachusetts is second with 4.2 per cent and New Jersey third with 4.5. Both of the Dakotas, New Mexico, and Mississippi have refrigeration in fewer than 40 per cent of their occupied dwelling units. Deviations from the mean are reversed to give states with most refrigeration highest scores.

Table 19 shows the per cent of occupied units with radios. Scores range from 39.9 per cent in Mississippi to 96.2 per cent in Massachusetts. The standard T scores range from 24.48 to 60.86. It is interesting to note that the mean average for the United States as a whole is 82.8 per cent as compared with United States averages of 69.9 per cent, 54.7 per cent, 78.7 per cent, and 72.6 per cent for per cent of dwelling units with running water, per cent of dwelling units with private bath and flush toilets, per cent of dwelling units with electric lighting, and per cent of occupied dwelling units with refrigeration, respectively. Thus the radio is more a part of the American life than running water, bathrooms, electric lighting, or refrigeration.

Table 20 is intended to indicate the amount of overcrowding in the homes. It shows the per cent of occupied units having more than 2 persons per room. It is believed that this is a much better score of human

TABLE 19—Per Cent of Occupied Units with Radios, United States, By States, 1940. Source: U. S. Census, Housing, 1940, p. 96.

| STATE | Per Cent with Radios | Standard T Score |
|---|---|---|
| Alabama | 49.4 | 30.70 |
| Arizona | 69.0 | 43.33 |
| Arkansas | 50.9 | 31.63 |
| California | 92.9 | 58.73 |
| Colorado | 84.5 | 53.32 |
| Connecticut | 95.7 | 60.53 |
| Delaware | 87.0 | 54.93 |
| Florida | 64.8 | 40.63 |
| Georgia | 52.5 | 32.70 |
| Idaho | 86.4 | 54.54 |
| Illinois | 92.3 | 58.34 |
| Indiana | 88.2 | 55.70 |
| Iowa | 90.2 | 56.99 |
| Kansas | 83.0 | 52.35 |
| Kentucky | 65.3 | 40.95 |
| Louisiana | 53.3 | 33.28 |
| Maine | 86.5 | 54.60 |
| Maryland | 88.1 | 55.64 |
| Massachusetts | 96.2 | 60.86 |
| Michigan | 93.4 | 59.05 |
| Minnesota | 91.7 | 57.96 |
| Mississippi | 39.9 | 24.48 |
| Missouri | 79.9 | 50.35 |
| Montana | 86.2 | 54.41 |
| Nebraska | 84.7 | 53.45 |
| Nevada | 81.4 | 51.32 |
| New Hampshire | 90.0 | 56.86 |
| New Jersey | 95.5 | 60.41 |
| New Mexico | 53.2 | 33.15 |
| New York | 95.5 | 60.41 |
| North Carolina | 61.8 | 38.69 |
| North Dakota | 88.4 | 55.83 |
| Ohio | 91.7 | 57.96 |
| Oklahoma | 68.8 | 43.20 |
| Oregon | 88.7 | 56.02 |
| Pennsylvania | 92.4 | 58.41 |
| Rhode Island | 95.7 | 60.53 |
| South Carolina | 49.6 | 30.83 |
| South Dakota | 84.6 | 53.38 |
| Tennessee | 62.5 | 39.14 |
| Texas | 66.9 | 41.98 |
| Utah | 92.4 | 58.41 |
| Vermont | 88.6 | 55.96 |
| Virginia | 67.1 | 42.11 |
| Washington | 90.6 | 57.25 |
| West Virginia | 75.1 | 47.26 |
| Wisconsin | 91.7 | 57.96 |
| Wyoming | 84.4 | 53.25 |

Average: U. S., 82.8; 48 States, 79.35; Standard Deviation, 15.52.

TABLE 20--Per Cent of Occupied Units Having More Than 2 Persons per Room, United States, By States, 1940. Source: U. S. Census, Housing, 1940, Vol. II, Part I, p. 93.

| STATE | Per Cent Having More Than 2 Persons per Room | Standard T Score |
|---|---|---|
| Alabama | 10.0 | 36.13 |
| Arizona | 16.0 | 21.00 |
| Arkansas | 8.6 | 39.66 |
| California | 2.0 | 55.04 |
| Colorado | 5.0 | 48.74 |
| Connecticut | 0.5 | 60.09 |
| Delaware | 0.9 | 59.08 |
| Florida | 4.6 | 49.75 |
| Georgia | 7.4 | 42.69 |
| Idaho | 7.0 | 43.70 |
| Illinois | 1.4 | 57.82 |
| Indiana | 1.7 | 57.06 |
| Iowa | 1.4 | 57.82 |
| Kansas | 1.9 | 56.56 |
| Kentucky | 7.9 | 41.43 |
| Louisiana | 7.4 | 42.69 |
| Maine | 1.6 | 57.31 |
| Maryland | 1.2 | 58.32 |
| Massachusetts | 0.4 | 60.34 |
| Michigan | 1.1 | 58.57 |
| Minnesota | 2.2 | 55.80 |
| Mississippi | 8.6 | 39.66 |
| Missouri | 4.0 | 51.26 |
| Montana | 5.3 | 47.98 |
| Nebraska | 2.0 | 56.30 |
| Nevada | 4.7 | 49.50 |
| New Hampshire | 0.8 | 59.33 |
| New Jersey | 0.5 | 60.09 |
| New Mexico | 18.7 | 14.19 |
| New York | 0.5 | 60.09 |
| North Carolina | 6.9 | 43.95 |
| North Dakota | 5.5 | 47.48 |
| Ohio | 1.1 | 58.57 |
| Oklahoma | 8.7 | 39.41 |
| Oregon | 1.1 | 58.57 |
| Pennsylvania | 2.0 | 56.30 |
| Rhode Island | 0.6 | 59.83 |
| South Carolina | 8.4 | 40.17 |
| South Dakota | 4.2 | 50.76 |
| Tennessee | 8.0 | 41.17 |
| Texas | 8.2 | 40.67 |
| Utah | 5.1 | 48.49 |
| Vermont | 0.7 | 59.58 |
| Virginia | 4.8 | 49.24 |
| Washington | 1.6 | 57.31 |
| West Virginia | 6.0 | 46.22 |
| Wisconsin | 1.2 | 58.32 |
| Wyoming | 6.2 | 45.71 |

Average: U. S., 3.3; 48 States, 4.5; Standard Deviation, 3.97.

well-being or "goodness of life" than is the per capita number of homes owned. Scores range from 18.7 in New Mexico to 0.4 in Massachusetts. Only Alabama, Arizona, and New Mexico have more than two persons per room in as many as 10 per cent of their homes. Connecticut, Delaware, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont have more than two persons per room in fewer than 1 per cent of their homes. T scores are reversed.

Table 21 presents figures on the number of persons per passenger car for various states. These data are usually presented as the number of cars per 100 population. As given here, it is necessary that the signs be reversed in figuring the T scores in order that a high score will indicate more cars per 100. Original scores range from 11.0 persons per car in Mississippi to 2.8 persons per car in California.

These data are not entirely accurate because of the fact that in some states buses are recorded as passenger cars and in others no distinction is made as to the type of vehicle, thus including both trucks and buses. However, this fact does not seriously affect the accuracy of the final scores except for those of the states where trucks are included. Data are available for the total number of registrations, including passenger cars, trucks, and buses, in Automobile Facts and Figures, but most studies of this type include only passenger cars in scores for standard of living. A better score would be the number of family units owning one or more passenger cars but such data are not available.

Table 22 gives the number of telephones per 1000 population. This score should probably be the number of occupied dwelling units reporting telephones, but such data are not available. Scores range from 36 telephones per 1000 in Mississippi to 253 telephones per 1000 in California. T scores range from 30.88 to 72.13.

TABLE 21--Number of Persons per Passenger Car, United States, By States, 1940 (Standard T Scores Reversed). Source: Automobile Facts and Figures, Twenty-Third Edition, 1941.

| STATE | Population per Passenger Car | Standard T Score |
|---|---|---|
| Alabama | 10.2 | 23.16 |
| Arizona | 4.4 | 54.17 |
| Arkansas | 10.2 | 23.16 |
| California | 2.8 | 62.73 |
| Colorado | 3.8 | 57.38 |
| Connecticut | 4.1 | 55.78 |
| Delaware | 4.4 | 54.17 |
| Florida | 4.6 | 53.10 |
| Georgia | 7.5 | 37.59 |
| Idaho | 4.1 | 55.78 |
| Illinois | 4.6 | 53.10 |
| Indiana | 4.0 | 56.31 |
| Iowa | 3.7 | 57.91 |
| Kansas | 3.8 | 57.38 |
| Kentucky | 7.3 | 38.66 |
| Louisiana | 8.3 | 33.32 |
| Maine | 5.2 | 49.89 |
| Maryland | 4.7 | 52.57 |
| Massachusetts | 5.4 | 48.82 |
| Michigan | 3.7 | 57.91 |
| Minnesota | 3.7 | 57.91 |
| Mississippi | 11.0 | 18.88 |
| Missouri | 4.9 | 51.50 |
| Montana | 3.9 | 56.84 |
| Nebraska | 3.8 | 57.38 |
| Nevada | 3.1 | 61.12 |
| New Hampshire | 4.7 | 52.57 |
| New Jersey | 4.4 | 54.17 |
| New Mexico | 5.6 | 47.75 |
| New York | 5.6 | 47.75 |
| North Carolina | 7.1 | 39.73 |
| North Dakota | 4.4 | 54.17 |
| Ohio | 4.0 | 56.31 |
| Oklahoma | 5.0 | 50.96 |
| Oregon | 3.3 | 60.05 |
| Pennsylvania | 5.3 | 49.36 |
| Rhode Island | 4.3 | 54.71 |
| South Carolina | 6.5 | 42.94 |
| South Dakota | 3.9 | 56.84 |
| Tennessee | 7.7 | 36.52 |
| Texas | 4.8 | 52.03 |
| Utah | 4.7 | 52.57 |
| Vermont | 4.3 | 54.71 |
| Virginia | 6.3 | 44.01 |
| Washington | 3.7 | 57.91 |
| West Virginia | 7.6 | 37.06 |
| Wisconsin | 4.2 | 55.24 |
| Wyoming | 3.8 | 57.38 |

Average: U. S., 4.8; 48 States, 5.18; Standard Deviation, 1.87.

TABLE 22--Number of Telephones per 1000 Population, United States, By States, 1939. Source: Education--An Investment in People, U. S. Chamber of Commerce.

| S T A T E | Number of Telephones Per 1000 Population | Standard T Score |
|---|---|---|
| Alabama | 43 | 32.21 |
| Arizona | 115 | 45.89 |
| Arkansas | 46 | 32.78 |
| California | 253 | 72.13 |
| Colorado | 188 | 59.77 |
| Connecticut | 200 | 62.05 |
| Delaware | 158 | 54.07 |
| Florida | 118 | 46.46 |
| Georgia | 63 | 36.01 |
| Idaho | 126 | 47.99 |
| Illinois | 212 | 64.33 |
| Indiana | 145 | 51.60 |
| Iowa | 202 | 62.43 |
| Kansas | 184 | 59.01 |
| Kentucky | 71 | 37.53 |
| Louisiana | 78 | 38.86 |
| Maine | 150 | 52.55 |
| Maryland | 149 | 52.36 |
| Massachusetts | 197 | 61.48 |
| Michigan | 157 | 53.88 |
| Minnesota | 188 | 59.77 |
| Mississippi | 36 | 30.88 |
| Missouri | 154 | 53.31 |
| Montana | 122 | 47.22 |
| Nebraska | 178 | 57.87 |
| Nevada | 175 | 57.30 |
| New Hampshire | 164 | 55.21 |
| New Jersey | 161 | 54.64 |
| New Mexico | 74 | 38.10 |
| New York | 209 | 63.76 |
| North Carolina | 51 | 33.73 |
| North Dakota | 102 | 43.42 |
| Ohio | 170 | 56.35 |
| Oklahoma | 110 | 44.94 |
| Oregon | 176 | 57.49 |
| Pennsylvania | 144 | 51.41 |
| Rhode Island | 172 | 56.73 |
| South Carolina | 38 | 31.26 |
| South Dakota | 124 | 47.61 |
| Tennessee | 79 | 39.05 |
| Texas | 106 | 44.18 |
| Utah | 138 | 50.27 |
| Vermont | 150 | 52.55 |
| Virginia | 88 | 40.76 |
| Washington | 190 | 60.15 |
| West Virginia | 84 | 40.00 |
| Wisconsin | 181 | 58.44 |
| Wyoming | 138 | 50.27 |

Average: U. S., 150; 48 States, 136.60; Standard Deviation, 52.61.

The data given were used by the Committee on Education of the United States Chamber of Commerce.

Table 23 presents another "standard of living" item used in Good's study for the United States Chamber of Commerce. It shows the circulation of 18 nationally advertised magazines per 1000 population. Scores range from 104 magazines per 1000 population in Mississippi to 509 magazines per 1000 in Nevada. California, Montana, Nevada, Oregon, Vermont, Washington, and Wyoming all have more than 400 magazines per 1000 population. All of these states, except Vermont, are located in the northwestern part of the United States. States which have fewer than 150 magazines sold per 1000 population are all located in the southeastern part of the United States.

Table 24 shows the per capita income payments by states for 1939. These figures include income from all sources and not salary or wages alone. The inclusion of rents, royalties, interest, and dividends, produces a marked effect on original data since these items are much more important factors in certain states, New England states for example, than they are in others. The lowest per capita income is $201 per year for Mississippi. The highest is $816 per year in New Jersey.

It is interesting to compare the per capita income in each state with the average annual expenditure per pupil for current expenses and capital outlay. The per cent of per capita income spent in the five leading states and the five lowest states are shown below.

| State | Rank on Education Index | Per Capita Expenditure | Per Cent of Per Capita Income |
|---|---|---|---|
| New York | 1 | 195.23 | 24.3 |
| California | 2 | 176.53 | 23.8 |
| New Jersey | 3 | 160.98 | 19.7 |
| Massachusetts | 4 | 124.36 | 17.3 |
| Illinois | 5 | 140.40 | 20.9 |

TABLE 23--Circulation of 18 Nationally Advertised Magazines per 1000 Population, United States, By States, 1940. Source: Education--An Investment in People, U. S. Chamber of Commerce.

| S T A T E | Circulation per 1000 Population | Standard T Score |
|---|---|---|
| Alabama | 120 | 32.72 |
| Arizona | 319 | 52.15 |
| Arkansas | 141 | 34.77 |
| California | 431 | 63.09 |
| Colorado | 366 | 56.74 |
| Connecticut | 364 | 56.54 |
| Delaware | 342 | 54.40 |
| Florida | 307 | 50.98 |
| Georgia | 133 | 33.99 |
| Idaho | 376 | 57.72 |
| Illinois | 318 | 52.05 |
| Indiana | 326 | 52.84 |
| Iowa | 370 | 57.13 |
| Kansas | 367 | 56.84 |
| Kentucky | 142 | 34.87 |
| Louisiana | 140 | 34.68 |
| Maine | 349 | 55.08 |
| Maryland | 254 | 45.81 |
| Massachusetts | 329 | 53.13 |
| Michigan | 337 | 53.91 |
| Minnesota | 341 | 54.30 |
| Mississippi | 104 | 31.16 |
| Missouri | 273 | 47.66 |
| Montana | 466 | 66.50 |
| Nebraska | 368 | 56.94 |
| Nevada | 509 | 70.70 |
| New Hampshire | 378 | 57.91 |
| New Jersey | 303 | 50.59 |
| New Mexico | 233 | 43.76 |
| New York | 300 | 50.30 |
| North Carolina | 144 | 35.07 |
| North Dakota | 311 | 51.37 |
| Ohio | 341 | 54.30 |
| Oklahoma | 235 | 43.95 |
| Oregon | 461 | 66.01 |
| Pennsylvania | 276 | 47.95 |
| Rhode Island | 270 | 47.37 |
| South Carolina | 125 | 33.21 |
| South Dakota | 353 | 55.47 |
| Tennessee | 151 | 35.75 |
| Texas | 227 | 43.17 |
| Utah | 269 | 47.27 |
| Vermont | 416 | 61.62 |
| Virginia | 198 | 40.37 |
| Washington | 444 | 64.36 |
| West Virginia | 201 | 40.63 |
| Wisconsin | 300 | 50.30 |
| Wyoming | 426 | 62.60 |

Average, 48 States, 296.96; Standard Deviation, 102.43.

TABLE 24--Per Capita Income Payments, United States, By States, 1939.
Source: World Almanac, 1944, p. 518.

| STATE | Per Capita Income | Standard T Score |
|---|---|---|
| Alabama | $242 | 34.93 |
| Arizona | 461 | 48.42 |
| Arkansas | 246 | 35.18 |
| California | 741 | 65.66 |
| Colorado | 505 | 51.13 |
| Connecticut | 754 | 66.46 |
| Delaware | 771 | 67.51 |
| Florida | 442 | 47.25 |
| Georgia | 290 | 37.89 |
| Idaho | 411 | 45.34 |
| Illinois | 671 | 61.35 |
| Indiana | 495 | 50.51 |
| Iowa | 468 | 48.85 |
| Kansas | 383 | 43.61 |
| Kentucky | 297 | 38.32 |
| Louisiana | 354 | 41.83 |
| Maine | 474 | 49.22 |
| Maryland | 634 | 59.07 |
| Massachusetts | 719 | 64.31 |
| Michigan | 591 | 56.42 |
| Minnesota | 497 | 50.63 |
| Mississippi | 201 | 32.40 |
| Missouri | 486 | 49.96 |
| Montana | 515 | 51.74 |
| Nebraska | 397 | 44.47 |
| Nevada | 767 | 67.26 |
| New Hampshire | 548 | 53.77 |
| New Jersey | 816 | 70.28 |
| New Mexico | 341 | 41.03 |
| New York | 804 | 69.54 |
| North Carolina | 308 | 38.97 |
| North Dakota | 325 | 40.04 |
| Ohio | 603 | 57.16 |
| Oklahoma | 340 | 40.96 |
| Oregon | 544 | 53.53 |
| Pennsylvania | 589 | 56.30 |
| Rhode Island | 678 | 61.78 |
| South Carolina | 261 | 36.10 |
| South Dakota | 351 | 41.64 |
| Tennessee | 295 | 38.19 |
| Texas | 401 | 44.72 |
| Utah | 443 | 47.31 |
| Vermont | 483 | 49.77 |
| Virginia | 402 | 44.78 |
| Washington | 588 | 56.24 |
| West Virginia | 378 | 43.30 |
| Wisconsin | 485 | 49.89 |
| Wyoming | 567 | 54.94 |

Average, 48 States, $486.71; Standard Deviation, $162.37.

| State | Rank on Education Index | Per Capita Expenditure | Per Cent of Per Capita Income |
|---|---|---|---|
| Arkansas | 44 | 36.78 | 15.0 |
| South Carolina | 45 | 47.01 | 18.0 |
| Kentucky | 46 | 52.66 | 17.7 |
| Alabama | 47 | 41.80 | 17.3 |
| Mississippi | 48 | 33.58 | 16.7 |

The total expenditure per pupil attending daily is 21.3 per cent of the per capita income in the five top-ranking states in education as compared with 17.0 per cent of the per capita income in the five lowest-ranking states. This may indicate that the lowest ranking states do not make as great an effort to support education as do the top-ranking states in spite of the often-heard claim that their support actually represents a greater sacrifice.

Table 25 shows the per capita retail sales in the forty-eight states. Scores range from $129 in Mississippi to $564 in Nevada. The coefficient of variation (mean divided by standard deviation) is 34.2 per cent for retail sales as compared with 29.9 per cent for per capita income. This indicates that per capita retail sales are relatively more variable than per capita income.

Table 26 shows the median wage or salary income of wage or salary workers, except those on public emergency work in March, 1940. Salary workers receive less money in Mississippi than in any other state, and more money in Nevada. It will be noticed that the median salary of workers in California, Connecticut, Illinois, Michigan, Nevada, New Jersey, New York, Ohio, Utah, and Washington is more than $1000 per year.

A comparison of the median salary or wage with the average annual expenditure for teachers in the five highest and five lowest ranking states in education shows the following facts:

| State | Rank on Education | Avg. Sal. of Wage Worker | Avg. Sal. of Teachers | % of Sal. of Teachers |
|---|---|---|---|---|
| New York | 1 | $1048 | $2604 | 40.2 |
| California | 2 | 1097 | 2351 | 46.7 |
| New Jersey | 3 | 1069 | 2093 | 51.1 |
| Massachusetts | 4 | 995 | 2037 | 48.8 |
| Illinois | 5 | 1023 | 1700 | 60.2 |
| Arkansas | 44 | 412 | 584 | 70.5 |
| South Carolina | 45 | 483 | 743 | 65.0 |
| Kentucky | 46 | 654 | 826 | 79.2 |
| Alabama | 47 | 500 | 744 | 67.2 |
| Mississippi | 48 | 386 | 559 | 69.1 |

It is readily evident that states which rank well in education pay their teachers not only more money in "absolute" amounts but also in relative amounts. If the average salary worker in New York receives only 40.2 per cent as much as is paid to the average principal, supervisor, or teacher, it should be possible to get people with more ability in teaching positions. On the other hand, wage workers in Kentucky make 79.2 per cent as much as do the teachers. Since this includes all wage workers except those on public relief, it is clear that there are many illiterates and others who have very little education included in this figure. Yet the average worker gets almost four-fifths as much as is paid to teachers. This seems to indicate a rather low regard for the teaching profession. It would also seem to indicate that persons who are above average in ability can make more by not teaching in Kentucky. This certainly does not lead to good schools. Perhaps some of the students in Kentucky realize this since only 62.7 per cent of the children 7 to 13 years old attend school as compared with 97 per cent in New York.

The average per cent for the five states which rank at the top in education is 48.5 or 49.4 if the five per cent figures are averaged. The average for the five lowest ranking states on the education index is 70.5 or 70.2 if the five per cent figures are averaged.

TABLE 25--Per Capita Retail Sales, United States, By States, 1940. Source: Education--An Investment in People, U. S. Chamber of Commerce.

| STATE | Per Capita Retail Sales | Standard T Score |
|---|---|---|
| Alabama | $154 | 32.72 |
| Arizona | 325 | 51.50 |
| Arkansas | 153 | 32.61 |
| California | 462 | 66.56 |
| Colorado | 364 | 55.79 |
| Connecticut | 420 | 61.94 |
| Delaware | 414 | 61.28 |
| Florida | 324 | 51.39 |
| Georgia | 200 | 37.77 |
| Idaho | 335 | 52.60 |
| Illinois | 362 | 55.57 |
| Indiana | 311 | 49.97 |
| Iowa | 324 | 51.39 |
| Kansas | 263 | 44.69 |
| Kentucky | 183 | 35.90 |
| Louisiana | 206 | 38.43 |
| Maine | 332 | 52.27 |
| Maryland | 340 | 53.15 |
| Massachusetts | 403 | 60.07 |
| Michigan | 347 | 53.92 |
| Minnesota | 364 | 55.79 |
| Mississippi | 129 | 29.97 |
| Missouri | 291 | 47.77 |
| Montana | 397 | 59.42 |
| Nebraska | 302 | 48.98 |
| Nevada | 564 | 77.76 |
| New Hampshire | 373 | 56.78 |
| New Jersey | 380 | 57.55 |
| New Mexico | 237 | 41.84 |
| New York | 414 | 61.28 |
| North Carolina | 177 | 35.24 |
| North Dakota | 243 | 42.49 |
| Ohio | 353 | 54.58 |
| Oklahoma | 220 | 39.97 |
| Oregon | 406 | 60.40 |
| Pennsylvania | 335 | 52.60 |
| Rhode Island | 386 | 58.21 |
| South Carolina | 175 | 35.02 |
| South Dakota | 263 | 44.69 |
| Tennessee | 208 | 38.65 |
| Texas | 281 | 46.67 |
| Utah | 311 | 49.97 |
| Vermont | 343 | 53.48 |
| Virginia | 235 | 41.62 |
| Washington | 385 | 58.10 |
| West Virginia | 212 | 39.09 |
| Wisconsin | 339 | 53.04 |
| Wyoming | 398 | 59.53 |

Average: U. S., $319; 48 States, $311.31; Standard Deviation, $91.01.

TABLE 26--Median Wage or Salary of Wage or Salary Workers Except Those on Public Emergency Work, By States, March, 1940. Source: Statistical Abstract of the U. S., 1943, p. 388.

| STATE | Median Wage or Salary | Standard T Score |
|---|---|---|
| Alabama | $ 500 | 34.93 |
| Arizona | 870 | 53.38 |
| Arkansas | 412 | 30.55 |
| California | 1097 | 64.70 |
| Colorado | 884 | 54.08 |
| Connecticut | 1026 | 61.16 |
| Delaware | 924 | 56.07 |
| Florida | 560 | 37.93 |
| Georgia | 458 | 32.84 |
| Idaho | 735 | 49.14 |
| Illinois | 1023 | 61.01 |
| Indiana | 935 | 56.62 |
| Iowa | 746 | 47.20 |
| Kansas | 766 | 48.20 |
| Kentucky | 654 | 42.61 |
| Louisiana | 538 | 36.83 |
| Maine | 715 | 45.65 |
| Maryland | 875 | 53.63 |
| Massachusetts | 995 | 59.61 |
| Michigan | 1128 | 66.24 |
| Minnesota | 887 | 54.23 |
| Mississippi | 386 | 29.25 |
| Missouri | 787 | 49.24 |
| Montana | 907 | 55.22 |
| Nebraska | 729 | 46.35 |
| Nevada | 1135 | 66.59 |
| New Hampshire | 800 | 49.89 |
| New Jersey | 1069 | 63.30 |
| New Mexico | 691 | 44.46 |
| New York | 1048 | 62.25 |
| North Carolina | 599 | 39.87 |
| North Dakota | 557 | 37.78 |
| Ohio | 1037 | 61.71 |
| Oklahoma | 701 | 44.95 |
| Oregon | 953 | 57.52 |
| Pennsylvania | 930 | 56.37 |
| Rhode Island | 858 | 52.78 |
| South Carolina | 483 | 34.09 |
| South Dakota | 639 | 41.86 |
| Tennessee | 611 | 40.47 |
| Texas | 630 | 41.42 |
| Utah | 1034 | 61.56 |
| Vermont | 714 | 45.60 |
| Virginia | 658 | 42.81 |
| Washington | 1028 | 61.26 |
| West Virginia | 907 | 55.22 |
| Wisconsin | 948 | 57.27 |
| Wyoming | 888 | 54.28 |

Average, 48 States, $802.20; Standard Deviation, $200.59.

Education and teachers are thus evidently not as highly regarded in some states as in others. Is this reflected in the welfare of the citizens of the states? Do states which do not attract the most capable persons to teaching get as good a teaching job as other states which make teaching attractive? Do poor teachers get as good results as good teachers? Are poorly trained engineers, doctors, business men, lawyers, accountants, and others able to contribute as much toward the welfare of society as better trained ones in other states which pay teachers better and more in accordance with the skill and education required for good teaching? If so, the standard of living and the welfare of the people should be approximately as high in the five low-ranking states as in the top five. If not, we may expect a high correlation between the education index of a state and the welfare of its people.

Table 27 shows the number of children 14 to 17 years old in the labor force per 1000 children of this age. T scores on this item have been reversed by changing the sign of the deviation from the mean so that the fewer employed the higher the standard score. It is generally agreed that the standard of living is better where it is not necessary that children contribute toward the maintenance of the family.

The data shown here were derived from Labor Force statistics of the 16th Census. The original figures showed the number of males and females 14-17 years old in each state and the number of males and females 14-17 years old in the labor force. Totals for each of these sets of data were obtained to show the number of children 14-17 years old in each state and the number in the labor force. The total number of 14-17 year olds in the labor force for each state was then divided by the total number in each state to get the number per 1000.

TABLE 27--Number of Children per 1000 Population 14-17 Years Old in Labor Force, By States, 1940 (T Scores Reversed). Source: U. S. Census, Population, Vol. III, Part I, p. 55.

| STATE | Number of Children per 1000 in Labor Force | Standard T Score |
|---|---|---|
| Alabama | 193.9 | 37.06 |
| Arizona | 148.0 | 47.43 |
| Arkansas | 180.4 | 40.11 |
| California | 67.2 | 65.67 |
| Colorado | 119.1 | 53.95 |
| Connecticut | 105.9 | 56.93 |
| Delaware | 128.4 | 51.85 |
| Florida | 168.8 | 42.73 |
| Georgia | 247.0 | 25.07 |
| Idaho | 106.5 | 56.80 |
| Illinois | 109.5 | 56.12 |
| Indiana | 100.5 | 58.15 |
| Iowa | 130.7 | 51.33 |
| Kansas | 111.7 | 55.62 |
| Kentucky | 202.5 | 35.12 |
| Louisiana | 191.0 | 37.72 |
| Maine | 122.9 | 53.09 |
| Maryland | 164.0 | 43.81 |
| Massachusetts | 101.5 | 57.93 |
| Michigan | 112.5 | 55.44 |
| Minnesota | 131.3 | 51.20 |
| Mississippi | 231.1 | 28.66 |
| Missouri | 150.0 | 46.97 |
| Montana | 99.5 | 58.38 |
| Nebraska | 133.0 | 50.81 |
| Nevada | 89.8 | 60.57 |
| New Hampshire | 127.8 | 51.99 |
| New Jersey | 127.1 | 52.14 |
| New Mexico | 137.1 | 49.89 |
| New York | 87.3 | 61.13 |
| North Carolina | 191.5 | 37.60 |
| North Dakota | 161.7 | 44.33 |
| Ohio | 81.4 | 62.46 |
| Oklahoma | 114.6 | 54.97 |
| Oregon | 100.8 | 58.08 |
| Pennsylvania | 91.6 | 60.16 |
| Rhode Island | 170.2 | 42.41 |
| South Carolina | 250.1 | 24.37 |
| South Dakota | 148.9 | 47.22 |
| Tennessee | 182.6 | 39.61 |
| Texas | 154.8 | 45.89 |
| Utah | 65.2 | 66.12 |
| Vermont | 148.5 | 47.31 |
| Virginia | 174.7 | 41.40 |
| Washington | 75.1 | 63.89 |
| West Virginia | 106.7 | 56.75 |
| Wisconsin | 114.6 | 54.97 |
| Wyoming | 97.1 | 58.92 |

Average, 48 States, 136.6; Standard Deviation, 44.29.

Scores range from 250.1 per thousand in South Carolina to 65.2 in Utah. The five lowest ranking states on this factor are South Carolina, Georgia, Mississippi, Kentucky, and Alabama. The five top ranking states are Utah, California, Washington, Ohio, and New York. Education index ranks of these 10 states are 45, 43, 48, 47, 46 for five lowest and 12, 2, 22, 6, and 1 for the top five in the order named. This shows rather definitely that education is poorest in states where children have to work and much better in states where fewer children must help to support the family.

Table 28 shows the standard of living index for the forty-eight states. This index is the average of the scores on the thirteen standard of living factors shown individually in Tables 15 through 27. Correlations between the standard of living in the forty-eight states and the other index numbers are shown in Chapter VIII.

Chart 2 shows the ranks of the states. Those below the mean are shown in red. The five top ranking states in the standard of living index are seen to be California, Connecticut, New York, Massachusetts, and New Jersey, respectively. These states rank 2, 7, 1, 4, and 3 in education. The five low ranking states in standard of living (lowest first) are: Mississippi, Arkansas, Alabama, South Carolina, and Georgia. These states rank 48, 44, 47, 45, 43, respectively. These facts indicate a high degree of relationship but do not show that the relationship is a causal one. Perhaps the standard of living is more closely related to agricultural wealth, industrial wealth, natural resources, or a combination of these factors. However, if it is more closely related to education than to any other factor, this would be a strong indication that there is some causal relationship.

TABLE 28--The Standard of Living Index

| S T A T E | Total of 13 Factors | Standard of Living Index | Rank |
|---|---|---|---|
| Alabama | 438.84 | 33.8 | 46 |
| Arizona | 615.64 | 47.4 | 32 |
| Arkansas | 431.69 | 33.2 | 47 |
| California | 829.02 | 63.8 | 1 |
| Colorado | 692.67 | 53.3 | 22 |
| Connecticut | 805.37 | 62.0 | 2 |
| Delaware | 745.71 | 57.4 | 12 |
| Florida | 626.79 | 48.2 | 31 |
| Georgia | 471.96 | 36.3 | 34 |
| Idaho | 651.51 | 50.1 | 29 |
| Illinois | 755.30 | 58.1 | 9 |
| Indiana | 697.30 | 53.6 | 20 |
| Iowa | 691.13 | 53.2 | 23 |
| Kansas | 670.59 | 51.6 | 27 |
| Kentucky | 503.14 | 38.7 | 42 |
| Louisiana | 503.41 | 38.7 | 40 |
| Maine | 680.30 | 52.3 | 25 |
| Maryland | 711.38 | 54.7 | 16 |
| Massachusetts | 793.49 | 61.0 | 4 |
| Michigan | 748.24 | 57.6 | 11 |
| Minnesota | 694.81 | 53.4 | 21 |
| Mississippi | 388.20 | 29.9 | 48 |
| Missouri | 645.84 | 49.7 | 30 |
| Montana | 679.31 | 52.3 | 26 |
| Nebraska | 664.74 | 51.1 | 28 |
| Nevada | 777.39 | 59.8 | 6 |
| New Hampshire | 730.91 | 56.2 | 14 |
| New Jersey | 787.98 | 60.6 | 5 |
| New Mexico | 503.16 | 38.7 | 41 |
| New York | 798.50 | 61.4 | 3 |
| North Carolina | 502.27 | 38.6 | 43 |
| North Dakota | 554.63 | 42.7 | 38 |
| Ohio | 752.41 | 57.9 | 10 |
| Oklahoma | 578.55 | 44.5 | 36 |
| Oregon | 742.13 | 57.1 | 13 |
| Pennsylvania | 728.09 | 56.0 | 15 |
| Rhode Island | 757.64 | 58.3 | 8 |
| South Carolina | 457.02 | 35.2 | 45 |
| South Dakota | 592.70 | 45.6 | 33 |
| Tennessee | 509.73 | 39.2 | 39 |
| Texas | 587.20 | 45.2 | 34 |
| Utah | 708.01 | 54.5 | 17 |
| Vermont | 703.77 | 54.1 | 19 |
| Virginia | 568.63 | 43.7 | 37 |
| Washington | 757.71 | 58.3 | 7 |
| West Virginia | 583.81 | 44.9 | 35 |
| Wisconsin | 704.82 | 54.2 | 18 |
| Wyoming | 684.99 | 52.7 | 24 |

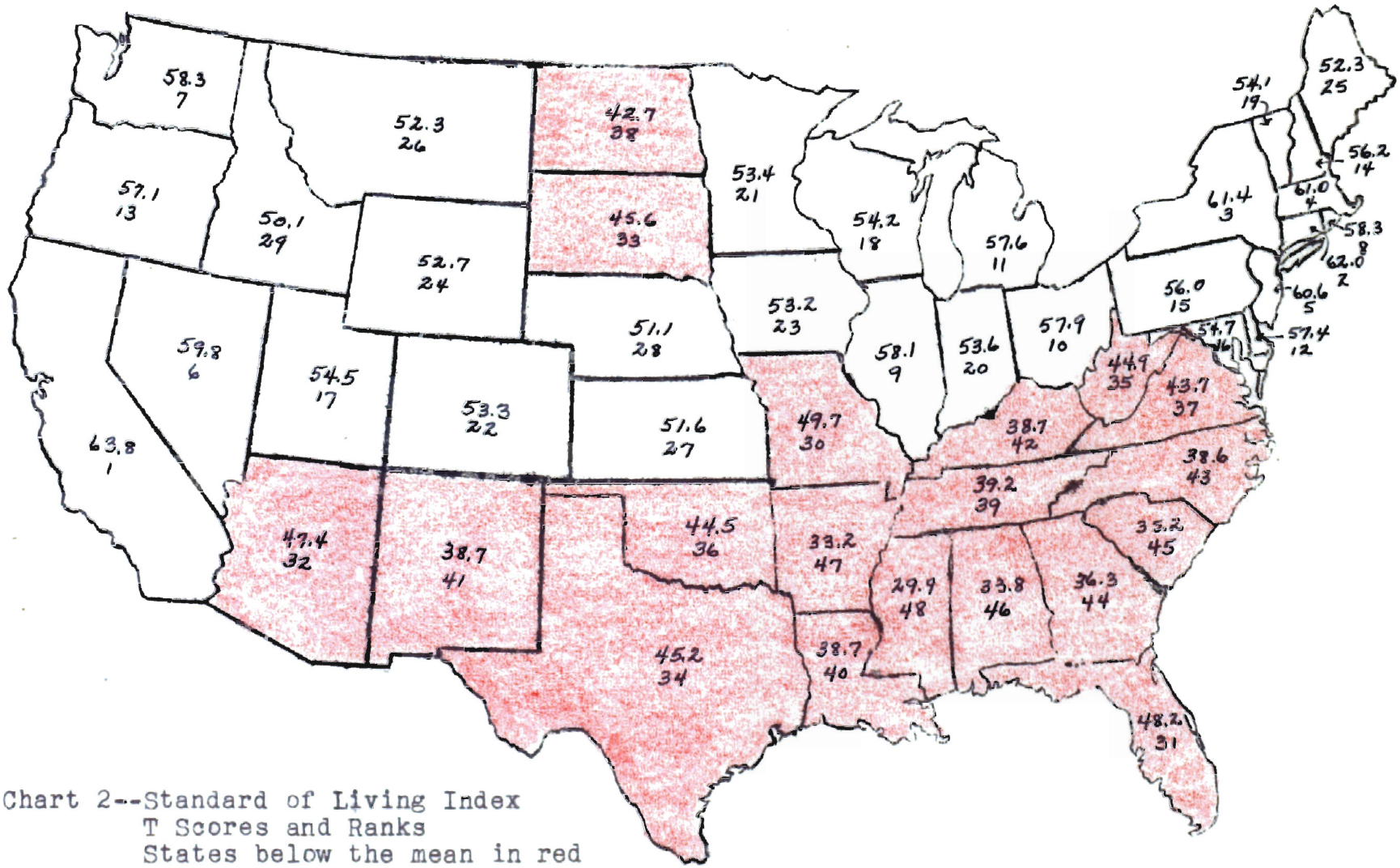


Chart 2--Standard of Living Index
T Scores and Ranks
States below the mean in red

# CHAPTER IV

## PHYSICAL AND MENTAL HEALTH AND CARE IN THE FORTY-EIGHT STATES

To establish an index of human welfare, it is necessary to combine the standard of living with the physical and mental health and care of the people in the forty-eight states. The standard of living index was figured in the preceding chapter. This chapter gives the index for physical health and care, mental health and care, scores for both physical health and mental health omitting the "care" factors, and the combined score or human welfare index.

