

SERVANTS OF INDIA SOCIETY'S LIBRARY
POONA 4

CN

AcN

8524

Date of release for loan

This book should be returned on or before the last date stamped below.

An overdue charge of 5 paise will be levied for each day the book is kept beyond this date.

--	--	--

A. B. P. P.]

POLLAK PUBLICATIONS

NUMBER ONE

THE MAKING OF INDEX NUMBERS

By IRVING FISHER, Professor of Economics, Yale University. xxxiii + 526 pages, 120 illustrations. Third edition, Revised, 1927.

NUMBER TWO

MONEY

By WILLIAM TRUFANT FOSTER, Director of the Pollak Foundation, and WADDILL CATCHINGS, of Goldman, Sachs and Company. xi + 409 pages. Third edition, Revised, 1927.

NUMBER THREE

COSTS AND PROFITS

By HUDSON BRIDGE HASTINGS, Professor of Administrative Engineering, Yale University. xi + 168 pages.

NUMBER FOUR

CYCLES OF UNEMPLOYMENT

By WILLIAM A. BERRIDGE, Assistant Professor of Economics, Brown University. xv + 88 pages.

NUMBER FIVE

POPULATION PROBLEMS

By L. I. DUBLIN, of the Metropolitan Life Insurance Company, and others. xiii + 318 pages.

NUMBER SIX

THE PROBLEM OF BUSINESS FORECASTING

By WARREN M. PERSONS, Professor of Economics, Harvard University, and others. xiii + 317 pages, 55 illustrations.

NUMBER SEVEN

SOCIAL CONSEQUENCES OF BUSINESS CYCLES

By MAURICE B. HEXTER, Director of Federated Jewish Charities, Boston. xxiii + 206 pages, 34 illustrations.

NUMBER EIGHT

PROFITS

By WILLIAM TRUFANT FOSTER and WADDILL CATCHINGS. xxii + 465 pages, 61 illustrations.

NUMBER NINE

REAL WAGES IN THE UNITED STATES

By PAUL H. DOUGLAS, Professor of Industrial Relations, University of Chicago. xxviii + 700 pages, 95 illustrations.

NUMBER TEN

BUSINESS WITHOUT A BUYER

By WILLIAM TRUFANT FOSTER and WADDILL CATCHINGS. xx + 205 pages, 29 illustrations.

NUMBER ELEVEN

THE ROAD TO PLENTY

By WILLIAM TRUFANT FOSTER and WADDILL CATCHINGS. vi + 229 pages. Fourth printing (revised edition) 1928.

POLLAK FOUNDATION FOR ECONOMIC RESEARCH

NEWTON, MASSACHUSETTS

**PUBLICATIONS
OF THE POLLAK FOUNDATION FOR
ECONOMIC RESEARCH**



NUMBER NINE

REAL WAGES IN THE UNITED STATES

REAL WAGES

IN THE UNITED STATES

1890-1926

BY

PAUL H. DOUGLAS

PROFESSOR OF INDUSTRIAL RELATIONS
THE UNIVERSITY OF CHICAGO



BOSTON AND NEW YORK
HOUGHTON MIFFLIN COMPANY

The Riverside Press Cambridge

1930

COPYRIGHT, 1930, BY THE POLLAK FOUNDATION FOR ECONOMIC RESEARCH

ALL RIGHTS RESERVED INCLUDING THE RIGHT TO REPRODUCE
THIS BOOK OR PARTS THEREOF IN ANY FORM

X:952.73

G0

8524

~~W. H. R. P. P. P.~~
CAMBRIDGE - MASSACHUSETTS
PRINTED IN THE U.S.A.

TO
THE UNIVERSITY OF CHICAGO
WHERE THE SPIRIT
OF FREE INQUIRY AND SINCERE SCHOLARSHIP
HAS BEEN A CONSTANT STIMULUS AND
INSPIRATION THROUGH THE YEARS

PREFACE

I HAVE attempted in this book to measure the material progress which the American workers have obtained during the years from 1890 to 1928. Had I foreseen that in order to complete the work it would require the major portion of my energies for six years and that it would be necessary for me to devote to it the larger part of my income for most of that time, I might not have had the courage to undertake the task. I am by no means satisfied with the completed result, but I can take some consolation in the fact that it is as good a piece of work as I can do and that, in the effort to make it so, I have not stinted my outlay of time, of energy, or of the material resources which in other respects I could ill afford.

In the effort to obtain accurate and comprehensive measurements, I have found it necessary to compute a new index of the cost of living, to work out new and refined series of wage-rates, to prepare averages of the annual earnings of the employed workers, to measure the probable amount of unemployment since 1890, and to obtain the earnings of the wage-earning class as a whole. It has thus been possible to get a measurement of the relative purchasing power, throughout the period, of hourly and weekly wage-rates, of the annual earnings of the employed and of the yearly income of the working-class as a whole. The material welfare of no less than twenty-two million workers has been measured by one or more of these tests, and, indeed, the only two classes of considerable size for which it has been impossible to work out any continuous index have been domestic servants and mercantile employees.

It will be noticed that this study shows different results from those obtained in an earlier paper of mine which was published in the *American Economic Review* for September, 1921. This is in part because the cost-of-living index used in this earlier study unintentionally served to exaggerate the actual advance in living costs which occurred between 1900 and 1915. That index was based on the retail food prices collected by the United States Bureau of Labor Statistics, and these, as I demonstrate in Part One of this book, increased from 1907 to 1914 at a much faster rate than living costs as a whole. Another defect

of the earlier paper was that the wage data were largely drawn from the hourly and full-time weekly rates of union labor. These, as is also shown in this book, were much less responsive to the general upward movement from 1914 to 1918 than were the rates for other workers, and still less responsive than the movement of the annual earnings of the employed workers and of the wage-earning class as a whole. I have felt a scientific obligation to correct every defect in this earlier paper.

It is with a real sense of gratitude and of friendship that I acknowledge the assistance I have received from so many quarters. Had it not been for these friends, I could never have finished the study. First of all, I wish to thank Harold N. Weber, Alvin D. Battey, and Leroy Stinebower for the intelligent and careful devotion which they displayed when acting as my chief assistants. I am also indebted to my friends, William T. Foster, of the Pollak Foundation, and William H. Spencer, Dean of the School of Commerce and Administration of the University of Chicago, for the unfailing support which they have given me in this, as in all other ventures. Dr. Foster has not only borne the heavy expenses connected with the publication of this volume, but made an initial grant which emboldened me to go on. Mr. Spencer, in turn, gave me assistance from the research funds of the School of Commerce at a time when it seemed that otherwise I should have to stop, and he has shown throughout a sympathy with and an understanding of the purposes which I have hoped might be aided by the study. Nor does my debt stop here. Scores of others have given information and data which have been invaluable, and among them I should like to mention Roswell F. Phelps, of the Massachusetts Department of Labor and Industries; Ralph G. Hurlin, of the Russell Sage Foundation; Hornell Hart, of Bryn Mawr College; E. B. Patton and Sidney W. Willcox, statisticians for the New York and Illinois Departments of Labor, respectively; A. J. Altmeyer, of the Wisconsin Industrial Commission; Charles E. Baldwin, of the United States Bureau of Labor Statistics; Max O. Lorenz, of the Interstate Commerce Commission; Frederick E. Croxton, of Columbus; Frederick G. Tryon, of the United States Geological Survey; Woodlief Thomas, formerly of the Federal Reserve Board; Ralph J. Watkins, formerly of the Bureau of Business Research of the Ohio State University; Seymour L. Andrew, of the American Telephone and Telegraph Company; and Paul F. Brissenden, of Columbia Uni-

versity, together with many others whom space prevents me from naming, but to whom I am no less grateful.

To those who were for a considerable period of time members of my staff, I owe a great deal for the patience and accuracy with which they carried through the drudgery involved in the prolonged process of computation, and among these I should like particularly to thank John Rollins, E. J. Kunst, A. J. Danziger, Alex Elson, George G. Lewis, and Florence Jennison, of the University of Chicago; Helen Demond, of Mount Holyoke College; and William H. Hasty and Magnus Greenman, of Amherst College.

My secretary, Mrs. A. T. Hurn, and Marian P. Cartland, of the Pollak Foundation, have given invaluable assistance in reading the proof, and Mrs. Adelaide E. Ohlendorf has been good enough to prepare the index. Miss Cartland's extraordinary care has in particular saved me from many errors. Harvey Scheel and R. R. Krogman have drawn the charts.

Every effort has been made to ensure the accuracy of each figure, and all data and computations have been carefully checked. But it is perhaps idle to hope that, in a study which has required approximately 18,000 work hours and for which approximately 3,000,000 computations have been made, all errors have been eliminated.

And now I must leave this book, imperfect as it is, to the reader, by whom I hope it will be critically judged. Its defects may perhaps be pardoned if it serves in some measure to lay a foundation for the better studies which I hope may grow out of it.

PAUL H. DOUGLAS

Chicago, February 4, 1930

SUGGESTIONS TO THE READER

For those who want to skim the book, read Chapters I and XXXII.

For those who wish to go into the book in more detail, but who are not particularly interested in methods, read Chapters I, IV, XII, XXII, XXVI, XXIX, and XXXII.

For those who do not care to go into the detailed methods and some of the more detailed results, omit Chapters V, XIV, XV, XVI, XXIII, and XXVII.

CONTENTS

I. THE PROBLEM OF MEASURING CHANGES IN REAL WAGES	3
---	---

PART I

THE MOVEMENT OF LIVING COSTS, 1890-1926

II. THE MOVEMENT OF THE COST OF LIVING FROM 1890 TO 1914	19
III. THE MOVEMENT OF THE COST OF LIVING FROM 1914 TO 1926	43
IV. A COMBINED COST-OF-LIVING INDEX FOR THE PERIOD 1890-1926	60

PART II

THE MOVEMENT OF WAGE-RATES AND HOURS OF WORK, 1890-1926

V. SOURCES AND METHODS FOR A STUDY OF WAGE-RATES IN MANUFACTURING AND THE BUILDING TRADES	73
VI. ACTUAL MOVEMENT OF HOURS AND EARNINGS IN MANUFACTURING, 1890-1926	95
VII. HOURS AND WAGES IN THE BUILDING TRADES AND IN ALL UNION INDUSTRIES AS A WHOLE	134
VIII. WAGE-RATES IN COAL-MINING	142
IX. WAGES OF TRANSPORTATION WORKERS	166
X. UNSKILLED LABOR AND FARM LABOR	174
XI. THE WAGES OF GOVERNMENT AND PROFESSIONAL WORKERS	191
XII. HOURLY EARNINGS, HOURS OF WORK, AND FULL-TIME WEEKLY EARNINGS IN INDUSTRY AS A WHOLE	204

PART III

THE MOVEMENT OF ACTUAL MONEY AND REAL ANNUAL EARNINGS OF EMPLOYED WORKERS

XIII. MOVEMENT OF MONEY AND REAL EARNINGS OF EMPLOYED WAGE-EARNERS IN ALL MANUFACTURING INDUSTRIES, 1889-1926	217
XIV. RELATIVE TREND OF MONEY WAGES AND OF REAL EARNINGS IN SPECIFIC GROUPS OF MANUFACTURING INDUSTRIES, 1889-1926	250

XV. RELATIVE MOVEMENT OF MONEY AND REAL EARNINGS IN SPECIFIC GROUPS OF MANUFACTURING INDUSTRIES (<i>continued</i>)	282
XVI. MOVEMENT OF EARNINGS ACCORDING TO THE DISTANCE OF THE INDUSTRY FROM THE CONSUMER	311
XVII. ANNUAL EARNINGS IN TRANSPORTATION AND PUBLIC UTILITY INDUSTRIES	320
XVIII. AVERAGE ANNUAL EARNINGS IN COAL MINES	343
XIX. ANNUAL EARNINGS OF SALARIED AND CLERICAL LABOR	358
XX. ANNUAL EARNINGS OF GOVERNMENT EMPLOYEES AND POSTAL WORKERS	372
XXI. ANNUAL EARNINGS OF TEACHERS AND MINISTERS	381
XXII. AVERAGE ANNUAL EARNINGS OF EMPLOYED WORKERS IN ALL INDUSTRY AS A WHOLE	389

PART IV

UNEMPLOYMENT AND THE REAL EARNINGS OF THE
WAGE-EARNING CLASS AS A WHOLE

XXIII. SOME PREVIOUS ESTIMATES OF THE AMOUNT OF UNEMPLOYMENT	403
XXIV. AN INDEPENDENT ESTIMATE OF THE NUMBERS UNEMPLOYED IN MANUFACTURING AND TRANSPORTATION, 1890-1920	430
XXV. UNEMPLOYMENT IN THE BUILDING TRADES AND COAL MINING, AND A COMBINED AVERAGE FOR MANUFACTURING, TRANSPORTATION, CONSTRUCTION, AND COAL MINING	450
XXVI. AVERAGE ANNUAL EARNINGS OF THE WAGE-EARNING CLASS, WITH ALLOWANCE FOR UNEMPLOYMENT	461
XXVII. OTHER FACTORS IN THE INCREASE OF REAL INCOME FOR MEMBERS OF THE WAGE-EARNING CLASS	481
XXVIII. AN APPROXIMATION OF THE INCREASE IN THE REAL INCOME OF THE WORKERS BY MEANS OF COMPARATIVE BUDGETARY STUDIES	492
XXIX. HAS THE INCREASE IN REAL WAGES KEPT PACE WITH THE INCREASE IN PRODUCTIVITY?	504
XXX. POSTLUDE — THE RECORD FOR 1927-28	549
XXXI. SOME CAUSES AND CONSEQUENCES OF THE INCREASE IN REAL WAGES AND SOME POSSIBILITIES FOR THE FUTURE	557

