TRINDS OF SCHOOL

W. RANDOLPH BURGESS



DEPARTMENT OF EDUCATION
RUSSELL SAGE FOUNDATION
130 EAST TWENTY-SECOND STREET
NEW YORK CITY

TRENDS OF SCHOOL COSTS

TRINDS OF SCHOOL COSTS

W. RANDOLPH BURGESS



DEPARTMENT OF EDUCATION RUSSELL SAGE FOUNDATION 130 EAST TWENTY-SECOND STREET NEW YORK CITY Copyright, 1920, by the russell sage foundation

Printed June, 1920; 2,400 copies

WM·F. FELL CO·PRINTERS PHILADELPHIA

4

TABLE OF CONTENTS

₽	FAGE
LIST OF TABLES	7
LIST OF DIAGRAMS	9
CHAPTER	
I. The Mounting Cost of Education	13
The increasing number of school children	13
The increasing cost of education	17
Trends of attendance and cost	19
An analysis of expenditure	21
Summary	23
201-201-201-201-201-201-201-201-201-201-	
II. INDEX NUMBERS FOR TEACHERS' SALARIES	25
The method of the index number	26
The Aldrich Report	29
Four index numbers for teachers' salaries	30
Trends of the four index numbers	35
Percentage increases 1841 to 1920	40
Trends in the past five years	43
Summary	44
III. TEACHERS' SALARIES AND THE COST OF LIVING	4 6
Price changes 1841 to 1919	46
Changes in standards of living	47
A cost of living index number	50
Food as a basis	51
The trend of the index number	54
Teachers' salaries and the cost of living	56
	57
The situation reversed, 1915 to 1920 Wage and cost trends for women teachers	59
Summary	63
Summary	00
IV. SALARIES OF TEACHERS AND OF OTHER WORKERS	65
Wages and the cost of living	65
Wage index numbers for 80 years	67
Wages of other workers	71
Country teachers and unskilled laborers	72
City teachers and artisans	76

CHAPTER	PAGE
Per cent increases in salaries and wages	79
The trend since 1915	81
The wage value of the teacher's salary	81
The artisan's wage a working standard	85
Summary	86
V. THE TREND OF BUILDING COSTS	88
An index number for building costs	90
Increases 1913 to 1920	94
Actual costs in Cleveland	97
An index of cost changes	99
Summary	105
VI. DOUBLING THE SCHOOL BUDGET	107
Salary levels	107
New buildings	110
Other expenditures	112
A summary estimate	114
Will prices and wages fall?	115
Summary	117
VII. Sources of Income	119
The general property tax	120
School costs outstrip property values	121
Keeping down the tax rate	126
An increasing share for schools	128
Sources of increased revenues	130
Summary	134
APPENDIX I.—Method of determining trend lines	136
INDEX	141
ALCO THE STATE OF	

LIST	OF	TABLES	
	OT		

TA	BLE	Diar
1	. Average daily attendance and annual expenditure in public schools of the United States. 1870 to 1918	PAGE 15
2	. Average weekly salaries of teachers. 1841 to 1920	32
	. Teachers' salaries from 1915 to 1920, in per cents of figures for 1915	43
4.	Costs in cents of certain necessities	47
5.	Weekly wages of laborers, artisans, and teachers	49
	Index numbers for wholesale commodity prices and retail food prices—two wars	50
7.	Cost of living per week from 1841 to 1920 for a small family using the same amounts of the same commodities over the entire period	54
8.	Weekly wages of laborers and artisans. 1841 to 1920	71
	Wages in the building trades, 1913 to 1920, in 10 cities, in per cents of figures for 1913	95
0.	Cost in cents per cubic foot of school buildings constructed in Cleveland. 1913 to 1919	98
1.	Cost per cubic foot of school buildings constructed in Cleveland, 1913 to 1919, in per cents of figures for 1913	100
2.	of elementary school buildings in New York City according to lowest bids received each month in 1919 and 1920, and per cent these costs were of 1913	101
3.	Cost per unit class room of a 16-room elementary school in Boston. 1916 and December, 1919	103

14.	School expenditures in the United States other than salaries and outlays. 1918	113
15.	School costs in 1920 for each \$1,000 spent in 1915	115
16.	Per cent of school revenue derived from different sources	119
17.	Assessed value of property and current expenses of schools per inhabitant in 40 cities. 1880 to 1918	123