### Physical Health and Care

The physical health and care index is made up of the T scores on eleven factors intended to show the physical well-being of the people of each state and the medical, dental, and hospital care available to them. These eleven factors are:

1. Infant mortality rate; deaths under 1 year, including stillbirths per 1000 live births (reversed).
2. The child death rate, ages 1 to 4 (reversed).
3. Adult death rate, ages 25-34 (reversed).
4. Death rate from typhoid and paratyphoid fever (reversed).
5. Death rate from appendicitis (reversed).
6. Death rate from pellagra ( except alcoholic) (reversed).
7. Death rate from syphilis (reversed).
8. Average number of class IV-F registrants 18 through 37 years of age on December 1, 1943 and June 1, 1944 (reversed).
9. Death rate from motor vehicle accidents and other accidents (reversed).
10. General hospital beds per 1000 population.
11. Number of Doctors and Dentists per 100,000 population.

Table 29 shows the infant mortality rate based on deaths under 1 year of age, including stillbirths, per 1000 live births. The Vital Statistics of the United States Census present figures for deaths under 1 year exclusive of stillbirths and for stillbirths separately. These figures were added, since both were based on a thousand live births, to obtain the infant death rate shown. Scores range from 127.9 deaths per 1000 live births in New Mexico to only 52.4 deaths per 1000 live births in Washington. New York has the highest stillbirth rate with 51.9 stillbirths per 1000 live births. New Mexico has the highest death rate exclusive of stillbirths and the highest combined rate.

It is interesting to note that the states with death rates of more than 100 per 1000 live births form a straight line across the United States from Arizona to South Carolina. They are Arizona (109.1), New Mexico (127.9), Texas (100.1), Louisiana (102.2), Mississippi (102.5), Alabama (101.3), Georgia (105.5), and South Carolina (115.2). No other state has more than 100 infant deaths per 1000 live births and only four others have more than 90 infant deaths per 1000 live births.

Table 30 shows the child death rate from ages 1 to 4 inclusive. This rate is based on the number of deaths per 1000 children 1 to 4. Arizona has far the highest rate with New Mexico and Texas also ranking close to the bottom. Connecticut has the lowest rate with only 1.8 deaths per 1000.

Table 31 shows the death rate per 1000 population between the ages of 25 and 34, inclusive. This rate and the child death rate in Table 30 are used instead of the general death rate, used by Thorndike. As was pointed out, the general death rate includes deaths at all ages and should never be used as a measure of the health of a state. Since persons between 1 and 4 and 25 and 34 should not die in a perfectly healthy community,

TABLE 29 -- Infant Mortality Rate, Deaths Under 1 Year, Including Stillbirths, per 1000 Live Births, United States, By States, 1940, (T Scores reversed). Source: U. S. Census, Vital Statistics, 1940, p. 16.

| S T A T E | Total Deaths per 1000 Live Births | Standard T Score |
|---|---|---|
| Alabama | 101.3 | 36.60 |
| Arizona | 109.1 | 32.36 |
| Arkansas | 72.7 | 52.15 |
| California | 59.0 | 59.60 |
| Colorado | 83.8 | 46.12 |
| Connecticut | 54.3 | 62.16 |
| Delaware | 72.8 | 52.10 |
| Florida | 95.8 | 39.59 |
| Georgia | 105.5 | 34.32 |
| Idaho | 63.8 | 56.99 |
| Illinois | 60.9 | 58.57 |
| Indiana | 64.9 | 56.39 |
| Iowa | 59.2 | 59.49 |
| Kansas | 62.2 | 57.86 |
| Kentucky | 84.8 | 45.57 |
| Louisiana | 102.2 | 36.11 |
| Maine | 82.9 | 46.61 |
| Maryland | 93.2 | 41.01 |
| Massachusetts | 64.3 | 56.72 |
| Michigan | 66.7 | 55.42 |
| Minnesota | 54.8 | 61.89 |
| Mississippi | 102.5 | 35.95 |
| Missouri | 79.3 | 48.56 |
| Montana | 65.0 | 56.34 |
| Nebraska | 58.8 | 59.71 |
| Nevada | 70.8 | 53.19 |
| New Hampshire | 64.8 | 56.45 |
| New Jersey | 61.7 | 58.13 |
| New Mexico | 127.9 | 22.14 |
| New York | 89.1 | 43.24 |
| North Carolina | 91.8 | 41.77 |
| North Dakota | 67.3 | 55.09 |
| Ohio | 67.3 | 55.09 |
| Oklahoma | 74.9 | 50.96 |
| Oregon | 54.0 | 62.32 |
| Pennsylvania | 73.3 | 51.83 |
| Rhode Island | 66.5 | 55.52 |
| South Carolina | 115.2 | 29.04 |
| South Dakota | 58.0 | 60.15 |
| Tennessee | 83.8 | 46.12 |
| Texas | 100.1 | 37.25 |
| Utah | 59.3 | 59.44 |
| Vermont | 70.8 | 53.19 |
| Virginia | 96.1 | 39.43 |
| Washington | 52.4 | 63.19 |
| West Virginia | 89.3 | 43.13 |
| Wisconsin | 59.2 | 59.49 |
| Wyoming | 66.3 | 55.63 |

Average, 48 States, 76.66; Standard Deviations, 18.39.

TABLE 30 -- Child Death Rate, 1 to 4 Years Old, United States, By States, 1940 (T Scores reversed). Source: U. S. Census, Vital Statistics, 1940.

| STATE | Death Rate per 1000 population 1-4 years old. | Standard T Score |
|---|---|---|
| Alabama | 4.0 | 40.74 |
| Arizona | 7.6 | 7.40 |
| Arkansas | 3.9 | 41.66 |
| California | 2.6 | 53.70 |
| Colorado | 3.3 | 47.22 |
| Connecticut | 1.8 | 61.11 |
| Delaware | 2.5 | 54.63 |
| Florida | 3.3 | 47.22 |
| Georgia | 3.3 | 47.22 |
| Idaho | 2.9 | 50.93 |
| Illinois | 2.2 | 57.41 |
| Indiana | 2.5 | 54.63 |
| Iowa | 1.9 | 60.19 |
| Kansas | 2.3 | 56.48 |
| Kentucky | 3.8 | 42.59 |
| Louisiana | 3.7 | 43.52 |
| Maine | 2.6 | 53.70 |
| Maryland | 2.6 | 53.70 |
| Massachusetts | 2.1 | 58.34 |
| Michigan | 2.2 | 57.41 |
| Minnesota | 1.9 | 60.19 |
| Mississippi | 4.4 | 37.03 |
| Missouri | 3.2 | 48.15 |
| Montana | 3.5 | 45.37 |
| Nebraska | 2.2 | 57.41 |
| Nevada | 2.9 | 50.93 |
| New Hampshire | 2.7 | 52.78 |
| New Jersey | 2.0 | 59.26 |
| New Mexico | 5.7 | 24.99 |
| New York | 2.0 | 59.26 |
| North Carolina | 3.1 | 49.07 |
| North Dakota | 2.4 | 55.56 |
| Ohio | 2.4 | 55.56 |
| Oklahoma | 3.5 | 45.37 |
| Oregon | 2.2 | 57.41 |
| Pennsylvania | 2.3 | 56.48 |
| Rhode Island | 2.3 | 56.48 |
| South Carolina | 4.2 | 38.89 |
| South Dakota | 2.6 | 53.70 |
| Tennessee | 3.6 | 44.44 |
| Texas | 5.0 | 31.48 |
| Utah | 2.6 | 53.70 |
| Vermont | 2.1 | 58.34 |
| Virginia | 3.4 | 46.30 |
| Washington | 2.1 | 58.34 |
| West Virginia | 3.4 | 46.30 |
| Wisconsin | 1.9 | 60.19 |
| Wyoming | 2.9 | 50.93 |

Average, 48 States, 3.0; Standard Deviation, 1.08.

TABLE 31 -- Adult Death Rate, Selected Age 25-34, United States, By States, 1940 (T Score reversed). Source: U. S. Census, Vital Statistics, 1940.

| STATE | Rate per 1000 population age 25-34 years old | Standard T Score |
|---|---|---|
| Alabama | 4.6 | 33.94 |
| Arizona | 4.3 | 37.20 |
| Arkansas | 3.7 | 43.71 |
| California | 2.8 | 53.47 |
| Colorado | 3.0 | 51.30 |
| Connecticut | 2.3 | 58.90 |
| Delaware | 3.2 | 49.13 |
| Florida | 5.0 | 29.60 |
| Georgia | 5.0 | 29.60 |
| Idaho | 2.6 | 55.64 |
| Illinois | 2.9 | 52.39 |
| Indiana | 2.8 | 53.47 |
| Iowa | 2.1 | 61.08 |
| Kansas | 2.3 | 58.90 |
| Kentucky | 3.9 | 41.54 |
| Louisiana | 4.2 | 38.28 |
| Maine | 2.6 | 55.64 |
| Maryland | 3.4 | 46.96 |
| Massachusetts | 2.1 | 61.08 |
| Michigan | 2.5 | 56.73 |
| Minnesota | 2.0 | 62.15 |
| Mississippi | 4.8 | 31.77 |
| Missouri | 2.8 | 53.47 |
| Montana | 2.7 | 54.56 |
| Nebraska | 2.1 | 61.07 |
| Nevada | 4.1 | 39.37 |
| New Hampshire | 2.0 | 62.15 |
| New Jersey | 2.5 | 56.73 |
| New Mexico | 3.7 | 43.71 |
| New York | 2.4 | 57.81 |
| North Carolina | 4.0 | 40.45 |
| North Dakota | 2.1 | 61.07 |
| Ohio | 2.8 | 53.47 |
| Oklahoma | 3.1 | 50.22 |
| Oregon | 2.4 | 57.81 |
| Pennsylvania | 2.8 | 53.47 |
| Rhode Island | 2.0 | 62.15 |
| South Carolina | 5.5 | 24.18 |
| South Dakota | 2.1 | 61.07 |
| Tennessee | 4.0 | 40.45 |
| Texas | 3.7 | 43.71 |
| Utah | 3.1 | 50.22 |
| Vermont | 2.3 | 58.90 |
| Virginia | 3.9 | 41.54 |
| Washington | 2.7 | 54.56 |
| West Virginia | 3.7 | 43.71 |
| Wisconsin | 2.1 | 61.07 |
| Wyoming | 3.0 | 51.30 |

Average, 48 States, 3.12; Standard Deviation, .92.

it is believed that these scores eliminate the objections to the general death rate. The use of two separate scores doubles the weight on this factor. This is in accordance with the usual weighting of the general death rate.

As expected, the Southern states rank high on the adult death rate and low in standard T scores. South Carolina, with 5.5, ranks worst while Rhode Island, New Hampshire, and Minnesota rank best with only 2 deaths per 1000 population 25 to 34.

Table 32 shows the death rate from typhoid and paratyphoid fever per 100,000 population; Table 33 shows the death rate from appendicitis per 100,000 population; Table 34 shows the death rate from pellagra (except alcoholic) per 100,000 population; and Table 35 shows the death rate from syphilis per 100,000 population. These four diseases are used because each is one of the most important killers of its type. The typhoid death rate is possibly one of the best indications of the cleanliness and purity of the milk and water supply; the appendicitis rate is a good indication of medical care since deaths from appendicitis are comparatively rare where prompt and adequate medical and surgical care are available; pellagra is said to be largely due to nutritional defects and the death rate from this disease an indication of a poorly balanced or otherwise inadequate diet; and syphilis is the most dreaded of the social diseases.

Arkansas ranks worst in typhoid with 4.7 deaths per 100,000 while South Dakota has none. Idaho ranks worst in deaths from appendicitis with 16.0 per 100,000. Colorado, Arizona, Montana, Nevada, and Wyoming also have high appendicitis death rates. These are all mountain states with comparatively large, thinly-settled areas where medical care is not readily available. It is interesting to note that the five states with

TABLE 32 -- Death Rate from Typhoid and Paratyphoid Fever, United States, By States, 1940 (T Scores reversed). Source: U. S. Census, Vital Statistics, 1940, p. 16.

| STATE | Deaths per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 1.5 | 47.23 |
| Arizona | 1.4 | 48.16 |
| Arkansas | 4.7 | 17.73 |
| California | 0.5 | 56.45 |
| Colorado | 0.8 | 53.69 |
| Connecticut | 0.3 | 58.30 |
| Delaware | 0.8 | 53.69 |
| Florida | 1.2 | 50.00 |
| Georgia | 2.3 | 39.86 |
| Idaho | 1.3 | 49.08 |
| Illinois | 0.5 | 56.45 |
| Indiana | 0.8 | 53.69 |
| Iowa | 0.6 | 55.53 |
| Kansas | 0.6 | 55.53 |
| Kentucky | 2.7 | 36.17 |
| Louisiana | 3.4 | 29.72 |
| Maine | 0.5 | 56.45 |
| Maryland | 0.6 | 55.53 |
| Massachusetts | 0.2 | 59.22 |
| Michigan | 0.2 | 59.22 |
| Minnesota | 0.2 | 59.22 |
| Mississippi | 1.5 | 47.23 |
| Missouri | 1.6 | 46.31 |
| Montana | 0.7 | 54.61 |
| Nebraska | 0.5 | 56.45 |
| Nevada | 0.9 | 52.77 |
| New Hampshire | 0.2 | 59.22 |
| New Jersey | 0.4 | 57.38 |
| New Mexico | 3.4 | 29.72 |
| New York | 0.3 | 58.30 |
| North Carolina | 1.1 | 50.92 |
| North Dakota | 0.6 | 55.53 |
| Ohio | 0.7 | 54.61 |
| Oklahoma | 2.4 | 38.94 |
| Oregon | 1.0 | 51.84 |
| Pennsylvania | 0.7 | 54.61 |
| Rhode Island | 0.7 | 54.61 |
| South Carolina | 4.1 | 23.27 |
| South Dakota | 0 | 61.06 |
| Tennessee | 2.1 | 41.70 |
| Texas | 3.4 | 29.72 |
| Utah | 0.9 | 52.77 |
| Vermont | 0.6 | 55.53 |
| Virginia | 1.1 | 50.92 |
| Washington | 0.8 | 53.69 |
| West Virginia | 1.9 | 43.55 |
| Wisconsin | 0.1 | 60.14 |
| Wyoming | 0.8 | 53.69 |

Average, 48 States, 1.2; Standard Deviation, 1.09.

TABLE 33 — Death Rate from Appendicitis per 100,000 Population, United States, By States, 1940 (T Scores reversed). Source: U. S. Census, Vital Statistics, 1940, p. 16.

| STATE | Death Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 7.8 | 62.91 |
| Arizona | 14.0 | 35.11 |
| Arkansas | 10.7 | 49.91 |
| California | 9.3 | 56.19 |
| Colorado | 14.7 | 31.97 |
| Connecticut | 8.7 | 58.88 |
| Delaware | 10.1 | 52.60 |
| Florida | 10.3 | 51.70 |
| Georgia | 9.0 | 57.53 |
| Idaho | 16.0 | 26.14 |
| Illinois | 10.7 | 49.91 |
| Indiana | 10.7 | 49.91 |
| Iowa | 10.1 | 52.60 |
| Kansas | 11.7 | 45.43 |
| Kentucky | 10.4 | 51.26 |
| Louisiana | 9.7 | 54.39 |
| Maine | 12.7 | 40.94 |
| Maryland | 6.4 | 69.19 |
| Massachusetts | 9.8 | 53.95 |
| Michigan | 9.8 | 53.95 |
| Minnesota | 10.6 | 50.36 |
| Mississippi | 10.7 | 49.91 |
| Missouri | 11.9 | 44.53 |
| Montana | 14.7 | 31.97 |
| Nebraska | 12.6 | 41.39 |
| Nevada | 13.6 | 36.91 |
| New Hampshire | 12.4 | 42.29 |
| New Jersey | 10.1 | 52.60 |
| New Mexico | 12.2 | 43.18 |
| New York | 9.6 | 54.84 |
| North Carolina | 6.3 | 69.64 |
| North Dakota | 11.1 | 48.12 |
| Ohio | 9.9 | 53.50 |
| Oklahoma | 12.0 | 44.08 |
| Oregon | 10.1 | 52.60 |
| Pennsylvania | 8.9 | 57.98 |
| Rhode Island | 12.9 | 40.04 |
| South Carolina | 6.5 | 68.74 |
| South Dakota | 10.6 | 50.36 |
| Tennessee | 8.6 | 59.33 |
| Texas | 9.8 | 53.95 |
| Utah | 12.0 | 44.08 |
| Vermont | 13.9 | 35.56 |
| Virginia | 7.3 | 65.16 |
| Washington | 9.8 | 53.95 |
| West Virginia | 7.0 | 66.50 |
| Wisconsin | 11.1 | 48.12 |
| Wyoming | 14.0 | 35.11 |

Average, 48 States, 10.68; Standard Deviation, 2.23.

TABLE 34 - Death Rate from Pellagra (except alcoholic) per 100,000 Population, United States, By States, 1940 (T Scores reversed), Source: U. S. Census, Vital Statistics, 1940, p. 16.

| STATE | Death Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 8.6 | 21.75 |
| Arizona | 1.0 | 52.55 |
| Arkansas | 5.3 | 35.12 |
| California | 0.6 | 54.18 |
| Colorado | 0.1 | 56.20 |
| Connecticut | 0.2 | 55.80 |
| Delaware | 0 | 56.61 |
| Florida | 3.8 | 41.20 |
| Georgia | 8.0 | 24.18 |
| Idaho | 0.6 | 54.18 |
| Illinois | 0.3 | 55.39 |
| Indiana | 0.3 | 55.39 |
| Iowa | 0.1 | 56.20 |
| Kansas | 0.3 | 55.39 |
| Kentucky | 2.1 | 48.09 |
| Louisiana | 3.2 | 43.64 |
| Maine | 0 | 56.61 |
| Maryland | 0.4 | 54.99 |
| Massachusetts | 0.1 | 56.20 |
| Michigan | 0.2 | 55.80 |
| Minnesota | 0.2 | 55.80 |
| Mississippi | 7.7 | 25.40 |
| Missouri | 0.3 | 55.39 |
| Montana | 0.2 | 55.80 |
| Nebraska | 0.2 | 55.80 |
| Nevada | 0.9 | 52.96 |
| New Hampshire | 0 | 56.61 |
| New Jersey | 0.2 | 55.80 |
| New Mexico | 3.6 | 42.01 |
| New York | 0.1 | 56.20 |
| North Carolina | 4.7 | 37.56 |
| North Dakota | 0.3 | 55.39 |
| Ohio | 0.1 | 56.20 |
| Oklahoma | 2.6 | 46.07 |
| Oregon | 0.4 | 54.99 |
| Pennsylvania | 0.2 | 55.80 |
| Rhode Island | 0.1 | 56.20 |
| South Carolina | 8.5 | 22.15 |
| South Dakota | 0.2 | 55.80 |
| Tennessee | 3.5 | 42.42 |
| Texas | 5.5 | 34.31 |
| Utah | 0.5 | 54.58 |
| Vermont | 0 | 56.61 |
| Virginia | 2.2 | 47.69 |
| Washington | 0.3 | 55.39 |
| West Virginia | 0.6 | 54.18 |
| Wisconsin | 0.1 | 56.20 |
| Wyoming | 0 | 56.61 |

Average, 48 States, 1.63; Standard Deviation, 2.47.

TABLE 35 - Death Rate per 100,000 Population from Syphilis (all forms), United States, By States, 1942 (T Scores reversed). Source: Statistical Abstract, 1943, p. 81.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 10.4 | 52.23 |
| Arizona | 12.0 | 48.08 |
| Arkansas | 10.9 | 50.94 |
| California | 15.8 | 38.21 |
| Colorado | 12.6 | 46.52 |
| Connecticut | 8.4 | 57.43 |
| Delaware | 16.1 | 37.43 |
| Florida | 18.1 | 32.23 |
| Georgia | 15.8 | 38.21 |
| Idaho | 5.9 | 63.92 |
| Illinois | 10.9 | 50.94 |
| Indiana | 11.7 | 48.86 |
| Iowa | 8.0 | 58.47 |
| Kansas | 10.8 | 51.19 |
| Kentucky | 10.6 | 51.71 |
| Louisiana | 20.9 | 24.96 |
| Maine | 6.3 | 62.88 |
| Maryland | 19.0 | 29.90 |
| Massachusetts | 7.5 | 59.77 |
| Michigan | 10.7 | 51.45 |
| Minnesota | 7.8 | 58.99 |
| Mississippi | 19.5 | 28.60 |
| Missouri | 13.9 | 43.14 |
| Montana | 11.5 | 49.38 |
| Nebraska | 9.0 | 55.87 |
| Nevada | 14.0 | 42.62 |
| New Hampshire | 7.7 | 59.25 |
| New Jersey | 11.0 | 50.68 |
| New Mexico | 10.2 | 52.75 |
| New York | 14.6 | 41.32 |
| North Carolina | 9.2 | 55.35 |
| North Dakota | 4.1 | 68.60 |
| Ohio | 12.9 | 45.74 |
| Oklahoma | 8.5 | 57.17 |
| Oregon | 11.6 | 49.12 |
| Pennsylvania | 12.6 | 46.52 |
| Rhode Island | 10.2 | 52.75 |
| South Carolina | 13.8 | 43.40 |
| South Dakota | 5.8 | 64.18 |
| Tennessee | 13.0 | 45.48 |
| Texas | 11.6 | 49.12 |
| Utah | 5.2 | 65.74 |
| Vermont | 4.4 | 67.82 |
| Virginia | 14.2 | 42.36 |
| Washington | 11.4 | 49.64 |
| West Virginia | 12.9 | 45.70 |
| Wisconsin | 5.9 | 63.92 |
| Wyoming | 11.6 | 49.12 |

Average, 48 States, 11.26; Standard Deviation, 3.85.

lowest death rates from appendicitis are all located in the same general area. They are North Carolina, Maryland, South Carolina, West Virginia, and Virginia. Since they do not rank so well in other health scores, it is difficult to understand the reason for their high standing in the appendicitis death rate. Perhaps there is some explanation in medical science or it may be that this is only a coincidence.

The coefficient of variation for the appendicitis death rate is $2.23 \pm 10.68$ or 20.9 per cent while the coefficient of variation for the pellagra death rate is $2.47 \pm 1.63$ or 151.5 per cent. This is a rather unusual case where the standard deviation is larger than the mean and indicates that there is a great deal more variation in the pellagra rate than in the appendicitis rate. Since pellagra is a nutritional disease, it indicates a vast difference in the quality and quantity of food consumed in the various states. It also indicates a lack of information about the effect of certain monotonous diets on health and for this reason is definitely related to health education. Alabama, South Carolina, Georgia, and Mississippi rank lowest on this score. Their education index ranks are 47, 45, 43, 48, respectively.

These same states ranked comparatively high on deaths from appendicitis, with all except Mississippi far better than the national average. Education cannot prevent appendicitis but it can keep people from having pellagra if there is sufficient income to afford the proper diet, and home economists agree that most nutritional defects are due to an improper balance of foods and not to a lack of food.

The death rate from syphilis varies from 20.9 per 100,000 in Louisiana to 4.1 in North Dakota. Mississippi has 19.5 to rank second worst and Vermont has 4.4 to rank second best. Louisiana and Mississippi

rank third and first respectively in per cent Negro while North Dakota has practically no Negroes and Vermont has only one-tenth of one per cent Negroes, ranking first and second, respectively, in absence of Negroes. The five states which have more than 30 per cent Negroes have an average syphilis death rate of 16.1 per 100,000 population. The five states with 0.1 per cent Negroes or less have an average syphilis death rate of less than 5.6 per 100,000 population. Negroes are ordinarily much less well-educated than whites and they are seemingly much more likely to die from syphilis. This may be due to education, standard of living, or a difference in social levels or moral codes.

Table 36 shows the average number of class IV-F registrants 18 through 37 years of age on December 1, 1943 and June 1, 1944, based on the total number of living registrants. These data are from the Selective Service reports. South Carolina ranks worst on this score with North Carolina, Arkansas, Georgia, Virginia, Florida, and Alabama all closely grouped at the bottom. Is this loss of manpower, both for war and for peace, due to a low standard of living, lack of medical care, or lack of education? No matter what the cause, the Nation should see that everything possible is done to improve conditions in the Southern states.

Table 37 shows the death rates from motor vehicle accidents and other accidents in 1940. This rate is generally included in the health score of a state but there is some doubt as to whether it should be included here.

These rates do not seem to be related to education at all since some of the states which rank very low in education have as good accident rates as many of the states which rank high in education.

TABLE 36 - Average Number of Class IV-F Registrants 18 through 37 Years of Age on Dec. 1, 1943 and June 1, 1944 — % Based on Total Living Registrants (T Scores reversed). Source: Third Selective Service Report, pp. 457 & 465.

| STATE | Per Cent IV-F | Standard T Score |
|---|---|---|
| Alabama | 22.5 | 35.25 |
| Arizona | 16.7 | 49.27 |
| Arkansas | 23.8 | 32.11 |
| California | 12.9 | 58.46 |
| Colorado | 15.9 | 51.21 |
| Connecticut | 14.7 | 54.10 |
| Delaware | 17.2 | 48.07 |
| Florida | 22.9 | 34.29 |
| Georgia | 23.0 | 34.05 |
| Idaho | 9.5 | 66.68 |
| Illinois | 14.5 | 54.59 |
| Indiana | 16.2 | 50.48 |
| Iowa | 12.4 | 59.67 |
| Kansas | 11.4 | 62.09 |
| Kentucky | 21.9 | 36.70 |
| Louisiana | 21.1 | 38.64 |
| Maine | 15.2 | 52.90 |
| Maryland | 17.7 | 46.86 |
| Massachusetts | 16.1 | 50.73 |
| Michigan | 16.0 | 50.97 |
| Minnesota | 14.0 | 55.80 |
| Mississippi | 17.8 | 46.62 |
| Missouri | 18.0 | 46.13 |
| Montana | 12.7 | 58.94 |
| Nebraska | 12.4 | 59.67 |
| Nevada | 12.3 | 59.91 |
| New Hampshire | 16.6 | 49.52 |
| New Jersey | 13.7 | 56.53 |
| New Mexico | 17.2 | 48.07 |
| New York | 16.7 | 49.27 |
| North Carolina | 24.1 | 31.39 |
| North Dakota | 12.5 | 59.43 |
| Ohio | 15.4 | 52.42 |
| Oklahoma | 18.2 | 45.65 |
| Oregon | 11.2 | 62.57 |
| Pennsylvania | 15.0 | 53.38 |
| Rhode Island | 15.7 | 51.69 |
| South Carolina | 26.2 | 26.31 |
| South Dakota | 11.6 | 61.60 |
| Tennessee | 20.2 | 40.81 |
| Texas | 18.2 | 45.65 |
| Utah | 10.3 | 64.75 |
| Vermont | 18.2 | 45.65 |
| Virginia | 23.4 | 33.08 |
| Washington | 11.5 | 61.85 |
| West Virginia | 19.0 | 43.71 |
| Wisconsin | 12.9 | 58.46 |
| Wyoming | 10.3 | 64.75 |

Averages: U. S., 16.8; 48 States, 16.4; Standard Deviation, 4.14.

TABLE 37 - Death Rates from Motor Vehicle Accidents and Other Accidents, United States, By States, 1940 (T Scores reversed). Source: U. S. Census, Vital Statistics, Part 1, 1940.

| STATE | Deaths per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 66.7 | 56.01 |
| Arizona | 107.6 | 35.69 |
| Arkansas | 56.7 | 60.98 |
| California | 89.2 | 44.83 |
| Colorado | 90.9 | 43.99 |
| Connecticut | 61.3 | 58.70 |
| Delaware | 85.2 | 46.82 |
| Florida | 96.7 | 41.10 |
| Georgia | 67.9 | 55.42 |
| Idaho | 99.8 | 39.56 |
| Illinois | 73.2 | 52.78 |
| Indiana | 89.5 | 44.68 |
| Iowa | 70.6 | 54.08 |
| Kansas | 74.1 | 52.34 |
| Kentucky | 82.7 | 48.06 |
| Louisiana | 69.0 | 54.87 |
| Maine | 75.0 | 51.89 |
| Maryland | 78.3 | 50.25 |
| Massachusetts | 63.1 | 57.80 |
| Michigan | 74.9 | 51.94 |
| Minnesota | 69.4 | 54.67 |
| Mississippi | 71.8 | 53.48 |
| Missouri | 72.6 | 53.08 |
| Montana | 97.6 | 40.66 |
| Nebraska | 67.0 | 55.86 |
| Nevada | 180.5 | —0.55 |
| New Hampshire | 80.4 | 49.20 |
| New Jersey | 65.0 | 56.86 |
| New Mexico | 88.9 | 44.98 |
| New York | 62.3 | 58.20 |
| North Carolina | 65.1 | 56.81 |
| North Dakota | 58.7 | 59.99 |
| Ohio | 86.2 | 46.32 |
| Oklahoma | 57.4 | 60.64 |
| Oregon | 98.2 | 40.36 |
| Pennsylvania | 71.0 | 53.88 |
| Rhode Island | 51.3 | 63.67 |
| South Carolina | 76.2 | 51.29 |
| South Dakota | 57.4 | 60.64 |
| Tennessee | 62.3 | 58.20 |
| Texas | 72.1 | 53.33 |
| Utah | 83.0 | 47.91 |
| Vermont | 75.7 | 51.54 |
| Virginia | 82.5 | 48.16 |
| Washington | 93.3 | 42.79 |
| West Virginia | 89.5 | 44.68 |
| Wisconsin | 69.2 | 54.77 |
| Wyoming | 106.1 | 36.43 |

Average, 48 States, 78.8; Standard Deviation, 20.12.

Nevada has the highest accident rate of any of the states with a score so bad that when deviation signs are reversed it has a T score of --0.55. This means that it is more than five standard deviations below (rate higher) the mean. Arizona and Wyoming also have more than 100 deaths per 100,000 population from all types of accidents. Idaho, Montana, Oregon, Washington, Colorado, and Florida all have rates of above 90. Florida is the only one of these states not in the Mountain or Pacific-Northwest States area.

Table 38 shows the number of general hospital beds per 1000 population as shown by the 1941 Census of Hospitals. This rate is intended to show the hospital facilities available to the people of each state. It has certain fundamental weaknesses in that it does not consider the need for hospital services. Thus while Utah has a standard T score of 55.7 on the first eight factors, it ranks lowest in number of general hospital beds per 1000 population.

Table 39 shows the number of doctors and dentists per 100,000 population. This score was derived from original data showing number of male dentists, and male physicians and male surgeons, female dentists, and female physicians and surgeons in each state. This factor, like the one above, fails to consider the need for medical services. It does, however, indicate which states have the most readily available medical service, provided the sufferer has the price.

Because of the objections which may be raised to the last three factors, two physical health index numbers are prepared. The first index, Table 40, Column 2, includes the accident and two "care" scores, the latter, Table 40, Column 3, includes only the first eight factors.

TABLE 38--General Hospital Beds per 1000 Population, United States, By States, 1941. Source: Hospital Service in the U. S., 1942. The 1941 Census of Hospitals. Reprinted from the Journal of the American Medical Association, Vol. 118, No. 13.

| STATE | Beds per 1000 Population | Standard T Score |
|---|---|---|
| Alabama | 2.4 | 35.60 |
| Arizona | 7.4 | 75.60 |
| Arkansas | 2.8 | 38.80 |
| California | 5.9 | 63.60 |
| Colorado | 5.7 | 62.00 |
| Connecticut | 4.1 | 49.20 |
| Delaware | 5.0 | 56.40 |
| Florida | 5.1 | 57.20 |
| Georgia | 4.0 | 48.40 |
| Idaho | 3.5 | 44.40 |
| Illinois | 3.8 | 46.80 |
| Indiana | 2.8 | 38.80 |
| Iowa | 3.0 | 40.40 |
| Kansas | 3.9 | 47.60 |
| Kentucky | 2.2 | 34.00 |
| Louisiana | 5.7 | 62.50 |
| Maine | 3.7 | 46.00 |
| Maryland | 5.0 | 56.40 |
| Massachusetts | 5.9 | 63.60 |
| Michigan | 4.1 | 49.20 |
| Minnesota | 4.2 | 50.00 |
| Mississippi | 2.6 | 37.20 |
| Missouri | 4.0 | 48.40 |
| Montana | 5.0 | 56.40 |
| Nebraska | 3.6 | 45.20 |
| Nevada | 8.0 | 80.40 |
| New Hampshire | 4.8 | 54.80 |
| New Jersey | 4.0 | 48.40 |
| New Mexico | 4.3 | 50.80 |
| New York | 4.6 | 53.20 |
| North Carolina | 3.2 | 42.00 |
| North Dakota | 3.9 | 47.60 |
| Ohio | 3.0 | 40.40 |
| Oklahoma | 2.8 | 38.80 |
| Oregon | 4.0 | 48.40 |
| Pennsylvania | 3.6 | 45.20 |
| Rhode Island | 4.6 | 53.20 |
| South Carolina | 4.5 | 52.40 |
| South Dakota | 4.0 | 48.40 |
| Tennessee | 2.6 | 37.20 |
| Texas | 4.0 | 48.40 |
| Utah | 2.1 | 33.20 |
| Vermont | 4.7 | 54.00 |
| Virginia | 4.8 | 54.80 |
| Washington | 5.8 | 62.80 |
| West Virginia | 2.9 | 39.60 |
| Wisconsin | 3.9 | 47.60 |
| Wyoming | 6.0 | 64.40 |

Average, 48 States, 4.2; Standard Deviation, 1.25.

TABLE 39--Number of Doctors and Dentists per 100,000 Population, United States, By States, 1940. Source: U. S. Census, Population, 1940, Vol. III, Parts 2, 3, 4, 5.

| STATE | No. per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 86.9 | 33.32 |
| Arizona | 143.0 | 46.33 |
| Arkansas | 105.3 | 37.59 |
| California | 236.0 | 67.91 |
| Colorado | 205.3 | 60.79 |
| Connecticut | 208.3 | 61.48 |
| Delaware | 164.0 | 51.21 |
| Florida | 145.4 | 46.89 |
| Georgia | 107.8 | 38.17 |
| Idaho | 119.5 | 40.88 |
| Illinois | 221.1 | 64.45 |
| Indiana | 162.9 | 50.95 |
| Iowa | 179.0 | 54.69 |
| Kansas | 170.8 | 52.78 |
| Kentucky | 117.3 | 40.37 |
| Louisiana | 132.4 | 43.88 |
| Maine | 149.3 | 47.80 |
| Maryland | 208.9 | 61.62 |
| Massachusetts | 228.9 | 66.26 |
| Michigan | 167.1 | 51.93 |
| Minnesota | 196.0 | 58.63 |
| Mississippi | 80.1 | 31.74 |
| Missouri | 192.1 | 57.73 |
| Montana | 143.7 | 46.50 |
| Nebraska | 189.3 | 57.08 |
| Nevada | 178.7 | 54.62 |
| New Hampshire | 159.3 | 50.12 |
| New Jersey | 205.5 | 60.83 |
| New Mexico | 101.2 | 36.64 |
| New York | 268.9 | 75.54 |
| North Carolina | 94.3 | 35.04 |
| North Dakota | 120.4 | 41.09 |
| Ohio | 184.0 | 55.85 |
| Oklahoma | 127.6 | 42.76 |
| Oregon | 204.2 | 60.53 |
| Pennsylvania | 189.9 | 57.22 |
| Rhode Island | 182.5 | 55.50 |
| South Carolina | 85.4 | 32.97 |
| South Dakota | 125.0 | 42.16 |
| Tennessee | 122.5 | 41.58 |
| Texas | 128.7 | 43.02 |
| Utah | 155.9 | 49.33 |
| Vermont | 170.6 | 52.74 |
| Virginia | 129.6 | 43.23 |
| Washington | 192.0 | 57.70 |
| West Virginia | 122.3 | 41.53 |
| Wisconsin | 175.2 | 53.80 |
| Wyoming | 139.6 | 45.55 |

Average, 48 States, 158.8; Standard Deviation, 43.10.