CONTENTS

xiii

XXXII. SUMMARY

581

APPENDICES

A. A Comparison of the Methods Followed and Results Obtained by Paul F. Brissenden in Computing Percentages of Unemployment and Averages of the Earnings of Factory Workers with Those of the Present Study	593
B. Indexes of Wholesale Prices	609
C. Monthly Indexes of the Movement of Money and Real Earnings in the Main Groups of Manufacturing Industries, 1915-26, and for Railroads, 1921-26	610
D. Systems of Weighting Used for Wage-Rates and Annual Earnings	620
E. Averages of Annual Earnings in States for Specific Industries (Basis for Interpolation)	623
F. Illustration of the Method of Interpolation Followed for All Manufacturing Industries, 1889-1915 and 1915-19	626
G. The Gain or Loss in Terms of Dollars, with the Average Purchasing Power for the Decade 1890-99, which Workers in Various Lines of Industry have Experienced, Together with the Average Movement for the Period	629
H. Balance of Gain and Loss, in Dollars, for Specific Industries over the Average of the Years 1890-99, for Hourly Rates, Full-Time Weekly Earnings, and Annual Earnings of the Employed	646
I. A Ranking of the Non-Agricultural Wage Groups in the Order of the Relative Gains in the Average Yearly Earnings of Employed Workers Made by 1926 over the Bases of 1890-99 and 1914, Respectively	653
BIBLIOGRAPHICAL NOTE	655
INDEX	669

LIST OF TABLES

1. Relative Movement of Retail Prices of Different Sets of Food Commodities	21
2. Projected Index for 29 Food Commodities	22
3. Relative Movement of Index of Retail Prices of 29 Food Commodities from 1890 to 1907, and Projected from 1907 to 1914, as Compared with that of Food Commodities at Wholesale	25
4. Relative Price Movements at Wholesale and Retail of 13 Identical Food Commodities for the Years 1890-1914 and of 27 Identical Food Commodities for the Years 1890-1907	26
5. Relative Movement of Five Sets of Index Numbers of Wholesale Prices of Food	30
6. Index of the Most Probable Relative Prices at Wholesale of Food Commodities Consumed by Workingmen as Secured by Adding Probable Movement of Pork Chops and Poultry to Index D of Table 5	34
7. Most Probable Index of the Relative Cost (Retail Prices) of Food to Workingmen	36
8. Most Probable Indexes of the Retail Prices of Various Groups of Commodities other than Food Consumed by Working-Class Families	38
9. Most Probable Index of the Movement of the Total Cost of Living for Workingmen	41
10. Comparative Movement of Cost of Living as Shown by the Indexes of the Bureau of Labor Statistics, the National Industrial Conference Board, and the Massachusetts Commission on the Necessaries of Life	50
11. Comparison Between the Revised Index of the Cost of Living and the Present Index of the Bureau of Labor Statistics	55
12. Relative Movement of the Cost of Living	57
13. Combined Index of Relative Living Costs in Non-Agricultural Areas	60
14. Relative Hourly Rates, 'Normal' Hours of Work, and Full-Time Weekly Earnings in American Manufacturing and Mechanical Industries, as Computed in Studies of United States Bureau of Labor	76
15. Number of Wage-Earners Covered by Payroll Investigations of the Bureau of Labor Statistics	79
16. Percentages which Wage-Earners in Payroll Samples Studied by the Bureau of Labor Statistics Formed of Total Wage-Earners in these Industries	80
17. Comparison of the Indexes of Hourly Earnings in Cotton Manufac-	

turing, as Secured by Methods of (1) Simple Average of Relatives, (2) Weighted Average of Relatives, and (3) Weighted Average of Actual Earnings	85
18. Average Hourly Money Earnings in 'Union' Manufacturing Industries	96
19. Relative Hourly Money Earnings in 'Union' Manufacturing Industries	97
20. Relative Real Hourly Earnings in 'Union' Manufacturing Industries	98
21. Average Hourly Money Earnings in 'Payroll' Manufacturing Industries	101
22. Relative Hourly Money Earnings in 'Payroll' Manufacturing Industries	102
23. Relative Real Hourly Earnings in 'Payroll' Manufacturing Industries	104
24. Average Relative and Real Hourly Earnings in all Manufacturing Industries	108
25. Average Annual Gains in Real Hourly Earnings for Manufacturing Workers as Compared with 1890-99	111
26. Hours per Week in 'Union' Manufacturing Industries	112
27. Relative Hours per Week in 'Union' Manufacturing Industries	113
28. Hours per Week in 'Payroll' Manufacturing Industries	114
29. Relative Hours per Week in 'Payroll' Manufacturing Industries	115
30. Average and Relative Hours per Week in All Manufacturing Industries	116
31. Full-Time Weekly Money Earnings in 'Union' Manufacturing Industries	118
32. Relative Full-Time Weekly Money Earnings in 'Union' Manufacturing Industries	119
33. Relative Real Full-Time Weekly Earnings in 'Union' Manufacturing Industries	120
34. Average Full-Time Weekly Earnings in 'Payroll' Manufacturing Industries	124
35. Relative Full-Time Weekly Money Earnings in 'Payroll' Manufacturing Industries	126
36. Relative Real Full-Time Weekly Earnings in 'Payroll' Manufacturing Industries	127
37. Full-Time, Relative, and Real Weekly Earnings in all Manufacturing Industries	130
38. Average Annual Gains or Losses made in Manufacturing in the Purchasing Power of a Full-Time Week's Work, as Compared with 1890-99	132
39. Average 'Union' Hourly Earnings in the Building Trades	135
40. Average 'Union' Hours per Week in the Building Trades	136
41. Full-Time Weekly Earnings in the Building Trades	137
42. Average, Relative, and Real Hourly Earnings in 'Union' Manufacturing Industries and Building Trades	139

LIST OF TABLES

xvii

43. Full-Time Weekly, Relative, and Real Earnings in 'Union' Manufacturing Industries and Building Trades	140
44. Number of Days Worked by Mines, Average Daily and Full-Time Weekly Money Earnings, and Relative Movement of Earnings in the Bituminous Coal Industry	143
45. Relative Real Full-Time Weekly Earnings in the Bituminous Coal Industry	144
46. Comparison of Relative Daily and Full-Time Weekly Earnings as Computed (1) from Yearly Earnings Divided by Number of Days Worked and (2) Directly from Rates	148
47. Average Length of Standard Work Day and Week	150
48. Movement of Relative Money and Real Hourly Earnings in the Bituminous Coal Industry	152
49. Movement of Average Full-Time Weekly Earnings in the Anthracite Coal Industry in Terms of Money and Real Wages	154
50. Relative Full-Time Weekly Earnings of Contract Miners	158
51. Comparison Between Indexes of Full-Time Weekly Money Earnings Obtained (1) by Dividing Average Yearly Earnings by Days Worked and (2) from Rates of Miners and Laborers	160
52. Average Money and Real Hourly Earnings in the Anthracite Industry	161
53. Average Full-Time Weekly Earnings in the Coal Industry (Bituminous and Anthracite Combined)	162
54. Movement of Standard Hours in the Coal Industry as a Whole	163
55. Average Hourly Earnings in the Coal Industry as a Whole and Relative Purchasing Power	164
56. Relative Money and Real Full-Time Weekly Earnings of Railway Workers	168
57. Average Weekly Wage-Rates of Seamen and Their Relative Money and Real Earnings	173
58. Comparison of Average Weekly Earnings for Unskilled Labor, as Computed by Ralph G. Hurlin and by Whitney Coombs	175
59. Average Relative Money and Real Full-Time Earnings of Unskilled Labor	177
60. Probable Movement of Standard Hours per Week for Unskilled Labor	180
61. Probable Hourly Rates of Unskilled Labor and their Relative Real Purchasing Power	182
62. Average Monthly and Weekly Rates of Wages of Farm Labor	186
63. Relative Real Earnings of Farm Laborers	187
64. Average and Relative Full-Time Weekly Earnings of Government Employees	193
65. Relative Real Full-Time Weekly Earnings of Government Employees	194
66. Average and Relative Hours per Week of Government Employees	196
67. Average and Relative Hourly Money Earnings of Government Employees	197

68. Relative Real Hourly Earnings of Government Employees	198
69. Length of the School Year and Average Daily and Weekly Earnings of Public School Teachers	200
70. Relative Real Weekly Earnings of Public School Teachers	201
71. Average Weekly Salary of Ministers and Relative Movement of Money and Real Weekly Earnings	203
72. Relative Weights Used in Computing Full-Time Weekly Earnings, Hours of Work, and Hourly Earnings	204
73. Average, Relative, and Real Hourly Earnings in All Industry	205
74. Average Gain in Real Hourly Earnings for Workers in All Industry	207
75. Standard Hours per Week in All Industry	208
76. Average, Relative, and Real Full-Time Weekly Earnings in All Industry	210
77. Average, Relative, and Real Full-Time Weekly Earnings in All Industry	211
78. Average Annual Gains or Losses in Purchasing Power of a Full-Time Week's Work in Industry as a Whole, as Compared with 1890-99	213
79. Average Annual Earnings of Employed Wage-Earners in All Manufacturing Industries as Shown by Various Censuses of Manufactures	219
80. Relative Weights Assigned to Average Earnings in the Various States for which Statistics of Yearly Earnings in Manufacturing are Available	222
81. Average Annual Earnings per Employed Wage-Earner in Combined States of Connecticut, Massachusetts, New Jersey, Ohio, Pennsylvania, Wisconsin, Iowa, and South Carolina	223
82. Relative Numbers Covered in State Reports on Earnings, and Proportion Which These Formed of Those Gainfully Employed in the Given States	225
83. Relative Proportion of Wage-Earners in Manufacturing Industries, Who Were Employed in States from Which Statistics of Earnings were Secured	226
84. Average Annual Money Earnings of Employed Wage-Earners in All Manufacturing Industries in the United States	230
85. Relative Real Annual Earnings of Employed Wage-Earners in All Manufacturing Industries	231
86. Number of Employees Covered in Monthly Studies of the United States Bureau of Labor Statistics	235
87. Average Absolute and Relative Annual Earnings of Employed Wage-Earners in All Manufacturing Industries, and their Relative Purchasing Power	239-40
88. Index of Average Annual Earnings of Employed Wage-Earners in Manufacturing Industry as a Whole, in Terms of Money and of Relative Purchasing Power	246
89. Average Annual Progress Made by Manufacturing Wage-Earners in Terms of Comparative Real Annual Earnings	248

LIST OF TABLES

xix

90. Average Annual Earnings of Employed Wage-Earners in the Food Industries	between 252 and 253
91. Relative Real Annual Earnings of Employed Wage-Earners in the Food Industries	254
92. Average Annual Earnings of Employed Wage-Earners in the Textile Industry	258
93. Relative Annual Earnings of Employed Wage-Earners in the Textile Industry	259
94. Relative Purchasing Power of the Average Annual Earnings of Employed Wage-Earners in the Textile Industry	260
95. Average Money Earnings in the Clothing Industry	265
96. Relative Average Annual Earnings of Wage-Earners in the Clothing Industry	266
97. Relative Annual Real Earnings of Employed Wage-Earners in the Clothing Industry	267
98. Average Annual Money Earnings of Employed Wage-Earners in the Iron and Steel Industry	271
99. Relative Real Annual Earnings of Employed Wage-Earners in the Iron and Steel Industry	272
100. Average Annual Money Earnings of Employed Wage-Earners in Agricultural Implement and Electrical Machinery Industries	276
101. Relative Purchasing Power of Annual Earnings of Employed Wage-Earners in Agricultural Implement and Electrical Machinery Industries	277
102. Average Annual Money Earnings of Employed Wage-Earners in Brass, Bronze, Copper, and Plated Ware Industries	279
103. Relative Real Annual Earnings of Employed Wage-Earners in Brass, Bronze, Copper, and Plated Ware Industries	280
104. Average Annual Earnings of Employed Wage-Earners in the Lumber Industry	283
105. Relative Real Annual Earnings of Employed Wage-Earners in the Lumber Industry	284
106. Average Annual Earnings of Employed Wage-Earners in the Leather Industry	287
107. Relative Real Annual Earnings of Employed Wage-Earners in the Leather Industry	288
108. Average Annual Money Earnings of Employed Wage-Earners in the Paper and Printing Industry	292
109. Relative Real Annual Earnings of Employed Wage-Earners in the Paper and Printing Industry	293
110. Average Annual Earnings, and Relative Real Annual Earnings of Employed Wage-Earners in the Chemical Industries	296
111. Average Annual Earnings of Employed Wage-Earners in the Stone, Clay, and Glass Industries	299
112. Relative Real Annual Earnings of Employed Wage-Earners in the Stone, Clay, and Glass Industries	300
113. Absolute and Relative Money Earnings in the Tobacco and Beverage Industries	303