TABLE

PAGE

LIST OF DIAGRAMS	AGE
D13f	AGE
United States, 1870 to 1918	16
United States. 1870 to 1918	18
1870 to 1918, in per cents of figures for 1870	20
Per cents different items were of total school expendi- tures in the United States in the year 1917–18	22
1841 to 1920	26
schools, 1841 to 1920	36
schools, 1841 to 1920	37
in rural and city schools. 1841 to 1920	39
Trends of teachers' salaries in per cents of the figures for 1841	41
family using the same amounts of the same com-	55
of the cost of living, in per cents of the figures for 1841	57
from 1915 to 1920 in per cents of the figures for 1915	58
and city schools compared with the cost of fiving. 1841 to 1920	59
Per cent the average salary of women teachers was of the cost of living each year from 1841 to 1920	61
	Average daily attendance at public schools in the United States. 1870 to 1918 Annual expenditures for public education in the United States. 1870 to 1918 Trends of average daily attendance and expenditures, 1870 to 1918, in per cents of figures for 1870 Per cents different items were of total school expenditures in the United States in the year 1917–18 Weekly salaries of women teachers in rural schools. 1841 to 1920 Weekly salaries of men and women teachers in rural schools. 1841 to 1920 Weekly salaries of men and women teachers in city schools. 1841 to 1920 Trends of weekly salaries of men and women teachers in rural and city schools. 1841 to 1920 Trends of teachers' salaries in per cents of the figures for 1841 Cost of living per week from 1841 to 1920 for a small family using the same amounts of the same commodities over the entire period Trends of teachers' salaries compared with the trend of the cost of living, in per cents of the figures for 1841 Teachers' salaries and the cost of living each year from 1915 to 1920 in per cents of the figures for 1915 Average weekly salaries of women teachers in rural and city schools compared with the cost of living. 1841 to 1920 Per cent the average salary of women teachers was

15. Weekly wages of laborers and artisans. 1841 to 1920

69

DIAGRAM	PAGE
 Weekly salaries of men and women teachers in rural schools compared with weekly wages of laborers. 1841 to 1920 	
17. Trends of salaries of men and women teachers in rural schools compared with trend of wages of laborers. 1841 to 1915	
 Weekly salaries of men and women teachers in city schools compared with weekly wages of artisans. 1841 to 1920 	
 Trends of salaries of men and women teachers in city schools compared with trend of artisans' wages. 1841 to 1915 	
 Trends of salaries of teachers compared with the trends of wages of laborers and artisans. 1841 to 1915 	
 Salaries of teachers and wages of laborers and artisans each year from 1915 to 1920 in per cents of the figures for 1915 	81
 Per cent the average salary of women teachers was of the wages of laborers each year. 1841 to 1920 	83
 Per cent the average salary of women teachers was of the wages of artisans each year. 1841 to 1920 	84
 Per cent of school expenditures in the United States devoted to sites, buildings, and equipment at five year intervals. 1890 to 1918 	89
 Relative prices of lumber and building materials from 1841 to 1920, in per cents of the figures for 1860 	91
 Trends of artisans' wages, the cost of building ma- terials, and estimated cost of building, in per cents of the figures for 1841 	93
27. The cost of building materials, the wages of artisans and laborers, and the estimated cost of building each year from 1913 to 1920, in per cents of the figures for 1913	r
28. Cost per cubic foot of different elements of buildings constructed in Cleveland from 1913 to 1919	99
 Outlays for schools for each inhabitant in cities of more than 30,000 population. 1915 to 1918 	f 111
30. Sources of net revenue receipts of 146 cities in 1918	120

DIAG	TRAM	PAGE
31.	Assessed value of property and school current expenditures for each inhabitant in 40 cities from 1880 to 1918 in per cents of 1880 levels	125
	School costs for each \$1,000 of assessed value of property in 40 cities. 1880 to 1918	126
	Methods of meeting advancing municipal costs in 40 cities	127
34.	Departmental expenses of cities of more than 30,000 population in 1918	129

Legisor angular angular.