TABLE 40--Physical Health and Care Index

| STATE | Physical Health & Care Index (All Factors) | Physical Health Index (Factors 1-8) |
|---|---|---|
| Alabama | 41.4 | 41.3 |
| Arizona | 42.5 | 38.8 |
| Arkansas | 41.9 | 40.4 |
| California | 55.1 | 53.8 |
| Colorado | 50.1 | 48.0 |
| Connecticut | 57.8 | 58.3 |
| Delaware | 50.8 | 50.5 |
| Florida | 42.8 | 40.7 |
| Georgia | 40.6 | 38.1 |
| Idaho | 49.9 | 52.9 |
| Illinois | 54.5 | 54.5 |
| Indiana | 50.7 | 52.8 |
| Iowa | 55.7 | 57.9 |
| Kansas | 54.1 | 55.4 |
| Kentucky | 43.3 | 44.2 |
| Louisiana | 42.8 | 38.6 |
| Maine | 51.9 | 53.2 |
| Maryland | 51.5 | 49.8 |
| Massachusetts | 58.5 | 56.6 |
| Michigan | 54.0 | 55.1 |
| Minnesota | 57.1 | 58.1 |
| Mississippi | 38.6 | 37.8 |
| Missouri | 49.5 | 48.2 |
| Montana | 50.0 | 50.9 |
| Nebraska | 55.0 | 55.9 |
| Nevada | 47.6 | 48.6 |
| New Hampshire | 53.9 | 54.8 |
| New Jersey | 55.7 | 55.9 |
| New Mexico | 39.9 | 38.3 |
| New York | 55.2 | 52.5 |
| North Carolina | 46.4 | 47.0 |
| North Dakota | 55.2 | 57.3 |
| Ohio | 51.7 | 53.3 |
| Oklahoma | 47.3 | 47.3 |
| Oregon | 54.4 | 56.1 |
| Pennsylvania | 53.3 | 53.8 |
| Rhode Island | 54.7 | 53.7 |
| South Carolina | 37.5 | 34.5 |
| South Dakota | 56.3 | 58.5 |
| Tennessee | 45.2 | 45.1 |
| Texas | 42.7 | 40.6 |
| Utah | 52.3 | 55.7 |
| Vermont | 53.6 | 54.0 |
| Virginia | 46.6 | 45.8 |
| Washington | 55.8 | 56.3 |
| West Virginia | 46.6 | 48.3 |
| Wisconsin | 56.7 | 58.4 |
| Wyoming | 51.2 | 52.1 |

Chart 3 shows the rank of each of the states on the physical health and care index. South Carolina and Mississippi rank 48th and 47th on the health score and 45th and 48th on education. Massachusetts and Connecticut rank 1st and 2nd on health and 4th and 7th on education. The exact correlations between these scores are found in Chapter VII.

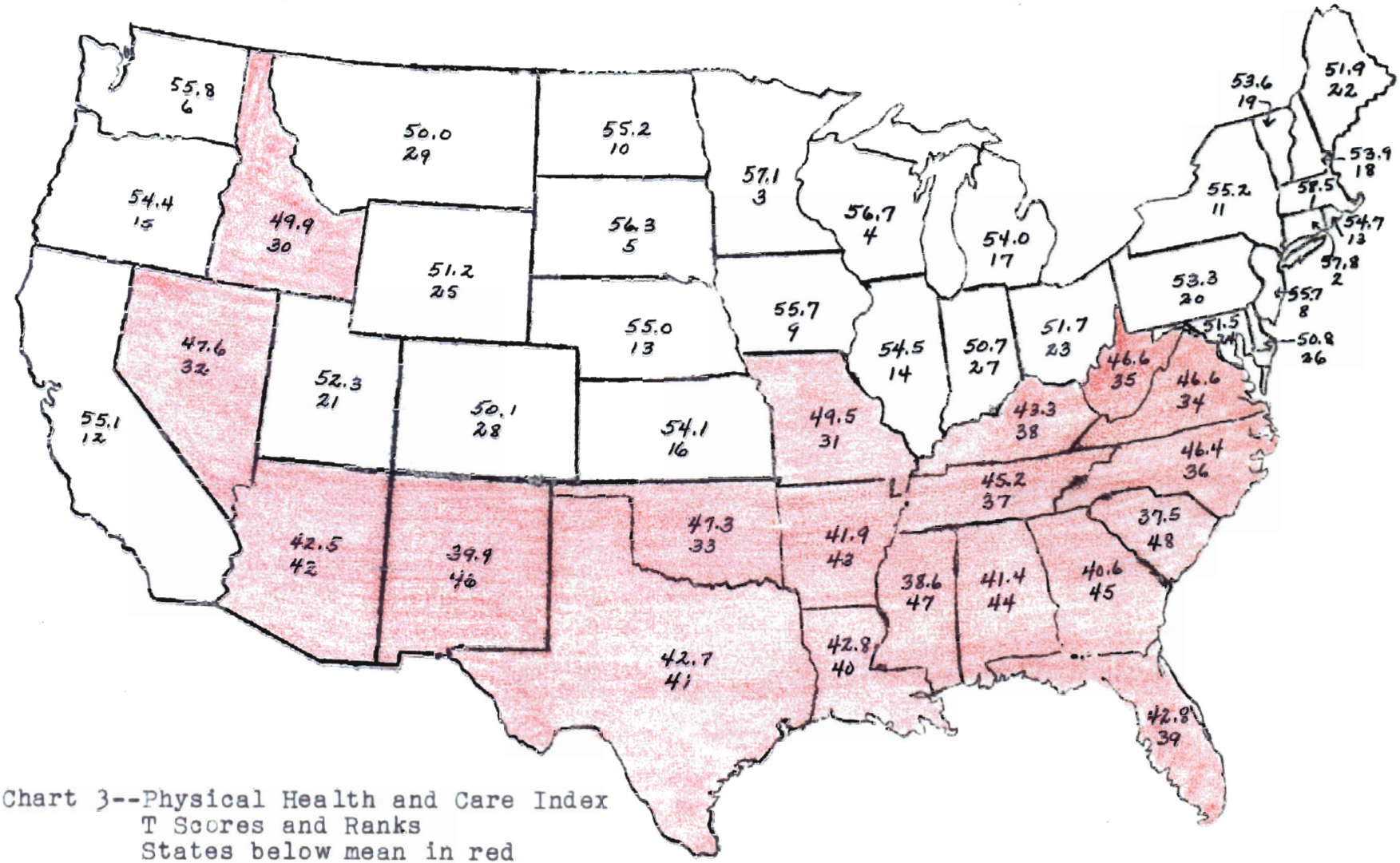


Chart 3--Physical Health and Care Index
T Scores and Ranks
States below mean in red

## Mental Health and Care

The mental health and care index is composed of seven factors intended to show the mental health of the people of each state and the care provided for them.

The seven factors included are:

1. Patients in State, County, and City Hospitals for mental disease per 100,000 population 15 years old and over (reversed).
2. First admissions of patients in hospitals for mental disease per 100,000 population (reversed).
3. Mental patients per employee in State Hospitals (all types--full time) (reversed).
4. Per cent excess of hospital patients over rated capacity (reversed).
5. Suicide rate (reversed).
6. Rate of rejection for mental deficiency (morons, imbeciles, and idiots included) per 1000 registrants examined, January, February, and March, 1943 (reversed).
7. Rate of rejection for mental disease per 1000 registrants examined January, February, and March, 1943 (reversed).

There are some objections to be raised to using several of these factors but it is believed that the final index represents the mental health of each state as well as any group of measures yet used for this purpose. The principal objections to each score are given in the brief discussion of each table.

Table 41 shows the number of patients in State, County, and City Hospitals for mental disease per 100,000 population 15 years old and over. These figures do not include persons in United States Government Hospitals because these patients may be from states other than the ones in which the

TABLE 41—Patients in State, County, and City Hospitals for Mental Disease per 100,000 Population 15 Years Old and Over, United States, By States, 1940 (T Scores Reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 1940 | Standard T Score |
|---|---|---|
| Alabama | 302.1 | 61.24 |
| Arizona | No Data | ..... |
| Arkansas | 326.0 | 58.86 |
| California | 424.1 | 49.07 |
| Colorado | 470.6 | 44.43 |
| Connecticut | 532.6 | 38.25 |
| Delaware | 591.3 | 32.39 |
| Florida | 331.0 | 58.36 |
| Georgia | 338.5 | 57.61 |
| Idaho | 265.3 | 64.92 |
| Illinois | 501.6 | 41.34 |
| Indiana | 334.7 | 57.99 |
| Iowa | 388.2 | 52.65 |
| Kansas | 364.1 | 55.06 |
| Kentucky | 321.5 | 59.31 |
| Louisiana | 393.0 | 52.17 |
| Maine | 412.2 | 50.26 |
| Maryland | 554.7 | 36.04 |
| Massachusetts | 677.4 | 23.80 |
| Michigan | 407.6 | 50.72 |
| Minnesota | 482.8 | 43.22 |
| Mississippi | No Data | ..... |
| Missouri | 428.4 | 48.64 |
| Montana | No Data | ..... |
| Nebraska | 428.6 | 48.62 |
| Nevada | 408.7 | 50.61 |
| New Hampshire | 597.7 | 31.75 |
| New Jersey | 497.7 | 41.73 |
| New Mexico | 262.5 | 65.20 |
| New York | 689.7 | 22.57 |
| North Carolina | 305.3 | 60.92 |
| North Dakota | 423.8 | 49.10 |
| Ohio | 376.7 | 53.80 |
| Oklahoma | 430.7 | 48.41 |
| Oregon | 489.4 | 42.56 |
| Pennsylvania | 436.9 | 47.80 |
| Rhode Island | 498.6 | 41.64 |
| South Carolina | 359.7 | 55.50 |
| South Dakota | 341.0 | 57.36 |
| Tennessee | 302.3 | 61.22 |
| Texas | 293.3 | 62.12 |
| Utah | 282.0 | 63.25 |
| Vermont | 398.6 | 51.62 |
| Virginia | 484.4 | 43.06 |
| Washington | 473.9 | 44.10 |
| West Virginia | 299.7 | 61.48 |
| Wisconsin | 405.5 | 50.93 |
| Wyoming | 333.1 | 58.15 |

Average, 48 States, 414.8; Standard Deviation, 100.23.

hospitals are located. On the other hand, mental patients are generally placed in an institution close to their homes. Thus perhaps most of the patients in Federal hospitals are from communities fairly close to the hospital in which they are placed.

Another, and perhaps more serious, objection to using the number of persons in mental institutions as an indication of poor mental health is that states which provide the best facilities and go to the most trouble and expense to see that mentally incompetent or mentally deranged persons are placed in institutions have the highest rate or per cent of their population in institutions and thus receive the lowest T scores. There is no way to estimate, for example, how many of the persons who are in mental institutions in New York, where the rate is 689.7 per 100,000, would be in mental institutions if they lived in New Mexico, where the rate is only 262.5. Perhaps many of the persons in those institutions in urban communities would have sufficient mental ability to go unnoticed in rural areas. Perhaps in cities where the average person is well-educated the moron would be recognized and placed in an institution while in areas where a very large part of the population is illiterate they would not be greatly different from many of their "normal" fellow citizens.

Since New York and Massachusetts rank first and second in numbers in these mental hospitals while Alabama, Arkansas, South Carolina and others ranking low in education have relatively few in mental institutions, it is evident that whatever correlation exists between these two scores is negative. To what extent education is the cause of mental disease is unknown. Possibly there is some causal relationship; however, there is almost surely no causal relationship between education and mental

deficiency--in other words, education does not cause a person to be a moron or imbecile; it only makes the fact that he is more evident.

Table 42 shows the first admissions of patients in Federal hospitals for mental diseases. This score places weight on Federal hospitals, which were omitted in the preceding table. The objection to this score is, of course, that many of these persons are not residents of the state in which the hospital is located. This is especially true in the case of Oregon, where the mentally diseased of Alaska who are in Federal institutions are kept.

This score uses first admissions of patients rather than the number of patients in the hospitals. This is believed by many to be a better indication of the number of persons suffering from mental disease or deficiency than the number in the hospitals or the total admissions. This is true because many patients are admitted, released, and readmitted during the year; others may be admitted and released in care of their families. Thus the number of persons in these institutions may not indicate the mental well-being of a state as well as the number of first admissions.

Maryland, Connecticut, Vermont, and New York have high rates but so does Mississippi. The relationship to education seems to be negative, however.

Table 43 is intended as a measure of care patients receive in State mental hospitals. The figures given show the number of full-time employees per patient. This score has a serious fault in that it does not indicate the service rendered by each employee. It was first thought that the number of doctors and psychiatrists per 1000 patients would be a much better measure. However, available data vary so greatly in the classification of employees that it is impossible to obtain comparable figures for any

TABLE 42---First Admissions, Hospitals for Mental Disease, Rate per 100,000 Population, United States, By States, 1941 (T Score Reversed). Source: Statistical Abstract, 1943, p. 89.

| STATE | First Admissions per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 88.7 | 45.90 |
| Arizona | 66.2 | 55.31 |
| Arkansas | 74.3 | 51.92 |
| California | 118.9 | 33.27 |
| Colorado | 78.1 | 50.33 |
| Connecticut | 124.9 | 30.76 |
| Delaware | 85.5 | 47.24 |
| Florida | 43.0 | 65.01 |
| Georgia | 63.7 | 56.36 |
| Idaho | 60.4 | 57.74 |
| Illinois | 107.5 | 38.04 |
| Indiana | 65.5 | 55.60 |
| Iowa | 69.2 | 54.06 |
| Kansas | 54.6 | 60.16 |
| Kentucky | 67.2 | 54.89 |
| Louisiana | 58.5 | 58.53 |
| Maine | 61.8 | 57.15 |
| Maryland | 128.9 | 29.09 |
| Massachusetts | 102.2 | 41.26 |
| Michigan | 86.0 | 47.03 |
| Minnesota | 73.7 | 52.17 |
| Mississippi | 103.2 | 39.84 |
| Missouri | 76.8 | 50.88 |
| Montana | 52.4 | 61.08 |
| Nebraska | 68.5 | 54.35 |
| Nevada | 72.8 | 52.55 |
| New Hampshire | 100.8 | 40.84 |
| New Jersey | 119.8 | 32.89 |
| New Mexico | 43.3 | 64.89 |
| New York | 120.0 | 32.81 |
| North Carolina | 64.4 | 56.06 |
| North Dakota | 62.4 | 56.90 |
| Ohio | 73.0 | 52.47 |
| Oklahoma | 69.7 | 53.85 |
| Oregon | 101.7* | 40.46 |
| Pennsylvania | 70.5 | 53.51 |
| Rhode Island | 96.6 | 42.60 |
| South Carolina | 55.5 | 59.79 |
| South Dakota | 41.9 | 65.47 |
| Tennessee | 56.9 | 59.20 |
| Texas | 45.3 | 64.05 |
| Utah | 49.7 | 62.21 |
| Vermont | 120.3 | 32.69 |
| Virginia | 103.0 | 39.92 |
| Washington | 93.1 | 44.06 |
| West Virginia | 46.5 | 63.55 |
| Wisconsin | 90.5 | 45.15 |
| Wyoming | 110.7 | 36.70 |

*Includes Fed. Gov't. Hospital for mentally diseased of Alaska.
Average, 48 States, 78.9; Standard Deviation, 23.91.

TABLE 43 -- Mental Patients per Employee in State Hospitals (All types - full time), United States, By States, 1940 (T Scores reversed). Source: Dept. of Commerce, Bureau of Census, Patients in Mental Institutions, 1940.

| STATE | Patients per Employee | Standard T Score |
|---|---|---|
| Alabama | 7.9 | 43.18 |
| Arizona (1939 data) | No data | --- |
| Arkansas | 7.4 | 46.06 |
| California | 7.6 | 44.90 |
| Colorado | 4.5 | 62.75 |
| Connecticut | 4.3 | 63.90 |
| Delaware | 4.8 | 61.02 |
| Florida | 5.1 | 59.30 |
| Georgia | 7.7 | 44.33 |
| Idaho | 6.4 | 51.81 |
| Illinois | 6.5 | 51.24 |
| Indiana | 6.5 | 47.78 |
| Iowa | 7.1 | 52.96 |
| Kansas | 6.2 | 44.33 |
| Kentucky | 10.0 | 31.09 |
| Louisiana | 9.6 | 33.39 |
| Maine | 5.0 | 59.87 |
| Maryland | 7.1 | 47.78 |
| Massachusetts | 4.2 | 64.48 |
| Michigan | 4.5 | 62.75 |
| Minnesota | 7.6 | 44.90 |
| Mississippi (Incomplete) | 7.1 | 47.78 |
| Missouri | 5.8 | 55.27 |
| Montana | No data | --- |
| Nebraska | 6.2 | 52.96 |
| Nevada | 8.1 | 42.02 |
| New Hampshire | 3.8 | 66.78 |
| New Jersey | 4.3 | 63.90 |
| New Mexico | 5.9 | 54.69 |
| New York | 4.3 | 63.90 |
| North Carolina | 9.4 | 34.54 |
| North Dakota | 7.3 | 46.63 |
| Ohio | 8.4 | 40.33 |
| Oklahoma | 8.8 | 37.99 |
| Oregon | 9.8 | 32.24 |
| Pennsylvania | 5.6 | 56.42 |
| Rhode Island | 5.8 | 55.27 |
| South Carolina | 6.1 | 53.54 |
| South Dakota | 6.1 | 53.54 |
| Tennessee | 9.1 | 36.27 |
| Texas | 7.0 | 48.36 |
| Utah | 7.0 | 48.36 |
| Vermont | 5.3 | 58.15 |
| Virginia | 8.1 | 42.02 |
| Washington | 6.9 | 48.93 |
| West Virginia | 9.6 | 33.39 |
| Wisconsin | 3.5 | 68.51 |
| Wyoming | 8.4 | 40.30 |

Average, 48 States, 6.7; Standard Deviation, 1.74.

types of employees. For example, some superintendents are doctors but are not included as doctors while others may be; some psychiatrists are listed as psychiatrists and some as doctors. Nurses also are listed in such a way that comparable figures are impossible.

Wisconsin, Massachusetts, Connecticut, New York, and New Jersey rank well on this factor while Kentucky, Oregon, Louisiana, West Virginia, and North Carolina rank at the bottom. Except for Oregon, these scores are comparable to those found in the education index.

Table 44 also measures the care of patients. This is done by measuring the extent of crowding by the per cent excess of hospital patients over the rated capacity of the hospitals of the state. Original data show many of the per cent scores as minus figures where the rated capacity is greater than the number of the patients.

By "rated capacity" is meant the number of persons for which the hospital was intended. The fact that additional beds and bunks are crowded into the rooms does not increase the rated capacity since this still indicates overcrowding. New Mexico has the greatest amount of overcrowding while Arizona, Florida, Indiana, Louisiana, Minnesota, Mississippi, Nebraska, North Carolina, Rhode Island, Utah, and Wyoming have more capacity than patients. New Mexico's overcrowded condition is so bad that the T score for New Mexico on this factor is more than five standard deviations below the mean, --2.95.

Table 45 shows the suicide rate for each state. It is generally believed that a person who commits suicide is emotionally maladjusted and possibly mentally deranged. Nevada has the highest rate, 40.8 per 100,000, of any state; the T score of 5.09 is almost four and one-half standard deviations (scores reversed) below the mean. Arkansas, South Carolina,

TABLE 44 -- Care of Patients - Crowding - Per Cent Excess of Hospital (Mental) Patients over capacity, United States, By States, 1940. Source: Dept. of Commerce, Bureau of Census, Patients in Mental Institutions, 1940.

| STATE | % Excess of Hospital Patients over Rated Capacity | Standard T Score |
|---|---|---|
| Alabama | 2.5 | 54.96 |
| Arizona | 0 | 56.34 |
| Arkansas | 4.9 | 53.64 |
| California | 20.1 | 45.26 |
| Colorado | 10.6 | 50.50 |
| Connecticut | 7.5 | 52.21 |
| Delaware | 32.1 | 38.64 |
| Florida | 0 | 56.34 |
| Georgia | 42.6 | 32.85 |
| Idaho | 1.2 | 55.68 |
| Illinois | 0.5 | 56.07 |
| Indiana | 0 | 56.34 |
| Iowa | 26.4 | 41.78 |
| Kansas | 3.5 | 54.41 |
| Kentucky | 44.5 | 31.80 |
| Louisiana | 0 | 56.34 |
| Maine | 11.0 | 50.28 |
| Maryland | 6.3 | 52.87 |
| Massachusetts | 14.6 | 48.29 |
| Michigan | 10.5 | 50.55 |
| Minnesota | 0 | 56.34 |
| Mississippi | 0 | 56.34 |
| Missouri | 0.2 | 56.23 |
| Montana | 10.9 | 50.33 |
| Nebraska | 0 | 56.34 |
| Nevada | 6.0 | 53.03 |
| New Hampshire | 11.3 | 50.11 |
| New Jersey | 6.1 | 52.98 |
| New Mexico | 107.5 | —2.95 |
| New York | 14.6 | 48.29 |
| North Carolina | 0 | 56.34 |
| North Dakota | 1.0 | 55.79 |
| Ohio | 15.2 | 47.96 |
| Oklahoma | 4.0 | 54.14 |
| Oregon | 5.2 | 53.47 |
| Pennsylvania | 29.5 | 40.07 |
| Rhode Island | 0 | 56.34 |
| South Carolina | 19.4 | 45.64 |
| South Dakota | 26.7 | 41.62 |
| Tennessee | 5.8 | 53.14 |
| Texas | 0.5 | 56.07 |
| Utah | 0 | 56.34 |
| Vermont | 11.9 | 49.78 |
| Virginia | 2.8 | 54.80 |
| Washington | 0.5 | 56.07 |
| West Virginia | 31.2 | 39.13 |
| Wisconsin | 2.4 | 55.02 |
| Wyoming | 0 | 56.34 |

Average, 48 States, 11.5; Standard Deviation, 18.13.

TABLE 45 -- Suicide Rate per 100,000 Population, United States, By States, 1940 (T Scores reversed). Source: Vital Statistics of U. S., 1940, p. 35.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 8.3 | 60.80 |
| Arizona | 13.4 | 52.06 |
| Arkansas | 6.3 | 64.23 |
| California | 27.2 | 28.40 |
| Colorado | 19.1 | 42.29 |
| Connecticut | 17.9 | 44.34 |
| Delaware | 14.3 | 50.51 |
| Florida | 15.0 | 49.31 |
| Georgia | 9.1 | 59.43 |
| Idaho | 17.5 | 45.03 |
| Illinois | 14.6 | 50.00 |
| Indiana | 16.9 | 46.06 |
| Iowa | 15.2 | 48.97 |
| Kansas | 12.8 | 53.09 |
| Kentucky | 10.1 | 57.71 |
| Louisiana | 8.5 | 60.46 |
| Maine | 15.7 | 48.11 |
| Maryland | 16.3 | 47.09 |
| Massachusetts | 13.3 | 52.23 |
| Michigan | 13.9 | 51.20 |
| Minnesota | 14.4 | 50.34 |
| Mississippi | 6.4 | 64.06 |
| Missouri | 15.9 | 47.77 |
| Montana | 20.7 | 39.54 |
| Nebraska | 16.8 | 46.23 |
| Nevada | 40.8 | 5.09 |
| New Hampshire | 16.3 | 47.09 |
| New Jersey | 16.4 | 46.91 |
| New Mexico | 13.2 | 52.40 |
| New York | 16.7 | 46.40 |
| North Carolina | 8.1 | 61.14 |
| North Dakota | 9.5 | 58.74 |
| Ohio | 15.8 | 47.96 |
| Oklahoma | 8.4 | 60.63 |
| Oregon | 17.3 | 45.37 |
| Pennsylvania | 12.9 | 52.91 |
| Rhode Island | 12.6 | 53.43 |
| South Carolina | 6.3 | 64.23 |
| South Dakota | 11.0 | 56.17 |
| Tennessee | 8.8 | 59.94 |
| Texas | 12.1 | 54.29 |
| Utah | 12.2 | 54.11 |
| Vermont | 16.7 | 46.40 |
| Virginia | 14.9 | 49.49 |
| Washington | 22.8 | 35.96 |
| West Virginia | 10.3 | 57.37 |
| Wisconsin | 15.1 | 49.14 |
| Wyoming | 23.1 | 35.43 |

Average, 48 States, 14.6; Standard Deviation, 5.83.

and Mississippi have the lowest suicide rates. These states rank 44th, 45th, and 48th in education. In spite of a low standard of living, poor health, and poor educational opportunities, the people in these states evidently do not find life unbearable as often as do those in other states.

Tables 46 and 47 are taken from the Third Selective Service Report on registrants for the draft examined in January, February, and March, 1943. These scores are perhaps less subject to criticism than any of the others in this index.

Table 46 shows the rate of rejection for mental deficiency per 1000 registrants examined. It includes morons, imbeciles, and idiots.

Table 47 shows the rate of rejection for mental disease per 1000 registrants examined by both local boards and induction stations. The term "mental disease" includes diagnoses of psychoneurosis, psychopathic personality, constitutional psychopathic inferiority, psychosis, schizophrenia, dementia praecox and the manic depressive state.

Vermont has a surprisingly large number of rejections for mental disease with 144.8 rejections per 1000 registrants. This is nearly 50 rejections per 1000 greater than the next highest rate, 96.9 per 1000, in New Hampshire.

Table 48, Column 2, shows the average score on the seven mental health and care factors and is the mental health index.

Table 48, Column 3, is a mental health index for factors 1, 2, 5, 6, and 7. The omissions of factors 3 and 4 eliminates the "care" factors. Correlations are figured for both index numbers, but the index of Column 2 is the one used in the human welfare score.

Chart 4 shows the rank of the states on the mental health scores of Table 48, Column 2. A comparison of Chart 4 with Charts 1, 2, and 3 makes

TABLE 46 -- Rate of Rejection for Mental Deficiency (Morons, Imbeciles, and Idiots included) per 1000 Registrants Examined, By States, Jan., Feb., and March, 1943 (T Scores reversed). Source: Third Selective Service Report, p. 631.

| STATE | No. Rejected per 1000 Registrants | Standard T Score |
|---|---|---|
| Alabama | 10.6 | 44.14 |
| Arizona | 5.2 | 55.44 |
| Arkansas | 9.4 | 46.65 |
| California | 1.9 | 62.35 |
| Colorado | 12.3 | 40.58 |
| Connecticut | 3.8 | 58.37 |
| Delaware | 4.8 | 56.28 |
| Florida | 3.1 | 59.84 |
| Georgia | 4.6 | 56.70 |
| Idaho | 3.9 | 58.16 |
| Illinois | 9.8 | 45.81 |
| Indiana | 7.7 | 50.21 |
| Iowa | 3.6 | 58.79 |
| Kansas | 3.4 | 59.21 |
| Kentucky | 16.8 | 31.16 |
| Louisiana | 10.8 | 43.72 |
| Maine | 8.7 | 48.12 |
| Maryland | 3.9 | 58.16 |
| Massachusetts | 11.2 | 42.88 |
| Michigan | 13.8 | 37.44 |
| Minnesota | 6.8 | 52.09 |
| Mississippi | 7.0 | 51.67 |
| Missouri | 9.6 | 46.23 |
| Montana | 6.3 | 53.14 |
| Nebraska | 7.7 | 50.21 |
| Nevada | 3.8 | 58.37 |
| New Hampshire | 3.8 | 58.37 |
| New Jersey | 2.3 | 61.51 |
| New Mexico | 5.6 | 54.61 |
| New York | 4.9 | 56.07 |
| North Carolina | 19.1 | 26.34 |
| North Dakota | 6.0 | 53.77 |
| Ohio | 3.5 | 59.00 |
| Oklahoma | 6.7 | 52.30 |
| Oregon | .8 | 64.65 |
| Pennsylvania | 4.3 | 57.33 |
| Rhode Island | 8.1 | 49.37 |
| South Carolina | 18.0 | 28.65 |
| South Dakota | 7.2 | 51.26 |
| Tennessee | 12.9 | 39.32 |
| Texas | 5.8 | 54.19 |
| Utah | 3.5 | 59.00 |
| Vermont | 11.8 | 41.63 |
| Virginia | 15.8 | 33.25 |
| Washington | 2.2 | 61.72 |
| West Virginia | 11.3 | 42.67 |
| Wisconsin | 9.4 | 46.65 |
| Wyoming | 21.1 | 21.74 |

Average, 48 States, 7.80; Standard Deviation, 4.78.

TABLE 47 — Rate of Rejection for Mental Disease per 1000 Registrants Examined, By States, Jan., Feb., and March, 1943 (T Scores reversed). Source: Third Selective Service Report, p. 633.

| STATE | Rejections per 1000 Registrants | Standard T Score |
|---|---|---|
| Alabama | 34.9 | 56.86 |
| Arizona | 16.1 | 64.87 |
| Arkansas | 87.1 | 34.62 |
| California | 46.9 | 51.75 |
| Colorado | 52.6 | 49.32 |
| Connecticut | 58.8 | 46.85 |
| Delaware | 67.0 | 43.18 |
| Florida | 48.0 | 51.28 |
| Georgia | 57.4 | 47.27 |
| Idaho | 34.4 | 57.07 |
| Illinois | 57.4 | 47.27 |
| Indiana | 61.8 | 45.40 |
| Iowa | 23.5 | 61.72 |
| Kansas | 24.8 | 61.16 |
| Kentucky | 75.2 | 39.69 |
| Louisiana | 33.5 | 57.46 |
| Maine | 65.4 | 43.86 |
| Maryland | 68.9 | 42.37 |
| Massachusetts | 79.9 | 37.69 |
| Michigan | 61.9 | 45.36 |
| Minnesota | 56.5 | 47.66 |
| Mississippi | 26.4 | 60.48 |
| Missouri | 50.7 | 50.13 |
| Montana | 24.4 | 61.33 |
| Nebraska | 47.6 | 51.45 |
| Nevada | 24.6 | 61.25 |
| New Hampshire | 96.9 | 30.44 |
| New Jersey | 49.5 | 50.64 |
| New Mexico | 37.0 | 55.97 |
| New York | 56.1 | 47.83 |
| North Carolina | 59.2 | 46.51 |
| North Dakota | 57.6 | 47.19 |
| Ohio | 41.8 | 53.92 |
| Oklahoma | 68.7 | 42.46 |
| Oregon | 16.2 | 64.83 |
| Pennsylvania | 36.6 | 56.14 |
| Rhode Island | 78.3 | 38.37 |
| South Carolina | 73.1 | 40.58 |
| South Dakota | 35.8 | 56.48 |
| Tennessee | 34.5 | 57.03 |
| Texas | 35.3 | 56.69 |
| Utah | 31.2 | 58.44 |
| Vermont | 144.8 | 10.03 |
| Virginia | 57.1 | 47.40 |
| Washington | 25.8 | 60.74 |
| West Virginia | 50.2 | 50.34 |
| Wisconsin | 55.6 | 48.04 |
| Wyoming | 21.1 | 62.74 |

Average, 48 States, 51.0; Standard Deviation, 23.47.

TABLE 48 — Mental Health Index

| STATE | Mental Health & Care Index — All Factors | Mental Health Index Factors 1,2,5,6,7 |
|---|---|---|
| Alabama | 52.4 | 53.8 |
| Arizona | 56.8 | 56.4 |
| Arkansas | 50.9 | 51.3 |
| California | 45.0 | 45.0 |
| Colorado | 48.6 | 45.4 |
| Connecticut | 47.8 | 43.7 |
| Delaware | 47.0 | 45.9 |
| Florida | 57.1 | 56.8 |
| Georgia | 50.6 | 55.5 |
| Idaho | 55.8 | 56.6 |
| Illinois | 47.1 | 44.5 |
| Indiana | 51.3 | 51.1 |
| Iowa | 53.0 | 55.2 |
| Kansas | 55.3 | 57.7 |
| Kentucky | 43.7 | 48.6 |
| Louisiana | 51.7 | 54.5 |
| Maine | 51.1 | 49.5 |
| Maryland | 44.8 | 42.6 |
| Massachusetts | 44.4 | 39.6 |
| Michigan | 49.3 | 46.4 |
| Minnesota | 49.5 | 49.1 |
| Mississippi | 53.4 | 54.0 |
| Missouri | 50.7 | 48.7 |
| Montana | 53.1 | 53.8 |
| Nebraska | 51.4 | 50.2 |
| Nevada | 46.1 | 45.6 |
| New Hampshire | 46.5 | 41.7 |
| New Jersey | 50.1 | 46.7 |
| New Mexico | 49.3 | 58.6 |
| New York | 45.4 | 41.1 |
| North Carolina | 48.8 | 50.2 |
| North Dakota | 52.6 | 53.1 |
| Ohio | 50.8 | 53.4 |
| Oklahoma | 50.0 | 51.5 |
| Oregon | 49.1 | 51.6 |
| Pennsylvania | 52.0 | 53.5 |
| Rhode Island | 48.1 | 45.1 |
| South Carolina | 49.7 | 49.8 |
| South Dakota | 54.6 | 57.3 |
| Tennessee | 52.3 | 55.5 |
| Texas | 56.5 | 58.3 |
| Utah | 57.4 | 59.4 |
| Vermont | 41.5 | 36.5 |
| Virginia | 44.3 | 42.6 |
| Washington | 50.2 | 49.3 |
| West Virginia | 49.7 | 55.1 |
| Wisconsin | 51.9 | 48.0 |
| Wyoming | 44.5 | 43.0 |

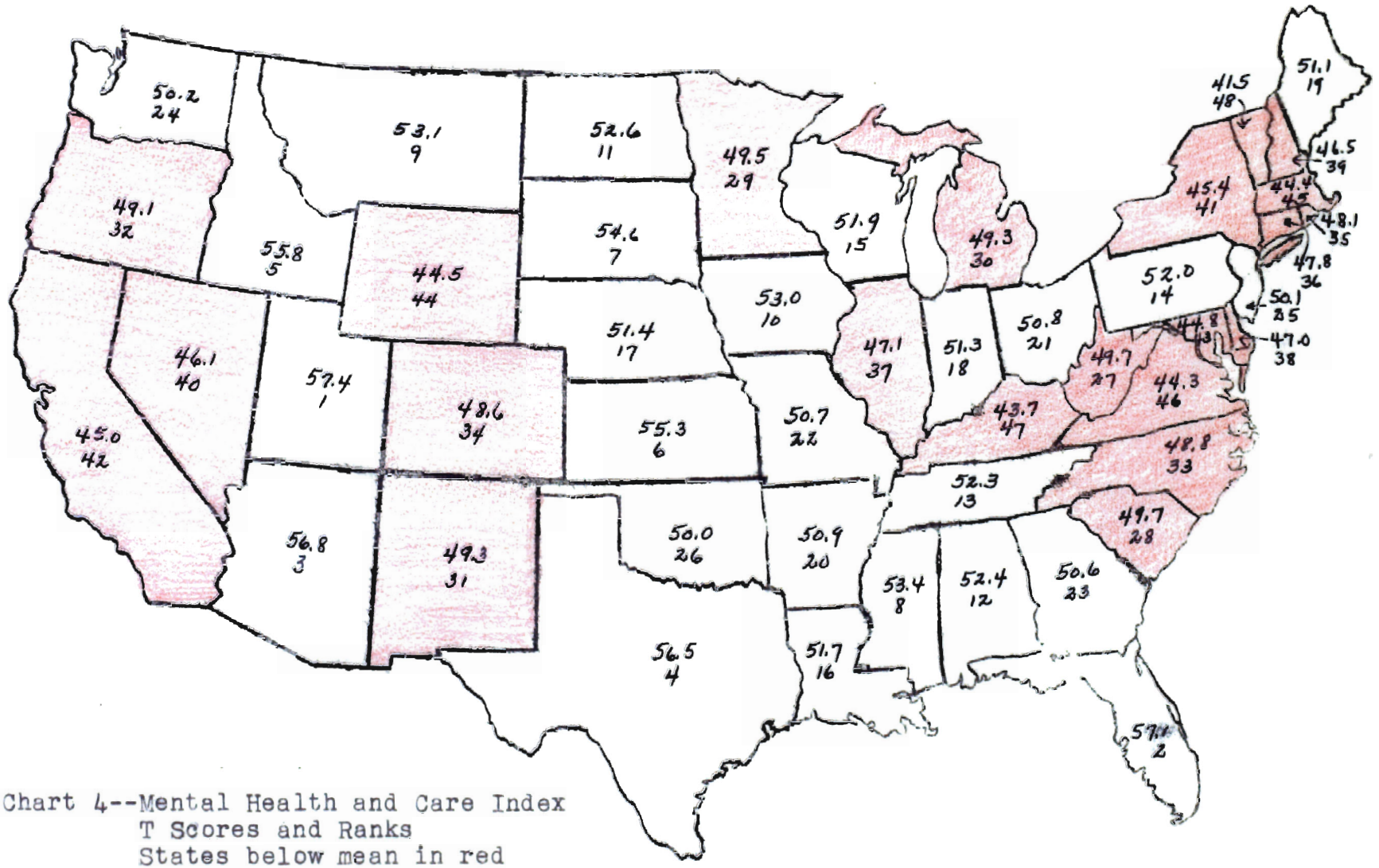


Chart 4--Mental Health and Care Index
T Scores and Ranks
States below mean in red

it readily evident that the mental health of a state is not closely related to its education, its standard of living, or its physical health.