114. Average Real Earnings of Employed Wage-Earners in the Tobacco and Beverage Industries	304
115. Average Annual Money Earnings of Employed Wage-Earners in the Vehicle Industry	307
116. Average Annual Real Earnings of Employed Wage-Earners in the Vehicle Industry	308
117. Average Annual Money Earnings of Employed Wage-Earners in Manufacturing Industry According to Distance from the Consumer	313
118. Average Real Earnings of Employed Wage-Earners in Manufacturing Industry According to Distance from Consumer	314
119. Number, Total Compensation, and Average Annual Earnings of Street Railway Wage-Earners in Census Years	322
120. Average Annual Money Earnings of Wage-Earners in Land Transportation Industries	325
121. Relative Real Annual Earnings in Land Transportation Industries	326
122. Average Annual Earnings in Manufactured Gas and Electric Light and Power Industries, as Shown by Reports of the Census Bureau	330
123. Average Annual Money Earnings in Public Utility Industries	334
124. Relative Average Annual Money Earnings in Public Utility Industries	335
125. Relative Average Annual Money Earnings in Public Utility Industries	336
126. Relative Real Annual Earnings of Wage-Earners in Public Utility Industries	339
127. Relative Real Annual Earnings of Wage-Earners in Public Utility Industries	340
128. Average Annual Earnings of Coal Miners by Census Years	345
129. Average Annual Money Earnings in Anthracite Coal Mines in Pennsylvania, as Shown by State Reports	346
130. Average Annual Money Earnings of Wage-Earners in the Coal-Mining Industry	350
131. Relative Real Annual Earnings of Wage-Earners in the Coal-Mining Industry	353
132. Earnings of Clerical and Salaried Employees in Manufacturing Industries in Census Years	359
133. Average Annual Earnings of Salaried Employees in Manufacturing Industries and of Clerks on Railways, Together with Relative Movement of Money Earnings	361
134. Relative Real Annual Earnings of Salaried Employees in Manufacturing Industries and of Clerks on Railways	364
135. Average Absolute and Relative Money and Real Earnings of Wage-Earners and Salaried Employees in Manufacturing Industries, Considered as a Single Group	369
136. Relative Money and Real Annual Earnings of Workers in the Mercantile Establishments of Ohio	370
137. Average Annual Earnings in the Service Industries in Ohio	371

LIST OF TABLES

xxi

138. Average Annual Salaries of Governmental Employees in Washington, D.C.	372
139. Average Annual Money Earnings (Including Bonuses) and Relative Movement of Money Earnings of Government Employees in the District of Columbia	375
140. Relative Real Annual Earnings (Including Bonuses) of Government Employees in the District of Columbia	376
141. Money and Real Earnings of Postal Employees	378
142. Movement of the Average Annual Salary of Teachers	382
143. Average Salary of Methodist and Congregational Ministers	386
144. Relative Money and Real Annual Earnings of Ministers	386
145. Comparative Weights Given to Average Earnings in Different Industries in Certain Years	390
146. Average Annual Earnings, Relative Money Earnings, and Real Earnings of Employed Wage-Earners in All Industries	391
147. Average Annual Earnings, Relative Money Earnings, and Real Earnings in All Industries	between 392 and 393
148. Average Gain over the Average for the Decade 1890-99 in Purchasing Power of Average Annual Earnings of Wage-Earners in All Industries	396
149. Distribution of Relatives of Money Earnings in Separate Industries	399
150. Distribution of Relatives of Real Earnings	399
151. Average Percentage of Unemployment in New York and Massachusetts Trade Unions in Manufacturing, Transportation, the Building Trades, and Other Occupations	406
152. Average Percentage of Unemployment among Trade-Unionists of New York and Massachusetts Classified by Groups	408
153. Course of Employment in Massachusetts Factories as Computed by Ralph G. Hurlin	417
154. Percentage of Unemployment among Non-Agricultural Workers, as Estimated by Hornell Hart	422
155. Unemployment in Columbus, Ohio	424
156. Percentages of Total Time Lost through Unemployment and Part-Time in Columbus, Ohio	425
157. Estimate by the National Bureau of Economic Research of Numbers Attached to Various Main Groups of Non-Agricultural Labor, and Numbers and Percentages Unemployed	426
158. Unemployment among All Non-Agricultural Labor, as Estimated by the National Bureau of Economic Research	427
159. Percentages of Unemployment in (1) Manufacturing and Transportation, (2) Manufacturing, Transportation, and Construction, (3) Manufacturing, Transportation, Construction, and Mining, According to Givens and Wolman	428
160. Most Probable Labor Supply for Manufacturing and Transportation, in Census Years	433
161. Estimated Normal Labor Supply for Manufacturing and Transportation as of the Middle of the Years	434

162. Estimated Total Number Employed in Manufacturing	438
163. Total Normal Labor Supply for and Employment in Manufacturing and Transportation, and Aggregate and Relative Unemployment	440
164. Estimated Percentages of Unemployment in Manufacturing and Transportation	445
165. Percentage of Unionists in Building Trades in New York and Massachusetts Reported Unemployed	450
166. Estimated Percentages of Unemployment in Building Trades in the United States	451
167. Estimated Total Labor Supply for Building Trades, Based on the Census and on the Assumption of Normal Growth and Change within Census Periods	454
168. Final Estimate of Labor Supply and of Unemployment in Building Trades	455
169. Unemployment in Anthracite and Bituminous Coal-Mining	456
170. Unemployment in Coal-Mining as a Whole	457
171. Estimated Percentages of Unemployment Among Those Attached to Combined Industries of Manufacturing, Transportation, and Construction	458
172. Unemployment in Manufacturing, Transportation, Building Trades, and Mining	460
173. Average Annual Money Earnings of Those Attached to the Manufacturing and Transportation Industries after Allowance is Made for Unemployment	463
174. Relative Money and Real Annual Earnings of Those Attached to the Manufacturing and Transportation Industries, Allowance Having Been Made for Unemployment	464
175. Relative Movement of Real Annual Earnings of Those Attached to the Manufacturing and Transportation Industries as Compared with That of the Workers Actually Employed Therein	465
176. Absolute and Relative Average Annual Earnings of Those Attached to the Manufacturing, Transportation, and Coal-Mining Industries after Allowance for Unemployment, Together with the Relative Purchasing Power of These Earnings	468
177. Relative Gain in Purchasing Power of Workers Attached to the Manufacturing, Transportation, and Coal-Mining Industries as Compared with 1890-99	470
178. Relative Movement of Average Annual Earnings on the Basis of Union Rates of Those Attached to the Building Industry, with Allowance for Unemployment, but Excluding Part-Time	472
179. Relative Movement of Real Annual Earnings on the Basis of Union Rates of Those Attached to the Building Industry, with Allowance for Unemployment, and a Comparison with the Relative Movement of the Real Earnings of Full-Time Workers	473
180. Probable Average Annual Money Earnings of the Unskilled with Allowance for Unemployment, but Excluding Part-Time	477

LIST OF TABLES

xxiii

181. Relative Money and Real Annual Earnings of the Unskilled, after Allowance for Unemployment, but Excluding Part-Time	479
182. Age Composition of the Male Population in Successive Decades	484
183. Illustration of Engel's Law in American Budgets as Regards the Percentage Spent for Food and Sundries	493
184. Comparative Movement of Real Earnings and Physical Productivity per Employee in All Manufacturing	510
185. Relative Movement of Real Earnings and Physical Productivity per Employee by Main Manufacturing Groups	512
186. Relative Deviation of Real Earnings from Average Physical Productivity	513
187. Comparison of Relative Real Earnings with Relative Physical Product per Employee in the Bituminous Coal Industry	515
188. Comparison of Real Earnings with Physical Product per Employee, in the Bituminous and Anthracite Industries Combined	516
189. Comparison of Real Earnings per Employee on Railroads with Average Relative Productivity per Employee	518
190. Comparison of Relative Movement of Real Earnings with Physical Productivity per Employee on Street Railways	520
191. Comparison of Relative Real Earnings with Relative Physical Productivity per Employee in Telephone Industry	521
192. Comparison of Relative Real Earnings with Relative Average Physical Product in Manufactured Gas Industry	522
193. Comparison of Real Earnings with Physical Product per Employee in Electrical Industry, in Census Years	523
194. Relative Price Movement of All Commodities and of Groups of Manufacturing, in Census Years	527
195. Relative Value in Exchange of a Unit of Manufactured Goods, in Census Years, in Terms of the All-Commodity Index	527
196. Comparison of Relative Value of Product per Employee with Real Earnings for Nine Major Groups of Manufacturing	529
197. Comparison of Relative Real Earnings and Relative Value Product per Employee in Nine Manufacturing Groups, in Census Years	531
198. Relative Movements of Prices at the Mine of Bituminous and Anthracite Coal, Together with Their Relation to that of the All-Commodity Index	534
199. Relative Real Wages and Value Product per Employee in the Coal Industry	536
200. Proportion which Wages Formed of Total Value Added by Manufacturing, in Census Years	540
201. Total Amount Paid in Wages and Salaries in Census Years, and Percentage which These Amounts Formed of the Total Value Added by Manufactures	540
202. Percentage which Wages and Salaries Formed of Value Added by Manufactures Less Rent and Taxes	542
203. Estimated Values of Manufacturing Buildings and Machinery and Equipment in Terms of Cost Prices	543

204. Net Value Added by Manufactures After Deduction is Made for Depreciation, and Percentages which Total Expended in Wages and Salaries Formed of Net Value, in Census Years	544
205. Relative Output per Man-Hour in Manufacturing	547
206. Relative Movement of the Cost of Living	549
207. Average Annual Earnings, Relative Earnings, and Real Earnings of Employed Wage-Earners in All Manufacturing Industries	550
208. Movement of Average Annual Earnings in the Main Manufacturing Groups	551
209. Average Hourly and Full-Time Weekly Earnings in Specific Manufacturing Industries	553
210. Real Wages	553
211. Movement of Wages of Unskilled Labor	555
212. Average Rates of Farm Wages	555
213. Net Volume of Immigration	565
214. Increase in Savings	568
215. Growth in Number and Proportion of Students Attending Public High Schools	570
216. Growth in Number Enrolled in American Colleges and Universities	572
217. Disparity Between Percentages of Unemployment Shown by Methods A and B of Brissenden	601
218. Comparison of Brissenden's Estimates of Unemployment and Lost Time in Manufacturing with Those of the Present Study for Manufacturing and Transportation	603
219. Comparison of Averages of Present Study for Manufacturing with Results of Brissenden's Study	605
220. Amount by which Brissenden's Average of Actual Earnings Exceeds the Averages of the Present Study for (1) Those Employed in and (2) Those Attached to Manufacturing	606
221. Comparison of Relative Movement of Annual Money Earnings of Those Attached to Manufacturing According to Douglas's Index, Compared with that of Brissenden	607
222. Indexes of Wholesale Prices of Clothing, Furniture, Fuel and Light, Tobacco and Spirits	609
223. Average Rate of Yearly Earnings by Months	610-12
224. Relative Real Earnings by Months	613-15
225. Relative Money Earnings by Months	616-18
226. Weights Employed in Computing Average Annual Earnings for All Industries	620
227. Weights Employed in Computing Averages of Hourly Earnings, Hours per Week, and Full-Time Weekly Earnings	621-22
228. Averages of Annual Earnings in States	623-25
229. Hourly Earnings — Gain or Loss since 1890-99	629-36
230. Full-Time Weekly Earnings — Gain or Loss since 1890-99	637-45
231. Average Annual Earnings — Average Net Yearly Change in Real Money Earnings	646-52

LIST OF CHARTS

1. Relative Movement of Retail Prices of 15 Food Commodities and 29 Food Commodities	23
2. Relative Movement of 29 Food Commodities at Retail Prices, as Compared with Bureau of Labor Statistics Wholesale Prices of Food Commodities	24
3A. Relative Movement at Wholesale and Retail Prices of 13 Identical Food Commodities	27
3B. Relative Movement at Wholesale and Retail Prices of 27 Identical Food Commodities	27
4. Relative Movement of Five Sets of Index Numbers of Wholesale Prices of Food	31
5. Index of Most Probable Relative Wholesale Prices of Food Commodities Consumed by Workingmen	35
6. Most Probable Index of the Relative Retail Price of Food to Workingmen	36
7. Most Probable Index of the Total Cost of Living for Workingmen	42
8. Comparative Movement of Cost of Living as Shown by Three Sets of Index Numbers	51
9. Relative Movement of the Cost of Living in the United States	58
10. Combined Index of Relative Living Cost	61
11. Comparison Between Relative Money Hourly Earnings and Relative Real Hourly Earnings in 'Union' Manufacturing Industries	99
12. Relative Real Hourly Wages in Specific 'Union' Industries in 1926, as Compared with the Average for 1890-99 = 100	100
13. Comparison Between Relative Money Hourly Earnings and Relative Real Hourly Earnings in 'Payroll' Manufacturing Industries	105
14. Relative Real Hourly Earnings in Specific 'Payroll' Manufacturing Industries in 1926, as Compared with the Average for 1890-99 = 100	107
15. Comparison Between Relative Money Hourly Earnings and Relative Real Hourly Earnings in All Manufacturing Industries	109
16. Relative Hours per Week in All Manufacturing Industries	117
17. Comparison Between Full-Time Weekly Money and Full-Time Weekly Real Earnings in 'Union' Manufacturing Industries	121
18. Comparison Between Average Full-Time Weekly and Full-Time Real Earnings in 'Payroll' Manufacturing Industries	128
19. Comparison Between Average Full-Time Weekly and Full-Time Real Earnings in All Manufacturing Industries	131
20. Average Real Hourly Earnings Compared with Real Full-Time Weekly Earnings in Building Trades	138
21. Average Real Hourly Earnings Compared with Real Full-Time Weekly Earnings in 'Union' Manufacturing Industries and Building Trades	141