THE WELLT'S CARE OF THE CAPITY

attantion to the half of all files of the event will assisted to be a significant to the particular to

the term of the state of the st

TRENDS OF SCHOOL COSTS

CHAPTER I

THE MOUNTING COST OF EDUCATION

Fifty years ago, in 1870, the United States made the first annual accounting of its school children. Through the agency of its newly created Bureau of Education, the National Government made the first of a series of annual reports setting forth the most important numerical facts with regard to its public schools.

The Increasing Number of School Children
This first accounting showed that there were about
4,000,000 children attending the public schools of the
United States. Each year since that date the Bureau of Education has made a similar accounting of
the school children, and the latest figures, for the
year 1918, show that the school children have increased in number from 4,000,000 to more than
15,500,000. If the figures for the entire half century
from 1870 to 1920 were complete, they would undoubtedly show that the children in average daily
attendance have nearly quadrupled in number during
that time.

This increase has been far more rapid than that in the total population of the country. While the entire population is about three times as great in 1920 as it was 50 years earlier, in 1870, the attendance in the public schools is nearly four times as great now as it was 50 years ago. It is noteworthy that this marked gain in the school population has been made despite the fact that the proportion of children to the whole population has been falling off slowly but steadily during the past 50 years. The explanation for the increase in school attendance, despite the gradual shrinkage in the proportion of children of school age. is to be found in the better enforcement of laws and regulations for compulsory attendance, and in the fact that children now remain in school more years than they used to. Each year somewhat larger numbers of children remain in school long enough to reach the upper grades and the high schools.

The figures showing the number of children in average daily attendance in the public schools of the country are given in Table 1, which also shows the total expenditures for the support of the schools each year. The data are from the Statistical Abstract of the United States for 1918, with the exception of the figures for the last two years of the series. The data for 1918 are presented through the courtesy of the United States Bureau of Education from the Biennial Report in process of compilation but not yet published (March, 1920). The figures for 1917 are esti-

TABLE 1.—AVERAGE DAILY ATTENDANCE AND ANNUAL EXPENDITURE IN PUBLIC SCHOOLS OF THE UNITED STATES. $1870\ {\rm TO}\ 1918$

Year	Thousands of children in average attendance	Thousands of dollars ex- pended for education
1870	4,077	\$63,397
1871	4,545	69,108
1872	4,659	74,234
1873	4,745	76,238
1874	5,051	80,054
1875	5,248	83,504
1876	5,291	83,083
1877	5,427	79,440
1878	5,783	79,083
1879	5,876	76,192
1880	6,144	78,095
1881	6,146	83,643
1882	6,331	88,990
1883	6,652	96,750
1884	7,056	103,213
1885	7,298	110,328
1886	7,526	113,323
1887	7,682	115,784
1888	7,997	124,245
1889	8,006	132,540
1890	8,154	140,507
1891	8,408	147,495
1892	8,561	155,817
1893	8,837	164,171
1894	9,263	172,503
1895	9,549	175,809
1896	9,781	183,499
1897	10,053	187,682
1898	10,356	194,293
1899	10,328	200,155
1900	10,633	214,965
1901	10,715	227,466
1902	11,064	238,262
1903	11,053	252,804
1904	11,318	273,216
1905	11,482	291,617
1906	11,712	307,766
1907	11,926	336,898
1908	12,154	371,344
1909	12,685	401,398
1910 1911 1912 1913 1914 1915 1916 1917 1918	12,827 12,872 13,302 13,614 14,216 14,965 15,359 15,454	426,250 446,727 482,887 521,546 555,077 605,461 640,717 702,197 763,678

In Diagram 1 the irregular line presents in graphic form the data of the second column in Table 1. It shows how the children in average daily attendance have increased during the period from 1870 to 1918. Running through the irregular line there is a straight line showing the general trend of this increase. This

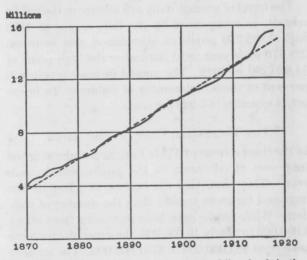


Diagram 1.—Average daily attendance at public schools in the United States. 1870 to 1918

trend line is the one which most accurately represents the general trend of the points which make up the irregular line.

Since trend lines will be used throughout the discussions which follow, it is worth while to consider them with some care at this point. The straight line