## Human Welfare Index

The term "human welfare" is defined in Chapter I as a composite score made up of the scores on standard of living, physical health and care, and mental health and care weighted at 13, 11, and 7, respectively, the number of factors in each of the three individual numbers.

The weights of 13, 11, and 7 are used to give a weight of 1 to each of the original items. The final welfare index includes scores on running water, private baths, crowding, electric lighting, refrigeration, radios, automobiles, telephones, magazines, per capita income, median salary, and employment of children as factors in the standard of living; infant, child, and adult death rates, typhoid, appendicitis, pellagra, and syphilis death rates, IV-F's, accidents, hospital beds, and number of doctors and dentists as factors in physical health and care; and patients in mental institutions, first admissions, care, crowding, suicide rate, and Army rejections for mental deficiency and mental disease under mental health and care.

Although there is no definite agreement on the factors which should be included in a human welfare score, it is believed that the 31 items considered in this study give an index of human well-being that is quite adequate. Scores were figured for each state on all standard of living factors and all physical health scores but data were not obtainable on all mental health factors for Arizona, Mississippi, and Montana. The human welfare scores for these states were therefore based on the 29 scores for Arizona and Montana and the 30 factors for Mississippi.

Table 49 gives the human welfare index, the ranks of the 48 states on human welfare, and, for purposes of comparison, the ranks on the education index. Ranks shown are those existing before rounding to 1 place. Correlations involving these index numbers are shown in Chapters VII,

TABLE 49--The Human Welfare Index and Rank of Each State on Human Welfare and Education

| STATE | Human Welfare Index | Rank on Human Welfare | Rank on Education |
|---|---|---|---|
| Alabama | 40.7 | 45 | 47 |
| Arizona | 47.2 | 34 | 38 |
| Arkansas | 40.3 | 46 | 44 |
| California | 56.5 | 3 | 2 |
| Colorado | 51.1 | 29 | 24 |
| Connecticut | 57.3 | 1 | 7 |
| Delaware | 52.7 | 19 | 10 |
| Florida | 48.3 | 33 | 35 |
| Georgia | 41.1 | 44 | 43 |
| Idaho | 51.3 | 27 | 26 |
| Illinois | 54.3 | 11 | 5 |
| Indiana | 52.1 | 22 | 30 |
| Iowa | 54.0 | 15 | 19 |
| Kansas | 53.3 | 17 | 22 |
| Kentucky | 41.4 | 43 | 46 |
| Louisiana | 43.1 | 41 | 42 |
| Maine | 51.9 | 23 | 29 |
| Maryland | 51.3 | 26 | 27 |
| Massachusetts | 56.4 | 4 | 4 |
| Michigan | 54.4 | 9 | 14 |
| Minnesota | 53.8 | 16 | 15 |
| Mississippi | 37.8 | 48 | 48 |
| Missouri | 49.9 | 31 | 32 |
| Montana | 51.6 | 24 | 9 |
| Nebraska | 52.6 | 20 | 16 |
| Nevada | 52.4 | 21 | 11 |
| New Hampshire | 53.2 | 18 | 23 |
| New Jersey | 56.5 | 2 | 3 |
| New Mexico | 41.5 | 42 | 40 |
| New York | 55.6 | 5 | 1 |
| North Carolina | 43.7 | 40 | 39 |
| North Dakota | 49.4 | 32 | 31 |
| Ohio | 54.1 | 14 | 6 |
| Oklahoma | 46.7 | 36 | 36 |
| Oregon | 54.3 | 12 | 13 |
| Pennsylvania | 54.1 | 13 | 18 |
| Rhode Island | 54.7 | 7 | 25 |
| South Carolina | 39.3 | 47 | 45 |
| South Dakota | 51.4 | 25 | 17 |
| Tennessee | 44.3 | 39 | 41 |
| Texas | 46.9 | 35 | 34 |
| Utah | 54.4 | 10 | 12 |
| Vermont | 51.1 | 28 | 28 |
| Virginia | 44.9 | 38 | 37 |
| Washington | 55.6 | 6 | 21 |
| West Virginia | 46.6 | 37 | 33 |
| Wisconsin | 54.6 | 8 | 8 |
| Wyoming | 50.3 | 30 | 20 |

VIII, and IX. As will be seen, the correlation between the T scores for education and human welfare is even higher than the evidently close correlation between state ranks.

Chart 5 shows the ranks of the states on the human welfare index in the form of a map for comparison with maps for the other index numbers. As usual, states below the mean are in red. A comparison of Chart 5 with Chart 1 indicates that a high degree of correlation may be expected.

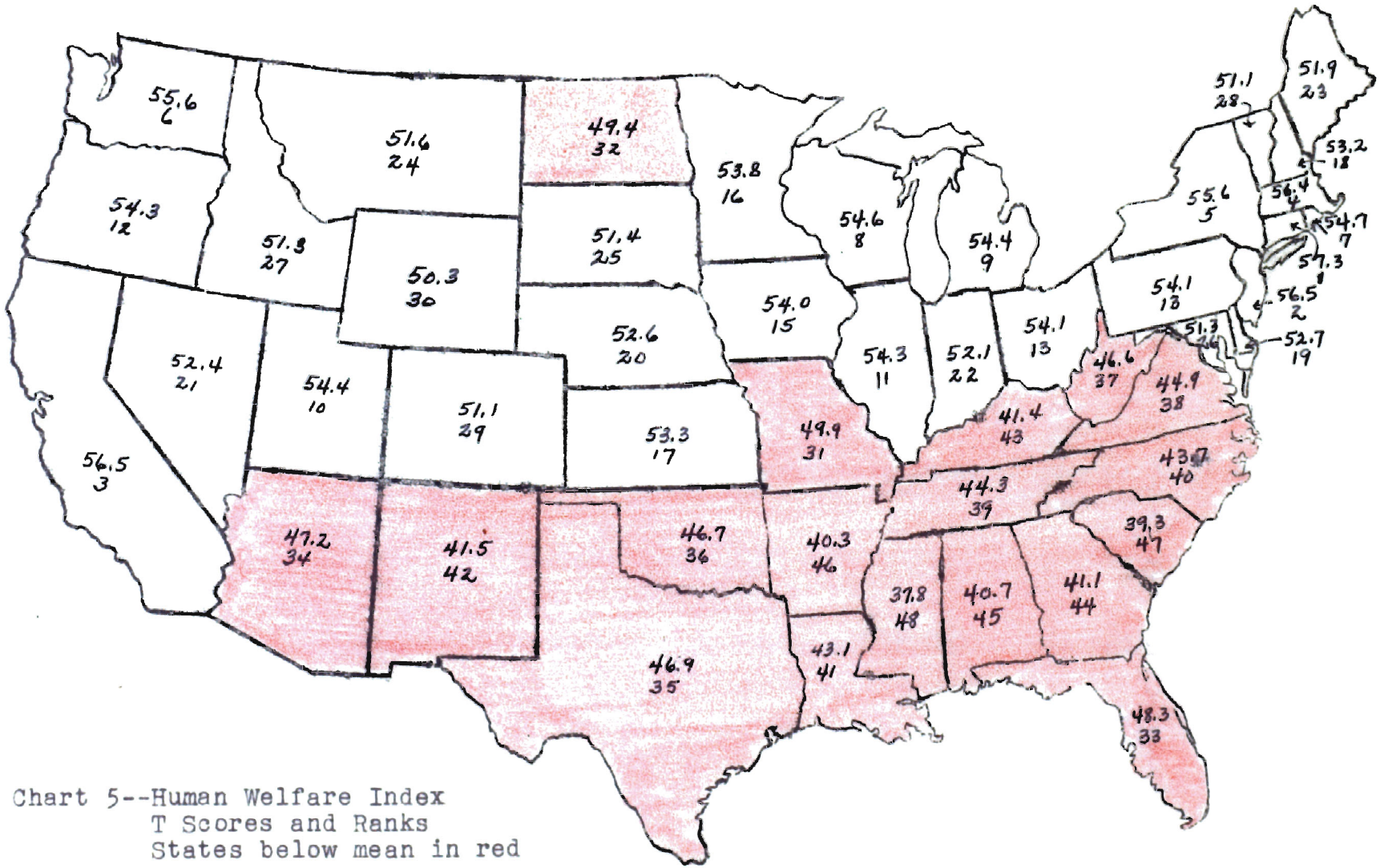


Chart 5--Human Welfare Index
T Scores and Ranks
States below mean in red

# CHAPTER V

## AGRICULTURAL, INDUSTRIAL, AND NATURAL RESOURCE WEALTH IN THE FORTY-EIGHT STATES

In order to determine whether the welfare of the people in each state is more closely related to the education provided or to the wealth of the state, it is necessary to establish index numbers for agricultural wealth, industrial wealth, natural resource wealth, and a combination of these three factors which is here called "combined wealth."

It seems reasonable to expect that if the welfare of the people of a state is to a large extent dependent upon the agricultural wealth of the state, then there should be a relatively high degree of correlation between the per capita production of agricultural products and the welfare index. If human well-being is dependent upon the industrial wealth of a state, then there should be a high correlation between the per capita value of manufactured products and the welfare index. If human welfare is largely dependent on the natural wealth of a state, then there should be a high correlation between the per capita value of natural resources produced and the welfare index. If human well-being is related to wealth of any sort, no matter whether it is due to agriculture, industry, or natural resources, then there should be a high correlation between the total per capita value of agricultural, industrial, and natural wealth produced and an index of human welfare. If there is a much higher correlation between education and human welfare than between wealth and well-being, one would be inclined to believe that there is considerable causal relationship existing between these two factors though it does not reveal which is the cause and which the result.

## The Index of Agricultural Wealth

Table 50 shows the value of farm products sold, traded, or used to the nearest 1000 dollars, the per capita value in dollars, T scores based on the per capita value, and the rank of the states on agricultural wealth. The original data are from the United States Census for Agriculture, 1940.

The figures presented, value of farm products sold, traded, or used, were selected from a large number of possible indices of agricultural wealth. For example, figures may be obtained to show the value of farm lands, the number of acres in production, or the per cent of the land which is arable. Figures may also be obtained to show the value of each type of crop or of livestock produced or owned. It is believed that the data shown give the most accurate estimate of the agricultural wealth of a state. However, it may be that the total value of all agricultural products sold, traded, or used should be divided by the number of people engaged in agriculture rather than the total population of the state. The total population figures are used in this index.

Table 50 shows that the State of Iowa is the leading state in agriculture in both total value, $561,837,000, and in per capita value, $221.35, of agricultural production. Texas ranks second and California third in total production but both rank far down the line in per capita value of farm products. Wyoming, North Dakota, Idaho, South Dakota, Montana, and Nebraska rank high in per capita value but, except for Nebraska, they all rank fairly low in total value of farm products.

The states with the smallest per capita value of farm products are Rhode Island with $11.56, Massachusetts with $15.86, New Jersey with $18.97, New York with $20.27, and Connecticut with $27.99. These states

TABLE 50--Agricultural Wealth per Capita from Value of Farm Products Sold, Traded, or Used. Source: U. S. Census, Agriculture, 1940, Vol. IV, p. 1018.

| STATE | Total Value (1000's of dollars) | Per Capita Value | Standard T Score | Rank |
|---|---|---|---|---|
| Alabama | $119,741 | $42.27 | 42.4 | 39 |
| Arizona | 42,062 | 84.25 | 50.8 | 17 |
| Arkansas | 159,098 | 81.61 | 50.3 | 16 |
| California | 465,429 | 67.38 | 47.4 | 26 |
| Colorado | 108,700 | 96.77 | 53.3 | 13 |
| Connecticut | 47,842 | 27.99 | 39.5 | 43 |
| Delaware | 17,952 | 67.36 | 47.4 | 27 |
| Florida | 88,904 | 46.86 | 43.3 | 36 |
| Georgia | 165,956 | 53.13 | 44.6 | 34 |
| Idaho | 91,730 | 174.77 | 69.0 | 4 |
| Illinois | 454,584 | 57.56 | 45.4 | 31 |
| Indiana | 247,046 | 72.07 | 48.4 | 24 |
| Iowa | 561,837 | 221.35 | 78.4 | 1 |
| Kansas | 226,985 | 126.03 | 59.2 | 8 |
| Kentucky | 174,492 | 61.32 | 46.2 | 28 |
| Louisiana | 114,047 | 48.25 | 43.6 | 35 |
| Maine | 50,508 | 59.62 | 45.9 | 29 |
| Maryland | 64,084 | 35.19 | 42.0 | 40 |
| Massachusetts | 68,449 | 15.86 | 37.1 | 47 |
| Michigan | 209,720 | 39.90 | 41.9 | 41 |
| Minnesota | 344,076 | 123.22 | 58.6 | 9 |
| Mississippi | 158,941 | 72.78 | 48.5 | 23 |
| Missouri | 261,837 | 69.18 | 47.8 | 25 |
| Montana | 91,548 | 163.64 | 66.8 | 6 |
| Nebraska | 212,811 | 161.73 | 66.4 | 7 |
| Nevada | 12,133 | 110.05 | 56.0 | 10 |
| New Hampshire | 22,939 | 46.67 | 43.3 | 37 |
| New Jersey | 78,918 | 18.97 | 37.7 | 46 |
| New Mexico | 47,771 | 89.83 | 51.9 | 14 |
| New York | 273,175 | 20.27 | 38.0 | 45 |
| North Carolina | 262,438 | 73.48 | 48.6 | 22 |
| North Dakota | 115,239 | 179.52 | 70.0 | 3 |
| Ohio | 294,664 | 42.66 | 42.5 | 38 |
| Oklahoma | 176,766 | 75.66 | 49.1 | 20 |
| Oregon | 107,551 | 98.70 | 53.7 | 12 |
| Pennsylvania | 235,088 | 23.75 | 38.7 | 44 |
| Rhode Island | 8,247 | 11.56 | 36.2 | 48 |
| South Carolina | 110,749 | 58.29 | 45.6 | 30 |
| South Dakota | 107,966 | 167.92 | 67.6 | 5 |
| Tennessee | 156,492 | 53.67 | 44.7 | 33 |
| Texas | 509,736 | 79.46 | 49.8 | 18 |
| Utah | 43,595 | 79.22 | 49.8 | 19 |
| Vermont | 38,215 | 106.38 | 55.3 | 11 |
| Virginia | 150,912 | 56.36 | 45.2 | 32 |
| Washington | 130,849 | 75.37 | 49.0 | 21 |
| West Virginia | 54,315 | 28.56 | 39.6 | 42 |
| Wisconsin | 277,747 | 88.52 | 51.7 | 15 |
| Wyoming | 49,247 | 196.41 | 73.4 | 2 |

Average, 48 States (per capita) $80.24; Standard Deviation, $49.76.

rank 7th, 4th, 3rd, 5th, and 1st, respectively in human welfare. Iowa, which has approximately 8 times the per capita agricultural wealth of Connecticut, ranks 15th in welfare while Connecticut is 1st.

Mississippi ranks 48th on human welfare and has a T score of 37.8, or 1.22 standard deviation below the mean. On the agricultural index Mississippi has a T score of 48.50, or .15 of one standard deviation below the mean and far above the scores of Connecticut, Massachusetts, New Jersey, New York, or Rhode Island.

It is evident from the tables showing the welfare index and the agricultural index that whatever correlation exists is so slight as to be negligible. A comparison of the welfare index with the education index reveals that the correlation is extremely high. Naturally the correlation between the education index and the agricultural index is low. The exact figures on all these relationships are shown in Chapters VII, VIII, and IX.

Chart 6 shows more graphically the relative standings of the states in agriculture. Comparison may be made with preceding charts to get a preliminary estimate of the correlation existing.

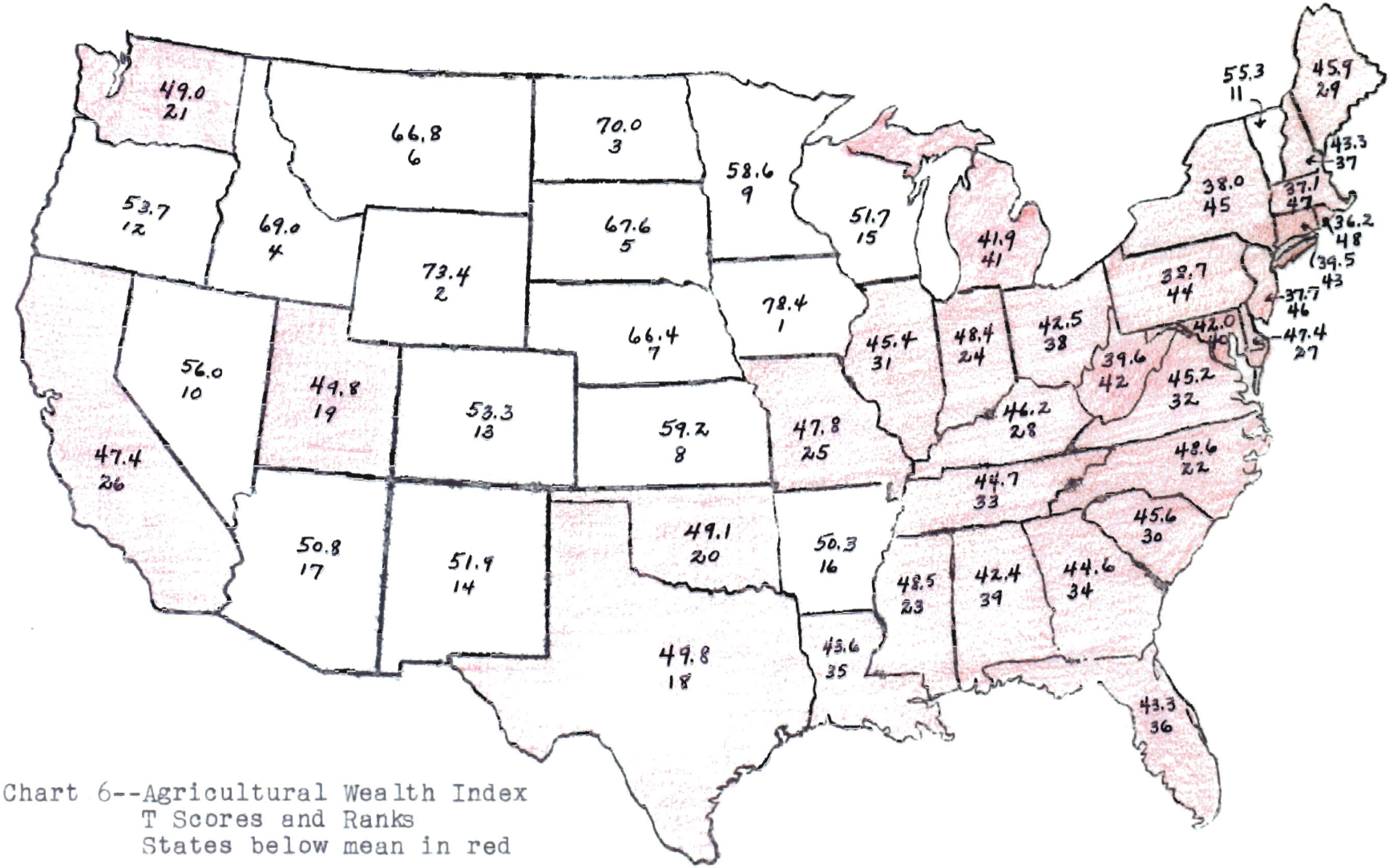


Chart 6--Agricultural Wealth Index
T Scores and Ranks
States below mean in red

## The Index of Industrial Wealth

Data are obtainable showing the value of industrial production in each state and also the value added by manufacture. At first thought it would seem that the former should be used in preparing an index of per capita industrial wealth. However, this is not true because figures showing the total value of industrial production contain a great deal of duplication and are definitely noncomparable as between states. For example, if a manufacturer of automobiles buys wheels, bearings, and glass from a manufacturer of wheels, a manufacturer of bearings, and a manufacturer of glass, all these items are listed in the total value at least twice. The manufacturer of wheels considers wheels his finished product and reports the total value of wheels produced, and the manufacturers of bearings and glass do the same. The automobile manufacturer considers automobiles his finished product and includes in his total value figure the value of all wheels, bearings, and glass used. In the case of other parts, such as generators for example, the wire may be the finished product for one company, the generator the finished product of the second, and the car or truck the finished product of the third. To avoid this duplication and to provide data which are thus comparable, data on the value added by manufacture must be used. This is the real measure of industrial production in a state and is the basis for this index. The per capita value is, of course, obtained by dividing the total value added by manufacture by the population of the state.

From Column 2 of Table 51, it may be seen that New York, Pennsylvania, Illinois, Ohio, and Michigan are the five leading states on the total value added by manufacture. New Mexico, Nevada, and North Dakota rank at the bottom. On a per capita basis Connecticut, New Jersey, Michigan, Rhode Island, and Ohio are seen to be the leading states.

The fact that Connecticut ranks first in welfare, New Jersey third, Michigan ninth, and Rhode Island seventh indicates considerable relationship between industrial wealth and welfare.

The states which rank lowest on industrial wealth per capita are New Mexico, North Dakota, Mississippi, South Dakota, Arkansas, and Oklahoma. They rank 32, 42, 48, 25, 46, and 36, respectively on human welfare, thus indicating some correlation also.

Column 5 of Table 51 shows the comparative rank of each state. Chart 7 shows the industrial wealth index numbers and ranks of the states with those below the mean in red.

TABLE 51--Industrial Wealth per Capita from Value Added by Manufacture, 1939. Source: U. S. Census of Manufactures, 16th Census, 1940, Vol. III.

| S T A T E | Value Added by Manufacture (Millions) | Value per Capita | Standard T Score | Rank |
|---|---|---|---|---|
| Alabama | $ 247 | $ 87.19 | 43.6 | 31 |
| Arizona | 32 | 64.09 | 41.3 | 38 |
| Arkansas | 67 | 34.37 | 38.4 | 44 |
| California | 1135 | 164.32 | 51.4 | 19 |
| Colorado | 91 | 81.01 | 43.0 | 33 |
| Connecticut | 692 | 404.86 | 75.4 | 1 |
| Delaware | 55 | 206.38 | 55.6 | 15 |
| Florida | 118 | 62.19 | 41.1 | 41 |
| Georgia | 283 | 90.60 | 44.0 | 29 |
| Idaho | 32 | 60.97 | 41.0 | 42 |
| Illinois | 2202 | 278.83 | 62.8 | 7 |
| Indiana | 970 | 282.98 | 63.2 | 6 |
| Iowa | 245 | 96.52 | 44.6 | 28 |
| Kansas | 119 | 66.07 | 41.5 | 37 |
| Kentucky | 187 | 65.71 | 41.5 | 38 |
| Louisiana | 200 | 84.61 | 43.4 | 32 |
| Maine | 152 | 179.41 | 52.9 | 17 |
| Maryland | 423 | 232.26 | 58.2 | 11 |
| Massachusetts | 1188 | 258.99 | 60.8 | 8 |
| Michigan | 1798 | 342.08 | 69.2 | 3 |
| Minnesota | 311 | 111.38 | 46.1 | 26 |
| Mississippi | 73 | 19.29 | 36.8 | 46 |
| Missouri | 588 | 155.36 | 50.5 | 21 |
| Montana | 40 | 71.50 | 42.1 | 35 |
| Nebraska | 69 | 208.23 | 55.8 | 14 |
| Nevada | 12 | 190.48 | 54.0 | 16 |
| New Hampshire | 105 | 213.62 | 56.3 | 13 |
| New Jersey | 1524 | 366.33 | 71.6 | 2 |
| New Mexico | 9 | 16.92 | 36.6 | 48 |
| New York | 3342 | 247.93 | 59.7 | 10 |
| North Carolina | 546 | 152.87 | 50.2 | 22 |
| North Dakota | 11 | 17.14 | 36.6 | 47 |
| Ohio | 2125 | 307.63 | 65.7 | 5 |
| Oklahoma | 103 | 44.08 | 39.3 | 43 |
| Oregon | 172 | 157.84 | 50.7 | 20 |
| Pennsylvania | 2489 | 251.41 | 60.1 | 9 |
| Rhode Island | 238 | 333.64 | 68.3 | 4 |
| South Carolina | 170 | 89.48 | 43.9 | 30 |
| South Dakota | 20 | 31.11 | 38.0 | 45 |
| Tennessee | 320 | 109.75 | 45.9 | 27 |
| Texas | 453 | 70.62 | 42.0 | 36 |
| Utah | 44 | 79.95 | 42.9 | 34 |
| Vermont | 52 | 144.75 | 49.4 | 23 |
| Virginia | 379 | 141.53 | 49.1 | 24 |
| Washington | 287 | 165.30 | 51.5 | 18 |
| West Virginia | 215 | 113.04 | 46.2 | 25 |
| Wisconsin | 687 | 218.96 | 56.8 | 12 |
| Wyoming | 16 | 63.81 | 41.3 | 40 |

Average, 48 States (per capita) $150.78; Standard Deviation, $99.91.

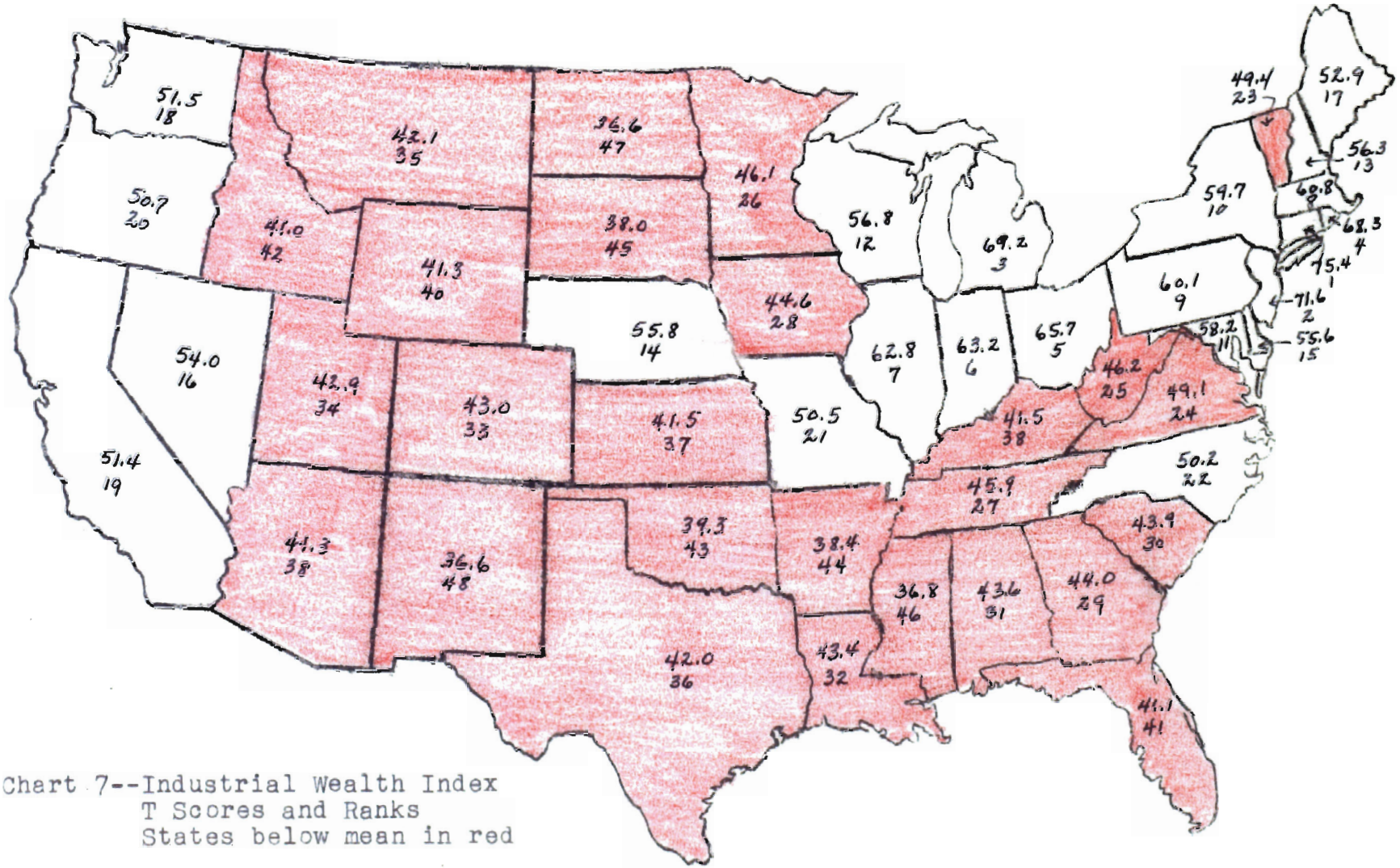


Chart 7--Industrial Wealth Index
T Scores and Ranks
States below mean in red

## The Natural Resource Index

The principle sources of natural wealth of any state, beside agricultural lands, are the mineral deposits, including oil, and the forests. Water power and favorable location are also of importance in considering natural wealth, but their value cannot be interpreted into dollars so readily as the value of the other resources.

In preparing this index only minerals and lumber are considered. The data for minerals include the value of all important metallic and nonmetallic substances taken from the earth. Among the metallic substances are aluminum, copper, gold, iron, lead, nickel, mercury, silver, and zinc. Nonmetallic minerals include asbestos, asphalt, clay, cement, coal, coke, graphite, lime, natural gas, petroleum, sand and gravel, sulfur, and many others of lesser importance.

Column 2 of Table 52 shows the total value of all such minerals produced in each state in thousands of dollars.

Exact data on the value of lumber produced in each state could not be obtained. However, data were found showing the production of lumber in millions of board feet in all of the principal lumber producing states.

The original data lump the states of Iowa, Kansas, Nebraska, North Dakota, and South Dakota into one figure of 124 million board feet for all five. This is less than 3/10 of 1 per cent of the total production of the United States. Assuming that each of these five states produces about the same amount of lumber, which may or may not be true, we get an average of slightly less than 25 million board feet for each state. Nevada and California were also included in the one figure. On the basis of preceding years, however, it is evident that Nevada produces no more than 25 million board feet.

TABLE 52--Natural Resource Wealth per Capita from Minerals and Lumber

| | Minerals (1000's) | Lumber (1000's) | Total Value | Per Capita | T Score | Rank |
|---|---|---|---|---|---|---|
| Alabama | $ 64,998 | $ 63,300 | $128,298 | $ 45.29 | 47.4 | 20 |
| Arizona | 85,291 | 4,290 | 89,581 | 179.43 | 65.2 | 5 |
| Arkansas | 37,479 | 47,190 | 84,669 | 43.43 | 47.2 | 21 |
| California | 455,672 | 69,000 | 524,672 | 75.96 | 51.5 | 14 |
| Colorado | 63,188 | 2,580 | 65,768 | 58.55 | 49.2 | 17 |
| Connecticut | 3,914 | 540 | 4,454 | 2.61 | 41.8 | 46 |
| Delaware | 457 | 840 | 1,297 | 4.87 | 42.1 | 44 |
| Florida | 14,854 | 19,620 | 34,474 | 18.17 | 43.9 | 36 |
| Georgia | 16,932 | 59,130 | 76,062 | 24.35 | 44.7 | 28 |
| Idaho | 40,800 | 27,900 | 68,700 | 130.89 | 58.7 | 9 |
| Illinois | 277,943 | 3,030 | 280,973 | 35.58 | 46.2 | 23 |
| Indiana | 58,975 | 5,100 | 64,075 | 18.69 | 43.9 | 35 |
| Iowa | 26,007 | 750 | 26,757 | 10.54 | 42.8 | 38 |
| Kansas | 130,860 | 750 | 131,610 | 73.07 | 51.1 | 15 |
| Kentucky | 131,974 | 13,980 | 145,954 | 51.29 | 48.2 | 18 |
| Louisiana | 189,153 | 36,960 | 226,113 | 95.65 | 54.1 | 13 |
| Maine | 4,375 | 11,880 | 16,255 | 19.19 | 44.0 | 34 |
| Maryland | 12,605 | 3,930 | 16,535 | 9.08 | 42.7 | 39 |
| Massachusetts | 7,573 | 3,090 | 10,663 | 2.47 | 41.8 | 47 |
| Michigan | 124,775 | 15,930 | 140,705 | 26.77 | 45.0 | 27 |
| Minnesota | 128,572 | 6,960 | 135,532 | 48.53 | 47.9 | 19 |
| Mississippi | 7,240 | 55,530 | 62,770 | 28.74 | 45.2 | 26 |
| Missouri | 50,325 | 8,250 | 58,575 | 15.48 | 43.5 | 37 |
| Montana | 79,448 | 12,990 | 92,478 | 165.30 | 63.3 | 7 |
| Nebraska | 4,692 | 750 | 5,442 | 4.14 | 42.0 | 45 |
| Nevada | 42,571 | 750 | 43,321 | 392.94 | 93.3 | 1 |
| New Hampshire | 1,065 | 10,830 | 11,895 | 24.20 | 44.6 | 29 |
| New Jersey | 33,654 | 720 | 34,374 | 8.26 | 42.5 | 41 |
| New Mexico | 80,970 | 3,660 | 84,630 | 159.13 | 62.5 | 8 |
| New York | 76,120 | 8,340 | 84,460 | 6.27 | 42.3 | 42 |
| North Carolina | 21,113 | 50,730 | 71,843 | 20.11 | 44.1 | 31 |
| North Dakota | 2,987 | 750 | 3,737 | 5.82 | 42.2 | 43 |
| Ohio | 130,655 | 8,130 | 138,785 | 20.09 | 44.1 | 32 |
| Oklahoma | 235,535 | 3,360 | 238,895 | 102.25 | 55.0 | 11 |
| Oregon | 11,230 | 194,400 | 205,630 | 188.71 | 66.4 | 3 |
| Pennsylvania | 618,348 | 11,970 | 630,318 | 63.67 | 49.9 | 16 |
| Rhode Island | 995 | 150 | 1,145 | 1.61 | 41.7 | 48 |
| South Carolina | 5,306 | 32,490 | 37,796 | 19.89 | 44.1 | 33 |
| South Dakota | 23,529 | 750 | 24,279 | 37.76 | 46.4 | 22 |
| Tennessee | 42,683 | 22,290 | 64,973 | 22.28 | 44.4 | 30 |
| Texas | 725,005 | 41,520 | 766,525 | 119.41 | 57.2 | 10 |
| Utah | 104,393 | 570 | 104,963 | 190.73 | 66.6 | 2 |
| Vermont | 6,980 | 4,560 | 11,540 | 32.12 | 45.7 | 25 |
| Virginia | 50,004 | 36,420 | 86,424 | 32.27 | 45.7 | 24 |
| Washington | 28,090 | 149,280 | 177,370 | 102.16 | 54.9 | 12 |
| West Virginia | 329,892 | 17,640 | 347,532 | 182.72 | 65.6 | 4 |
| Wisconsin | 13,554 | 14,520 | 28,074 | 8.95 | 42.6 | 40 |
| Wyoming | 43,074 | 1,740 | 44,814 | 178.73 | 65.1 | 6 |

Average, 48 States (per capita) $64.75; Standard Deviation, $75.72.

Column 3 shows the approximate figures for each state after the adjustments indicated above are made and the resulting figures multiplied by $31.50. The data are for 1942, the only year for which comparable data are obtainable. The figure, $31.50, is the average mill value of all lumber produced in 1942. It is realized that the value of lumber may vary from about $20 per thousand board feet to more than $100 per thousand, depending upon the kind of wood, the quality of the lumber, and the finish. The states do not produce lumber of exactly the same quality nor is it of the same kind. For example, many states which produce relatively small amounts of lumber may have most of their production in the most expensive hardwoods. Thus the average mill price is not always the average price and it is possible that it is not even close to the average price of lumber produced in a particular state. Nevertheless, it is believed that the figures shown in Column 3 are fairly close approximations of the value of lumber produced for a majority of the states.

Data were obtained on the developed water power as measured by the capacity of actual installations measured in 1000's of horsepower. These data were not used because no satisfactory value could be placed on the horsepower produced or which could be produced, and because almost no states have utilized all the natural waterpower available within their boundaries.

No attempt was made to evaluate the advantages accruing to a state because of its location. It is evident that the location of a state has a great deal of effect on the occupations followed by the people of the state and therefore on their incomes and standard of living. As far as is known, no attempt has ever been made to measure this effect or to evaluate it in terms of money or other measures of value.

From Table 52 is may be seen that Texas and Pennsylvania rank first and second in the total value of minerals produced while Delaware and Rhode Island rank at the very bottom of the list. Oregon and Washington rank first and second in the quantity of lumber produced. California ranks third in both mineral production and lumber production.