22. Relative Full-Time Weekly Money and Real Earnings in Bituminous Coal Industry	145
23. Comparison of the Movement of Weekly Earnings in the Bituminous Coal Industry as Shown by the Methods of Using (1) Rates and Output and (2) Yearly Earnings Divided by the Days Worked	149
24. Relative Length of Standard Working Week in Bituminous Coal Industry	151
25. Relative Hourly Money and Real Earnings in the Bituminous Coal Industry	153
26. Relative Full-Time Weekly Money and Real Earnings in Anthracite Coal	155
27. Relative Real Full-Time Weekly Earnings and Real Hourly Earnings in the Coal Industry as a Whole	165
28. Relative Money and Real Full-Time Weekly Earnings of Railway Workers	169
29. Relative Money and Real Weekly Earnings of Seamen	172
30. Relative Real Full-Time Weekly and Hourly Earnings of Unskilled Labor	183
31. Relative Real Earnings of Farm Laborers, as Measured by Cost-of-Living Indexes of Douglas and King, Respectively	188
32. Relative Real Full-Time Weekly Earnings of Government Employees	195
33. Relative Real Weekly Earnings of Public School Teachers	202
34. Relative Real Hourly Earnings in All Industries	206
35. Average Standard Hours Per Week in All Industries	209
36. Relative Full-Time Weekly Real Earnings in All Manufacturing Industries as Shown by Fixed and by Changing Weights	212
37. Average Annual Percentage Gain or Loss in Purchasing Power of a Full-Time Week's Work in Various Major Industries	214
38. Average Annual Earnings of Employed Wage-Earners in Manufacturing, by Census Years	220
39. Graphic Illustration of Method of Interpolation for Intercensal Years by Use of State Averages of Earnings	230
40. Relative Real Annual Earnings of Employed Wage-Earners in All Manufacturing Industries	232
41. Movement of Real Annual Earnings of Employed Wage-Earners in All Manufacturing Industries, by Months	241
42. Movement of Real Annual Earnings of Employed Wage-Earners in All Manufacturing Industries	247
43. Relative Annual Real Earnings in Food Industries	255
44. Relative Real Annual Earnings in the Textile Industry	261
45. Relative Real Annual Earnings in the Clothing Industry	268
46. Relative Real Annual Earnings in the Iron and Steel Industry	273
47. Relative Real Annual Earnings in Agricultural and Electrical Machinery Industries	278
48. Relative Real Annual Earnings in the Brass, Bronze, and Copper and in the Plated Ware Industries	281

LIST OF CHARTS

xxvii

49. Relative Real Annual Earnings in the Lumber Industry	285
50. Relative Real Annual Earnings in the Leather Industry	289
51. Relative Real Annual Earnings in the Paper and Printing Industry	294
52. Relative Real Annual Earnings in the Chemical Industries	297
53. Relative Real Annual Earnings in the Stone, Clay, and Glass Industries	301
54. Relative Real Annual Earnings in the Tobacco and Beverage Industries	305
55. Relative Real Annual Earnings in the Vehicle Industry	309
56. Relative Annual Money Earnings According to Distance of the Industries from the Consumer	315
57. Movement of Real Annual Earnings in Land Transportation Industries	327
58. Movement of Real Annual Earnings in Public Utility Industries	341
59. Movement of Real Annual Earnings in the Coal-Mining Industry	354
60. Relative Movement of Real Annual Earnings of Clerical Workers	365
61. Relative Real Annual Earnings of Government Employees	379
62. Relative Real Annual Earnings of Teachers	383
63. Relative Real Annual Earnings of Ministers	387
64. Relative Real Annual Earnings of Employed Workers in Urban Industries (Including Mining) According to Methods of Constant and Changing Weights	394
65. Relative Real Annual Earnings of Employed Workers in All Industries (Including Agriculture) According to Methods of Constant and Changing Weights	394
66. Average Annual Gains and Losses Experienced by Various Groups of Workers, as Compared with the Average	398
67. Percentages of Unemployment among Trade-Unionists of New York and Massachusetts	406
68. Percentages of Unemployment Shown by Census Statistics for 1889 and 1899	411
69. Movement of Employment in Manufacturing and Transportation in Relation to the Normal Labor Supply	441
70. Labor Supply, Employment, and Unemployment in Manufacturing and Transportation	445
71. Estimated Percentages of Unemployment in Manufacturing and Transportation	446
72. Unemployment in the Building Trades	452
73. Unemployment in Coal Mining	457
74. Unemployment in Manufacturing, Transportation, and Construction	459
75. Percentages of Unemployment in Manufacturing, Transportation, the Building Trades, and Mining	460
76. Relative Real Earnings of Those Attached to Manufacturing and Transportation After Allowance for Unemployment	466
77. Relative Real Annual Earnings of Those Attached to Manufacturing, Transportation, and Mining After Allowance for Unemployment	471
78. Comparative Movement of Real Annual Earnings of Those Attached	

to the Building Trades, After Allowance for Unemployment, with Relative Movement of the Real Earnings of the Full-Time Workers	474
79. Relative Real Annual Earnings of the Unskilled After Allowance for Unemployment, but Excluding Part-Time	479
80. Sources of the Gain in 1926 in the Average Real Income of the Working Class over the Average for the Decade 1890-99	491
81. Comparative Movement of Real Earnings and Physical Productivity per Employee in All Manufacturing	511
82. Percentage by which Increase in Real Earnings Exceeded or Fell Below the Relative Change in Physical Output per Employee in 1925, in the Main Manufacturing Groups	513
83. Comparison of Relative Real Earnings and Relative Physical Product per Employee in the Bituminous Coal Industry	516
84. Comparison of Relative Real Earnings and Relative Physical Product per Employee in the Bituminous and Anthracite Industries Combined	517
85. Comparison of Relative Real Earnings with Relative Physical Productivity per Worker on the Railroads	518
86. Comparison of Relative Real Earnings and Relative Physical Productivity on the Street Railways	520
87. Comparison of Relative Real Earnings with Relative Productivity per Worker in the Telephone Industry	521
88. Comparison of Relative Real Earnings and Relative Physical Product per Worker in the Gas Industry	523
89. Comparison of Movement of Relative Real Earnings with Relative Physical Productivity per Worker in the Electrical Industry	524
90. Relative Value in Exchange of a Unit of Manufactured Goods, by Census Years	528
91. Comparison of Movement of Relative Real Earnings and Relative Value Product per Employee in All Manufacturing	530
92. Comparison of Relative Movement of Real Earnings of Nine Manufacturing Groups in 1925 with Movement of Average Value Productivity per Employee	532
93. Relative Movement of Real Earnings and of Average Value Product of Workers in the Bituminous Coal Industry	537
94. Proportion which Wages and Salaries Formed of the Total Value Added by Manufacturing, by Census Years	541
95. Proportion which Wages and Salaries Formed of the Total Net Value Added by Manufacturing After a Deduction for Depreciation, but not for Rent and Taxes	545

APPENDIX

APPENDIX A

A COMPARISON OF THE METHODS FOLLOWED AND RESULTS OBTAINED BY PAUL F. BRISSENDEN IN COMPUTING PERCENTAGES OF UNEMPLOYMENT AND AVERAGES OF THE EARNINGS OF FACTORY WORKERS WITH THOSE OF THE PRESENT STUDY

THE attention of the reader should be drawn to a Census Monograph by Paul F. Brissenden, *The Earnings of Factory Workers*, which covers some of the same ground covered by the present study, and the methods and results of which should be compared with those of this volume. Dr. Brissenden has evidently lavished care and attention upon his study, which bears manifest witness to the integrity and zeal of the author.

In order to compare these studies, it is necessary to analyze in some detail the methods used by Dr. Brissenden and to show how they differ from those employed in the present study. It is also necessary to account for the results obtained by the various methods and to appraise their significance.

Dr. Brissenden rejects the *average earnings of employed workers* (total paid out in wages in a given year divided by the average number employed), which is used in this study as an adequate measurement of wages, and computes, instead, what he terms: (1) the average hypothetical 'full-time' yearly earnings, or what the worker would have supposedly received had he been employed every hour within a 306 day working year; (2) the average actual yearly earnings which are found by correcting the 'full-time' yearly earnings by an allowance in each of the years for unemployment.

His reason for not using the average earnings of employed workers, or what he terms the 'Census average,' is apparently that it does not measure either what the workers would have received had they been employed full time or the average amount which they actually did receive after including unemployment.¹ Two other criticisms which he makes of this average are that, first, since the average number employed is based on payroll statistics, it includes more workers than are actually employed on the average; and, second, just because it is an average, it does not make allowance for changes in the sex and age composition of the working force, or for the changing proportions of the various types of labor which are employed. These criticisms are well taken, but it does not follow that they are sufficient to justify abandoning this type of unit for those which he adopts, which have, as we shall see, other defects.

It should constantly be borne in mind that we have again and again explicitly pointed out that, because our averages of the earnings of the employed workers do not include unemployment, they should not be taken to indicate what the average earnings of the wage-earning class are. Moreover,

¹ Paul F. Brissenden, *The Earnings of Factory Workers*, Washington, 1929; pp. 275-82.

we have constructed indexes of unemployment to take account of this very factor. The primary questions are, therefore:

(1) Whether it is better (a) to proceed directly from the Census average of the earnings of the employed workers to the average actual earnings of the wage-earning class by making an allowance for unemployment, as is done in my study, or (b) to attempt to build up the Census average into an average of full-time earnings and then to deflate this, in turn, by an allowance for short time and unemployment, as is done by Brissenden.

(2) Whether Brissenden's methods of expanding the Census average into a full time average and then of deflating it again are adequate and correct.

The discussion which follows will perhaps be slightly more intelligible if it is realized at the outset that what Brissenden terms the 'Census average wage' and what I call the 'average earnings of the employed workers' constitute virtually the same statistical unit. They both represent the total paid out in wages, divided by the average number of workers on the payroll; and they both use the Census data for these units. They are therefore identical for Census years. They differ for the years intervening between Censuses only because of the use of different sources and methods. But even here the differences are in general not great.

1. Brissenden's Expansion of the Census Average into an Average of Full-Time Earnings

Dr. Brissenden arrives at his basic figure of 'full-time' annual earnings by utilizing the report of the Census Bureau on the *Earnings of Wage-Earners*¹ in manufacturing in 1904. This gave the average actual weekly earnings of the wage-earners in their busiest week of 1904 for some 331 separate manufacturing industries and for all manufacturing as a whole. The average for all manufacturing was \$10.06. Now, as Brissenden points out, there is some time lost, even during the busiest period. Consequently, the average full-time yearly earnings could not be found by multiplying these averages of actual weekly earnings by 52 weeks, or if we allow for holidays, by 51 weeks. His method of making this allowance for lost time in 1904² is (a) to take the percentages of unemployment among New York trade unionists for one month in 1904, when the given industries were at their respective peaks, and assume that this measured the degree of under-employment in New York State at that time; (b) to modify these ratios into ratios for the country as a whole, on the assumption that the latter would differ from the New York ratios as they did in the Censuses of 1889, and 1899, when, as will be remembered, detailed data by industries and sections were gathered on unemployment.

In this way, Brissenden computed that the ratio of actual employment in all manufacturing to full employment for the busiest month of 1904 (October) was .870. Ratios were also worked out for 41 separate industries by similar methods.

Since the average actual earnings in the busiest week of that year were

¹ *Earnings of Wage-Earners*, Bulletin 93 of the United States Census Bureau, Washington.

² See chap. xiv of his Monograph (pp. 287-306), for a fuller discussion of the method used.

\$10.06, this figure was multiplied by the reciprocal of .870 or by 1.149, which was the ratio of full time to the time assumed to have been worked; and the product, or \$11.56, was declared to be the full-time weekly earnings. This was in turn multiplied by 51, to secure the full-time yearly earnings of \$590.¹ A similar procedure was followed in the case of the separate industries.

Average 'full-time' earnings were found for the other Census years on the assumption that they would bear the same ratio to the average for 1904 as the Census averages in these years bore to the 1904 Census average. Since the 1899 Census average was \$426, or 89 per cent of the 1904 Census average of \$477, the application of this ratio to the estimated 'full-time' average for 1904 of \$590 gave an average for 1899 of \$525. Similar methods were used for the other Census years.

These 'full-time' averages for the Census years were then estimated for the intercensal years, on the assumption that they would fluctuate within a Census period in the same relative degree as the average earnings of the employed workers. These latter averages are the ones which I have attempted to work out in Part III of this book. We both, of course, used the Census averages for the Census years, but the sources and methods which Brissenden used to find the probable averages for the intervening years were somewhat different from mine:

(1) For the years 1899-1914, Brissenden used as his source the average earnings in Massachusetts alone, while I included those in Wisconsin, New Jersey, Pennsylvania, Connecticut, Iowa, Ohio, and South Carolina. From 1914 on, Brissenden used the simple average of the Bureau of Labor Statistics series and that of Massachusetts. It will be remembered that I used New York, Massachusetts, New Jersey, Pennsylvania, and South Carolina to find the earnings for 1915, and that thereafter I used the average for the thirteen industries covered by the Bureau of Labor Statistics plus the twenty-two additional industries included in the New York reports, plus those for a few industries which were contained only in the reports of the Massachusetts Bureau. From 1922 on, I used the expanded series of the Bureau of Labor Statistics almost exclusively. I used the New York statistics during the period 1915-23, rather than the Massachusetts data, because I wished to get monthly indexes of earnings which were impossible to obtain from the Massachusetts statistics.

(2) Brissenden then found the ratios which these averages for the intercensal years bore to their corresponding average for the preceding Census year, and applied this ratio to the 'full-time' earnings which had been obtained for this preceding year. Thus, for example, he found that the Massachusetts average for 1902 was 7.4 per cent higher than the Massachusetts average for 1899. The estimated full-time earnings for 1899 were \$525, so that the estimated full-time earnings for 1902 were obtained by multiplying this figure by 1.074, giving an average of \$566.² The 1903 relative of Massachusetts earnings in comparison with their 1899 average was 1.102 and this gave \$579 as the estimated full-time wage for that year. The Census average

¹ Op. cit., Table 134; p. 397.

² Strictly speaking, the average should be \$564; that is, $\$525 \times 1.074$.

for 1904, as expanded into full-time earnings, was, as has been stated, \$590 and this was used as a point of reference for computing the average earnings for 1905, 1906, 1907, and 1908. The average for 1909, in turn, furnished the basis for applying the Massachusetts ratios for the four subsequent years.