When the total mineral and lumber values are changed to a per capita basis, Nevada ranks first by a large margin, Utah is second, and Oregon third. Connecticut, Massachusetts, and Rhode Island rank 46, 47, and 48, respectively. But on human welfare Connecticut ranks first, Massachusetts ranks fourth, and Rhode Island ranks seventh. This may indicate a negative relationship between welfare and natural resources. Could it be possible that states which have natural resources are actually less well off than those which have no minerals or forests within their boundaries? Is it true that the natural wealth of Texas and Oklahoma is so largely owned by persons of other states, principally the New England area, that this wealth actually benefits the producing states practically to no extent? Is it true that in spite of its vast natural resources, the State of Texas is so poor that the average student has spent on his education a sum equal to only about 40 per cent of that spent on the average child in New York, and the average teacher in Texas makes less than 42 per cent of the amount paid to the average teacher in New York? The per capita value of minerals and lumber produced in New York is $6.27 per year as compared with $119.41 per capita in Texas. But who owns the natural resources produced in New York and who owns the natural resources produced in Texas? Mississippi produces more than 11 times the natural resources produced in Connecticut yet Mississippi ranks last in human welfare and Connecticut ranks first.

Is the vast difference between the welfare of the North as compared with the welfare of the South due to selective migration? Did a higher class of people come to the North and the poor, ignorant, and stupid people to the South as Thorndike suggests? Or is the difference due to factors which may be overcome by education and effort?

Chart 8 shows how the states rank in regard to natural resources. It is interesting to note that only one state east of the Mississippi ranks above the mean.

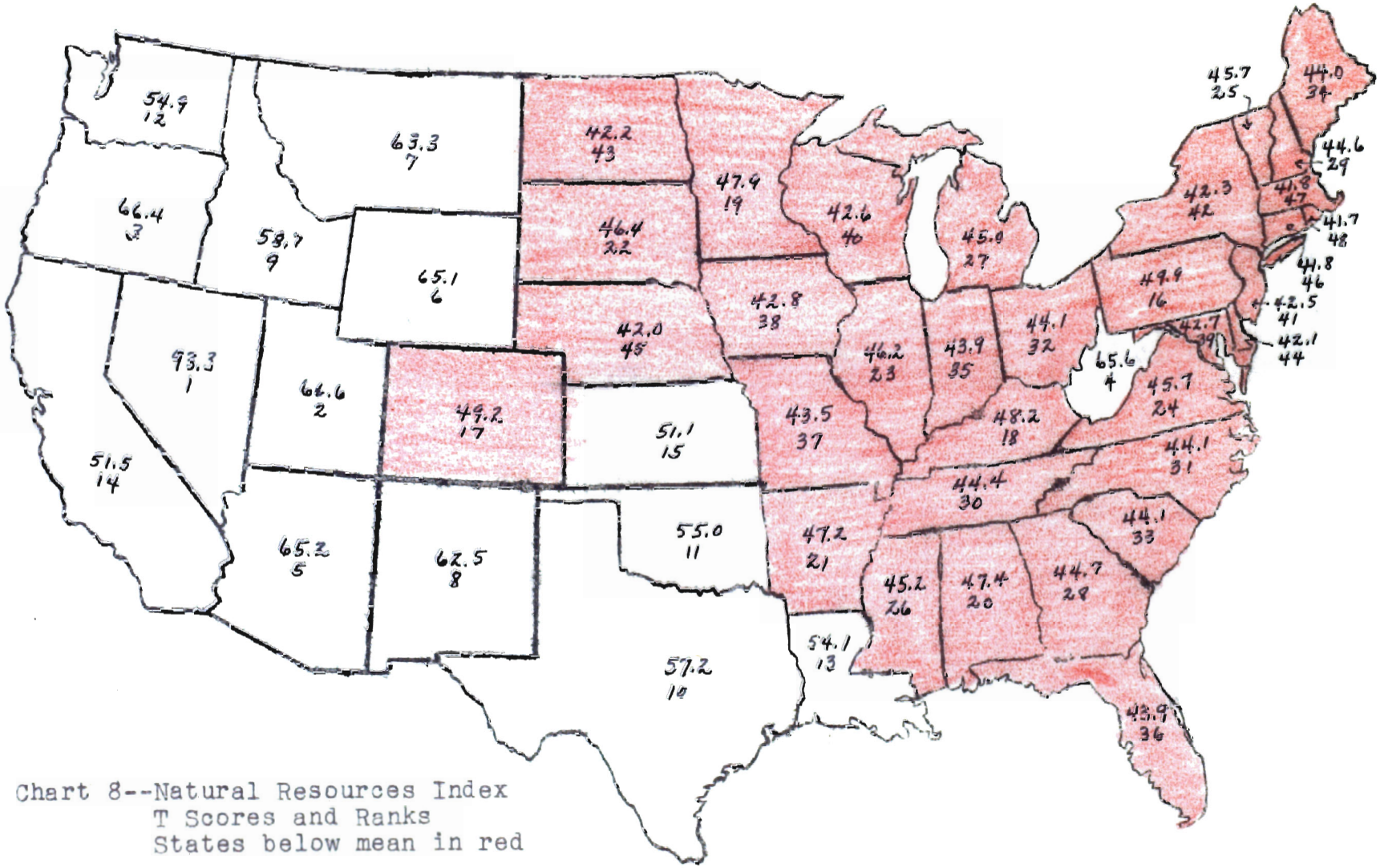


Chart 8--Natural Resources Index
T Scores and Ranks
States below mean in red

## The "Combined Wealth" Index

It seems logical to believe that the welfare of the people should be more closely related to the total "combined wealth" from agriculture, industry, and natural resources than to the wealth from any single source. To determine whether this is true and to what extent "combined wealth" and human welfare are related, an index number indicating the relative position of the forty-eight states in total wealth is necessary.

Table 53 combines the figures on per capita production of agricultural products, industry, and natural resources to get the total per capita value of all wealth from these sources produced in each state. T scores are shown for each state and the rank of each state is shown in Column 7 and on Chart 9.

It will be seen that Nevada, Oregon, and Wyoming rank first, second, and third on combined wealth produced per capita but they rank 21, 12, and 30 on welfare. The states which rank at the bottom of the scale are Arkansas, Florida, and Mississippi and they rank 46, 33, and 48 on the welfare score. This indicates, roughly, that the correlation is higher at the lower end of the scale.

Ranks of combined wealth, human welfare, and education should be compared to get a clearer impression of their relationship. Table 54 is arranged in a way which should make such comparison easy. The first column shows the states in alphabetical order, column 2 shows the rank of each state on the education index, column 4 shows the ranks on the human welfare index, and Column 6 shows the ranks on combined wealth. Column 3 shows the difference in rank between columns 2 and 4 and column 5 shows the difference in rank between columns 4 and 6. The average difference in rank between education and human welfare is slightly

TABLE 53 — Combined Wealth Per Capita from Agricultural Production, Industrial Wealth, and Natural Resources.

| STATE | Agricultural Production | Industrial Wealth | Natural Resources | Total Per Cap. | Standard T Score | Rank |
|---|---|---|---|---|---|---|
| Alabama | $ 42.27 | $ 87.19 | $ 45.29 | $174.75 | 37.9 | 43 |
| Arizona | 84.25 | 64.09 | 179.43 | 327.77 | 53.2 | 18 |
| Arkansas | 81.61 | 34.37 | 43.43 | 159.41 | 36.4 | 46 |
| California | 67.38 | 164.32 | 75.96 | 307.66 | 51.2 | 21 |
| Colorado | 96.77 | 81.01 | 58.55 | 236.33 | 44.1 | 36 |
| Connecticut | 27.99 | 404.86 | 2.61 | 435.45 | 64.0 | 4 |
| Delaware | 67.36 | 206.38 | 4.87 | 278.61 | 48.3 | 25 |
| Florida | 46.86 | 62.19 | 18.17 | 127.22 | 33.1 | 47 |
| Georgia | 53.13 | 90.60 | 24.35 | 168.08 | 37.2 | 44 |
| Idaho | 174.77 | 60.97 | 130.89 | 366.63 | 57.1 | 12 |
| Illinois | 57.56 | 278.83 | 35.58 | 371.97 | 57.6 | 10 |
| Indiana | 72.07 | 282.98 | 18.69 | 373.74 | 57.8 | 9 |
| Iowa | 221.35 | 96.52 | 10.54 | 328.41 | 53.3 | 17 |
| Kansas | 126.03 | 66.07 | 73.07 | 265.17 | 46.9 | 31 |
| Kentucky | 61.32 | 65.71 | 51.29 | 178.32 | 38.3 | 42 |
| Louisiana | 48.25 | 84.61 | 95.65 | 228.51 | 43.3 | 38 |
| Maine | 59.62 | 179.41 | 19.19 | 258.22 | 46.2 | 32 |
| Maryland | 35.19 | 232.26 | 9.08 | 276.53 | 48.1 | 27 |
| Massachusetts | 15.86 | 258.99 | 2.47 | 277.32 | 48.2 | 26 |
| Michigan | 39.90 | 342.08 | 26.77 | 408.75 | 61.3 | 5 |
| Minnesota | 123.22 | 111.38 | 48.53 | 283.13 | 48.7 | 24 |
| Mississippi | 72.78 | 19.29 | 28.74 | 120.81 | 32.5 | 48 |
| Missouri | 69.18 | 155.36 | 15.48 | 240.02 | 44.4 | 34 |
| Montana | 163.64 | 71.50 | 165.30 | 400.44 | 60.5 | 6 |
| Nebraska | 161.73 | 208.23 | 4.14 | 374.20 | 57.9 | 8 |
| Nevada | 110.05 | 190.48 | 392.94 | 693.47 | 89.8 | 1 |
| New Hampshire | 46.67 | 213.62 | 24.20 | 284.49 | 48.9 | 22 |
| New Jersey | 18.97 | 366.33 | 8.26 | 393.56 | 59.8 | 7 |
| New Mexico | 89.83 | 16.92 | 159.13 | 265.88 | 47.0 | 30 |
| New York | 20.27 | 247.93 | 6.27 | 274.47 | 47.9 | 28 |
| North Carolina | 73.48 | 152.87 | 20.11 | 246.46 | 45.1 | 33 |
| North Dakota | 179.52 | 17.14 | 5.82 | 202.48 | 40.7 | 40 |
| Ohio | 42.66 | 307.63 | 20.09 | 370.38 | 57.5 | 11 |
| Oklahoma | 75.66 | 44.08 | 102.25 | 221.99 | 42.6 | 39 |
| Oregon | 98.70 | 157.84 | 188.71 | 445.25 | 65.0 | 2 |
| Pennsylvania | 23.75 | 251.41 | 63.67 | 338.83 | 54.3 | 16 |
| Rhode Island | 11.56 | 333.64 | 1.61 | 346.81 | 55.1 | 14 |
| South Carolina | 58.29 | 89.48 | 19.89 | 167.66 | 37.2 | 45 |
| South Dakota | 167.92 | 31.11 | 37.76 | 236.79 | 44.1 | 35 |
| Tennessee | 53.67 | 109.75 | 22.28 | 185.70 | 39.0 | 41 |
| Texas | 79.46 | 70.62 | 119.41 | 269.49 | 47.4 | 29 |
| Utah | 79.22 | 79.95 | 190.73 | 349.90 | 55.4 | 13 |
| Vermont | 106.38 | 144.75 | 32.12 | 283.25 | 48.8 | 23 |
| Virginia | 56.36 | 141.53 | 32.27 | 230.16 | 43.4 | 37 |
| Washington | 75.37 | 165.30 | 102.16 | 342.83 | 54.7 | 15 |
| West Virginia | 28.56 | 113.04 | 182.72 | 324.32 | 52.9 | 19 |
| Wisconsin | 88.52 | 218.96 | 8.95 | 316.43 | 52.1 | 20 |
| Wyoming | 196.41 | 63.81 | 178.73 | 438.95 | 64.3 | 3 |

TABLE 54 — Comparison of Rank on Education, Human Welfare, and Combined Wealth

| STATE | Rank Education | Difference | Rank Welfare | Difference | Rank Wealth |
|---|---|---|---|---|---|
| Alabama | 47 | 2 | 45 | 2 | 43 |
| Arizona | 38 | 4 | 34 | 16 | 18 |
| Arkansas | 44 | 2 | 46 | 0 | 46 |
| California | 2 | 1 | 3 | 18 | 21 |
| Colorado | 24 | 5 | 29 | 7 | 36 |
| Connecticut | 7 | 6 | 1 | 3 | 4 |
| Delaware | 10 | 9 | 19 | 6 | 25 |
| Florida | 35 | 2 | 33 | 14 | 47 |
| Georgia | 43 | 1 | 44 | 0 | 44 |
| Idaho | 26 | 1 | 27 | 15 | 12 |
| Illinois | 5 | 6 | 11 | 1 | 10 |
| Indiana | 30 | 8 | 22 | 13 | 9 |
| Iowa | 19 | 4 | 15 | 2 | 17 |
| Kansas | 22 | 5 | 17 | 14 | 31 |
| Kentucky | 46 | 3 | 43 | 1 | 42 |
| Louisiana | 42 | 1 | 41 | 3 | 38 |
| Maine | 29 | 6 | 23 | 9 | 32 |
| Maryland | 27 | 1 | 26 | 1 | 27 |
| Massachusetts | 4 | 0 | 4 | 22 | 26 |
| Michigan | 14 | 5 | 9 | 4 | 5 |
| Minnesota | 15 | 1 | 16 | 8 | 24 |
| Mississippi | 48 | 0 | 48 | 0 | 48 |
| Missouri | 32 | 1 | 31 | 3 | 34 |
| Montana | 9 | 15 | 24 | 18 | 6 |
| Nebraska | 16 | 4 | 20 | 12 | 8 |
| Nevada | 11 | 10 | 21 | 20 | 1 |
| New Hampshire | 23 | 5 | 18 | 4 | 22 |
| New Jersey | 3 | 1 | 2 | 5 | 7 |
| New Mexico | 40 | 2 | 42 | 12 | 30 |
| New York | 1 | 4 | 5 | 23 | 28 |
| North Carolina | 39 | 1 | 40 | 7 | 33 |
| North Dakota | 31 | 1 | 32 | 8 | 40 |
| Ohio | 6 | 8 | 14 | 3 | 11 |
| Oklahoma | 36 | 0 | 36 | 3 | 39 |
| Oregon | 13 | 1 | 12 | 10 | 2 |
| Pennsylvania | 18 | 5 | 13 | 3 | 16 |
| Rhode Island | 25 | 18 | 7 | 7 | 14 |
| South Carolina | 45 | 2 | 47 | 2 | 45 |
| South Dakota | 17 | 8 | 25 | 10 | 35 |
| Tennessee | 41 | 2 | 39 | 2 | 41 |
| Texas | 34 | 1 | 35 | 6 | 29 |
| Utah | 12 | 2 | 10 | 3 | 13 |
| Vermont | 28 | 0 | 28 | 5 | 23 |
| Virginia | 37 | 1 | 38 | 1 | 37 |
| Washington | 21 | 15 | 6 | 9 | 15 |
| West Virginia | 33 | 4 | 37 | 18 | 19 |
| Wisconsin | 8 | 0 | 8 | 12 | 20 |
| Wyoming | 20 | 10 | 30 | 27 | 3 |
| Total Differences | | 194 | | 392 | |
| Average Difference | | 4.0 | | 8.2 | |

more than 4.0 while the average difference in rank between human welfare and combined wealth is only slightly less than 8.2.

Of the top ten states on the education index, six are also in the first ten in human welfare; of the top ten in wealth, only three are in the top ten in welfare. The bottom ten states on education are exactly the same states as are found in the bottom ten on welfare while of the ten states ranking lowest in wealth, only seven are in the ten low-ranking states in welfare.

These facts indicate that the correlation is greater between education and human welfare than between combined wealth and human welfare. The exact correlations, figured from T scores rather than ranks, are shown in Chapters VII, VIII, and IX.

Chart 9 shows the ranks of the states on "combined" wealth with the states below the mean in red.

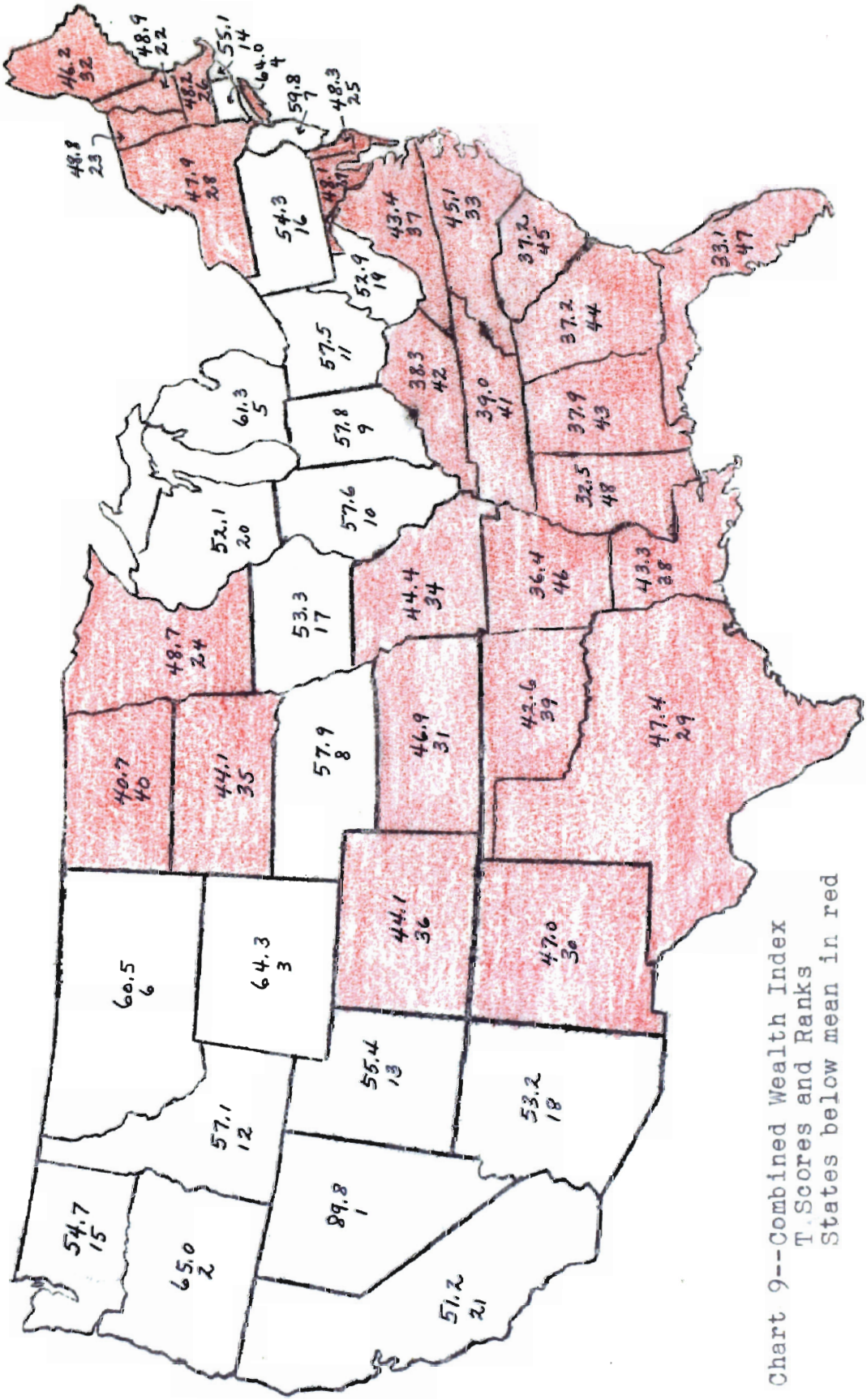


Chart 9--Combined Wealth Index
T Scores and Ranks
States below mean in red

# CHAPTER VI

## CRIME AND RELIGION IN THE FORTY-EIGHT STATES

In addition to studying the correlation between education and human welfare and comparing this relationship with the correlation between welfare and wealth, it is also of value to know the relationship between education and crime, and education and religion, and to compare this with the relationship between welfare and crime and welfare and religion. To do this, it is necessary to establish an index number for crime and an index number for religion for each of the states.

### The Index of Crime

To establish a "crime" score for the states Bagley[34] ranked them inversely as birthstates of prisoners committed to the three Federal penitentiaries during the first six months of 1923 in proportion to the population of the state approximately 30 years before. He also ranked the states inversely according to the number of persons native to each state who were committed to the State Prisons of New York and California during the two years ending June 30, 1922 in proportion to the total number of persons native to each state who were residents of New York and California according to the census of 1920.

The data used by Bagley are subject to at least two objections. The first score which he used was based on the number of persons in Federal penitentiaries. Prisoners in Federal penitentiaries are an entirely different type from those in State prisons. Federal prisoners are in for such crimes as income tax evasion, embezzlement, using mails to defraud, narcotics law violations, and kidnaping. Those in State prisons are in

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[34] William C. Bagley, Determinism in Education, pp. 171-172.

for murder, manslaughter, burglary, auto theft, larceny, robbery, assault, and other crimes of violence. Thus Federal prisoners are not representative of the entire prison population.

This objection would not be valid if the other score showed adequately the ranks of the states in regard to state prisoners. No state is correctly and fairly represented by the people who leave it. It can only be represented by the people who remain. One might logically expect a higher crime rate among the persons who leave a state than among those who remain. Persons who leave a state are often those not owning much property and not satisfied with life in the community in which they live. The crime rate for these people would evidently not be the same as the rate for those who own property and are satisfied to remain in their native states.

To avoid these objections, one might believe that the per cent of the population of each state in the prisons of that state would be a fair indication of the "crime" rating of the state. This measure would be definitely incorrect. In the first place, persons are placed in prison in one state for offenses not considered serious enough for prison sentences in other states. In addition, the number of crimes committed in each state is not too closely related to the number of prisoners because a person who commits a crime must be apprehended and convicted before he becomes a prisoner. His stay in prison depends upon the laws of the state, the pardon and parole policy of the state, and a number of other factors.

No better data were available for "crime" ratings until about 1942. At this time the Department of Justice, Federal Bureau of Investigation, published an annual bulletin on Uniform Crime Reports for the United States and Its Possessions. These data are based on monthly crime reports

received from more than 2000 urban communities representing a combined population of approximately one-half the entire United States.

The crime ratings in this study are based on the following eight factors from the F. B. I. reports and other sources:

1. Homicide rate per 100,000 population (reversed).
2. Murder, and nonnegligent manslaughter rate (reversed).
3. Robbery rate (reversed).
4. Aggravated assault rate (reversed).
5. Burglary, breaking or entering rate (reversed).
6. Larceny--theft rate (reversed).
7. Auto theft rate (reversed).
8. Felony prisoners received from states in 1940 for all "felony" offenses.

The first factor is from Vital Statistics of the entire nation. Factors 2, 3, 4, 5, 6, and 7 are from the F. B. I. Uniform Crime Reports for the United States and Possessions for the principal urban communities of this country. Factor 8 is from Prisoners in State and Federal Prisons and Reformatories. It is described in detail later.

Table 55 shows the homicide rate per 100,000 population. These data, from Vital Statistics of the United States, are based on the entire population and include all deaths reported as due to homicide. Scores range from 21.6 homicides per 100,000 in Florida to 0.8 per 100,000 in Vermont. The 11 states, which have more than 10 homicides per 100,000 population, Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia, are all in the Southeastern part of the United States. Not one of these states ranks better than 35th on the education index, and only 3 are not in the forties. Actually 8 of them occupy the bottom 8 places in the education index.

TABLE 55 -- Homicide Rate per 100,000 Population, United States, by States, 1940 (T Scores reversed). Source: Vital Statistics of United States, 1940, Part I, p. 35.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 16.4 | 31.28 |
| Arizona | 9.2 | 44.67 |
| Arkansas | 10.0 | 43.18 |
| California | 4.9 | 52.66 |
| Colorado | 4.6 | 53.22 |
| Connecticut | 1.8 | 58.42 |
| Delaware | 4.5 | 53.40 |
| Florida | 21.6 | 21.62 |
| Georgia | 20.0 | 24.59 |
| Idaho | 3.4 | 55.45 |
| Illinois | 4.6 | 53.22 |
| Indiana | 3.3 | 55.63 |
| Iowa | 1.3 | 59.35 |
| Kansas | 2.2 | 57.68 |
| Kentucky | 14.3 | 35.19 |
| Louisiana | 12.0 | 39.46 |
| Maine | 1.5 | 58.98 |
| Maryland | 7.7 | 47.45 |
| Massachusetts | 1.5 | 58.98 |
| Michigan | 3.0 | 56.19 |
| Minnesota | 1.2 | 59.54 |
| Mississippi | 17.0 | 30.17 |
| Missouri | 5.4 | 51.73 |
| Montana | 5.2 | 52.10 |
| Nebraska | 1.0 | 59.91 |
| Nevada | 8.2 | 46.52 |
| New Hampshire | 1.4 | 59.16 |
| New Jersey | 2.3 | 57.49 |
| New Mexico | 6.4 | 49.87 |
| New York | 2.8 | 56.56 |
| North Carolina | 10.8 | 41.69 |
| North Dakota | 1.4 | 59.16 |
| Ohio | 4.6 | 53.22 |
| Oklahoma | 6.4 | 49.97 |
| Oregon | 3.3 | 55.63 |
| Pennsylvania | 2.9 | 56.38 |
| Rhode Island | 1.4 | 59.16 |
| South Carolina | 13.2 | 37.23 |
| South Dakota | 2.2 | 57.68 |
| Tennessee | 16.6 | 30.91 |
| Texas | 9.6 | 43.92 |
| Utah | 2.9 | 56.38 |
| Vermont | 0.8 | 60.28 |
| Virginia | 10.5 | 42.25 |
| Washington | 3.5 | 55.26 |
| West Virginia | 8.4 | 46.15 |
| Wisconsin | 1.3 | 59.35 |
| Wyoming | 5.6 | 51.36 |

Average, 48 States, 6.33; Standard Deviation, 5.38.

Tables 56, 57, 58, 59, 60, and 61 show the T scores on the six crime rates from the Uniform Crime Reports of the Federal Bureau of Investigation. These rates are based on offenses known to the police in 2119 urban communities representing every state in the Union and a combined population of 65,322,511 except in the cases of the rates for larceny and burglary which are based on 2117 urban communities with a combined population of 55,936,182.

New Hampshire, North Dakota, and South Dakota have the best murder and nonnegligent manslaughter rates (Table 56) and Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia all rank at the bottom of the list, with Alabama and Georgia worst of all.

On robbery rates (Table 57) Nevada ranks far lower than any other state with 157.8 per 100,000 population. States of the New England area rank best on this score with Vermont first and New Hampshire second.

On aggravated assault (Table 58) the Southern states again line up solidly at the bottom of the list. North Carolina is lowest with 486.6 per 100,000, and a T score so low this it is negative because it is more than five standard deviations below the mean. States with more than 100 cases per 100,000 population are all in the Southern group except West Virginia, which may or may not be included as one of the Southern states. The average rate of aggravated assault for the 14 Southeastern and South Central states is approximately 160 per 100,000 population. In the other 34 states the average rate is only about 27 per 100,000 population. Is this due to the large Negro population, to low standard of living, or to a lack of education? This study shows the correlations for all these factors and with which one the absence of crime is most closely related.

TABLE 56 -- Murder and Nonnegligent Manslaughter Rate, United States, By States, 1942 (T Scores reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 24.59 | 24.94 |
| Arizona | 6.19 | 51.56 |
| Arkansas | 18.73 | 33.42 |
| California | 4.31 | 54.28 |
| Colorado | 3.35 | 55.67 |
| Connecticut | 2.21 | 57.32 |
| Delaware | 6.86 | 50.59 |
| Florida | 15.43 | 38.19 |
| Georgia | 23.12 | 27.06 |
| Idaho | .63 | 59.61 |
| Illinois | 4.86 | 53.49 |
| Indiana | 3.91 | 54.86 |
| Iowa | 1.28 | 58.67 |
| Kansas | 4.12 | 54.56 |
| Kentucky | 16.14 | 37.16 |
| Louisiana | 13.52 | 40.96 |
| Maine | 2.10 | 57.48 |
| Maryland | 11.76 | 43.50 |
| Massachusetts | 1.00 | 59.07 |
| Michigan | 3.62 | 55.28 |
| Minnesota | 1.12 | 58.90 |
| Mississippi | 17.45 | 35.27 |
| Missouri | 6.25 | 51.48 |
| Montana | 2.36 | 57.11 |
| Nebraska | 3.76 | 55.08 |
| Nevada | 3.59 | 55.33 |
| New Hampshire | -- | 60.52 |
| New Jersey | 2.64 | 56.70 |
| New Mexico | 6.68 | 50.85 |
| New York | 2.84 | 56.41 |
| North Carolina | 16.93 | 36.02 |
| North Dakota | -- | 60.52 |
| Ohio | 5.11 | 53.13 |
| Oklahoma | 5.70 | 52.27 |
| Oregon | 3.49 | 55.47 |
| Pennsylvania | 3.36 | 55.66 |
| Rhode Island | 1.36 | 58.55 |
| South Carolina | 17.80 | 34.76 |
| South Dakota | -- | 60.52 |
| Tennessee | 19.77 | 31.91 |
| Texas | 14.13 | 40.07 |
| Utah | 2.88 | 56.35 |
| Vermont | 1.04 | 59.02 |
| Virginia | 19.93 | 31.68 |
| Washington | 2.52 | 56.87 |
| West Virginia | 7.59 | 49.54 |
| Wisconsin | 1.11 | 58.91 |
| Wyoming | 11.60 | 43.73 |

Average, 48 States, 7.27; Standard Deviation, 6.91.

TABLE 57 -- Robbery Rate, United States, By States, 1942 (T Scores reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 63.9 | 45.40 |
| Arizona | 119.1 | 27.78 |
| Arkansas | 105.0 | 32.29 |
| California | 79.5 | 40.42 |
| Colorado | 55.5 | 48.08 |
| Connecticut | 10.7 | 62.38 |
| Delaware | 75.5 | 41.70 |
| Florida | 67.2 | 44.35 |
| Georgia | 76.6 | 41.35 |
| Idaho | 21.3 | 59.00 |
| Illinois | 106.2 | 31.90 |
| Indiana | 67.5 | 44.25 |
| Iowa | 11.7 | 62.07 |
| Kansas | 27.5 | 57.02 |
| Kentucky | 111.1 | 30.34 |
| Louisiana | 38.0 | 53.67 |
| Maine | 15.4 | 60.88 |
| Maryland | 51.9 | 49.24 |
| Massachusetts | 13.0 | 61.65 |
| Michigan | 69.6 | 43.58 |
| Minnesota | 15.8 | 60.76 |
| Mississippi | 50.4 | 49.71 |
| Missouri | 36.9 | 54.02 |
| Montana | 53.2 | 48.82 |
| Nebraska | 13.6 | 61.46 |
| Nevada | 157.8 | 15.43 |
| New Hampshire | 4.9 | 64.24 |
| New Jersey | 26.6 | 57.31 |
| New Mexico | 31.2 | 55.84 |
| New York | 14.3 | 61.24 |
| North Carolina | 46.8 | 50.86 |
| North Dakota | 15.6 | 60.82 |
| Ohio | 53.8 | 48.63 |
| Oklahoma | 41.9 | 52.43 |
| Oregon | 79.5 | 40.42 |
| Pennsylvania | 37.6 | 53.80 |
| Rhode Island | 9.9 | 62.64 |
| South Carolina | 49.0 | 50.15 |
| South Dakota | 14.7 | 61.11 |
| Tennessee | 81.1 | 39.91 |
| Texas | 43.3 | 51.98 |
| Utah | 50.1 | 49.81 |
| Vermont | 2.1 | 65.13 |
| Virginia | 105.6 | 32.09 |
| Washington | 45.0 | 51.44 |
| West Virginia | 55.9 | 47.96 |
| Wisconsin | 7.4 | 63.44 |
| Wyoming | 46.4 | 50.99 |

Average, 48 States, 49.5; Standard Deviation, 31.33.

TABLE 58 — Aggravated Assault Rate, United States, By States, 1942, (T Scores reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 164.6 | 38.09 |
| Arizona | 81.2 | 48.21 |
| Arkansas | 95.4 | 46.48 |
| California | 40.2 | 53.18 |
| Colorado | 21.4 | 55.46 |
| Connecticut | 15.0 | 56.23 |
| Delaware | 45.0 | 52.59 |
| Florida | 94.2 | 46.63 |
| Georgia | 141.1 | 40.94 |
| Idaho | 6.9 | 57.21 |
| Illinois | 37.5 | 53.50 |
| Indiana | 57.4 | 51.09 |
| Iowa | 6.4 | 57.28 |
| Kansas | 20.2 | 55.60 |
| Kentucky | 151.9 | 39.63 |
| Louisiana | 114.7 | 44.14 |
| Maine | 4.2 | 57.54 |
| Maryland | 109.9 | 44.73 |
| Massachusetts | 7.2 | 57.18 |
| Michigan | 63.2 | 50.39 |
| Minnesota | 8.0 | 57.08 |
| Mississippi | 138.8 | 41.22 |
| Missouri | 71.8 | 49.35 |
| Montana | 18.3 | 55.83 |
| Nebraska | 18.6 | 55.80 |
| Nevada | 39.4 | 53.27 |
| New Hampshire | 6.9 | 57.21 |
| New Jersey | 48.0 | 52.23 |
| New Mexico | 71.3 | 49.41 |
| New York | 28.0 | 54.17 |
| North Carolina | 486.6 | —.95 |
| North Dakota | 2.5 | 57.75 |
| Ohio | 25.0 | 55.02 |
| Oklahoma | 56.2 | 51.24 |
| Oregon | 21.4 | 55.46 |
| Pennsylvania | 30.3 | 54.38 |
| Rhode Island | 13.1 | 56.46 |
| South Carolina | 174.2 | 36.93 |
| South Dakota | 2.4 | 57.76 |
| Tennessee | 135.7 | 41.60 |
| Texas | 104.2 | 45.42 |
| Utah | 5.8 | 57.35 |
| Vermont | 1.0 | 57.93 |
| Virginia | 229.8 | 30.19 |
| Washington | 16.7 | 56.03 |
| West Virginia | 118.4 | 43.69 |
| Wisconsin | 5.7 | 57.36 |
| Wyoming | 30.5 | 54.35 |

Average, 48 States, 66.4; Standard Deviation, 82.47.

Table 59 shows the number of cases of burglary, breaking, or entering known to the police in the 2117 urban communities reporting. Rates range from 620.2 per 100,000 in Arizona to only 88.5 per 100,000 in Vermont.

Table 60 shows the larceny-theft rate for the forty-eight states. Nevada ranks lowest with 2,312.9 cases known to the police per 100,000 population and Arizona is next to the bottom with 2,199.2 cases of larceny. Pennsylvania and New Hampshire rank at the top with all of New England States ranking far better than the national average.

Perhaps one reason why the New England States have more money to spend on education is that they do not have to spend so much on crime. Perhaps one reason why they have to spend less on crime is that they do spend more on education.

Table 61 shows the auto theft rate based on the number of auto thefts known to police per 100,000 population. Nevada ranks lowest with 618.6 thefts per 100,000 population. This gives Nevada a T score of 4.39, more than 4½ standard deviations below the mean. New Hampshire and Vermont rank at the top of this list, as usual.

Since the six preceding tables are based on only about one-half of the population of the United States an effort has been made to have at least one more score based on the entire population.

Table 62 shows the felony prisoners received from states in 1940 for all "felony" offenses. Although the exact legal definition of a felony varies from state to state, it is here used to include prisoners committed for terms of more than six months and for crimes considered of a more serious nature. It does not include juvenile delinquents, prisoners committed for simple assault and battery, soliciting or prostitution, or offenses generally classified as disorderly conduct, drunkenness, or vagrancy.

TABLE 59 — Burglary, Breaking, or Entering Rates, United States, By States, 1942 (T Scores reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 472.0 | 37.54 |
| Arizona | 620.2 | 25.64 |
| Arkansas | 395.6 | 43.68 |
| California | 418.2 | 41.86 |
| Colorado | 457.0 | 38.75 |
| Connecticut | 303.3 | 51.09 |
| Delaware | 376.7 | 45.20 |
| Florida | 553.6 | 30.99 |
| Georgia | 444.8 | 39.73 |
| Idaho | 284.1 | 52.63 |
| Illinois | 268.0 | 53.93 |
| Indiana | 397.7 | 43.51 |
| Iowa | 176.8 | 61.25 |
| Kansas | 280.0 | 52.96 |
| Kentucky | 456.4 | 38.79 |
| Louisiana | 135.9 | 64.54 |
| Maine | 265.1 | 54.16 |
| Maryland | 210.7 | 58.53 |
| Massachusetts | 215.5 | 58.15 |
| Michigan | 304.8 | 50.97 |
| Minnesota | 197.1 | 59.62 |
| Mississippi | 337.0 | 48.39 |
| Missouri | 230.3 | 56.96 |
| Montana | 240.4 | 56.15 |
| Nebraska | 180.1 | 60.99 |
| Nevada | 503.8 | 34.99 |
| New Hampshire | 103.5 | 67.14 |
| New Jersey | 235.3 | 56.55 |
| New Mexico | 281.8 | 52.82 |
| New York | 137.1 | 64.44 |
| North Carolina | 390.7 | 44.07 |
| North Dakota | 180.0 | 61.00 |
| Ohio | 278.1 | 53.12 |
| Oklahoma | 391.4 | 44.02 |
| Oregon | 454.9 | 38.91 |
| Pennsylvania | 223.3 | 57.52 |
| Rhode Island | 233.1 | 56.73 |
| South Carolina | 346.2 | 47.65 |
| South Dakota | 201.2 | 59.29 |
| Tennessee | 367.3 | 45.95 |
| Texas | 416.9 | 41.97 |
| Utah | 509.6 | 34.52 |
| Vermont | 88.5 | 68.35 |
| Virginia | 421.7 | 41.58 |
| Washington | 458.9 | 38.59 |
| West Virginia | 349.8 | 47.36 |
| Wisconsin | 172.7 | 61.58 |
| Wyoming | 243.6 | 55.89 |

Average, 48 States, 316.9; Standard Deviation, 124.49.

TABLE 60--Larceny-Theft Rate per 100,000 Population, United States, By States, 1942 (T Scores Reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 pop. | Standard T Score |
|---|---|---|
| Alabama | 1061.2 | 50.49 |
| Arizona | 2199.2 | 25.21 |
| Arkansas | 1425.4 | 42.40 |
| California | 1446.3 | 41.94 |
| Colorado | 1307.0 | 45.03 |
| Connecticut | 923.1 | 53.56 |
| Delaware | 1393.8 | 43.10 |
| Florida | 1418.2 | 42.56 |
| Georgia | 1672.5 | 36.91 |
| Idaho | 974.0 | 52.43 |
| Illinois | 532.2 | 62.24 |
| Indiana | 1060.8 | 50.50 |
| Iowa | 753.6 | 57.32 |
| Kansas | 913.1 | 53.78 |
| Kentucky | 1215.4 | 52.93 |
| Louisiana | 631.4 | 60.04 |
| Maine | 826.5 | 55.70 |
| Maryland | 777.8 | 56.79 |
| Massachusetts | 481.0 | 63.38 |
| Michigan | 1163.6 | 48.22 |
| Minnesota | 651.7 | 59.59 |
| Mississippi | 1229.7 | 46.75 |
| Missouri | 862.4 | 54.91 |
| Montana | 1065.5 | 50.40 |
| Nebraska | 701.7 | 58.48 |
| Nevada | 2312.9 | 22.68 |
| New Hampshire | 390.6 | 65.39 |
| New Jersey | 551.1 | 61.82 |
| New Mexico | 1852.2 | 32.92 |
| New York | 490.8 | 63.16 |
| North Carolina | 1190.8 | 47.61 |
| North Dakota | 778.5 | 56.77 |
| Ohio | 923.8 | 53.54 |
| Oklahoma | 1201.4 | 47.38 |
| Oregon | 1470.3 | 41.40 |
| Pennsylvania | 387.6 | 65.46 |
| Rhode Island | 556.1 | 61.71 |
| South Carolina | 1377.4 | 43.47 |
| South Dakota | 1028.8 | 51.21 |
| Tennessee | 900.0 | 54.07 |
| Texas | 1511.2 | 40.49 |
| Utah | 1541.8 | 39.81 |
| Vermont | 582.9 | 61.12 |
| Virginia | 1521.2 | 40.27 |
| Washington | 1323.1 | 44.67 |
| West Virginia | 793.2 | 56.44 |
| Wisconsin | 750.6 | 57.39 |
| Wyoming | 1876.4 | 32.38 |

Average, 48 States, 1083.3; Standard Deviation, 450.14.

TABLE 61--Auto Theft Rate per 100,000 Population, United States, By States, 1942 (T Scores Reversed). Source: Statistical Abstract, 1943.

| STATE | Rate per 100,000 pop. | Standard T Score |
|---|---|---|
| Alabama | 208.3 | 47.89 |
| Arizona | 260.2 | 42.39 |
| Arkansas | 197.8 | 49.00 |
| California | 379.6 | 29.73 |
| Colorado | 188.0 | 50.04 |
| Connecticut | 170.6 | 51.89 |
| Delaware | 219.6 | 46.69 |
| Florida | 157.4 | 53.29 |
| Georgia | 251.4 | 43.32 |
| Idaho | 160.6 | 52.95 |
| Illinois | 95.7 | 59.83 |
| Indiana | 205.0 | 48.24 |
| Iowa | 131.7 | 56.01 |
| Kansas | 129.1 | 56.29 |
| Kentucky | 277.6 | 40.54 |
| Louisiana | 207.9 | 47.93 |
| Maine | 183.2 | 50.55 |
| Maryland | 315.8 | 36.49 |
| Massachusetts | 158.7 | 53.15 |
| Michigan | 170.1 | 51.94 |
| Minnesota | 102.3 | 59.13 |
| Mississippi | 139.6 | 55.17 |
| Missouri | 104.2 | 58.93 |
| Montana | 191.9 | 49.63 |
| Nebraska | 163.8 | 52.61 |
| Nevada | 618.6 | 4.39 |
| New Hampshire | 43.3 | 65.38 |
| New Jersey | 143.4 | 54.77 |
| New Mexico | 235.0 | 45.06 |
| New York | 113.4 | 57.95 |
| North Carolina | 162.1 | 52.79 |
| North Dakota | 109.3 | 58.39 |
| Ohio | 131.0 | 56.09 |
| Oklahoma | 155.7 | 53.47 |
| Oregon | 284.1 | 39.85 |
| Pennsylvania | 131.0 | 56.09 |
| Rhode Island | 132.2 | 55.96 |
| South Carolina | 182.9 | 50.58 |
| South Dakota | 120.6 | 57.19 |
| Tennessee | 185.8 | 50.28 |
| Texas | 185.0 | 50.36 |
| Utah | 257.2 | 42.71 |
| Vermont | 60.4 | 63.57 |
| Virginia | 280.5 | 40.24 |
| Washington | 354.2 | 32.42 |
| West Virginia | 121.7 | 57.07 |
| Wisconsin | 89.9 | 60.44 |
| Wyoming | 176.9 | 51.22 |

Average, 48 States, 188.4; Standard Deviation, 94.32.

TABLE 62 -- Felony Prisoners Received from States in 1940, All "Felony" Offenses, United States, By States (T Scores reversed). Source: Prisoners in State and Federal Prisons and Reformatories, 1940. Bureau of Census.

| STATE | Rate per 100,000 Population | Standard T Score |
|---|---|---|
| Alabama | 97.2 | 29.20 |
| Arizona | 67.1 | 41.67 |
| Arkansas | 40.6 | 52.65 |
| California | 31.2 | 56.55 |
| Colorado | 60.9 | 44.24 |
| Connecticut | 26.4 | 58.53 |
| Delaware | 39.0 | 53.31 |
| Florida | 71.4 | 39.89 |
| Georgia | No data | --- |
| Idaho | 44.0 | 51.24 |
| Illinois | 19.0 | 61.60 |
| Indiana | 39.7 | 53.02 |
| Iowa | 29.0 | 57.46 |
| Kansas | 42.2 | 51.99 |
| Kentucky | 66.5 | 41.92 |
| Louisiana | 39.0 | 53.31 |
| Maine | 37.3 | 54.02 |
| Maryland | 101.9 | 27.26 |
| Massachusetts | 17.8 | 62.10 |
| Michigan | 44.1 | 51.20 |
| Minnesota | 31.7 | 56.34 |
| Mississippi | 39.4 | 53.15 |
| Missouri | 44.1 | 51.20 |
| Montana | 54.5 | 46.89 |
| Nebraska | 36.6 | 54.31 |
| Nevada | 149.7 | 7.46 |
| New Hampshire | 20.3 | 61.06 |
| New Jersey | 36.5 | 54.35 |
| New Mexico | 62.2 | 43.70 |
| New York | 24.7 | 59.24 |
| North Carolina | 34.9 | 55.01 |
| North Dakota | 40.7 | 52.61 |
| Ohio | 35.3 | 54.85 |
| Oklahoma | 83.8 | 34.76 |
| Oregon | 48.6 | 49.34 |
| Pennsylvania | 22.9 | 59.98 |
| Rhode Island | 17.4 | 62.26 |
| South Carolina | 32.1 | 56.17 |
| South Dakota | 37.6 | 53.89 |
| Tennessee | 43.8 | 51.33 |
| Texas | 41.5 | 52.28 |
| Utah | 29.8 | 57.13 |
| Vermont | 58.5 | 45.24 |
| Virginia | 62.2 | 43.70 |
| Washington | 42.7 | 51.78 |
| West Virginia | 53.6 | 47.27 |
| Wisconsin | 40.2 | 52.82 |
| Wyoming | 68.6 | 41.05 |

Average, 48 States, 47.0; Standard Deviation, 24.14.

This eliminates misdemeanors and minor offenses which may lead to prison sentences in some states but not in others. Even this does not make the scores strictly comparable because some states have very much better records for apprehension and conviction of criminals. However, a comparison of scores on this factor with those in the preceding tables indicates that the same general picture may be obtained from either. Nevada, Maryland, and Alabama rank low while Rhode Island, Massachusetts, Illinois, and New Hampshire rank at the top.

Table 63 is the crime index for the forty-eight states. New Hampshire, Vermont, Massachusetts, Rhode Island, and New York occupy the first five places in absence of crime in the order named. They rank 23, 28, 4, 25, and 1 on the education index indicating that whatever correlation exists will not be exceptionally high.

The five states which have the highest crime rates are Arizona, Alabama, Virginia, Georgia, and Nevada, ranking 44, 45, 46, 47, 48, respectively. Thus the famous Georgia "chain gang" seems to be no deterrent to crime in Georgia and the "wide open" gambling and drinking of Nevada seem to be "freedom" at a heavy price.

These bottom five states rank 38, 47, 37, 43, and 11 on education. Since all except one of these scores is in the lowest quartile on the education index, some positive correlation is evident.

Chart 10 shows the crime ratings of states and the rank of each state with those below the mean in red.

TABLE 63 — The Crime Index

| STATE | Total on Eight Factors | Crime Index | Rank |
|---|---|---|---|
| Alabama | 304.83 | 38.1 | 45 |
| Arizona | 307.13 | 38.4 | 44 |
| Arkansas | 343.10 | 42.9 | 40 |
| California | 370.62 | 46.3 | 34 |
| Colorado | 390.49 | 48.8 | 27 |
| Connecticut | 449.42 | 56.2 | 14 |
| Delaware | 386.58 | 48.3 | 29 |
| Florida | 317.52 | 39.7 | 42 |
| Georgia (Seven Factors) | 253.90 | 36.3 | 47 |
| Idaho | 440.52 | 55.1 | 16 |
| Illinois | 429.71 | 53.7 | 18 |
| Indiana | 401.10 | 50.1 | 24 |
| Iowa | 469.41 | 58.7 | 8 |
| Kansas | 439.88 | 55.0 | 17 |
| Kentucky | 316.50 | 39.6 | 43 |
| Louisiana | 404.05 | 50.5 | 23 |
| Maine | 449.31 | 56.2 | 15 |
| Maryland | 363.99 | 45.5 | 36 |
| Massachusetts | 473.66 | 59.2 | 3 |
| Michigan | 407.77 | 51.0 | 22 |
| Minnesota | 470.96 | 58.9 | 7 |
| Mississippi | 359.83 | 45.0 | 37 |
| Missouri | 428.58 | 53.6 | 19 |
| Montana | 416.93 | 52.1 | 21 |
| Nebraska | 458.64 | 57.3 | 12 |
| Nevada | 240.07 | 30.0 | 48 |
| New Hampshire | 500.10 | 62.5 | 1 |
| New Jersey | 451.22 | 56.4 | 13 |
| New Mexico | 380.47 | 47.6 | 32 |
| New York | 473.17 | 59.1 | 5 |
| North Carolina | 327.10 | 40.9 | 41 |
| North Dakota | 467.02 | 58.4 | 9 |
| Ohio | 427.60 | 53.5 | 20 |
| Oklahoma | 385.54 | 48.2 | 30 |
| Oregon | 376.48 | 47.1 | 33 |
| Pennsylvania | 459.27 | 57.4 | 10 |
| Rhode Island | 473.47 | 59.2 | 4 |
| South Carolina | 356.94 | 44.6 | 38 |
| South Dakota | 458.65 | 57.3 | 11 |
| Tennessee | 345.96 | 43.2 | 39 |
| Texas | 366.49 | 45.8 | 35 |
| Utah | 394.06 | 49.3 | 26 |
| Vermont | 480.64 | 60.1 | 2 |
| Virginia | 302.00 | 37.8 | 46 |
| Washington | 387.06 | 48.4 | 28 |
| West Virginia | 395.48 | 49.4 | 25 |
| Wisconsin | 471.29 | 58.9 | 6 |
| Wyoming | 380.97 | 47.6 | 31 |

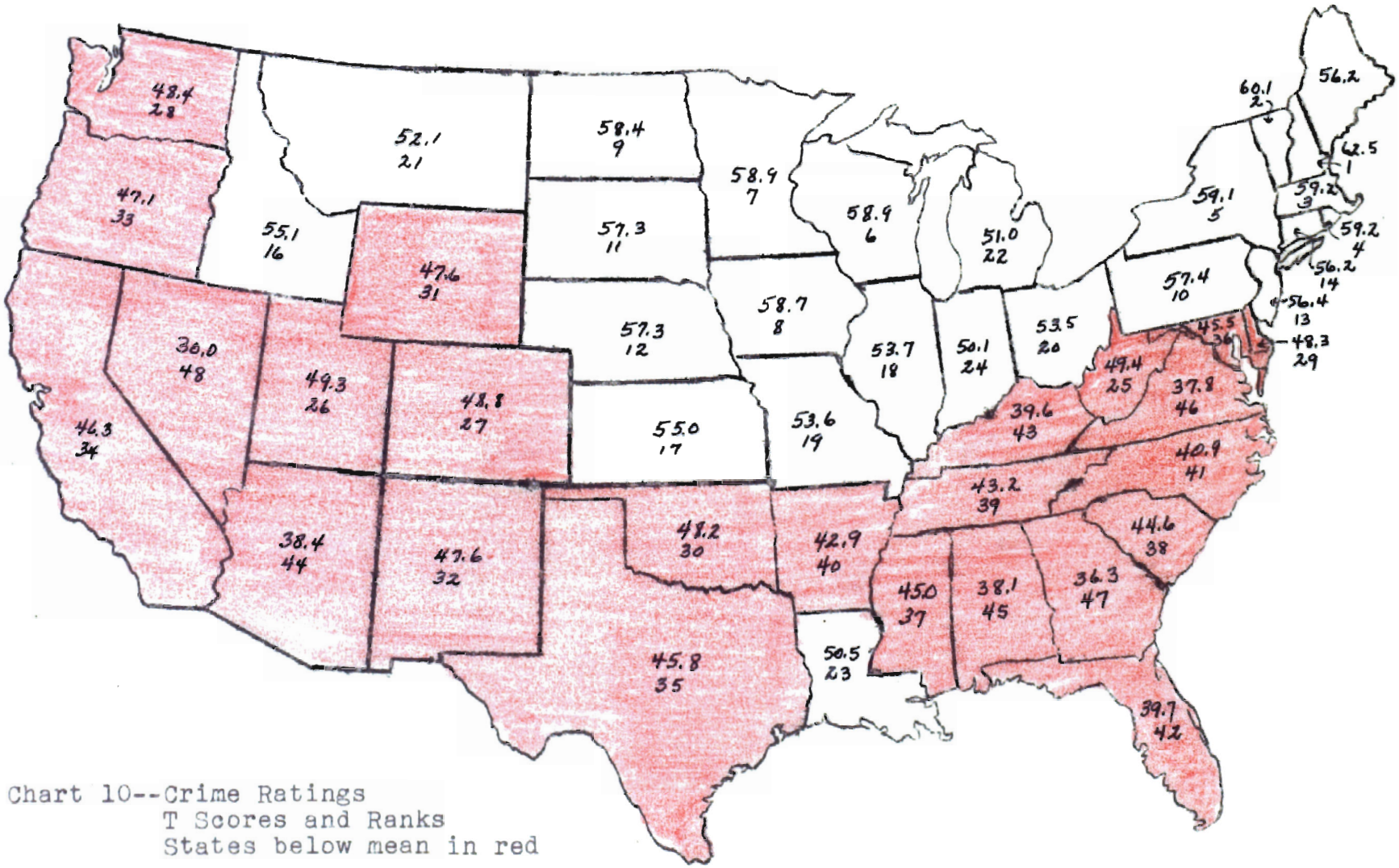


Chart 10--Crime Ratings
T Scores and Ranks
States below mean in red

## The Index of Religion

It is perhaps impossible to measure the "religion" of a state or even to get a comparative score which would satisfy any great number of people. Only two factors have been considered in arriving at the religion index for this study. These factors are:

1. Value of church edifices of all denominations per capita as a per cent of per capita income.
2. Church members, all denominations, per 100 population.

Table 64 shows the data for the first factor. As was indicated, the total value of church edifices was divided by the population of each state to get the per capita value of the buildings; the per capita value was then divided by the per capita income to get the final score. The value per capita as a per cent of per capita income was used instead of the straight per capita value because this allows the poorer states to make a fairer showing, and since most Christian churches ask for a contribution on the basis of a per cent (usually 10 per cent) of income.

Table 65 shows the number of church members per 100 population in each of the states. It will be noticed that Louisiana ranks well above the mean in church members. No other Southern state except Georgia ranks above the mean, and no other Southern State ranks above the mean on the crime index.

The states which rank in the top five in church membership are Utah, Rhode Island, Connecticut, Massachusetts, and New Jersey. These rank 26, 4, 14, 3, and 13 on the crime ratings.

Table 66 is the religion index, the average on the T scores on the two factors.

Chart 11 shows the ranks of the states on the religion index with states below the mean in red.

TABLE 64 -- Value of Church Edifices per capita as a per cent of per capita Income, United States, By States, 1936. Source: U. S. Census, Religious Bodies, 1936.

| STATE | Per Capita Value | Per Cent of Per Capita Income | Standard T Score |
|---|---|---|---|
| Alabama | $13.91 | 5.7 | 54.64 |
| Arizona | 13.71 | 3.0 | 39.18 |
| Arkansas | 10.40 | 4.2 | 46.05 |
| California | 15.58 | 2.1 | 34.03 |
| Colorado | 19.09 | 3.8 | 43.76 |
| Connecticut | 45.76 | 6.1 | 56.92 |
| Delaware | 34.96 | 4.5 | 47.77 |
| Florida | 19.50 | 4.4 | 47.20 |
| Georgia | 14.11 | 4.9 | 50.06 |
| Idaho | 13.77 | 3.4 | 41.47 |
| Illinois | 28.58 | 4.3 | 46.62 |
| Indiana | 27.85 | 5.6 | 54.06 |
| Iowa | 27.20 | 5.8 | 55.21 |
| Kansas | 25.29 | 6.6 | 59.79 |
| Kentucky | 16.94 | 5.7 | 54.64 |
| Louisiana | 13.02 | 3.7 | 43.19 |
| Maine | 24.14 | 5.1 | 51.20 |
| Maryland | 31.64 | 5.0 | 50.63 |
| Massachusetts | 41.12 | 5.7 | 54.64 |
| Michigan | 23.85 | 4.0 | 44.91 |
| Minnesota | 29.35 | 5.9 | 55.78 |
| Mississippi | 10.51 | 5.2 | 51.77 |
| Missouri | 23.12 | 4.8 | 49.48 |
| Montana | 14.64 | 2.8 | 38.04 |
| Nebraska | 26.61 | 6.7 | 60.36 |
| Nevada | 10.59 | 1.4 | 30.03 |
| New Hampshire | 29.03 | 5.3 | 52.35 |
| New Jersey | 33.46 | 4.1 | 45.48 |
| New Mexico | 8.78 | 2.6 | 36.90 |
| New York | 38.05 | 4.7 | 48.91 |
| North Carolina | 18.54 | 6.0 | 56.35 |
| North Dakota | 21.62 | 6.7 | 60.36 |
| Ohio | 32.88 | 5.5 | 53.49 |
| Oklahoma | 13.30 | 3.9 | 44.33 |
| Oregon | 14.23 | 2.6 | 36.90 |
| Pennsylvania | 40.52 | 6.9 | 61.50 |
| Rhode Island | 35.50 | 5.2 | 51.77 |
| South Carolina | 15.14 | 5.8 | 55.21 |
| South Dakota | 44.74 | 12.7 | 94.69 |
| Tennessee | 15.44 | 5.2 | 51.77 |
| Texas | 14.64 | 3.7 | 43.19 |
| Utah | 25.91 | 5.8 | 55.21 |
| Vermont | 30.09 | 6.2 | 57.50 |
| Virginia | 23.10 | 5.7 | 54.64 |
| Washington | 15.00 | 2.6 | 36.90 |
| West Virginia | 16.34 | 4.3 | 46.62 |
| Wisconsin | 29.47 | 6.1 | 56.92 |
| Wyoming | 15.22 | 2.7 | 37.47 |

Average, 48 States, 4.89; Standard Deviation, 1.75.

TABLE 65 -- Church Members, All Denominations, By States, 1936. Source: World Almanac, 1944. Published by New York World Telegram, p. 472.

| STATE | No. per 100 Population | Standard T Score |
|---|---|---|
| Alabama | 40.2 | 49.80 |
| Arizona | 33.1 | 43.44 |
| Arkansas | 29.3 | 40.04 |
| California | 27.9 | 38.78 |
| Colorado | 31.6 | 42.10 |
| Connecticut | 61.5 | 68.89 |
| Delaware | 49.8 | 58.40 |
| Florida | 29.3 | 40.04 |
| Georgia | 40.5 | 50.07 |
| Idaho | 34.0 | 44.25 |
| Illinois | 45.0 | 54.10 |
| Indiana | 39.4 | 49.09 |
| Iowa | 42.8 | 52.13 |
| Kansas | 38.4 | 48.19 |
| Kentucky | 32.1 | 42.54 |
| Louisiana | 48.1 | 56.88 |
| Maine | 37.0 | 46.94 |
| Maryland | 41.3 | 50.79 |
| Massachusetts | 60.4 | 67.90 |
| Michigan | 34.0 | 44.25 |
| Minnesota | 48.4 | 57.15 |
| Mississippi | 35.8 | 45.86 |
| Missouri | 36.8 | 46.76 |
| Montana | 28.6 | 39.41 |
| Nebraska | 43.1 | 52.40 |
| Nevada | 25.3 | 36.45 |
| New Hampshire | 48.4 | 57.15 |
| New Jersey | 56.7 | 64.59 |
| New Mexico | 45.9 | 54.91 |
| New York | 53.0 | 61.27 |
| North Carolina | 35.7 | 45.77 |
| North Dakota | 49.2 | 57.87 |
| Ohio | 42.5 | 51.86 |
| Oklahoma | 25.1 | 36.27 |
| Oregon | 22.9 | 34.30 |
| Pennsylvania | 54.7 | 62.80 |
| Rhode Island | 66.4 | 73.28 |
| South Carolina | 37.4 | 47.29 |
| South Dakota | 43.3 | 52.58 |
| Tennessee | 31.5 | 42.01 |
| Texas | 35.8 | 45.86 |
| Utah | 67.7 | 74.44 |
| Vermont | 47.2 | 56.08 |
| Virginia | 38.0 | 47.83 |
| Washington | 21.2 | 32.78 |
| West Virginia | 25.8 | 36.90 |
| Wisconsin | 51.2 | 59.66 |
| Wyoming | 27.0 | 38.87 |

Average, 48 States, 40.42; Standard Deviation, 11.18.

TABLE 66 — The Religion Index

| STATE | Total on Two Factors | Religion Index | Rank |
|---|---|---|---|
| Alabama | 104.44 | 52.2 | 19 |
| Arizona | 82.62 | 41.3 | 41 |
| Arkansas | 86.09 | 43.0 | 37 |
| California | 72.81 | 36.4 | 45 |
| Colorado | 85.86 | 42.9 | 39 |
| Connecticut | 125.81 | 62.9 | 3 |
| Delaware | 106.17 | 53.1 | 17 |
| Florida | 87.24 | 43.6 | 36 |
| Georgia | 100.13 | 50.1 | 26 |
| Idaho | 85.72 | 42.9 | 38 |
| Illinois | 100.72 | 50.4 | 25 |
| Indiana | 103.15 | 51.6 | 20 |
| Iowa | 107.34 | 53.7 | 16 |
| Kansas | 107.98 | 54.0 | 15 |
| Kentucky | 97.18 | 48.6 | 30 |
| Louisiana | 100.07 | 50.0 | 27 |
| Maine | 98.14 | 49.1 | 28 |
| Maryland | 101.42 | 50.7 | 24 |
| Massachusetts | 122.54 | 61.3 | 6 |
| Michigan | 89.16 | 44.6 | 34 |
| Minnesota | 112.93 | 56.5 | 10 |
| Mississippi | 97.63 | 48.8 | 29 |
| Missouri | 96.24 | 48.1 | 31 |
| Montana | 77.45 | 38.7 | 43 |
| Nebraska | 112.76 | 56.4 | 11 |
| Nevada | 66.48 | 33.2 | 48 |
| New Hampshire | 109.50 | 54.8 | 14 |
| New Jersey | 110.07 | 55.0 | 13 |
| New Mexico | 91.81 | 45.9 | 33 |
| New York | 110.18 | 55.1 | 12 |
| North Carolina | 102.12 | 51.1 | 23 |
| North Dakota | 118.23 | 59.1 | 7 |
| Ohio | 105.35 | 52.7 | 18 |
| Oklahoma | 80.60 | 40.3 | 42 |
| Oregon | 71.20 | 35.6 | 46 |
| Pennsylvania | 124.30 | 62.2 | 5 |
| Rhode Island | 125.05 | 62.5 | 4 |
| South Carolina | 102.50 | 51.3 | 21 |
| South Dakota | 147.27 | 73.6 | 1 |
| Tennessee | 93.78 | 46.9 | 32 |
| Texas | 89.05 | 44.5 | 35 |
| Utah | 129.65 | 64.8 | 2 |
| Vermont | 113.58 | 56.8 | 9 |
| Virginia | 102.47 | 51.2 | 22 |
| Washington | 69.68 | 34.8 | 47 |
| West Virginia | 83.52 | 41.8 | 40 |
| Wisconsin | 116.58 | 58.3 | 8 |
| Wyoming | 76.34 | 38.2 | 44 |

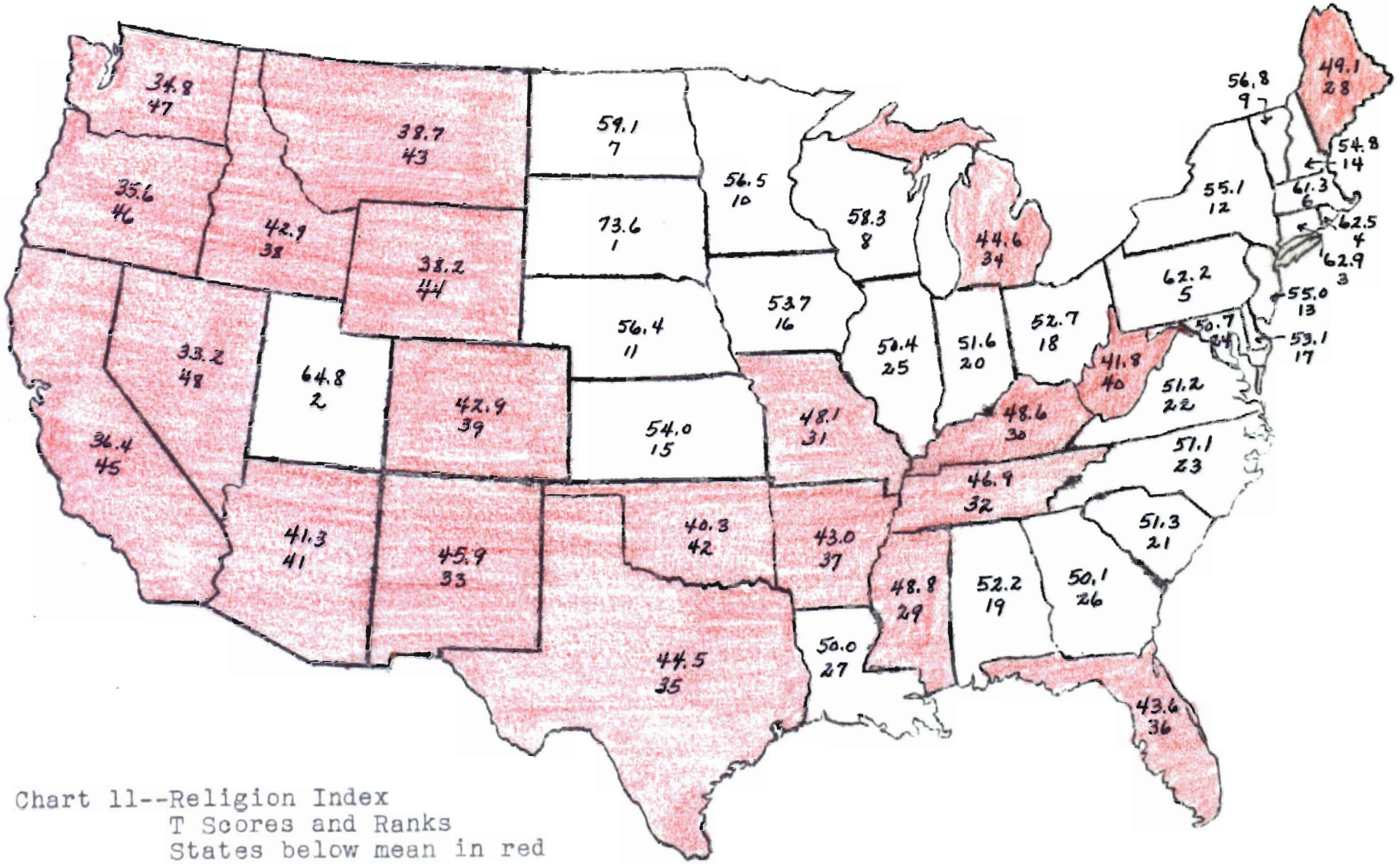


Chart 11--Religion Index
T Scores and Ranks
States below mean in red

# CHAPTER VII

## CORRELATIONS BETWEEN EDUCATION AND OTHER SCORES

The principal purpose of this study, as explained in Chapter I, is to determine the relationship between the education provided by each state and the welfare of its people. To understand this relationship fully, however, it is necessary to find not only the correlation between education and welfare, but to study the relationships existing between standard of living, physical health, mental health, human welfare, agricultural wealth, industrial wealth, natural resources, combined wealth, crime, and religion. The index numbers on each of these items for each of the forty-eight states are shown in the five preceding chapters. The correlations between the education index and the other index numbers are shown in this chapter. The following chapter shows the correlations between the standard of living and the other factors; Chapter IX shows the correlations of human welfare and physical and mental health with other factors; and Chapter X contains other miscellaneous correlations. The formula used for all correlations is shown in Appendix A.

### Education and the Standard of Living

Charts 1 and 2 indicate that there is a high degree of relationship between the quantity and quality of education which a state provides and the standard of living in that state. From Chart 1 it may be readily seen that every one of the Southern and Southwestern states ranks below the mean in education while not a single state outside this area lies below the mean. Chart 2 shows that exactly the same Southern and Southwestern states are below the mean in standard of living and only three of the more northern states, Missouri, North Dakota, and South Dakota, fall below the mean. The states of Arkansas, Mississippi, Alabama, Georgia,

and South Carolina occupy all of the five bottom ranks in standard of living and five of the six bottom ranks in education.

When the T scores on these two sets of index numbers are correlated, it is found that the coefficient of correlation is .936. Perhaps this relationship is not a causal one, and it is quite likely that both the education and standard of living scores are influenced to a large extent by some other factor or group of factors. For this reason, it will be necessary to compare this relationship with that of other factors to the standard of living.

## Education and Physical Health and Care

A comparison of the ranks and T scores shown on Chart 3 with those of Chart 1 indicates a high correlation between the physical health and care of a state with its provision for education. Nevada, Idaho, and Missouri are the only states ranking below the mean on physical health and care which do not also rank below the mean on education, and every state ranking below the mean on education also ranks below the mean on physical health and care.

The actual correlation between education and physical health and care is .893. When the care factors are eliminated and only the first eight factors of the physical health index are used, the correlation drops to .764. From Selective Service Reports it is possible to learn the relative standing of each state in physical health from the number of persons of military age who were classified IV-F per 1000 registrants from each state. Using these data, a correlation of .649 is found between physical fitness and education.

All of these correlations are high enough to warrant the conclusion that there is a definite and positive relationship between the education of the people of a state and their physical health.

## Education and Mental Health and Care

A comparison of Chart 4 with Chart 1 shows a definite lack of positive relationship between education and mental health and care. Only six of the states which rank below the mean in education also rank below the mean in mental health and care as compared with nine ranking below the mean in education but above the mean in mental health and care.

The coefficient of correlation between these two sets of index numbers is —.160. This small negative correlation indicates that there is little relationship between education and mental health and care. When the "care" factors are eliminated and only factors 1, 2, 3, 5, and 7 are considered, the correlation is —.375.

It may be true that where people are better educated they realize the need for institutional care for those who are mentally deficient or mentally diseased. It is perhaps unquestionably true that there are more persons in mental institutions from urban populations than from rural populations of the same number or size.

Because of these criticisms which may be made of the mental health and care index, it is possible that the Army rejections for mental disease per 1000 draft registrants (reversed) may be a better indication of a state's mental health than any of the data based on the number of persons in mental institutions. This is, of course, due to the fact that Army rejections are based on a fairly uniform national policy while institutionalization for mental diseases or deficiencies depends upon varying state policies. When this single score is used, the correlation with education is found to be .013. This is virtually the same as saying that there is no connection between mental disease and education, and education can never be defended or promoted for the contribution which

it makes to mental health—but neither can it be blamed for mental disease and certainly not for mental deficiency.

## Education and Human Welfare

The human welfare index for each state is the weighted average of the standard of living, physical health and care, and mental health and care index numbers for each state. It is perhaps surprising that the correlation between education and human welfare is higher than that between education and any of the three factors which are combined to get the human welfare index. As a matter of fact, the correlation of .969 is so high that it is possible to predict almost exactly the standing of any state in regard to human welfare from its score on the education index.

A comparison of Chart 5 with Chart 1 shows that every state which ranks below the mean on education also ranks below the mean on human welfare, and only two states which rank below the mean on welfare are above the mean on education. These states, Missouri and North Dakota, have "welfare" scores of 49.9 and 49.4, only 1/100 of a standard deviation and 6/100 of a standard deviation, respectively, below the mean.

The six states which occupy the bottom six ranks on education are the same states as the bottom six on human welfare.

Such a high degree of correlation indicates that education and human welfare are so closely related that there is almost certainly a causal connection.

## Education and Wealth

It seems quite logical that a state which has great per capita agricultural production would have a better educational system than a state which produces only a small amount of agricultural produce per

capita. As a matter of fact, there is little relationship between the agricultural wealth of a state and the quality and quantity of education which it provides. The correlation is .156, so small as to be of little significance. The correlation between human welfare and agricultural wealth, .045, is even smaller and of no significance whatever.

This lack of correlation may be explained by the fact that agricultural areas must necessarily be rural areas and it is much more difficult to obtain telephones, water, and other facilities in the country than in the city. However, this explains only a small part of the difference. The remainder of the difference may be due to the fact that farm areas have been and are being exploited; that prices of farm products are not high enough in relation to prices of manufactured goods to enable the farmer to maintain as high a standard of living or to provide as good educational opportunities for his children as his city "cousins" enjoy.

The correlation between education and industrial wealth is .550 and between education and the per cent of the population who live in urban areas is .645. Both of these correlations are much higher than that between education and agricultural wealth.

Many people believe that natural resources are necessary to the well-being of a nation. This may be true for nations, but it is definitely not true for states. The correlation between education and natural resources produced is only .044, and the correlation between human welfare and natural resources is actually negative, —.033.

From these facts, it may be seen that per capita agricultural wealth has little effect on education and even less on human welfare; the production of natural resources has practically no positive effect on education and actually a negative (but not significant) effect on human

welfare; and industrial wealth is less closely related to education or welfare than is the degree of urbanization.

It may be contended that no single item of wealth should be expected to be closely related to education or human welfare but that the index of combined wealth from all three sources should be more closely related. This is true. The correlation between the combined wealth and education is .655 and the correlation between combined wealth and human welfare is .630.

This correlation of .630 between combined wealth and human welfare should be compared with the .969 correlation between education and human welfare.

## Education and Crime

A radio commentator recently reported that the states spend more money on the prevention of crime, apprehension of criminals, trials, and imprisonment of those convicted than they do on the education of children. Although not included in the human welfare index, the absence of crime is certainly an indication of human well-being. If states do actually spend more on crime than on education, and if there is a positive relationship between education and the absence of crime, perhaps money spent to improve the educational system would result in a net saving by reducing the amount spent for crime. For this reason, the correlation between education and crime (reversed) has been determined for comparison. This correlation was found to be .641. This is almost exactly as high as the correlation between education and combined wealth, .655, and much higher than the correlation between education and agricultural wealth, .156, education and natural resources, .044, or even education and industrial wealth, .550. Absence of crime is more closely related to

education than it is to the standard of living, .521, or even to religion, .608, or church membership, .610.

Thus it seems that education is more closely related to the absence of crime than is the standard of living, religion, church membership, or any other factor studied in this report.