It will have been noted that Brissenden assumes that the average earnings in the country as a whole would move from one Census year to the year *before* the next Census in the same ratio as did the earnings in the sample used for interpolation. No correction, however, was made for the fact that the difference between the average earnings of the sample and of the Census never remained constant from one Census year to another, and that therefore the Census average probably did not move in precisely the same ratio during the intercensal years as did that of the average of the State and of the Bureau of Labor Statistics figures. The rather elaborate method used in the present study to allow for these deviations in the rates of relative growth has already been described in Chapter XIII. Dr. Brissenden's method, however, not only does not allow for the gradual drift of State and Census averages into different ratios than prevailed in the preceding Census years, but it also malforms the real movement of earnings by throwing all the burden of correction upon the second of the two Census years which bound a Census period. This is well illustrated in the case of the period 1899-1904. The two Census averages for these years were, as stated, \$426 and \$477. These were built up into estimates of full-time yearly earnings of \$525 and of \$590. The year 1903 was, as we have seen, given an interpolated yearly average of \$579 because the Massachusetts average was 10.2 per cent greater in that year than it had been in 1899. This meant, therefore, that Brissenden's index shows an increase of \$11, or 2 per cent, from 1903 to 1904. This, however, is a paradoxical result, in view of the fact that the Massachusetts average for 1904 was itself only \$467, or 1 per cent less than the average of \$471 for 1903. The country-wide averages were therefore presumed to follow those of Massachusetts with mechanical fidelity for all of the years from 1899 to 1903, but since the Census average for 1904 was already known, the Massachusetts average was then assumed to move in an opposite direction from that of the nation as a whole from 1903 to 1904. Such a direct reversal of assumptions seems difficult to defend. An almost precisely similar situation is created for the period 1909-14. The Massachusetts average for 1913 was 11.2 per cent higher than for 1909, and this made Brissenden's estimate of the Census average earnings and of 'full-time' earnings for 1913 equal \$576 and \$712, respectively. Now the Census average for 1914 was \$580 and the built-up 'full-time' average was \$719. According to Brissenden's index, there was therefore an increase of 1 per cent in earnings during this year. Yet the Massachusetts figures, which are supposedly being used, show an actual decline from \$569 to \$563 during this year.

As a matter of fact, the 1903 and the 1913 averages should in all probability have been higher than those which Brissenden obtained, in order to allow for the decreases in 1904 and 1914. During the five years 1899-1904, the Census average increased by 12 per cent, while the Massachusetts average increased by only 9.5 per cent. The Census average rose by another 12 per

cent from 1909 to 1914, while the Massachusetts average was again increasing by only 9 per cent. In both of these cases, therefore, the Massachusetts figures understated the increases which were being obtained during this period in the country as a whole. The method adopted in the present study, of making an even allowance for differences in the rates of change, avoids the difficulties into which one is plunged by the use of Brissenden's method.

It is also doubtful whether Brissenden's averages sufficiently measure the drop in earnings which the employed workers suffered in 1908. He shows a fall of only 1 per cent, whereas my index registers a decrease of 9 per cent.

Turning, however, from the question of the adequacy of the methods and sources used for interpolation, let us examine somewhat more closely the precise meaning and the validity of Brissenden's unit of 'full-time' employment. The legitimacy of this proceeding depends in part upon whether full-time earnings are in fact secured by building up the average actual earnings by the modified index of unemployment. Lost time, as Dr. Brissenden elsewhere notes,¹ is composed not only of (1) 'unemployment without employment,' but also of (2) 'unemployment within employment.' This last occurs where the worker, although he has a job, yet loses some time within a pay period because of illness, absence, or the failure of management to provide continuous employment. Now it is one of the merits of the unit which I have called the 'average earnings of the employed workers,' and which Brissenden terms the 'Census wage,' that it does include this 'unemployment within employment.' Consequently, as we shall later see, when correcting this average for unemployment, it is necessary to modify it only by making allowance for 'unemployment without employment.'

But if Dr. Brissenden wishes to obtain a figure which will measure the *full-time earnings of all the workers*, he should clearly take cognizance of the time lost *within* as well as *without* employment during the busiest month, and hence he should have added to the actual earnings the wages foregone during the percentage of the time thus lost. This he has not done, since the New York statistics of trade unions which furnished the basis for the expansion coefficient measured only unemployment without employment. Yet there must have been some lost time, even within the busiest weeks of 1904. Even had this percentage of unemployment therefore been accurate, Brissenden would not have obtained from it alone an index of the total amount of lost time. Consequently, he could not have secured a completely accurate measure of what the earnings would have been had full time been worked.

There is good reason to believe that the measure of unemployment for 1904 was in itself faulty. This estimate for 1904, based on the New York figures, was that the percentage for the country as a whole was 13.0 per cent. Our index for manufacturing and transportation combined was only 7.1 per cent for that year. If manufacturing alone could have been segregated, this average might have been raised slightly, yet because of the predominant influence of manufacturing upon this general average, this increase would of necessity have been only slight. In all probability the average for manufacturing alone could not have exceeded 8 per cent. This seems to have been much nearer

¹ *Op. cit.*, chap. xvi.

the real condition than Brissenden's estimate of 13.0 per cent. The New York trade-union averages of unemployment seem, as a matter of fact, to have been consistently higher throughout the period 1897-1914 than the real average for the country as a whole.

Now I suppose it may be urged that the defects which I have pointed out in the averages of 'full-time' earnings serve in a sense to offset each other, since, if the omission of lost time within employment makes the average 'full-time' earnings too low, the use of the modified New York trade-union statistics of unemployment, on the other hand, makes the average too high. But we have no right to assume that these two sets of errors do in fact compensate each other and leave us with a correct average for 1904.

It is, moreover, almost certain that this is not effected for the other years. By changing the amounts of so-called 'full-time' earnings from year to year, as compared with 1904, by the relative changes in the average earnings of the employed workers, an assumption is made that changes in the latter measure changes in the former. This would be true only if 'unemployment within employment' remained the same. If, however, the ratio of the time thus lost were to change from, let us say, 8 to 2 per cent, the result would be that the average earnings of the employed workers would rise by 6 per cent. But this would reflect merely an increased steadiness of work on the part of those who hold jobs and could not therefore mean an increase in the full-time earnings which had always been a potential for the workers. Now while the relative amount of 'unemployment within employment' does not fluctuate as widely with the business cycle as does 'unemployment without employment,' some variation undoubtedly is present which is not taken account of in Brissenden's index of average full-time earnings. The fact that, according to the present study, the yearly earnings of the employed workers rose more rapidly than the full-time weekly earnings is in itself some, although not conclusive, evidence that the relative amount of lost time has in part decreased.

2. Brissenden's Deflation of Full-Time Earnings to Actual Earnings

Nor is this all. Brissenden finds it necessary to compute an index of unemployment, including lost time in employment, in order to deflate the full-time earnings to an 'actual' basis. This he does by a complicated process involving the following steps:¹ (1) Two 'bench mark' percentages of unemployment are computed from basic data in W. L. King's study of *Employment, Hours, and Earnings in Prosperity and Depression*. Bench Mark A is found by assuming that, even at the peak of employment during the third quarter of 1920, there was 5 per cent of unemployment, although this may have been a slight overestimate, since the average for the entire year, according to the later study of the National Bureau of Economic Research, was only 4.6 per cent. The total available hours in this period were therefore set as 5 per cent more than those actually worked.² The total hours which King estimated were actually worked in 1921 were then compared with the estimate of the total hours available in the third quarter of 1920 and found to be, for

¹ *Op. cit.*, chap. XVI.

² *Ibid.*, pp. 332-33.

all manufacturing, 65.8 per cent of this former total. This made the percentage of unemployment and of underemployment for 1921 equal to 34.2.

Bench Mark B was found by taking the year of peak employment, which was set for manufacturing as a whole in 1916, and which varied for specific industries from that year to 1923, and assuming that the ratio of actual employment to full-time employment was that which was shown by King for employed workers during the first quarter of 1920. This ratio was for all manufacturing 98.1 per cent, and the percentage of unemployment in the peak of 1916 was accordingly set at 1.9. But here Dr. Brissenden evidently overlooked the fact that this was merely the *ratio of time worked by those on the payroll to the time which they could have worked*. It did not include the time lost by those who were not employed at all. This is clearly shown by the title of King's table which Dr. Brissenden quotes,¹ namely, *An Estimate... of the Per Cent of Full-Time Worked by the Average Employee while on the Payroll*.

In other words, while Dr. Brissenden, in setting up this bench mark, now takes account of 'unemployment within employment,' which he had ignored in getting his estimates of full-time earnings for 1904, he nevertheless ignores 'unemployment without employment' which was what he had previously emphasised. Now, if our estimate of 3.5 per cent for 1916 be correct, it would follow that the total percentage of lost time, according to Bench Mark B, should be 5.4 per cent instead of 1.9 per cent.

(2) Dr. Brissenden's second step consisted in applying, over the period of years, percentage deviations of employment from 'normal' to the percentages of unemployment (or the computed ratios of employment to the available labor hours) in the bench mark years.² These deviations were arrived at in an ingenious and complicated manner. The relationship between changes in the indexes of physical production from 1919 to 1923 inclusive and changes in the numbers employed was studied and it was found that, on the average, a change of 1 per cent in the total product for all manufacturing industries was accompanied by a corresponding change in the numbers employed of .698 per cent, or approximately seven tenths as great a relative change. Different ratios were worked out for separate groups of industries³ and then applied to appropriate individual industries.

The year 1919 was taken as the starting-point of 100 and changes in 'normal' employment were deduced from changes in production. E. E. Day's 'adjusted' index was then used to measure these changes in production. By 'adjusted' was meant the deviation of production from the secular trend. This latter term was treated as 'normal.'

Brissenden assumed that the year 1919 could be regarded as 'normal' and that, since the index of production rose 3 per cent above 'normal' in

¹ W. I. King, *Employment, Hours, and Earnings in Prosperity and Depression*, New York, 1923; p. 49.

² For the steps in this method see chap. xv; pp. 311-37.

³ The regression equations of X (employment) on Y (production) were:

Iron and steel.....	$X = .560 Y$	Leather goods	$X = .672 Y$
Metals, machinery....	$X = .495 Y$	Paper.....	$X = .503 Y$
Cotton manufactures..	$X = .256 Y$	Printing.....	$X = .061 Y$
Woolen goods.....	$X = .842 Y$		

1920, the index of employment therefore rose by .698 per cent $\times 3$ or by 2.094 per cent, and it was accordingly set as 102.1. In the following year the index of production was only 78 per cent of 'normal,' and the ratio of employment to normal was therefore placed as $100 - (.698 \times 22)$ or as 84.6. In a similar fashion, the indexes of employment in comparison with normal were found for each and every year from 1899 to 1925 from the index of production in comparison with its 'normal.'

(3) These indexes of employment were then applied to the bench mark averages which had been worked out by the methods previously described. Thus the relative index for 1921 was 84.6, and since the ratio of actual employment to full employment in that year was found by Method A to be 65.8, the two were regarded as equivalent. The estimated percentages on the basis of Bench Mark A were then found by assuming that the relative changes in the index of employment from 1921 measured corresponding relative changes in the index of unemployment. In 1923, the index of employment was 1.07, and the estimated ratio of actual to full employment was consequently found by the following ratio: $1.07 : .846 = X : .658$, or .832. In 1915, for example, the index of employment to normal was .982 and then the ratio of actual employment to full was $.982 : .846 = X : .658$, or .764.

The same method was applied to convert the averages of Bench Mark B into averages for the other years. Thus in 1916, when the ratio of actual to full employment was declared to be .981 (although, as we have seen, it was probably much nearer .946, that is, $1.00 - .054$), the index of employment in terms of its 'normal' was 1.073. Then the 1915 average was found by the ratio $.982 : 1.073 = X : .981$, which gave a result of .897.

The wide disparity between the percentages of unemployment resulting from the use of these two methods¹ is shown in Table 217.

It is thus seen that Method A gives a percentage of unemployment which is on the average nearly three times as great as that obtained by Method B, and that in some years the differences between them are even greater. Thus in 1916, which is the base year chosen for Method B, the percentage according to Method A is no less than 8.7 times as great as that by Method B, while the same ratio between the two also applies in the case of 1906. In 1923, Method A is 7.7 times; and in 1905 and 1907, 4.8 times as great as Method B. Indeed, in only two years (namely, 1908 and 1921) was the percentage according to Method A less than twice that obtained by Method B.

Dr. Brissenden took the simple average of these two percentages as his choice of the most probable amount of unemployment, because it was decided 'that the true ratio of actual to full employment must fall somewhere between the result obtained by Method A and the result obtained by Method B,'² and also, apparently, because the average of 18.1 per cent of unemployment which was thus obtained for 1904, closely approximated the 14.5 per cent which the factories lost in that year from not being in operation.

When we find two indexes which, though designed to measure the same phenomena, differ so widely from each other, it is surely unwise to believe that merely averaging them thereby cancels the errors of both and leaves a

¹ For the data, see Table 148 in Dr. Brissenden's Monograph; p. 330.

² *Ibid.*

TABLE 217. DISPARITY BETWEEN PERCENTAGES OF UNEMPLOYMENT SHOWN BY METHODS A AND B OF BRISSENDEN

Year	Percentage of Unemployment According to		Ratio of Method A to B (A + B)
	Method A	Method B	
1899.....	22.0	8.3	2.7
1900.....	24.2	10.9	2.2
1901.....	21.5	7.7	2.8
1902.....	19.3	5.1	3.8
1903.....	20.9	7.1	2.9
1904.....	24.7	11.5	2.1
1905.....	18.1	3.8	4.8
1906.....	16.5	1.9	8.7
1907.....	18.1	3.8	4.8
1908.....	29.0	16.7	1.7
1909.....	20.4	6.4	3.2
1910.....	21.5	7.7	2.8
1911.....	25.8	12.8	2.0
1912.....	20.4	6.4	3.2
1913.....	20.4	6.4	3.2
1914.....	26.4	13.4	2.0
1915.....	23.6	10.3	2.3
1916.....	16.5	1.9	8.7
1917.....	19.3	5.1	3.8
1918.....	20.9	7.1	2.9
1919.....	22.2	8.6	2.6
1920.....	20.6	6.7	3.1
1921.....	34.2	22.7	1.5
1922.....	24.4	11.2	2.2
1923.....	16.8	2.2	7.7
1924.....	22.8	9.2	2.5
Average.....	22.0	8.3	2.7

correct result. In view of the contradictory nature of the materials out of which the average is obtained, the final result becomes highly questionable.