## Education and Religion

Because many believe that religion is a potent factor in the promotion of human welfare and the prevention of crime, an analysis has been made of the relationship of religion to these factors. The correlation between education and the religion index is .164. The correlation between religion and the standard of living is .076; the correlation between education and the standard of living is .936. The correlation between religion and human welfare is .211; the correlation between education and human welfare is .969. When church membership alone is correlated with education, the figure obtained is .278; when correlated with the standard of living it is .284.

All of these relationships with religion are so small as to be of little significance. However, when religion is correlated with the absence of crime, the coefficient of correlation obtained is .608. Church membership alone has a correlation of .610 with the crime index (all scores reversed). Thus religion is definitely and positively related to the absence of crime, but not to quite as great a degree as is education.

## Education and Other Factors

The degree of urbanization is definitely related to education. Urban areas pay their teachers better salaries, have better school buildings, hold school for more days, and have better attendance than do the rural areas. The correlation between education and urbanization is .645.

The relationship between education and the per cent of the population that is Negro is high but negative. The correlation found was —.802. Every state in the Nation which has a high per cent of Negroes ranks low on education, low on standard of living, low on physical health, low on human welfare, and low on the crime index.

The correlation between the per cent native white and education is positive and reasonably high, being .608. No correlations are shown between the total number (per cent) of whites and education but it is believed that it is as high or higher than the correlation for per cent native white and education because of the fact that many of the states ranking well on education have large foreign-born-white elements.

Table 67 shows a summary of all correlations between the education index and the other index numbers.

TABLE 67

Summary of Correlations Between the Education Index and Other Index Numbers

| Index Numbers Correlated | Correlation |
|---|---|
| Education and the Standard of Living | .936 |
| Education and Physical Health and Care | .893 |
| Education and Mental Health and Care | — .160 |
| Education and Human Welfare | .969 |
| Education and Agricultural Wealth | .156 |
| Education and Industrial Wealth | .550 |
| Education and Natural Resources | .044 |
| Education and Combined Wealth | .655 |
| Education and Absence of Crime | .646 |
| Education and Religion | .164 |
| Education and Per Cent Urban | .645 |
| Education and Per Cent Native White | .608 |
| Education and Per Cent Negro | — .802 |
| Education and Army Rejections, Mental Disease (reversed) | .013 |
| Education and Church Membership | .278 |
| Education and Mental Health (Factors 1,2,3,5,7) | — .375 |

# CHAPTER VIII

## CORRELATIONS BETWEEN THE STANDARD OF LIVING AND OTHER FACTORS

The standard of living enjoyed by the people of a state is more closely related to the quality and quantity of education provided for them than to any other factor studied here.

### The Standard of Living and Education

There is a high positive relationship between the education index and the standard of living, the correlation being .936. It is reasonable to expect that there is some causal relationship between these two items. It is also reasonable to believe that there should be some causal relationship between various forms of wealth and the standard of living. For this reason, it is interesting to compare the relationship of education and standard of living with that existing between standard of living and wealth.

### The Standard of Living and Wealth

Do the people of a rich agricultural state (per capita) live better than those of a state which, in proportion to its population, produces little on its farms? The answer is that they do not. The correlation between agricultural wealth and the standard of living in the forty-eight states is .077. This correlation is so small as to be almost negligible and is entirely insignificant.

Surely then there should be some relationship between the per capita value of its natural resources and its standard of living. But, again the answer is that there is none. The correlation, .047, is actually even less than the correlation between standard of living and agricultural wealth.

However, the lack of correlation between the standard of living of the people of a state and the natural resources produced in the state

should not be so surprising. F. L. Schlagle, President of the National Education Association, described the situation which exists in a recent radio broadcast. Mr. Schlagle said:

> Not only are the economic resources of many states comparatively low and the educational burdens great, but the people of those states in a large measure do not own or control the economic resources of those states. These states constitute a kind of colonial hinterland for the great industrial and commercial centers. One noted economist recently said, and proved his statement, that Texas is incomparably the richest foreign colony owned by New York City. It has been estimated that as much as 70 cents of each dollar produced in some states goes to the people of other states as the result of nonresident ownership.[35]

As long as the great natural wealth of states such as Texas and Oklahoma is owned by persons not living in these states, there will be no significant correlation between natural wealth and education or the standard of living. The most the "colonies" can expect is a bare living from mining the ores, producing the oil, and felling the trees. If they do not live as well and if their children do not learn as much in four-fifths the time at less than one-half the cost, it is probably due to "the character of the early immigration." Or, at least, Thorndike says that the evidence inclines toward the hypothesis that this is the factor which accounts for most of the variation in general welfare.[36]

The only one of the wealth factors which shows a significant correlation with the standard of living is the industrial wealth index. Here the correlation is .695. This is high enough to indicate that there is a definite relationship between industrial wealth and the standard of

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[35]F. L. Schlagle, "Equalizing Educational Opportunity," Education for Victory, Vol. 3, No. 12, pp. 25-30. Quoted by Davenport and Remmers, School and Society, Vol. 61, No. 1586, pp. 333-335.

[36]Edward L. Thorndike, "Sectional Variations in Welfare, Especially of the White Population," Journal of Sociometry, Vol. VII, Nov., 1944, p. 384.

living, but, when compared with the .936 correlation between education and the standard of living it is not so high.

The correlation between the combined wealth index and the standard of living is .685. This is not quite as high as the relationship between the standard of living and industrial wealth by itself, but it is higher than one might expect from the low correlations existing between standard of living and either of the other wealth factors.

## The Standard of Living and Health

There is a high positive correlation between the standard of living of the people of a state and their physical health and a small negative correlation between the standard of living and their mental health. With physical health and care the correlation is .824, which is definitely significant. With mental health and care the correlation is —.297. This is not very significant and would not be worth considering if it were not for the fact that the sample is the entire population.

When the standard of living is correlated with the physical health index which omits care and accident factors the correlation is found to be .764. The relationship between standard of living and the per cent of certain draft registrants who were classified as IV-F (reversed) is .649.

When correlated with a mental health index made up of factors 1, 2, 5, 6, and 7 of the complete mental health index, the correlation is found to be —.502. If only the number of Army rejections for mental disease is considered as the measure of mental health, the correlation is —.047. These two figures may indicate that where people are better educated and enjoy a higher standard of living they see the need for placing more persons in institutions for proper care, but the small negative correlation between standard of living and Army rejections for mental disease,

even after all possible allowances are made, shows that there is practically no relationship between standard of living and mental health as determined by Army rejections.

## The Standard of Living and Crime

It is often claimed that crime may be reduced by improving the standard of living of the people. If this is true, there should be a high positive correlation between the index for standard of living and that of crime since all crime data are reversed. The actual correlation found is .521. This is a significant relationship and indicates that the amount of crime is greater where living standards are lower. But this correlation is not as high as that existing between education and the absence of crime, which is .646. Neither is it as high as the negative correlation of —.587 existing between absence of crime and the per cent Negro. Thus, while the standard of living and absence of crime are related, the absence of crime is not so closely related to the standard of living as it is to education, human welfare, or religion.

## The Standard of Living and Other Factors

It is evident from a comparison and study of the standard of living index and the index for religion that there is no significant relationship existing between the two. A correlation of only .076 is found here. When only the number of church members per 100 population is used as a measure of religion, the correlation rises to .284. This is still not large enough to be of any real significance.

The standard of living is related to the degree of urbanization and it is unquestionably true that urban populations live better than those of rural areas. The correlation is .793. There is also a fairly significant relationship, .481, between the standard of living and the

per cent of the population which is native white. No correlations are shown between standard of living and the total white per cent, but the correlation with the per cent Negro is high but negative, being —.728.

Table 68 shows data on the degree of urbanization, the per cent of the population which is native white, and the per cent which is Negro. Means are shown for each of these sets of data and the accompanying charts show more graphically the comparison of each of the states with the mean.

Chart 12 shows the per cent Negro in each state with those having more than the mean in red. A comparison of this chart with those for education, standard of living, and human welfare indicates at once the high negative correlation existing between these factors and the per cent Negro.

Chart 13 shows the per cent of the population which is native white with states below the mean in red. Most of the Eastern states are in red because of large foreign-born white populations. Since New York, Massachusetts, and Connecticut are classed along with Mississippi, Arkansas, Alabama, Georgia, and South Carolina, it is evident that the correlation with education or welfare is not very high.

Chart 14 shows the degree of urbanization. States below the mean are in red. It will be noticed that only a few of the most densely populated states are white. Perhaps the median would be a better breaking point. This would, at least, divide the number into more comparable size groups.

From the summary in Table 69 it may be seen that the standard of living of the people of a state is more closely related to the quality and quantity of their education than to any other factor. It is fairly

TABLE 68 — Population, Per Cent Urban, Per Cent Native White, and Per Cent Negro, United States, By States, 1940. Source: 16th Census of the U. S., Population, 1940.

| STATE | Population 1940 Census | % Urban | % Native White | % Negro |
|---|---|---|---|---|
| Alabama | 2,832,961 | 30.2 | 64.8 | 34.7 |
| Arizona | 499,261 | 34.8 | 78.1 | 3.0 |
| Arkansas | 1,949,387 | 22.2 | 74.8 | 24.8 |
| California | 6,907,387 | 71.0 | 82.9 | 1.8 |
| Colorado | 1,123,296 | 52.6 | 92.2 | 1.1 |
| Connecticut | 1,709,242 | 67.8 | 78.8 | 1.9 |
| Delaware | 266,505 | 52.3 | 80.9 | 13.5 |
| Florida | 1,897,414 | 55.1 | 69.2 | 27.1 |
| Georgia | 3,123,723 | 34.4 | 64.9 | 34.7 |
| Idaho | 524,873 | 33.7 | 94.3 | 0.1 |
| Illinois | 7,897,241 | 73.6 | 82.7 | 4.9 |
| Indiana | 3,427,796 | 55.1 | 93.2 | 3.6 |
| Iowa | 2,538,268 | 42.7 | 94.7 | 0.7 |
| Kansas | 1,801,028 | 41.9 | 93.5 | 3.6 |
| Kentucky | 2,845,627 | 29.8 | 91.9 | 7.5 |
| Louisiana | 2,363,880 | 41.5 | 62.8 | 35.9 |
| Maine | 847,226 | 40.5 | 89.8 | 0.2 |
| Maryland | 1,821,244 | 59.3 | 78.9 | 16.6 |
| Massachusetts | 4,316,721 | 89.4 | 79.0 | 1.3 |
| Michigan | 5,256,106 | 65.7 | 82.9 | 4.0 |
| Minnesota | 2,792,300 | 49.8 | 88.6 | 0.4 |
| Mississippi | 2,183,796 | 19.8 | 50.4 | 49.2 |
| Missouri | 3,784,664 | 51.8 | 90.5 | 6.5 |
| Montana | 559,456 | 37.8 | 86.7 | 0.2 |
| Nebraska | 1,315,834 | 39.1 | 92.4 | 1.1 |
| Nevada | 110,247 | 39.3 | 84.7 | 0.6 |
| New Hampshire | 491,524 | 57.6 | 86.0 | 0.1 |
| New Jersey | 4,160,165 | 81.6 | 77.8 | 5.5 |
| New Mexico | 531,818 | 33.2 | 89.7 | 0.9 |
| New York | 13,479,142 | 82.8 | 74.4 | 4.2 |
| North Carolina | 3,571,623 | 27.3 | 71.6 | 27.5 |
| North Dakota | 641,935 | 20.6 | 86.8 | ... |
| Ohio | 6,907,612 | 66.8 | 87.5 | 4.9 |
| Oklahoma | 2,336,434 | 37.6 | 89.2 | 7.2 |
| Oregon | 1,089,684 | 48.8 | 90.7 | 0.2 |
| Pennsylvania | 9,900,180 | 66.5 | 85.4 | 4.7 |
| Rhode Island | 713,346 | 91.6 | 79.1 | 1.5 |
| South Carolina | 1,899,804 | 24.5 | 56.8 | 42.9 |
| South Dakota | 642,961 | 24.6 | 89.4 | 0.1 |
| Tennessee | 2,915,841 | 35.2 | 82.2 | 17.4 |
| Texas | 6,414,824 | 45.4 | 81.9 | 14.4 |
| Utah | 550,310 | 55.5 | 92.8 | 0.2 |
| Vermont | 359,231 | 34.3 | 91.0 | 0.1 |
| Virginia | 2,677,773 | 35.3 | 74.4 | 24.7 |
| Washington | 1,736,191 | 53.1 | 86.1 | 0.4 |
| West Virginia | 1,901,974 | 28.1 | 91.6 | 6.2 |
| Wisconsin | 3,137,587 | 53.5 | 90.0 | 0.4 |
| Wyoming | 250,742 | 37.3 | 91.7 | 0.4 |
| Means | | 56.5 | 81.1 | 9.23 |

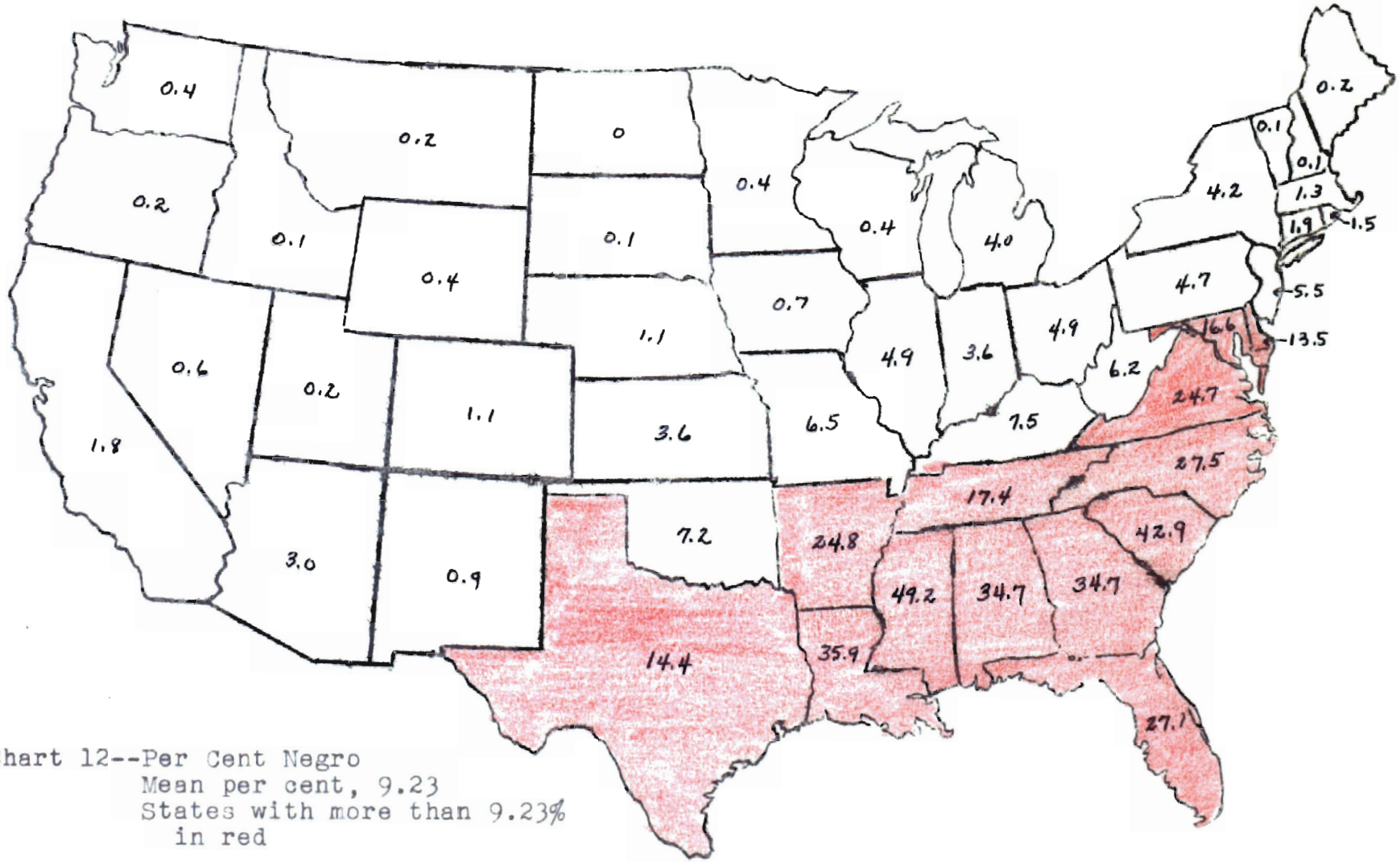


Chart 12--Per Cent Negro
Mean per cent, 9.23
States with more than 9.23%
in red

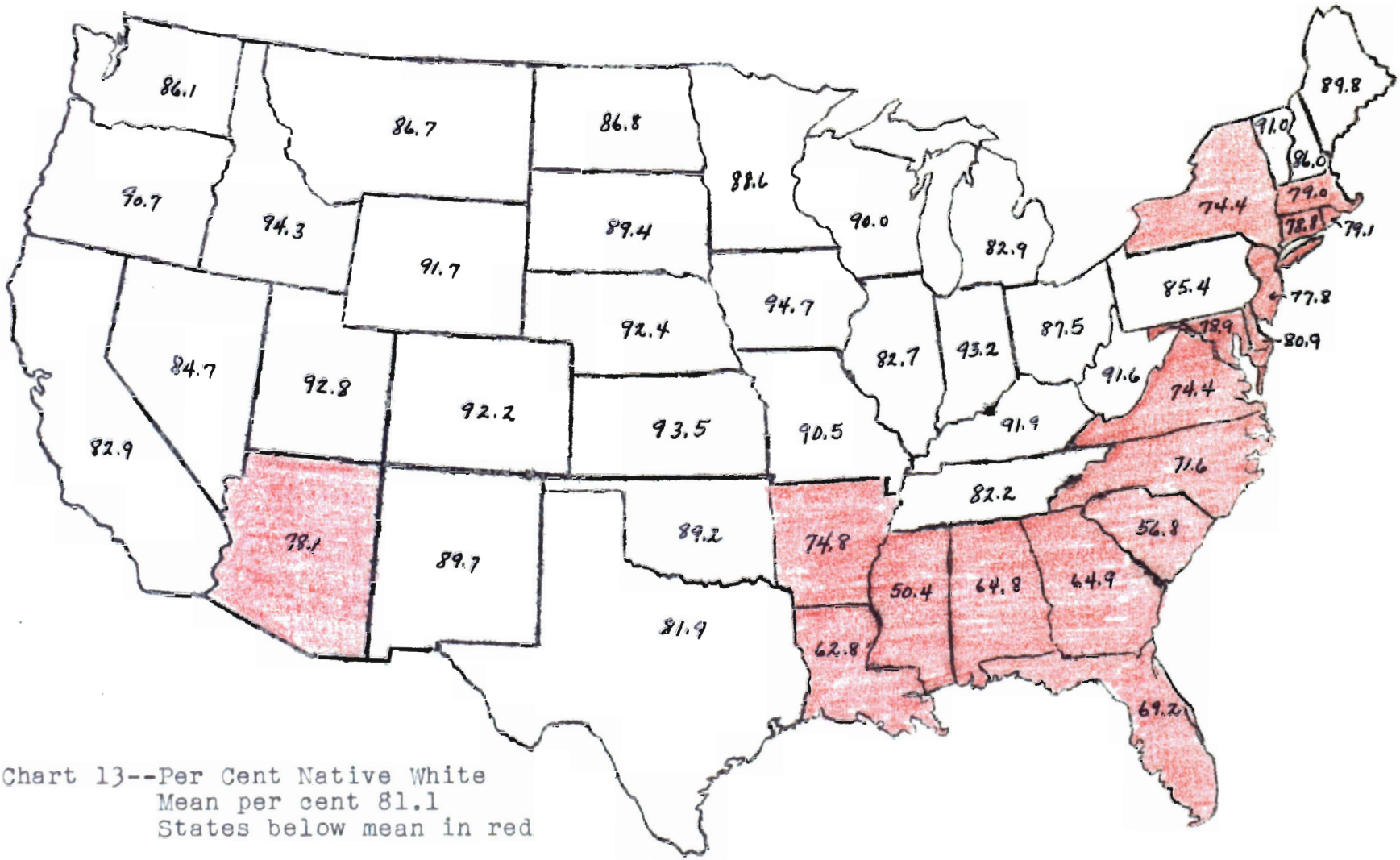


Chart 13--Per Cent Native White
Mean per cent 81.1
States below mean in red

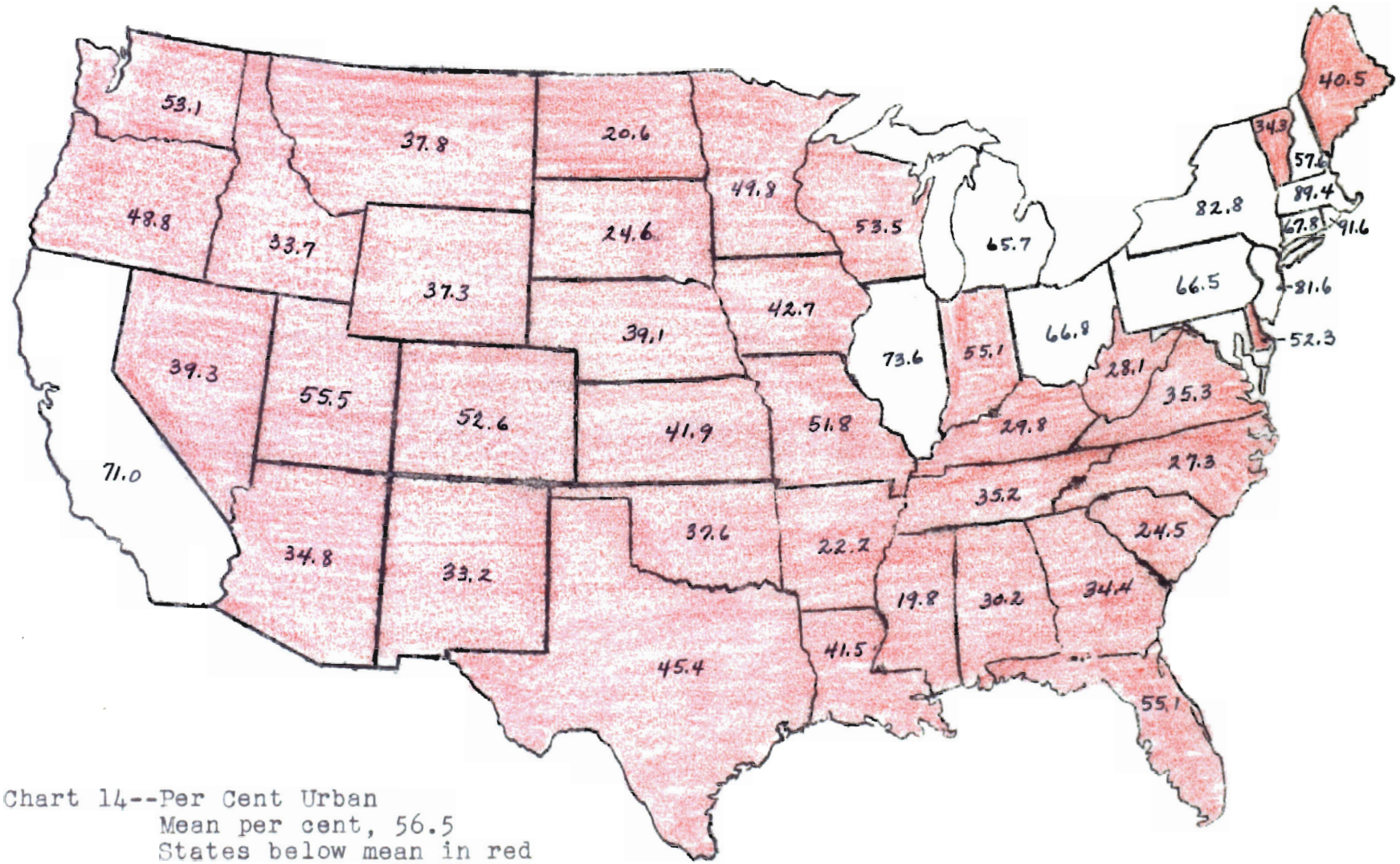


Chart 14--Per Cent Urban
Mean per cent, 56.5
States below mean in red

closely related to their physical health, industrial wealth, combined wealth, absence of crime, the per cent urban, and the per cent classified as IV-F's (reversed). It is not closely related to agricultural wealth, natural resource wealth, or religion, and there is a negative relationship with all indices of mental health and with the per cent Negro.

May it be concluded that because the standard of living is more closely related to education than to anything else considered, there is surely some amount of causal interaction between these two? Is it not logical to assume that education tends to improve the standard of living, and that in turn to improve education?

TABLE 69

Summary of Correlations Between the Standard of Living Index and Other Index Numbers

| Index Numbers Correlated | Correlation |
|---|---|
| Standard of Living and Education | .936 |
| Standard of Living and Physical Health and Care | .824 |
| Standard of Living and Mental Health and Care | —.297 |
| Standard of Living and Agricultural Wealth | .077 |
| Standard of Living and Industrial Wealth | .695 |
| Standard of Living and Natural Resources | .047 |
| Standard of Living and Combined Wealth | .685 |
| Standard of Living and Absence of Crime | .521 |
| Standard of Living and Religion | .076 |
| Standard of Living and Per Cent Urban | .793 |
| Standard of Living and Per Cent Native White | .481 |
| Standard of Living and Per Cent Negro | —.728 |
| Standard of Living and Army Rejections, Mental Disease (reversed) | —.047 |
| Standard of Living and Per Cent IV-F's (reversed) | .649 |
| Standard of Living and Church Membership | .284 |
| Standard of Living and Physical Health (First 8 factors) | .764 |
| Standard of Living and Mental Health (Factors 1,2,5,6,7) | —.502 |

# CHAPTER IX

## CORRELATIONS BETWEEN HUMAN WELFARE AND OTHER SCORES

This chapter shows the correlations between the physical health and care index and the other index numbers, the correlations between the mental health and care index and other index numbers, and the correlations between the human welfare index and the other scores.

The human welfare index number for each state is the average T score on the 31 factors included in the standard of living, the physical health and care, and the mental health and care scores. This is equivalent to a weighted average of the index numbers for these three items with respective weights of 13, 11, and 7, the number of factors in each, except in the case of three states for which certain mental health data are not available.

### Physical Health and Care and Other Scores

The physical health and care of the people of each of the states is more closely related to the quality and quantity of education provided in their states than it is to any other index obtained in this study. The correlation between these two indexes is .893. This may be compared with a correlation of .824 between physical health and the standard of living. Since the correlation with education is higher than with any other index, even higher than with the standard of living, it seems logical that the physical health of the people may be determined to a significant extent by their education.

The physical health and care of the people of each state is not positively related to their mental health and care. The correlation between these two indexes, both including "care" factors, is —.228. The correlation between physical health and mental health, omitting the

"care" factors in each is —.323. Thus it seems that the care of patients is positively related but the mental health as determined by patients in institutions is negatively correlated with both education and physical health.

The relationship between combined wealth and physical health is .479. This is high enough to be significant but probably does not indicate as much causal relationship as one might expect would exist. The correlation between physical health and care and the per cent of the population in urban communities is .596, indicating that people in cities are significantly healthier and better cared for. This may be due to the fact that education and the standard of living are both better in cities than in rural areas.

Physical health and care are also better where there is a large native white population as compared with a large per cent of Negroes. The correlation with the per cent native white is .563 — greater than the correlation with combined wealth and almost as great as the correlation with the per cent urban. The correlation between the per cent Negro and physical health and care is —.749. This poor health record of Negroes is due to a number of factors. A majority of the Negroes in the United States live in the Southeastern and South Central states. They also have a lower standard of living than that enjoyed in other states. Poor health may be attributable to lack of education, poor and unsanitary living conditions, poorly balanced and inadequate diet, climate, and topography (swamps, etc.) as well as a possible difference between Negro and white people in resistance to disease. However, it is known that syphilis and other social diseases are much more prevalent among Negroes than among whites. This may be due to lack of medical care or to an actual difference in morality.

## Mental Health and Care and Other Factors

The mental health and care index found in this study is negatively correlated with every score except the per cent of the population which is Negro, and the per cent Negro is negatively correlated with everything except mental health and care.

In no case is the correlation between mental health and care and any other factor large enough to be of real significance. The correlation with education is —.160 and the correlation with the standard of living is —.297. When the "care" factors are eliminated, the correlation between mental health and education is increased (negatively) to —.375 while the correlation with the standard of living is —.502.

The correlation between mental health and care and combined wealth is also negative and of little significance, —.173. The correlation with the per cent urban is —.269, indicating that urban populations send more persons to mental institutions than do rural areas.

In regard to race, the correlation between mental health and care and the per cent native white is —.025 which is practically no correlation at all. As a matter of fact, this is the lowest correlation found except for one, the correlation between education and Army rejections for mental disease (reversed). The correlation between per cent Negro and mental health and care is the only positive correlation and it is only .125. It is quite likely that this correlation is due to the fact that most Negroes live in rural areas with poor educational systems and low living standards where only the most pronounced mental cases are institutionalized rather than to any real difference between the races.

Religion is believed by many to contribute to mental and emotional balance. If this is true, the relationship between mental health and

church membership per 100 population should be positive. If religion does not promote emotional and mental stability, there should either be no correlation or the correlation should be negative. The correlation found between church membership and factors 1, 2, 5, 6, and 7 of the mental health index is —.193. When Army rejections for mental disease is correlated with religion, the figure obtained is —.307. These correlations indicate that mental health is not positively related to religion and religion does not contribute to mental stability. Neither figure is large enough to be of real significance, however.

## Human Welfare and Other Factors

Human welfare is more closely related to education than to any other index. This relationship was discussed in Chapter VII. The second highest correlation which may be of a causal nature is the relationship between human welfare and the per cent urban, .736. The correlation between the human welfare index and the per cent IV-F's (reversed) is .745; however, the per cent of IV-F's is included as one of the 31 factors in the human welfare index.

The correlation between human welfare and the per cent Negro is —.773, while the correlation of human welfare with the per cent native white is .548.

The only one of the three sources of wealth which is significantly related to human welfare is industrial wealth. Agricultural wealth and natural resource wealth have practically no relationship to human welfare. Industrial wealth and human welfare, however, are related, the correlation being .638. This is almost exactly the same as the correlation with combined wealth which is .630.

The correlation with absence of crime is .664. This may be compared with the correlation of .608 between religion and the absence of crime and .646 between education and the absence of crime.

Although religion and human welfare are both fairly closely related to the absence of crime, they are not significantly related to each other. The correlation with religion is only .211. This is far less than the correlation with education, industrial wealth, combined wealth, per cent urban, or per cent native white.

Table 70 is a summary of the correlations between each of the index numbers studied and physical health and care, mental health and care, and human welfare.

TABLE 70

Summary of Correlations Between Physical Health and Care, Mental Health and Care, Human Welfare, and Other Factors

| Other Factor | Correlation with | | |
|---|---|---|---|
| | Physical Health | Mental Health | Human Welfare |
| Education | .893 | —.160 | .969 |
| Standard of Living | .824 | —.297 | Included |
| Physical Health and Care | ——— | —.228 | Included |
| Mental Health and Care | —.228 | ——— | Included |
| Human Welfare | Included | Included | ——— |
| Agricultural Wealth | ——— | ——— | .045 |
| Industrial Wealth | ——— | ——— | .638 |
| Natural Resources | ——— | ——— | —.033 |
| Combined Wealth | .479 | —.173 | .630 |
| Absence of Crime | ——— | ——— | .664 |
| Religion | ——— | ——— | .211 |
| Per Cent Urban | .596 | —.269 | .736 |
| Per Cent Native White | .563 | —.025 | .548 |
| Per Cent Negro | —.749 | .125 | —.773 |
| Army Rejections, Mental Disease (reversed) | ——— | ——— | Included |
| Per Cent IV-F's (reversed) | ——— | ——— | .745 |
| Church Membership | ——— | —.193(b) | ——— |
| Physical Health (First 8 factors) | ——— | —.323(b) | Included |
| Mental Health (Factors 1, 2, 5, 6, 7) | —.323(a) | ——— | Included |

(a) First 8 factors of Physical health index
(b) Factors 1, 2, 5, 6, 7 of Mental health index

# CHAPTER X

## OTHER CORRELATIONS

The correlations shown in the two preceding chapters include all of the important relationships studied. There are, however, a few interesting figures which have not been shown and a number of classifications and comparisons which may be made to shed further light on the relationship between education and human welfare.

### Agricultural Wealth

Agricultural wealth is not closely related to education, but neither is it related to the standard of living or to human welfare. As a matter of fact, it is more closely related to education than to either of the other scores, the correlations being .156, .077, and .045, respectively.

### Industrial Wealth

Per capita industrial wealth is significantly related to education, but it is more closely related to the standard of living and to human welfare than to education. The correlations are .550 with education, .695 with standard of living, and .638 with human welfare.

### Natural Resources

From the data presented here, one must inevitably conclude that natural resource wealth contributes little to the state's education, standard of living, or human welfare. This is, of course, due to the fact that the owners do not reside in the states in which the resources are found. The owners get the wealth; the states having the forest products and the minerals get the stumps and the holes in the ground.

The correlations found are .044 between natural resources and education, .047 between natural resources and standard of living, and —.033 between natural resources and human welfare.

## Combined Wealth

Because of the influence of industrial wealth, there is a fairly significant correlation between combined wealth and education, .655; between combined wealth and standard of living, .685; and between combined wealth and human welfare, .630. There is less correlation between combined wealth and physical health, .479; and a small negative correlation, —.173, with mental health. There is a very small positive correlation between combined wealth and absence of crime, .116, while the correlation with religion is exactly the same as that with mental health.

## Absence of Crime

Since all data on crimes were reversed when deviations from the mean were found, the "crime" index actually is an index of the "absence of crime." This index is significantly related to education, standard of living, human welfare, and religion, but is not significantly related to combined wealth.

The correlations are .646, .521, .664, .608, and .116, respectively. It thus seems that education is more closely related to the absence of crime than any factor except human welfare. It is reasonable to expect that there may be a causal connection and that expenditures for education may decrease the amount which must be spent for crime.

## Religion

The religion index is significantly related only to the absence of crime. There is a small positive correlation with education, the standard of living, and human welfare, and a small negative correlation with combined wealth. The actual correlations are .164 with education, .076 with standard of living, .211 with human welfare, and —.173 with combined wealth.

When church membership alone is considered the correlations are increased to .278 with education, .284 with standard of living, and .610 with absence of crime.

### Per Cent Urban

The per cent of population living in urban communities is significantly related to education, standard of living, physical health and care, and human welfare. The correlations are .645, .793, .596, and .736, respectively. The relationship with mental health and care is —.269.

### Race (White or Colored)

The per cent native white is positively related to education, standard of living, physical health, human welfare, combined wealth and absence of crime. It is negatively correlated with mental health and care, but the correlation is so small that it is not significant.

The per cent Negro shows a high negative correlation with education, standard of living, physical health, human welfare, combined wealth, and absence of crime. There is a positive correlation with mental health. The extent to which these differences are due to race is not known but it is evident that the fact that the largest Negro populations are found in states which would probably rank low on education, health, and welfare even if they contained no Negroes may largely explain the low relative position of Negroes.

### Army Rejections for Mental Disease

Because of the objections which may be raised to the mental health and care index, Army rejections for mental disease may be taken as a measure of mental health for comparison with the mental health and care index used. This comparison may be summarized briefly:

| Other Factor | Army Rejections | Men. Health Fac. 1,2,5,6,7 | Mental Health & Care Index |
|---|---|---|---|
| Education | .013 | —.375 | —.160 |
| Standard of Living | —.047 | —.502 | —.297 |
| Religion | —.307 | —.193* | |

* Church membership only.

It is evident that the three mental health indexes are not in close agreement. Education is most closely related to the unbiased Army rejections where rejection policies were fairly uniform for all states. It is next most closely related or rather less negatively related to the index which includes care, and the figures are farthest apart when the number of patients in hospitals becomes the major consideration. This would lead one to believe that there is no relationship whatever between mental health and education, but "care" is better in better educated states.

# CHAPTER XI

## SUMMARY AND CONCLUSIONS

To determine to what extent the education of the people of a state is related to their well-being, it was necessary to set up an education index for each of the 48 states. This index was based on 12 factors believed to indicate the quality or the quantity of education in each state. The index was patterned after those used by Ayres, Bagley, and Thorndike. Original data were obtained from the Statistical Summary of Education, 1939-40; The United States Census; and other sources. The original data were used to obtain T scores on each of the 12 factors and the average of T scores on the 12 factors was used as the education index for each state.

In a like manner, index numbers were obtained for each state for:

Standard of Living--13 factors.

Physical Health and Care--11 factors.

Mental Health and Care--7 factors.

Human Welfare--Combined scores for Standard of Living, Physical Health and Care, and Mental Health and Care.

Agricultural Wealth--Per capita value of agricultural products sold, traded, or used.

Industrial Wealth--Per capita value added by manufacture.

Natural Resource Wealth--Per capita value of minerals and lumber produced.

Combined Wealth--Combined per capita value of agricultural products, industrial wealth, and natural resources.

Absence of Crime--8 factors.

Religion--2 factors.