As a matter of fact, several more than questionable assumptions were made in the construction of the indexes. I have already mentioned the fact that in computing the B bench mark figure, only the allowance for time lost within employment was made, while the unemployment without employment was neglected. Had this been included, the disparity between Methods A and B would have been reduced, with the result that the average would have been raised and the actual yearly earnings reduced.

But three basic assumptions should here be noted. (1) The first is that 'normal' employment and 'normal' labor supply move together. It is difficult enough at best to determine what this 'normal' or secular trend of employment is, since there is no one definitive method for its determination, and the test of the final result must always be more or less of an aesthetic judgment,¹ but to assume an equality between it and the secular trend of the labor supply

¹ For a beautifully clear statement of this point, see Henry Schultz, *Statistical Laws of Demand and Supply with Especial Reference to Sugar*, Chicago, 1926; pp. 47-48.

is indeed most dangerous. It is precisely this, as we have seen, which is constantly assumed by nearly all of those who attempt to use fluctuations in employment as a direct measurement of unemployment. This is, however, one of the very issues upon which we most desire information, and to assume it as correct is in effect to beg the question. If, for example, the 'normal' labor supply were not increasing as rapidly as 'normal' employment, then the 'normal' percentage of unemployment would be shrinking; while if the labor supply were increasing more rapidly, the 'normal' percentage of unemployment would be rising. Yet neither of these tendencies would be shown if the fluctuations of employment around its normal were alone applied, as in this case, to bench mark percentages relating to one year only.

(2) In the second place, Dr. Brissenden assumes that a change of production from its 'normal' was accompanied throughout the period by the same relative change in employment from its 'normal' as occurred during the years 1918-23. Now there is evidence to indicate that the long-run changes of production and labor hold a fairly constant relationship with each other through the period. C. W. Cobb of Amherst College and I have indeed shown that the movement of production during the period 1899-1922 could have been described by the formula $1.01 L^{\frac{1}{3}} C^{\frac{2}{3}}$ where L represents the index number of workers employed, and C an index number of fixed capital reduced to dollars of constant purchasing power.¹ It is just this long-time relationship which is eliminated by the method of taking out the secular trends of both employment and production and of measuring only the deviations from the trend.

It does not follow, however, that these deviations from the trend bear a constant relation to each other. It is well known that the efficiency of labor varies within the business cycle, being higher when jobs are scarce and lower when jobs are plentiful. It is dangerous, therefore, to compute employment from production on the assumption that there is a constant relationship between the fluctuations from 'normal' of the two series.

(3) Finally, it is more than questionable whether indexes of unemployment can be worked out for specific manufacturing industries and even for manufacturing as a whole. This is because the supply of labor from which workers are drawn for specific industries is not divided into a series of hermetically sealed groups, each serving only a given industry, but is, instead, in the case of unskilled and even of semi-skilled labor, a general pool from which all industries draw their men. It follows that, since we cannot isolate the specific workers who are in reserve for an industry such as iron and steel, it is virtually impossible to measure the unemployment in that industry. The percentages of actual to full employment which were worked out by Dr. Brissenden for the various individual industries are therefore highly supposititious.

It is not even accurate to assume that there is a separate labor supply for manufacturing alone, since in fact there is an interchange between it, transportation, the building trades, public utilities, and even personal service. It follows, therefore, that it is necessary to compute a percentage of unem-

¹ C. W. Cobb and F. H. Douglas, 'A Theory of Production,' *American Economic Review*, March, 1928; pp. 139-65.

ployment over as wide a base as possible, and that the result for the whole will be much more accurate than that for any of its parts.

In view of all of these facts, it would appear that it is more accurate to compute an index of unemployment which is based on: (1) statistics of the actual labor supply in each of the years for as large a group as possible; (2) statistics of the most probable numbers employed in each of the years derived directly from employment statistics. By subtracting the latter set of totals from the former, we obtain the most probable numbers and percentage of the unemployed. This percentage can then be applied directly to the earnings of the employed workers. Since these already make allowance for the loss of earnings resulting from unemployment within employment, they need only to be modified by statistics of unemployment without employment in order to obtain the average earnings of the wage-earning class. It is precisely this method which has been followed out in the present study.

The differences between Brissenden's final estimated average percentages of unemployment in manufacturing during the various years and our averages for manufacturing and transportation combined are shown in Table 218.

TABLE 218. COMPARISON OF BRISSENDEN'S ESTIMATES OF UNEMPLOYMENT AND LOST TIME IN MANUFACTURING WITH THOSE OF THE PRESENT STUDY FOR MANUFACTURING AND TRANSPORTATION.

Year	Brissenden's Average	Douglas-Stinebower Average	Per Cent by which Brissenden Average Exceeds that of Douglas and Stinebower
1899.....	15.1	7.7	7.4
1900.....	17.5	6.3	11.2
1901.....	15.6	4.5	11.1
1902.....	12.2	3.5	8.7
1903.....	14.0	3.5	10.5
1904.....	18.1	7.1	11.0
1905.....	10.9	4.0	6.9
1906.....	9.2	3.5	5.7
1907.....	10.9	3.5	7.4
1908.....	22.8	12.0	10.8
1909.....	13.4	5.1	8.3
1910.....	14.6	3.7	10.9
1911.....	19.3	5.6	13.7
1912.....	13.4	4.0	9.4
1913.....	13.4	5.4	8.0
1914.....	19.9	12.9	7.0
1915.....	16.9	12.4	4.5
1916.....	9.2	3.5	5.7
1917.....	12.2	3.5	8.7
1918.....	14.0	3.5	10.5
1919.....	15.4	4.0	11.4
1920.....	13.6	4.3	9.3
1921.....	28.4	21.2	7.2
1922.....	17.8	15.4	2.4
1923.....	9.5	4.4	5.1
1924.....	16.0	8.3	7.7
Average.....	15.1	6.6	8.5

Had our index been computed separately for manufacturing, it would have been slightly, but only slightly, higher than our combined index.

Since Brissenden's index includes lost time within employment while ours does not, it would naturally be expected that his averages should appreciably exceed ours. This is, in fact, the case. Brissenden's average percentage of lost time and unemployment for the twenty-six years from 1899 to 1924 inclusive was 15.1 per cent, while our average for unemployment in manufacturing and transportation was 6.6 per cent. Had manufacturing alone been considered, it is probable that our average would have been approximately 7.0 per cent.

3. The Paradox that Brissenden's Average, which Includes a Deduction for Unemployment, should Exceed the Census Average, which does not

Turning now to a comparison of the various sets of average earnings which have been worked out in this study with those of Brissenden, we find that not only are his averages of annual 'full-time' earnings greatly in excess of my averages for the 'employed' workers, as might be expected, but that even his averages of 'actual' earnings, which supposedly deduct for unemployment and lost time, are slightly in excess of my 'Census' averages for the 'employed' workers, which, while deducting for lost time within employment, do not make any deduction for unemployment. It follows, therefore, that his averages of 'actual' earnings are still more in excess of my average of earnings for the class *attached* to manufacturing. This last figure was obtained by applying the proportion of the labor supply for manufacturing and transportation which was employed in the various years to the average earnings of the employed wage-earners in manufacturing. Had it been possible to have computed this ratio for manufacturing alone, it would, because of the greater amount of unemployment there than in transportation, have been slightly lower. The consequent earnings of those attached specifically to manufacturing (in so far as they can be separated) were therefore actually somewhat lower than those given by my methods in Table 219, and the difference between them and Brissenden's averages, which are supposed to measure the same thing, is in fact somewhat greater than appears in this table.

A clearer impression of the degree to which Brissenden's average of actual earnings exceeds my averages for both the employed in manufacturing and for those attached is by simply measuring the difference between them. This is done in Table 220.

In all but three years, therefore, Brissenden's averages of 'actual' yearly earnings (which included deductions for unemployment and short time) were higher than the Census average which I have computed and which does not make any deduction for unemployment. In all but five years, indeed, his averages of 'actual' earnings exceeded his own 'Census averages.'¹ The amount of this excess of the 'actual' over the 'Census average' ranged generally from 3 to 10 per cent. In the Census year of 1899, Brissenden's average was 5 per cent more than that of the Census; in 1904, it was 1 per

¹ *Op. cit.*, Table 20; p. 53.

TABLE 219. COMPARISON OF AVERAGES OF PRESENT STUDY FOR MANUFACTURING WITH RESULTS OF BRISSENDEN'S STUDY

Year	Average Earnings According to Present Study (in dollars)		Average Earnings According to Brissenden (in dollars)	
	Employed Workers	Those Attached Actual Earnings *	Employed Workers, Full-Time Earnings	Those Attached Actual Earnings
1899.....	426	394	525	446
1900.....	435	408	544	449
1901.....	456	435	552	471
1902.....	473	456	566	497
1903.....	486	469	579	498
1904.....	477	443	590	483
1905.....	494	474	602	536
1906.....	506	488	626	568
1907.....	522	504	650	579
1908.....	475	418	643	496
1909.....	518	492	643	557
1910.....	558	537	654	559
1911.....	537	507	662	534
1912.....	550	528	684	592
1913.....	578	547	712	617
1914.....	580	505	719	576
1915.....	568	488	732	608
1916.....	651	628	846	768
1917.....	774	747	980	860
1918.....	980	946	1284	1104
1919.....	1158	1112	1433	1212
1920.....	1358	1300	1722	1488
1921.....	1180	930	1462	1047
1922.....	1149	972	1424	1171
1923.....	1254	1199	1566	1317
1924.....	1240	1137	1560	1310
1925.....	1280	1215	1582	1402
1926.....	1309	1250	1610	1436

* Obtained by multiplying the average earnings of those employed in manufacturing by the proportion of the labor supply for manufacturing and transportation which was employed in each of the several years.

cent more; in 1909, the excess amounted to 7 per cent; in 1919, to 5 per cent; in 1923, to 5 per cent; and in 1925, to 10 per cent. Two of the years in which the 'average earnings of the employed' exceeded Brissenden's 'actual earnings' were Census years; namely, 1914 and 1921. In 1914, however, this amounted to only \$4 or less than 1 per cent. In 1921 the difference was much greater, amounting to \$133 or 12 per cent. In each case, however, the amount of unemployment is known to have been more than this amount, and consequently the real average 'actual' earnings were even less in these years than Brissenden's estimates.

Since the Census average already covers short time, it needs only to be scaled down for unemployment to give the actual earnings. It is therefore clearly a contradiction in terms, for another figure, which purports to make allowance for unemployment as well as short time, to be so almost uniformly higher than it. How, it may be queried, can a figure which, because it in-

TABLE 220. AMOUNT BY WHICH BRISSENDEN'S AVERAGE OF ACTUAL EARNINGS EXCEEDS THE AVERAGES OF THE PRESENT STUDY FOR (1) THOSE EMPLOYED IN AND (2) THOSE ATTACHED TO MANUFACTURING

Year	Amount by which Brissenden's Average 'Actual' Earnings Exceed those of Present Study (in dollars)		Year	Amount by which Brissenden's Average 'Actual' Earnings Exceed those of Present Study (in dollars)	
	Average of those Employed	Average of those Attached		Average of those Employed	Average of those Attached
1899.....	20	52	1913....	39	70
1900.....	14	41	1914....	- 4	71
1901.....	15	36	1915....	40	120
1902.....	24	41	1916....	117	140
1903.....	2	29	1917....	86	113
1904.....	6	40	1918....	124	158
1905.....	42	62	1919....	54	100
1906.....	62	80	1920....	130	188
1907.....	57	75	1921....	-133	117
1908.....	21	78	1922....	22	199
1909.....	39	65	1923....	63	118
1910.....	1	22	1924....	70	173
1911.....	-3	27	1925....	122	187
1912.....	42	64	1926....	127	186

cludes unemployment, should be lower than the Census average (which does not take account of the earnings lost through unemployment, but which in other respects should be the same) be actually higher?

All the evidence seems to indicate, therefore, that Dr. Brissenden's averages of actual earnings are too high in absolute terms, and that this excess is caused by either or both of the following factors: (1) The use of too high a percentage of unemployment for 1904, when the average earnings of the employed were expanded to secure the full-time earnings; (2) The use of too low a percentage for lost time and unemployment to deflate this full-time average.

It seems clear that most of this difficulty resulted because Dr. Brissenden introduced several unnecessary steps in his computations, and thereby multiplied the possibilities of error. Instead of moving directly from the average earnings of the employed to the average of those attached, through the intermediate step of computing the relative amount of unemployment, Brissenden tried to expand the average earnings of the employed into full-time earnings (though, as we have pointed out, he omitted lost time within the busiest week of 1904) and then tried to deflate this by an allowance for both part time and unemployment. He thus first put unemployment in and then took it out, and therefore, in effect, largely cancelled any attempt to deduct its absolute volume from the average earnings. In addition (1) the method of expanding the Census average for unemployment by using the New York trade-union percentages of 1904 seems to have been faulty, since these almost certainly showed a larger amount of unemployment than then prevailed in the country as a whole. (2) It is by no means certain that the full-time earnings of the

employed fluctuated in precisely the same ratio as the Census average wage. The fact that actual earnings, according to my indexes, increased relatively more rapidly than full-time earnings does, indeed, offer some evidence to indicate that the relative amount of lost time within employment may, with better management, have diminished during this period. (3) The attempt to obtain a measure of unemployment, by assuming that the ratios between employment and production which prevailed during 1919 and 1923 prevailed throughout all of the years of the period, is somewhat dangerous, and to apply this to the bench mark figures is an indirect method of obtaining percentages of unemployment which can be reached by more direct means. The method also involves the assumption that the trends of employment and of the labor supply bear a constant ratio to each other, which need not be the case.

h. While Brissenden's Averages of Actual Earnings are too High, their Relative Movement is Closely Similar to that of the Present Study

But while I believe Dr. Brissenden's averages of actual earnings are, in absolute terms, higher than they should be, and that those of the present

TABLE 221. COMPARISON OF RELATIVE MOVEMENT OF ANNUAL MONEY EARNINGS OF THOSE ATTACHED TO MANUFACTURING ACCORDING TO DOUGLAS'S INDEX, COMPARED WITH THAT OF BRISSENDEN

Year	Douglas's Index of Average Money Earnings of those Attached to Manufacturing 1890 = 100	Brissenden's Index of Average 'Actual' Earnings in Manufacturing after Allowance for Unemployment 1890 = 100	Relation of Brissenden's Index to Douglas's Index	
			Points	Per Cent
1900.....	104	101	- 3	-3
1901.....	110	108	- 4	-4
1902.....	116	111	- 5	-4
1903.....	119	112	- 7	-6
1904.....	112	108	- 4	-4
1905.....	120	120	0	0
1906.....	124	127	+ 3	+2
1907.....	128	130	+ 2	+2
1908.....	106	111	+ 5	+5
1909.....	125	125	0	0
1910.....	136	125	-11	-8
1911.....	129	120	- 9	-7
1912.....	134	133	- 1	-1
1913.....	139	138	- 1	-1
1914.....	128	139	+ 1	+1
1915.....	126	136	+10	+8
1916.....	159	172	+13	+8
1917.....	190	193	+ 3	+2
1918.....	240	248	+ 8	+3
1919.....	282	272	-10	-4
1920.....	330	334	+ 4	+1
1921.....	236	235	- 1	-1
1922.....	247	263	+16	+7
1923.....	304	295	- 9	-3
1924.....	289	294	+ 5	+2
1925.....	308	314	+ 6	+2
1926.....	317	322	+ 5	+2

study are a much closer approximation to reality, it should nevertheless be noted that his measurements of *relative* changes in the *actual* earnings of those attached to manufacturing are very similar indeed to mine. I have reduced our averages to relatives, with the respective averages for 1899 serving as the point of reference for each, and these are as shown in Table 221.

The difference between the two was, therefore, never greater than 8 per cent, while in twenty of the twenty-seven years it did not exceed 4 per cent, and in thirteen years it was not more than 2 per cent. Despite their differences in absolute earnings, therefore, the two studies do tend to corroborate each other in the *relative changes* in earnings which they show after making allowance for unemployment. Since Dr. Brissenden has now adopted my cost of living index, there is no difference between the two studies in this respect.¹

¹ In an earlier article, Dr. Brissenden used the index of relative retail food prices as his cost of living index, which made the relative position of labor throughout the period appear much less favorable than it was in reality. See Paul Frederick Brissenden, 'Changes in the Purchasing Power of Manufacturing Labor Incomes in the United States, 1899-1925,' *Wirtschafliches Archiv*, Kiel and Jena, 27 Band, 1928; pp. 123-62.

APPENDIX B

INDEXES OF WHOLESALE PRICES

**TABLE 222. INDEXES OF WHOLESALE PRICES OF CLOTHING, FURNITURE,
FUEL AND LIGHT, TOBACCO AND SPIRITS**

Year	Clothing	Furniture	Fuel and Light	Tobacco and Spirits	Year	Clothing	Furniture	Fuel and Light	Tobacco and Spirits
890.....	113	111	105	96	1903.....	106	114	159	112
891.....	110	111	103	98	1904.....	107	113	138	113
892.....	110	109	100	95	1905.....	110	109	132	115
893.....	106	108	100	96	1906.....	117	114	136	116
894.....	94	103	92	99	1907.....	125	123	141	116
895.....	94	96	102	103	1908.....	118	120	*	118
896.....	90	89	105	101	1909.....	118	119	*	118
1897.....	90	86	94	100	1910.....	119	123	*	116
1898.....	95	94	92	105	1911.....	116	131	*	117
1899.....	99	96	108	108	1912.....	118	140	*	118
1900.....	106	106	121	110	1913.....	120	154	*	116
1901.....	99	106	118	113	1914.....	118	163	*	118
1902.....	101	113	139	113					

* Spliced for these years by a combined index of the retail prices of coal and gas. With April, 1907, as 100, the indexes for April in the following years were: 1903, 100; 1909, 99; 1910, 98; 1911, 96; 1912, 94; 1913, 96; 1914, 95; December, 1914, 94.5; 1915, 94.2.

APPENDIX C

MONTHLY INDEXES OF THE MOVEMENT OF MONEY AND REAL EARNINGS IN THE MAIN GROUPS OF MANUFACTURING INDUSTRIES, 1915-26 AND FOR RAILROADS, 1921-26

(Note. Corresponding monthly averages and indexes have been worked out for each of the thirty-eight separate manufacturing industries, and if there is sufficient demand, mimeographed copies will be furnished by the author to any one who wishes this information.)

TABLE 223. AVERAGE RATE OF YEARLY EARNINGS, BY MONTHS (in dollars)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Lead Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1915													
Jan.....	566	516	406	821	611	651	500	694	535	816	551		
Feb.....	557	518	407	552	642	661	509	650	534	786	552		
March....	541	540	422	565	662	718	526	661	544	835	563		
April.....	557	548	415	531	679	647	529	667	516	860	565		
May.....	561	553	426	494	672	664	538	673	537	814	562		
June.....	553	577	419	509	695	653	544	672	566	826	570		
July.....	536	560	403	518	668	629	537	681	567	758	561		
Aug.....	533	575	421	540	692	625	519	677	553	801	570		
Sept.....	535	572	425	541	693	628	533	682	553	762	570		
Oct.....	548	566	409	562	703	619	545	694	562	837	579		
Nov.....	559	578	426	561	707	658	513	700	571	810	579		
Dec.....	578	570	433	530	743	671	548	691	555	822	587		
1916													
Jan.....	572	575	439	561	718	690	541	681	506	843	598		
Feb.....	584	567	461	604	764	725	551	674	539	854	617		
March....	596	575	466	620	775	719	561	687	551	883	628		
April.....	597	565	468	610	785	759	581	690	504	874	631		
May.....	605	590	491	538	822	780	595	696	547	903	646		
June.....	626	595	486	559	830	795	570	698	573	911	650		
July.....	600	581	461	529	766	783	580	683	559	911	622		
Aug.....	597	594	479	617	822	807	593	683	638	873	654		
Sept.....	614	621	493	677	850	835	609	697	645	921	676		
Oct.....	627	600	484	627	874	844	619	705	648	936	679		
Nov.....	639	612	503	597	886	850	631	730	664	921	693		
Dec.....	659	626	532	602	914	889	632	734	661	922	710		
1917													
Jan.....	671	595	534	633	918	873	606	725	624	906	711		
Feb.....	682	595	535	701	904	846	587	711	631	968	715		
March....	685	607	539	717	948	863	634	728	653	1025	741		
April.....	685	596	528	628	912	808	636	725	637	1007	722		
May.....	662	618	565	615	1009	872	663	740	669	1062	762		
June.....	698	629	576	643	999	896	690	742	684	1047	772		
July.....	684	613	574	667	964	874	684	732	614	1038	780		
Aug.....	696	626	569	697	1009	921	707	745	709	1001	778		
Sept.....	713	625	577	721	1027	1015	709	759	741	1078	796		
Oct.....	730	630	594	732	1134	934	720	772	770	1112	829		
Nov.....	744	638	634	702	1160	940	747	812	785	1143	853		
Dec.....	758	634	643	697	1146	960	733	804	780	1136	850		
1918													
Jan.....	767	624	618	721	1078	844	679	807	713	1006	814		
Feb.....	775	639	599	805	1121	928	696	810	741	1062	836		
March....	778	666	673	854	1189	993	747	879	796	1139	868		
April.....	814	685	714	772	1214	1079	816	897	792	1175	926		
May.....	841	689	736	818	1319	1107	851	893	847	1276	971		
June.....	858	754	751	829	1330	1127	890	924	916	1248	995		
July.....	895	740	790	878	1313	1149	881	920	852	1267	1005		
Aug.....	906	663	793	871	1368	1148	901	952	964	1374	1027		
Sept.....	940	749	817	871	1444	1207	947	984	1012	1374	1071		
Oct.....	986	753	771	884	1545	1226	942	1006	982	1409	1087		
Nov.....	1023	798	701	825	1426	1195	935	1017	984	1280	1022		
Dec.....	1074	845	837	879	1540	1218	979	1082	1102	1351	1127		

APPENDIX C

611

TABLE 223 (continued)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1919													
Jan....	1008	815	773	926	1492	1235	954	1062	1076	1338	1090		
Feb....	980	798	704	912	1488	1198	932	1047	1067	1434	1073		
March...	1005	816	720	1035	1475	1167	937	1084	1083	1422	1093		
April....	979	785	749	984	1424	1172	946	1068	1034	1411	1079		
May....	1015	834	792	934	1387	1193	977	1072	988	1433	1091		
June....	1039	838	870	967	1408	1193	984	1113	1074	1342	1113		
July....	1028	860	878	1087	1392	1236	1001	1112	1071	1353	1131		
Aug....	1052	889	881	1202	1508	1198	1032	1142	1075	1351	1172		
Sept....	1096	952	893	1252	1526	1302	1086	1196	1139	1453	1216		
Oct....	1069	949	868	1175	1538	1359	1082	1167	1097	1573	1223		
Nov....	1120	989	882	1206	1567	1364	1128	1196	1160	1568	1241		
Dec....	1167	1013	1027	1302	1693	1382	1153	1309	1169	1626	1303		
1920													
Jan....	1149	991	1031	1350	1624	1374	1145	1321	1191	1634	1317		
Feb....	1151	963	1013	1416	1630	1392	1105	1320	1171	1665	1308		
March...	1188	1044	1042	1474	1723	1452	1136	1395	1253	1663	1364		
April....	1115	1013	1068	1359	1683	1452	1208	1373	1293	1620	1351		
May....	1243	1098	1071	1328	1739	1455	1217	1431	1357	1684	1369		
June....	1247	1094	1109	1272	1759	1478	1235	1444	1392	1659	1399		
July....	1233	1087	1088	1279	1703	1502	1222	1408	1256	1638	1371		
Aug....	1206	1086	1098	1291	1740	1473	1213	1432	1441	1751	1390		
Sept....	1238	1087	1071	1181	1778	1536	1100	1445	1454	1710	1381		
Oct....	1244	1090	929	1294	1788	1460	1186	1478	1493	1834	1377		
Nov....	1238	1071	927	1165	1771	1459	1182	1456	1499	1463	1334		
Dec....	1215	1049	919	1129	1758	1365	1114	1410	1481	1442	1309		
1921													
Jan....	1234	992	852	1133	1652	1270	992	1383	1362	1443	1224		
Feb....	1228	904	861	1231	1513	1252	964	1350	1271	1271	1197		
March...	1212	932	884	1320	1470	1199	988	1372	1244	1336	1214		
April....	1163	912	892	1230	1375	1199	985	1361	1236	1556	1189		
May....	1194	935	900	1134	1332	1184	977	1351	1235	1616	1198		
June....	1137	933	903	1139	1244	1197	957	1373	1221	1599	1186		
July....	1136	911	865	1200	1177	1135	963	1372	1111	1558	1167	1532	1538
Aug....	1103	923	864	1278	1205	1141	957	1362	1193	1573	1171	1588	1594
Sept....	1136	915	868	1198	1181	1091	964	1371	1183	1490	1162	1524	1537
Oct....	1124	876	823	1062	1176	1090	967	1372	1157	1426	1137	1562	1569
Nov....	1098	836	822	1051	1193	1098	953	1355	1149	1363	1114	1520	1536
Dec....	1132	866	806	1124	1222	1094	973	1398	1179	1202	1109	1531	1558
1922													
Jan....	1091	845	848	1113	1173	1114	953	1389	1159	1318	1125	1543	1547
Feb....	1078	806	862	1171	1158	1072	890	1321	1097	1338	1106	1465	1476
March...	1087	846	828	1056	1214	1130	928	1396	1080	1387	1114	1620	1593
April....	1045	796	806	999	1216	1140	937	1372	1063	1554	1109	1499	1532
May....	1086	879	824	1036	1250	1169	970	1391	1112	1602	1137	1554	1570
June....	1083	914	827	1057	1267	1176	974	1395	1166	1600	1150	1545	1566
July....	1062	920	827	1172	1216	1144	981	1375	1187	1409	1137	1541	1514
Aug....	1021	917	824	1225	1292	1183	968	1377	1177	1541	1154	1669	1565
Sept....	1083	916	824	1211	1348	1249	1006	1427	1193	1551	1178	1658	1519
Oct....	1073	897	832	1147	1361	1223	990	1395	1154	1557	1170	1682	1546
Nov....	1099	917	824	1122	1423	1263	1020	1422	1209	1616	1191	1619	1526
Dec....	1121	906	829	1122	1466	1303	1025	1448	1214	1609	1210	1639	1530