In addition to the 11 index numbers listed above, scores were obtained for the per cent urban, the per cent native white, per cent Negro, Army rejections for mental disease, per cent of IV-F's, church

membership, and physical and mental health omitting the "care" factors. All of these index numbers and percentage are given in detail in Chapters II, III, IV, V, VI, and VII.

These index numbers and percentages are summarized in Tables 71 and 72. In order to place these scores on only two pages, the following abbreviations are used: Table 71--E.I., Education Index: S of L, Standard of Living; PH & C, Physical Health and Care; MH & C, Mental Health and Care; H. W., Human Welfare; A. W., Agricultural Wealth; I. W., Industrial Wealth; N. R., Natural Resources: C. W., Combined Wealth; A of C, Absence of Crime; and Rel., Religion. Table 72--% Urban; % N.W., % Native White; % Negro; A.R.M.D., Army Rejections for Mental Disease (reversed); % IV-F's (reversed); Ch. M., Church Membership; P. H., Physical Health (First 8 factors); M. H., Mental Health (Factors 1, 2, 5, 6, and 7).

Only two states rank above the mean in as many as 10 of the 11 factors on Table 71. These two, Nebraska and Wisconsin, rank above the mean on everything except natural resource wealth.

Seven states rank above the mean on 9 of the 11 factors. A tabulation of the factors on which they were low shows that natural resources occurred 5 times; agricultural wealth, 4 times; industrial wealth, 3 times, combined wealth, 1 time; and religion, 1 time.

Seven states rank above the mean on 8 of the 11 factors. When the factors on which they are low are tabulated, it is found that agricultural wealth occurred 5 times; mental health and care, 4 times; natural resources, 3 times; absence of crime, 3 times; religion, 3 times, industrial wealth, 2 times; and physical health and care, 1 time.

TABLE 71—Summary of Eleven Major Index Numbers Used in Correlations

| S T A T E | E.I. | S of L | PH&C | MH&C | H.W. | A.W. | I.W. | N.R. | C.W. | Ad C | Rel. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 34.6 | 33.8 | 41.4 | 52.4 | 40.7 | 42.4 | 43.6 | 47.4 | 37.9 | 38.1 | 52.2 |
| Arizona | 43.8 | 47.4 | 42.5 | 56.8 | 47.2 | 50.8 | 41.3 | 65.2 | 53.2 | 38.4 | 41.3 |
| Arkansas | 36.0 | 33.2 | 41.9 | 50.9 | 40.3 | 50.3 | 38.4 | 47.2 | 36.4 | 42.9 | 43.0 |
| California | 58.6 | 63.8 | 55.1 | 45.0 | 56.5 | 47.4 | 51.4 | 51.5 | 51.2 | 46.3 | 36.4 |
| Colorado | 53.9 | 53.3 | 50.1 | 48.6 | 51.1 | 53.3 | 43.0 | 49.2 | 44.1 | 48.8 | 42.9 |
| Connecticut | 56.6 | 62.0 | 57.8 | 47.8 | 57.3 | 39.5 | 75.4 | 41.8 | 64.0 | 56.2 | 62.9 |
| Delaware | 56.2 | 57.4 | 50.8 | 47.0 | 52.7 | 47.4 | 55.6 | 42.1 | 48.3 | 48.3 | 53.1 |
| Florida | 46.5 | 48.2 | 42.8 | 57.1 | 48.3 | 43.3 | 41.1 | 43.9 | 33.1 | 39.7 | 43.6 |
| Georgia | 36.4 | 36.3 | 40.6 | 50.6 | 41.1 | 44.6 | 44.0 | 44.7 | 37.2 | 36.3 | 50.1 |
| Idaho | 53.0 | 50.1 | 49.9 | 55.8 | 51.3 | 69.0 | 41.0 | 58.7 | 57.1 | 55.1 | 42.9 |
| Illinois | 57.0 | 58.1 | 54.5 | 47.1 | 54.3 | 45.4 | 62.8 | 46.2 | 57.6 | 53.7 | 50.4 |
| Indiana | 52.1 | 53.6 | 50.7 | 51.3 | 52.1 | 48.4 | 63.2 | 43.9 | 57.8 | 50.1 | 51.6 |
| Iowa | 54.2 | 53.2 | 55.7 | 53.0 | 54.0 | 78.4 | 44.6 | 42.8 | 53.3 | 58.7 | 53.7 |
| Kansas | 54.1 | 51.6 | 54.1 | 55.3 | 53.3 | 59.2 | 41.5 | 51.1 | 46.9 | 55.0 | 54.0 |
| Kentucky | 34.6 | 38.7 | 43.3 | 43.7 | 41.4 | 46.2 | 41.5 | 48.2 | 38.3 | 39.6 | 48.6 |
| Louisiana | 37.6 | 38.7 | 42.8 | 51.7 | 43.1 | 43.6 | 43.4 | 54.1 | 43.3 | 50.5 | 50.0 |
| Maine | 52.3 | 52.3 | 51.9 | 51.1 | 51.9 | 45.9 | 52.9 | 44.0 | 46.2 | 56.2 | 49.1 |
| Maryland | 52.5 | 54.7 | 51.5 | 44.8 | 51.3 | 42.0 | 58.2 | 42.7 | 48.1 | 45.5 | 50.7 |
| Massachusetts | 57.4 | 61.0 | 58.5 | 44.4 | 56.4 | 37.1 | 60.8 | 41.8 | 48.2 | 59.2 | 61.3 |
| Michigan | 55.4 | 57.6 | 54.0 | 49.3 | 54.4 | 41.9 | 69.2 | 45.0 | 61.3 | 51.0 | 44.6 |
| Minnesota | 54.9 | 53.4 | 57.1 | 49.5 | 53.8 | 58.6 | 46.1 | 47.9 | 48.7 | 58.9 | 56.5 |
| Mississippi | 30.4 | 29.9 | 38.6 | 53.4 | 37.8 | 48.5 | 36.8 | 45.2 | 32.5 | 45.0 | 48.8 |
| Missouri | 51.2 | 49.7 | 49.5 | 50.7 | 49.9 | 47.8 | 50.5 | 43.5 | 44.4 | 53.6 | 48.1 |
| Montana | 56.2 | 52.3 | 50.0 | 53.1 | 51.6 | 66.8 | 42.1 | 63.3 | 60.5 | 52.1 | 38.7 |
| Nebraska | 54.5 | 51.1 | 55.0 | 51.4 | 52.6 | 66.4 | 55.8 | 42.0 | 57.9 | 57.3 | 56.4 |
| Nevada | 56.1 | 59.8 | 47.6 | 46.1 | 52.4 | 56.0 | 54.0 | 93.3 | 89.8 | 30.0 | 33.2 |
| New Hampshire | 54.1 | 56.2 | 53.9 | 46.5 | 53.2 | 43.3 | 56.3 | 44.6 | 48.9 | 62.5 | 54.8 |
| New Jersey | 58.4 | 60.6 | 55.7 | 50.1 | 56.5 | 37.7 | 71.6 | 42.5 | 59.8 | 56.4 | 55.0 |
| New Mexico | 40.3 | 38.7 | 39.9 | 49.3 | 41.5 | 51.9 | 36.6 | 62.5 | 47.0 | 47.6 | 45.9 |
| New York | 59.0 | 61.4 | 55.2 | 45.4 | 55.6 | 38.0 | 59.7 | 42.3 | 47.9 | 59.1 | 55.1 |
| North Carolina | 41.3 | 38.6 | 46.4 | 48.8 | 43.7 | 48.6 | 50.2 | 44.1 | 45.1 | 40.9 | 51.1 |
| North Dakota | 52.1 | 42.7 | 55.2 | 52.6 | 49.4 | 70.0 | 36.6 | 42.2 | 40.7 | 58.4 | 59.1 |
| Ohio | 56.8 | 57.9 | 51.7 | 50.8 | 54.1 | 42.5 | 65.7 | 44.1 | 57.5 | 53.5 | 52.7 |
| Oklahoma | 46.4 | 44.5 | 47.3 | 50.0 | 46.7 | 49.1 | 39.3 | 55.0 | 42.6 | 48.2 | 40.3 |
| Oregon | 55.6 | 57.1 | 54.4 | 49.1 | 54.3 | 53.7 | 50.7 | 66.4 | 65.0 | 47.1 | 35.6 |
| Pennsylvania | 54.2 | 56.0 | 53.3 | 52.0 | 54.1 | 38.7 | 60.1 | 49.9 | 54.3 | 57.4 | 62.2 |
| Rhode Island | 53.4 | 58.3 | 54.7 | 48.1 | 54.7 | 36.2 | 68.3 | 41.7 | 55.1 | 59.2 | 62.5 |
| South Carolina | 35.7 | 35.2 | 37.5 | 49.7 | 39.3 | 45.6 | 43.9 | 44.1 | 37.2 | 44.6 | 51.3 |
| South Dakota | 54.5 | 45.6 | 56.3 | 54.6 | 51.4 | 67.6 | 38.0 | 46.4 | 44.1 | 57.3 | 73.6 |
| Tennessee | 40.0 | 39.2 | 45.2 | 52.3 | 44.3 | 44.7 | 45.9 | 44.4 | 39.0 | 43.2 | 46.9 |
| Texas | 46.5 | 45.2 | 42.7 | 56.5 | 46.9 | 49.8 | 42.0 | 57.2 | 47.4 | 45.8 | 44.5 |
| Utah | 55.9 | 54.5 | 52.3 | 57.4 | 54.4 | 49.8 | 42.9 | 66.6 | 55.4 | 49.3 | 64.8 |
| Vermont | 52.4 | 54.1 | 53.6 | 41.5 | 51.1 | 55.3 | 49.4 | 45.7 | 48.8 | 60.1 | 56.8 |
| Virginia | 44.5 | 43.7 | 46.6 | 44.3 | 44.9 | 45.2 | 49.1 | 45.7 | 43.4 | 37.8 | 51.2 |
| Washington | 54.1 | 58.3 | 55.8 | 50.2 | 55.6 | 49.0 | 51.5 | 54.9 | 54.7 | 48.4 | 34.8 |
| West Virginia | 47.7 | 44.9 | 46.6 | 49.7 | 46.6 | 39.6 | 46.2 | 65.6 | 52.9 | 49.4 | 41.8 |
| Wisconsin | 56.4 | 54.2 | 56.7 | 51.9 | 54.6 | 51.7 | 56.8 | 42.6 | 52.1 | 58.9 | 58.3 |
| Wyoming | 54.2 | 52.7 | 51.2 | 44.5 | 50.3 | 73.4 | 41.3 | 65.1 | 64.3 | 47.6 | 38.2 |

TABLE 72--Summary of Minor Index Numbers and Percentages Used in Correlations

| S T A T E | % Urban | % N.W. | % Negro | ARMD | %IV-F's | Ch.M. | P.H. | M.H. |
|---|---|---|---|---|---|---|---|---|
| Alabama | 30.2 | 69.8 | 34.7 | 56.9 | 35.3 | 49.8 | 41.3 | 53.8 |
| Arizona | 34.8 | 78.1 | 3.0 | 64.9 | 49.3 | 43.4 | 38.8 | 56.4 |
| Arkansas | 22.2 | 74.8 | 24.8 | 34.6 | 32.1 | 40.0 | 40.4 | 51.3 |
| California | 71.0 | 82.9 | 1.8 | 51.7 | 58.5 | 38.8 | 53.8 | 45.0 |
| Colorado | 52.6 | 92.2 | 1.1 | 49.3 | 51.2 | 42.1 | 48.0 | 45.4 |
| Connecticut | 67.8 | 78.8 | 1.9 | 46.8 | 54.1 | 68.9 | 58.3 | 43.7 |
| Delaware | 52.3 | 80.9 | 13.5 | 43.2 | 48.1 | 58.4 | 50.5 | 45.9 |
| Florida | 55.1 | 69.2 | 27.1 | 51.3 | 34.3 | 40.0 | 40.7 | 56.8 |
| Georgia | 34.4 | 64.9 | 34.7 | 47.3 | 34.1 | 50.1 | 38.1 | 55.5 |
| Idaho | 33.7 | 94.3 | 0.1 | 57.1 | 66.7 | 44.3 | 52.9 | 56.6 |
| Illinois | 73.6 | 82.7 | 4.9 | 47.3 | 54.6 | 54.1 | 54.5 | 44.5 |
| Indiana | 55.1 | 93.2 | 3.6 | 45.4 | 50.5 | 49.1 | 52.8 | 51.1 |
| Iowa | 42.7 | 94.7 | 0.7 | 61.7 | 59.7 | 52.1 | 57.9 | 55.2 |
| Kansas | 41.9 | 93.5 | 3.6 | 61.2 | 62.1 | 48.2 | 55.4 | 57.7 |
| Kentucky | 29.8 | 91.9 | 7.5 | 39.7 | 36.7 | 42.5 | 44.2 | 48.6 |
| Louisiana | 41.5 | 62.8 | 35.9 | 57.5 | 38.6 | 56.9 | 38.6 | 54.5 |
| Maine | 40.5 | 89.8 | 0.2 | 43.9 | 52.9 | 46.9 | 53.2 | 49.5 |
| Maryland | 59.3 | 78.9 | 16.6 | 42.4 | 46.9 | 50.8 | 49.8 | 42.6 |
| Massachusetts | 89.4 | 79.0 | 1.3 | 37.7 | 50.7 | 67.9 | 56.6 | 39.6 |
| Michigan | 65.7 | 82.9 | 4.0 | 45.4 | 51.0 | 44.3 | 55.1 | 46.4 |
| Minnesota | 49.8 | 88.6 | 0.4 | 47.7 | 55.8 | 57.2 | 58.1 | 49.1 |
| Mississippi | 19.8 | 50.4 | 49.2 | 60.5 | 46.6 | 45.9 | 37.8 | 54.0 |
| Missouri | 51.8 | 90.5 | 6.5 | 50.1 | 46.1 | 46.8 | 48.2 | 48.7 |
| Montana | 37.8 | 86.7 | 0.2 | 61.3 | 58.9 | 39.4 | 50.9 | 53.8 |
| Nebraska | 39.1 | 92.4 | 1.1 | 51.4 | 59.7 | 52.4 | 55.9 | 50.2 |
| Nevada | 39.3 | 84.7 | 0.6 | 61.2 | 59.9 | 36.5 | 48.6 | 45.6 |
| New Hampshire | 57.6 | 86.0 | 0.1 | 30.4 | 49.5 | 57.2 | 54.8 | 41.7 |
| New Jersey | 81.6 | 77.8 | 5.5 | 50.6 | 56.5 | 64.6 | 55.9 | 46.7 |
| New Mexico | 33.2 | 89.7 | 0.9 | 56.0 | 48.1 | 54.9 | 38.3 | 58.6 |
| New York | 82.8 | 74.4 | 4.2 | 47.8 | 49.3 | 61.3 | 52.5 | 41.1 |
| North Carolina | 27.3 | 71.6 | 27.5 | 46.5 | 31.4 | 45.8 | 47.0 | 50.2 |
| North Dakota | 20.6 | 86.8 | ... | 47.2 | 59.4 | 57.9 | 57.3 | 53.1 |
| Ohio | 66.8 | 87.5 | 4.9 | 53.9 | 52.4 | 51.9 | 53.3 | 53.4 |
| Oklahoma | 37.6 | 89.2 | 7.2 | 42.5 | 45.7 | 36.3 | 47.3 | 51.5 |
| Oregon | 48.8 | 90.7 | 0.2 | 64.8 | 62.6 | 34.3 | 56.1 | 51.6 |
| Pennsylvania | 66.5 | 85.4 | 4.7 | 56.1 | 53.4 | 62.8 | 53.8 | 53.5 |
| Rhode Island | 91.6 | 79.1 | 1.5 | 38.4 | 51.7 | 73.3 | 53.7 | 45.1 |
| South Carolina | 24.5 | 56.8 | 42.9 | 40.6 | 26.3 | 47.3 | 34.5 | 49.8 |
| South Dakota | 24.6 | 89.4 | 0.1 | 56.5 | 61.6 | 52.6 | 58.5 | 57.3 |
| Tennessee | 35.2 | 82.2 | 17.4 | 57.0 | 40.8 | 42.0 | 45.1 | 55.5 |
| Texas | 45.4 | 81.9 | 14.4 | 56.7 | 45.7 | 45.9 | 40.6 | 58.3 |
| Utah | 55.5 | 92.8 | 0.2 | 58.4 | 64.8 | 74.4 | 55.7 | 59.4 |
| Vermont | 34.3 | 91.0 | 0.1 | 10.0 | 45.7 | 56.1 | 54.0 | 36.5 |
| Virginia | 35.3 | 74.4 | 24.7 | 47.4 | 33.1 | 47.8 | 45.8 | 42.6 |
| Washington | 53.1 | 86.1 | 0.4 | 60.7 | 61.9 | 32.8 | 56.3 | 49.3 |
| West Virginia | 28.1 | 91.6 | 6.2 | 50.3 | 43.7 | 36.9 | 48.3 | 55.1 |
| Wisconsin | 53.5 | 90.0 | 0.4 | 48.0 | 58.5 | 59.7 | 58.4 | 48.0 |
| Wyoming | 37.3 | 91.7 | 0.4 | 62.7 | 64.8 | 38.9 | 52.1 | 43.0 |

Totals for the 16 states above show that the factors which kept them from ranking above the mean on everything were natural resources, 10 times; agricultural wealth, 9 times; industrial wealth, 5 times; mental health and care, 4 times; religion, 4 times; absence of crime, 3 times; combined wealth, 1 time; and physical health and care, 1 time.

This does not mean that a state which is poor in natural resources or agriculture cannot rank well on other desirable qualities; it means that natural resources and agricultural wealth are not necessary for a state to enjoy a high standard of living, a good educational system, or physical well-being.

It should be noted that no state which ranked above the mean on as many as eight of the index numbers ranked below the mean in education. As a matter of fact, a state which ranks above the mean in education always ranks above the mean in at least five of the index numbers; every state which ranks below the mean in education ranks below the mean in at least seven of the eleven factors. States which rank above the mean in education rank above the mean an average of 8.5 times out of 11, but states which rank below the mean on education rank above the mean only 1.9 times out of the eleven factors.

Thirty-two states rank above the mean on education and 16 rank below. Of the 32 which rank above, 29 rank above on the standard of living, 29 rank above on physical health and care, and 30 rank above on human welfare. Of the 16 which rank below the mean on education, all 16 rank below the mean on standard of living, below the mean on physical health and care, and below the mean on human welfare. But of the 32 which rank above the mean on education, only 16 rank above the mean on mental health and care, and of the 16 which rank below the mean on education, 10 rank

above the mean on mental health and care. This indicates the high correlation existing between education and the standard of living, physical health and care, and human welfare, and the lack of correlation between education and mental health and care.

A complete analysis of the number of states ranking above and below the mean on education and the rank of the same states on the other factors is shown in Table 73. The arrangement of the data in this tabulation gives a rough idea of the correlations which are found. It is evident that education is closely related to standard of living, physical health and care, and human welfare. Fairly close correlations are seen between education and industrial wealth, combined wealth, absence of crime, and religion. Little, or possibly negative, correlation is evident between education and mental health and care, agricultural wealth, and natural resources.

Only one state, Kentucky, ranks below the mean on every one of the eleven major index numbers of Table 71.

Five states rank below the mean in all factors except one. A tabulation of the single factor which keeps each of them from equalling the record of Kentucky shows that it is mental health and care for three states and religion for two.

Eight states rank below the mean on 9 of the 11 index numbers. These states rank above the mean in mental health and care 5 times; natural resources, 4 times; religion, 3 times; agricultural wealth, 2 times; and industrial wealth and combined wealth, 1 time each.

The fourteen states which rank below the mean on 9 or more of the 11 major index numbers rank above the mean on mental health and care 8 times; religion, 5 times; natural resources, 4 times; agricultural wealth, 2 times; and industrial wealth and combined wealth, 1 time each. This indicates in a general way, that mental health and care, religion, and natural resources

TABLE 73--Number of States Ranking Above and Below Mean on Education and Rank of Same States on Other Factors

| Factor | Above | Below | Total | Above | Below | Total |
|---|---|---|---|---|---|---|
| Education | 32 | — | 32 | — | 16 | 16 |
| Standard of Living | 29 | 3 | 32 | 0 | 16 | 16 |
| Physical Health and Care | 29 | 3 | 32 | 0 | 16 | 16 |
| Mental Health and Care | 16 | 16 | 32 | 10 | 6 | 16 |
| Human Welfare | 30 | 2 | 32 | 0 | 16 | 16 |
| Agricultural Wealth | 14 | 18 | 32 | 3 | 13 | 16 |
| Industrial Wealth | 21 | 11 | 32 | 1 | 15 | 16 |
| Natural Resources | 9 | 23 | 32 | 6 | 10 | 16 |
| Combined Wealth | 19 | 13 | 32 | 2 | 14 | 16 |
| Absence of Crime | 23 | 9 | 32 | 1 | 15 | 16 |
| Religion | 21 | 11 | 32 | 6 | 10 | 16 |

are least related to education, standard of living, or physical well-being.

Seventeen states rank above the mean on agricultural wealth but only 13 of these rank above the mean on human welfare. Thirty-one states rank below the mean on agricultural wealth but only 14 of these are below the mean on human welfare. Sixteen states rank below the mean on education and every one of them ranks below the mean on standard of living, physical health and care, and human welfare.

Fifteen states are above the mean for natural resources and 9 of these are above the mean on human welfare. Thirty-three are below the mean on natural resources, but 21 of these are above the mean on human welfare; of the thirty states above the mean on human welfare 17 are below the mean in agricultural wealth and 21 are below the mean in

natural resources. But, of the 30 states above the mean in human welfare, not a single one was below the mean in education.

## Summary of Correlations

Table 74 presents a cross-tabulated summary of the 64 correlations studied. Where no correlation was figured, a dash is shown in the column. The abbreviation "Incl." indicates that one of the factors is included in arriving at the index number for the other. For example, "Incl." in the "Standard of Living" column on the "Human Welfare" row means that the "Standard of Living" index is one of the three factors included in "Human Welfare."

The highest correlation in the table is that between education and human welfare. It may be seen from Column 1, "Education", that the education provided by a state is positively correlated with all factors except the per cent Negro and those involving mental health, but in many cases the amount of correlation is insignificant. Education, the standard of living, physical health and care, and human welfare are all so closely related that any generalizations about one are equally true about the others.

Agricultural wealth is not significantly related to education, standard of living, or human welfare, and natural resource wealth is even less related to these desirable factors. Industrial wealth is the only factor of wealth which is related to welfare.

The absence of crime is related to education, the standard of living, human welfare, and religion, and negatively related to the per cent Negro.

Religion is not very significantly related to any factor except absence of crime and possibly the negative relationship to mental health as measured by the Army rejections for mental disease (reversed).

TABLE 74

Summary of Correlations--Cross-Tabulated

| Index | Educa-tion | Stand. of Liv. | Phy.H. & Care | Ment.H. & Care | Human Welfare | Agric. Wealth | Indust. Wealth | Natural Res's. | Comb'd Wealth | Absence Crime | Reli-gion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Education | .... | .936 | .893 | —.160 | .969 | .156 | .550 | .044 | .655 | .646 | .164 |
| Standard of Living | .936 | .... | .824 | —.297 | Incl. | .077 | .695 | .047 | .685 | .521 | .076 |
| Physical Health and Care | .893 | .824 | .... | —.228 | Incl. | .... | .... | .... | .479 | .... | .... |
| Mental Health and Care | —.160 | —.297 | —.228 | .... | Incl. | .... | .... | .... | —.173 | .... | .... |
| Human Welfare | .969 | Incl. | Incl. | Incl. | .... | .045 | .638 | —.033 | .630 | .664 | .211 |
| Agricultural Wealth | .156 | .077 | .... | .... | .045 | .... | .... | .... | Incl. | .... | .... |
| Industrial Wealth | .550 | .695 | .... | .... | .638 | .... | .... | .... | Incl. | .... | .... |
| Natural Resources | .044 | .047 | .... | .... | —.033 | .... | .... | .... | Incl. | .... | .... |
| Combined Wealth | .655 | .685 | .479 | —.173 | .630 | Incl. | Incl. | Incl. | .... | .116 | —.173 |
| Absence of Crime | .646 | .521 | .... | .... | .664 | .... | .... | .... | .116 | .... | .608 |
| Religion | .164 | .076 | .... | .... | .211 | .... | .... | .... | —.173 | .608 | .... |
| Per Cent Urban | .645 | .793 | .596 | —.269 | .736 | .... | .... | .... | .... | .... | .... |
| Per Cent Native White | .608 | .481 | .563 | —.025 | .548 | .... | .... | .... | .244 | .448 | .... |
| Per Cent Negro | —.802 | —.728 | —.749 | .125 | —.773 | .... | .... | .... | —.606 | —.587 | .... |
| Army Rej. Mental Dis.(rev'd) | .013 | —.047 | .... | .... | Incl. | .... | .... | .... | .... | .... | —.307 |
| Per Cent IV-F's (reversed) | .... | —.649 | .... | .... | .745 | .... | .... | .... | .646 | .... | .... |
| Church Membership | .278 | .284 | .... | *—.193 | .... | .... | .... | .... | .... | .610 | .... |
| Physical Health (Factors 1-8) | .... | .764 | .... | **—.323 | Incl. | .... | .... | .... | .... | .... | .... |
| Mental Health (1,2,5,6,7) | —.375 | —.502 | **—.323 | .... | Incl. | .... | .... | .... | .... | —.248 | *—.193 |

* Church Membership and Mental Health (Factors 1,2,5,6,7).

**Physical Health and Mental Health omitting care factors in both.

Table 75 shows the 64 correlations arranged in the order of magnitude. Educators should take pride in the fact that the top three correlations are between education and human welfare, education and standard of living, and education and physical health and care. The relationship of education and these desirable factors should be compared with those existing between agricultural wealth, industrial wealth, or natural resources with human well-being.

Since the "sample" used in almost every factor in this study included the statistical "universe" the probable error or standard error of the coefficient of correlation in each case is zero or so near zero that it could not be of any importance. In other words, since every one of the 48 states was studied and the entire population of each state was considered in all except a few of the crime ratings, there could be no real measure of sampling error. However, the probable error for each coefficient of correlation is shown in Table 75.

Statisticians generally agree that when the coefficient or correlation is more than three or four times the probable error there is very little chance that the observed correlation is due to chance. Because the sample used here almost invariably includes the entire population and there can be no true sampling error, any correlation, either positive or negative, indicates that the relationship is not accidental and that it actually does exist.

While co-variation of two variables does not mean that there is a causal relationship, a high degree of correlation, one above .60 for example, certainly suggests causation. It is still difficult to say, however, whether a variation in X causes the variation in Y or a variation in Y causes the variation in X.

TABLE 75 — Summary of Coefficients of Correlation, By Magnitude, with Probable Error of Each.

| Index Numbers or Factors | r | P.E.± |
|---|---|---|
| Education and Human Welfare | .969 | .006 |
| Education and Standard of Living | .936 | .012 |
| Education and Physical Health and Care | .893 | .020 |
| Standard of Living and Physical Health and Care | .824 | .031 |
| Per Cent Urban and Standard of Living | .793 | .036 |
| Standard of Living and Physical Health (8 factors) | .764 | .045 |
| Human Welfare and Per Cent IV-F's (reversed) | .745 | .043 |
| Per Cent Urban and Human Welfare | .736 | .043 |
| Industrial Wealth and Standard of Living | .695 | .050 |
| Combined Wealth and Standard of Living | .685 | .052 |
| Human Welfare and Absence of Crime | .664 | .054 |
| Combined Wealth and Education | .655 | .056 |
| Standard of Living and Per Cent IV-F's (rev.) | .649 | .056 |
| Education and Absence of Crime | .646 | .057 |
| Combined Wealth and Per Cent IV-F's (rev.) | .646 | .057 |
| Per Cent Urban and Education | .645 | .057 |
| Industrial Wealth and Human Welfare | .638 | .058 |
| Combined Wealth and Human Welfare | .630 | .059 |
| Church Membership and Absence of Crime | .610 | .061 |
| Per Cent Native White and Education | .608 | .061 |
| Religion and Absence of Crime | .608 | .061 |
| Per Cent Urban and Physical Health and Care | .596 | .063 |
| Per Cent Native White and Physical Health and Care | .563 | .066 |
| Industrial Wealth and Education | .550 | .068 |
| Per Cent Native White and Human Welfare | .548 | .068 |
| Standard of Living and Absence of Crime | .521 | .071 |
| Per Cent Native White and Standard of Living | .481 | .075 |
| Combined Wealth and Physical Health and Care | .479 | .075 |
| Per Cent Native White and Absence of Crime | .448 | .078 |
| Standard of Living and Church Membership | .284 | .089 |
| Education and Church Membership | .278 | .090 |
| Per Cent Native White and Combined Wealth | .244 | .092 |
| Religion and Human Welfare | .211 | .093 |
| Education and Religion | .164 | .095 |
| Agricultural Wealth and Education | .156 | .095 |
| Per Cent Negro and Mental Health and Care | .125 | .096 |
| Combined Wealth and Absence of Crime | .116 | .096 |
| Agricultural Wealth and Standard of Living | .077 | .097 |
| Religion and Standard of Living | .076 | .097 |
| Natural Resources and Standard of Living | .047 | .097 |
| Agricultural Wealth and Human Welfare | .045 | .097 |
| Natural Resources and Education | .044 | .097 |
| Education and Army Rejection, Mental Disease (rev.) | .013 | .097 |
| Natural Resources and Human Welfare | —.033 | .097 |
| Standard of Living and Army Rejections, Mental Disease (rev.) | —.047 | .097 |
| Per Cent Native White and Mental Health and Care | —.125 | .096 |
| Education and Mental Health and Care | —.160 | .095 |
| Combined Wealth and Mental Health and Care | —.173 | .094 |
| Combined Wealth and Religion | —.173 | .094 |
| Church Membership and Mental Health | —.193 | .094 |

Table 75—Continued

| Index Numbers or Factors | r | P.E.± |
|---|---|---|
| Physical Health and Care and Mental Health and Care | —.228 | .092 |
| Absence of Crime and Mental Health (Factors 1,2,5,6,7) | —.248 | .091 |
| Per Cent Urban and Mental Health and Care | —.269 | .090 |
| Education and Mental Health and Care | —.297 | .089 |
| Religion and Army Rejections for Mental Disease (reversed) | —.307 | .088 |
| Physical Health and Mental Health (omitting care factors) | —.323 | .087 |
| Education and Mental Health (Factors 1,2,5,6,7) | —.375 | .084 |
| Standard of Living and Mental Health (Factors 1,2,5,6,7) | —.502 | .073 |
| Per Cent Negro and Absence of Crime | —.587 | .064 |
| Per Cent Negro and Combined Wealth | —.606 | .062 |
| Per Cent Negro and Standard of Living | —.728 | .046 |
| Per Cent Negro and Physical Health and Care | —.749 | .043 |
| Per Cent Negro and Human Welfare | —.773 | .040 |
| Per Cent Negro and Education | —.802 | .035 |

## Conclusions

1. There is a vast difference in the educational opportunity provided for the children of the various states and an equally vast difference in the outcomes of the educational effort. For example, the term varies from 145.7 days in Mississippi to 187.6 in Maryland, 184.3 in New York, or 185.2 in New Jersey. This means that the average student in Mississippi attends school only 77 per cent as long as the average student in Maryland or 79 per cent as long as the student in New York when students attend every day the schools are open. The average teacher in Mississippi makes $559 per year as compared with $2604 in New York. The expenditure per pupil for current expense is $31.23 in Mississippi and $169.90 in New York. In other words, the average pupil in Mississippi could attend 79 per cent as long per year, his teacher gets about 20 per cent as much salary, and there is spent on him approximately 18 per cent as much as would be if he lived in New York. The surprising thing is that the difference in the amount learned is not even greater.

2. Every one of the Southern and Southwestern states ranks below the mean in education and every one of these states ranks below the mean in standard of living, physical health and care, and human welfare.

3. Inequalities in wealth between the states makes a national system of financial aid to education an absolute necessity if anything near equality of educational opportunity is to be provided.

4. The top-ranking states in education pay their teachers not only much more in absolute amount but also a greater relative amount as compared with the median salary or wage than do the five states which rank lowest on education.

5. Human welfare is more closely related to education than it is to any other factor studied here.

6. Agricultural wealth is not significantly related to either education or welfare.

7. Natural resource wealth is not significantly related to education or welfare.

8. Industrial wealth is fairly closely related to education, standard of living, and human welfare but in no case is it as closely related as is the degree of urbanization.

9. Since both industrial wealth and urbanization are related to the standard of living, education, and welfare, it seems possible that further industrialization of the South and Southwest may help to improve the welfare of the people of these areas.

10. Education is definitely related to physical health and care. Death rates are much higher in states with poor education than in those with good educational systems in all diseases where cleanliness, care, or intelligent diet are of great importance.

11. Infant death rates are highest in states which have the greatest amount of illiteracy.

12. There is a negative relationship between education and the mental health and care index used in this study but practically no correlation between education and Army rejections for mental disease.

13. States which rank well on education ordinarily rank better on crime than do those which rank low on education.

14. Education is more closely related to absence of crime than either standard of living, or religion, and much more closely related than combined wealth.

15. Religion is not very closely related to education, but there is a slight tendency toward church membership in states ranking high on education.

16. Education is better in urban areas than in rural areas.

17. Education is poorest where the per cent of the population which is Negro is greatest.

18. In states which rank low on education more men were rejected by Selective Service.

19. There is a high correlation between education and standard of living as measured by the ownership of "creature comforts," income, and consumption of goods.

20. Although the standard of living is closely related to the per cent of the population which is white, it is much more closely related to education.

21. People are healthier and receive better care in states where education is best.

22. Mental health is difficult to measure, but if accurately measured here is negatively related to education, standard of living, physical health, and degree of urbanization.

23. Mental health is negatively related to religion. Church membership does not indicate emotional stability.

24. There is a high negative correlation between the per cent Negro and education, standard of living, or welfare.

25. There are relatively more crimes in states having a large Negro population.

26. States which have agricultural wealth and natural resources do not live any better than those which do not, possibly because of exploitation of agriculture and nonresident ownership of resources.

27. Differences in amounts spent on education between Northern and Southern states are perhaps more apparent than real due to differences in cost of living, etc.

28. There is no question that a good educational system leads to more efficient and more effective workers whether they be doctors, lawyers, teachers, accountants, or stenographers. Since this is true, education may be expected to be related to standard of living.

29. States which rank high on education are generally better consumers of the products of industry. They have more cars, telephones, bathtubs, radios, refrigerators, magazines, and utilities.

30. A poor educational system means wasted manpower for peace or war.

# A P P E N D I X

## Appendix A

The formula used in determining all coefficients of correlation in this study is :

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

In order to facilitate computations, the quantities under the radical have been figured. These figures may be substituted in the formula in place of either of the quantities under the radical. In each case, of course, the two figures used under the radical should be the figures for the two items which are to be correlated.

These figures may be used to simplify the calculation of correlations not included in this study.

### Quantities Under Radical

| | | |
|---|---|---|
| 1. | Education | 138,218.72 |
| 2. | Standard of Living | 174,137.60 |
| 3. | Physical Health | 75,296.15 |
| 4. | Mental Health | 32,649.92 |
| 5. | Agricultural Wealth | 229,545.92 |
| 6. | Industrial Wealth | 230,542.47 |
| 7. | Natural Resources | 220,744.71 |
| 8. | Crime | 111,975.68 |
| 9. | Religion | 167,200.92 |
| 10. | Combined Wealth | 234,437.03 |
| 11. | Human Welfare | 64,422.72 |
| 12. | Per Cent Urban | 755,634.08 |
| 13. | Per Cent Native White | 237,758.87 |
| 14. | Per Cent Negro | 380,567.75 |
| 15. | Army Rejection for Mental Disease | 230,826.08 |
| 16. | Per Cent IV-F's | 230,531.27 |
| 17. | Church Membership | 231,432.15 |
| 18. | Physical Health (8 Factors) | 105,173.19 |
| 19. | Mental Health (1, 2, 5, 6, 7) | 72,032.48 |

# Appendix B

All correlations in this study require the sum of the $X^2$ and the sum of the $Y^2$. Where these values are needed, they may be obtained from the following list:

| | |
|---|---|
| Education | 122,839.56 |
| Standard of Living | 123,707.88 |
| Physical Health and Care | 121,558.67 |
| Mental Health and Care | 121,000.42 |
| Human Welfare | 121,342.14 |
| Agricultural Wealth | 124,942.26 |
| Industrial Wealth | 124,832.97 |
| Natural Resources | 124,828.85 |
| Combined Wealth | 124,934.11 |
| Absence of Crime | 122,252.84 |
| Religion | 123,543.36 |
| Physical Health (Factors 1-8) | 122,161.11 |
| Mental Health (Factors 1,2,5,6,7) | 121,780.84 |
| Per Cent Urban | 123,321.58 |
| Per Cent Native White | 333,255.77 |
| Per Cent Negro | 12,015.17 |
| Church Membership | 124,971.55 |
| Army Rejections for Mental Disease | 124,848.88 |

With these figures and those given in Appendix A, correlations between any of these factors may be obtained by figuring the sum of the X column, the sum of the Y column, and the sum of the XY column. All other quantities are shown in either Appendix A or B.

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