TABLE 223 (continued)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1923													
Jan.....	1099	877	888	1234	1448	1307	990	1409	1150	1424	1196	1664	1547
Feb.....	1093	875	898	1261	1457	1287	993	1409	1136	1558	1194	1616	1467
March....	1108	896	920	1315	1497	1387	1014	1425	1201	1609	1236	1663	1568
April.....	1101	889	930	1203	1489	1400	1045	1437	1215	1641	1239	1568	1518
May.....	1157	907	980	1127	1593	1438	1071	1458	1275	1647	1279	1614	1557
June.....	1163	914	968	1147	1561	1425	1080	1452	1321	1611	1280	1575	1541
July.....	1140	912	935	1176	1485	1424	1063	1450	1300	1625	1259	1575	1540
Aug.....	1081	872	925	1171	1554	1394	1066	1410	1307	1646	1246	1611	1579
Sept.....	1151	893	928	1077	1537	1436	1077	1421	1323	1584	1259	1536	1529
Oct.....	1116	933	915	1166	1591	1446	1104	1453	1322	1716	1284	1650	1593
Nov.....	1178	931	920	1142	1587	1447	1116	1441	1344	1700	1279	1634	1563
Dec.....	1167	946	933	1104	1587	1477	1106	1464	1336	1628	1294	1623	1559
1924													
Jan.....	1189	914	910	1152	1541	1464	1057	1460	1346	1385	1261	1604	1580
Feb.....	1185	909	917	1182	1576	1453	1073	1472	1331	1693	1287	1538	1523
March....	1182	921	902	1167	1582	1460	1089	1487	1316	1659	1281	1608	1567
April.....	1188	902	884	1117	1575	1428	1088	1496	1298	1662	1266	1545	1570
May.....	1210	920	870	1082	1558	1420	1078	1488	1305	1583	1250	1561	1568
June.....	1153	934	840	1077	1468	1385	1080	1481	1306	1470	1217	1605	1552
July.....	1119	912	899	1062	1361	1316	1023	1456	1279	1293	1166	1553	1590
Aug.....	1049	941	845	1112	1443	1407	1046	1455	1293	1487	1202	1581	1584
Sept.....	1090	909	876	1159	1455	1442	1065	1485	1269	1525	1214	1560	1567
Oct.....	1073	903	918	1158	1502	1461	1071	1504	1313	1580	1237	1647	1614
Nov.....	1114	935	914	1120	1510	1439	1071	1499	1307	1541	1223	1739	1595
Dec.....	1214	946	961	1142	1586	1452	1083	1530	1316	1547	1253	1622	1596
1925													
Jan.....	1224	940	945	1208	1574	1456	1013	1522	1273	1307	1211	1655	1598
Feb.....	1209	884	943	1270	1595	1411	1066	1521	1304	1662	1270	1509	1520
March....	1196	889	947	1279	1600	1446	1090	1529	1310	1679	1281	1619	1594
April.....	1179	824	929	1150	1573	1397	1068	1520	1300	1693	1258	1567	1566
May.....	1216	925	935	1106	1590	1413	1075	1525	1319	1681	1277	1569	1581
June.....	1164	944	898	1111	1549	1411	1081	1511	1306	1627	1284	1571	1586
July.....	1122	939	901	1193	1492	1427	1062	1495	1277	1618	1267	1599	1602
Aug.....	1133	950	915	1225	1536	1433	1059	1502	1315	1730	1280	1605	1598
Sept.....	1111	918	871	1170	1499	1446	1076	1504	1289	1582	1254	1582	1581
Oct.....	1135	939	926	1208	1595	1446	1106	1563	1336	1702	1321	1666	1629
Nov.....	1180	963	928	1174	1588	1489	1104	1575	1338	1729	1324	1583	1565
Dec.....	1237	956	946	1155	1630	1496	1112	1594	1339	1663	1329	1636	1609
1926													
Jan.....	1249	960	936	1197	1587	1457	1048	1563	1303	1397	1271	1623	1580
Feb.....	1220	881	940	1261	1621	1451	1100	1570	1309	1650	1321	1531	1557
March....	1221	937	934	1259	1642	1481	1104	1588	1336	1653	1333	1678	1635
April.....	1215	937	923	1131	1622	1472	1081	1588	1326	1650	1318	1588	1601
May.....	1242	944	911	1089	1612	1472	1089	1587	1345	1632	1313	1590	1599
June.....	1201	940	909	1106	1611	1462	1099	1586	1344	1660	1313	1583	1601
July.....	1151	955	883	1080	1540	1423	1055	1560	1299	1487	1272	1599	1617
Aug.....	1132	1012	915	1143	1564	1441	1098	1566	1336	1612	1310	1621	1613
Sept.....	1157	967	912	1135	1573	1400	1110	1564	1308	1574	1298	1601	1600
Oct.....	1151	974	946	1178	1636	1462	1135	1592	1352	1648	1338	1635	1623
Nov.....	1166	980	939	1069	1608	1445	1125	1588	1342	1579	1310	1615	1599
Dec.....	1247	958	957	1155	1627	1462	1119	1610	1353	1439	1309	1673	1626

APPENDIX C

613

TABLE 224. RELATIVE REAL EARNINGS, BY MONTHS (1914 = 100)
(in dollars)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage- Earners	Clerical Employees
1915													
Jan.....	105	98	100	105	87	106	95	105	96	111	98		
Feb.....	104	94	101	112	92	109	98	100	97	108	97		
March....	102	99	106	116	96	119	102	103	100	118	100		
April.....	105	100	104	109	99	107	103	104	95	119	101		
May.....	105	100	106	100	97	109	104	104	98	112	99		
June.....	104	105	104	104	100	108	105	104	103	114	101		
July.....	100	109	100	105	95	103	103	105	103	104	99		
Aug.....	100	104	105	110	100	103	100	105	101	110	101		
Sept.....	99	103	105	109	99	103	102	105	100	104	100		
Oct.....	101	101	100	112	99	100	103	106	100	109	100		
Nov.....	102	102	103	111	99	106	96	106	101	109	100		
Dec.....	106	101	105	105	105	108	103	105	99	111	101		
1916													
Jan.....	102	100	104	109	99	109	100	101	88	111	101		
Feb.....	104	98	109	117	105	114	101	99	93	112	104		
March....	106	99	110	119	106	112	102	101	95	115	105		
April.....	104	96	109	115	105	117	104	100	85	112	104		
May.....	105	100	113	101	110	119	106	100	92	116	106		
June.....	107	99	111	104	109	120	100	99	96	115	105		
July.....	103	97	105	98	101	118	102	97	93	100	101		
Aug.....	102	99	109	115	108	122	105	97	106	110	106		
Sept.....	103	101	110	123	110	123	105	97	105	114	107		
Oct.....	104	97	107	113	112	123	106	97	104	114	106		
Nov.....	104	96	108	105	111	121	105	98	105	110	106		
Dec.....	106	97	113	106	113	125	104	97	103	109	107		
1917													
Jan.....	105	90	111	108	111	120	96	94	95	104	106		
Feb.....	102	89	110	117	107	115	93	91	95	110	104		
March....	101	89	109	118	111	115	99	91	96	114	106		
April.....	99	84	104	101	104	105	97	89	92	110	101		
May.....	96	87	109	97	113	111	99	89	94	114	105		
June.....	98	86	108	98	108	111	100	87	94	109	103		
July.....	97	85	108	103	106	109	100	86	95	109	102		
Aug.....	98	86	107	107	110	114	103	87	97	104	104		
Sept.....	98	83	105	107	109	123	100	86	99	109	103		
Oct.....	97	81	105	106	116	109	99	85	100	109	104		
Nov.....	98	81	111	100	118	109	101	88	100	111	106		
Dec.....	99	80	111	98	115	110	98	87	99	100	104		
1918													
Jan.....	96	76	103	95	104	98	88	84	87	93	96		
Feb.....	96	76	96	106	106	101	88	83	89	95	97		
March....	96	80	111	115	113	108	95	90	96	104	105		
April.....	101	83	118	104	116	118	104	93	96	107	108		
May.....	102	81	118	107	123	118	106	89	100	114	111		
June.....	105	86	118	106	121	117	107	90	105	106	111		
July.....	104	83	121	110	117	117	105	88	96	108	110		
Aug.....	103	78	120	107	120	115	105	90	97	115	110		
Sept.....	104	81	121	105	123	118	106	90	109	112	112		
Oct.....	108	80	112	104	130	118	106	91	104	113	112		
Nov.....	111	84	101	97	119	114	104	91	104	102	105		
Dec.....	115	88	119	102	127	125	106	96	115	107	114		

TABLE 224 (continued)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1919													
Jan.....	107	84	109	107	122	116	105	94	111	105	110		
Feb.....	107	84	101	107	124	114	104	94	112	114	110		
March....	109	86	104	122	123	111	105	97	114	112	112		
April.....	105	82	107	114	117	110	104	95	108	111	109		
May.....	107	86	111	107	113	111	106	94	102	112	109		
June.....	109	86	122	110	114	110	106	97	110	104	110		
July.....	107	87	121	122	111	113	107	96	108	102	111		
Aug.....	107	87	119	132	118	106	108	96	106	101	112		
Sept.....	111	94	121	138	119	116	114	101	113	109	117		
Oct.....	104	90	112	124	115	116	108	94	104	113	112		
Nov.....	106	91	111	123	114	113	110	94	107	109	111		
Dec.....	110	92	128	132	115	114	111	102	107	106	115		
1920													
Jan.....	104	87	124	132	113	109	106	99	104	108	112		
Feb.....	104	84	121	138	113	110	102	98	103	104	111		
March....	107	91	124	143	119	115	105	104	109	110	115		
April.....	97	86	123	128	113	111	108	99	110	104	111		
May.....	108	92	123	126	116	111	109	103	114	107	114		
June.....	108	92	128	119	117	113	110	104	117	106	114		
July.....	106	91	125	119	113	114	108	100	105	104	111		
Aug.....	107	93	129	124	119	115	110	105	124	114	116		
Sept.....	109	93	126	113	121	119	108	106	125	111	115		
Oct.....	111	93	110	125	123	114	109	109	129	120	116		
Nov.....	110	93	110	113	122	115	109	108	131	96	113		
Dec.....	114	95	114	115	127	112	107	109	135	99	116		
1921													
Jan.....	118	86	108	118	122	108	98	110	126	102	111		
Feb.....	123	88	114	133	116	110	99	112	124	93	113		
March....	122	91	118	144	114	106	102	114	122	99	115		
April.....	119	90	121	136	108	108	103	115	122	117	114		
May.....	124	94	124	127	106	108	104	116	124	123	117		
June.....	119	95	126	129	100	110	106	119	125	123	117		
July.....	119	92	120	136	95	104	103	119	113	120	115	110	106
Aug.....	115	93	119	144	96	104	102	117	120	120	115	114	109
Sept.....	119	93	121	137	94	101	104	119	118	115	115	110	107
Oct.....	118	89	115	121	95	101	105	120	118	110	112	115	109
Nov.....	116	86	115	120	97	102	104	118	118	106	111	111	107
Dec.....	121	89	127	130	101	103	107	123	122	102	111	112	106
1922													
Jan.....	119	89	123	131	98	107	107	125	123	106	116	116	111
Feb.....	118	85	125	139	97	103	100	120	117	108	114	110	106
March....	121	92	123	128	104	111	106	129	117	114	117	124	117
April.....	118	86	120	121	104	112	107	127	117	127	117	115	113
May.....	121	95	122	125	107	114	111	128	120	131	119	119	115
June.....	121	99	122	127	106	115	111	128	126	131	121	118	115
July.....	118	99	122	141	104	112	112	127	128	115	119	118	111
Aug.....	114	100	123	149	111	117	112	128	128	127	122	129	116
Sept.....	121	99	122	146	116	123	115	132	129	127	124	127	112
Oct.....	119	96	123	137	116	119	113	128	124	127	122	128	113
Nov.....	120	97	128	133	120	122	115	129	129	130	123	123	110
Dec.....	122	96	130	133	123	125	115	131	129	129	125	123	110

APPENDIX C

615

TABLE 224 (continued)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1923													
Jan.....	121	94	130	147	123	126	112	128	128	115	124	126	112
Feb.....	121	94	132	151	124	125	113	129	122	127	125	115	107
March....	122	95	134	156	127	134	115	129	128	130	128	126	114
April.....	121	95	136	143	126	135	118	131	130	132	128	118	110
May.....	126	96	142	139	134	138	120	132	135	132	132	121	112
June.....	127	97	140	136	131	137	121	131	140	129	132	118	111
July.....	123	96	134	138	124	135	118	130	137	129	128	117	110
Aug.....	117	92	133	138	130	133	119	127	138	131	127	120	113
Sept.....	124	93	132	125	127	136	119	127	138	125	128	113	108
Oct.....	119	97	130	135	131	136	122	129	137	135	130	122	113
Nov.....	125	98	130	132	130	135	122	127	139	133	128	112	110
Dec.....	125	98	132	128	130	139	121	129	139	128	130	112	110
1924													
Jan.....	128	95	130	134	127	138	117	130	140	109	128	118	112
Feb.....	128	95	131	138	131	138	119	131	140	134	131	114	109
March....	128	97	130	137	132	139	122	134	139	133	131	120	112
April.....	130	96	128	132	132	137	122	135	138	134	131	116	113
May.....	132	98	126	128	131	137	121	135	139	127	129	117	115
June.....	126	99	122	127	123	133	121	134	138	118	125	113	112
July.....	122	97	117	126	114	126	115	132	136	112	120	117	115
Aug.....	114	90	122	131	121	134	117	131	137	119	123	117	114
Sept.....	118	95	126	136	121	137	119	133	134	121	124	116	112
Oct.....	115	94	131	135	124	138	118	134	137	125	125	122	115
Nov.....	120	98	130	130	125	136	118	133	137	122	124	114	110
Dec.....	130	98	137	132	131	137	119	136	137	122	136	119	113
1925													
Jan.....	130	97	134	139	129	136	111	134	132	108	129	121	112
Feb.....	130	92	135	148	132	133	118	135	136	131	129	112	108
March....	129	93	135	149	132	137	120	136	137	133	130	120	113
April.....	127	95	133	134	130	132	118	136	136	134	128	116	113
May.....	131	96	133	129	131	133	119	136	138	133	129	116	112
June.....	124	97	137	128	127	132	118	133	135	127	129	115	111
July.....	118	96	126	136	121	132	114	130	131	125	126	116	111
Aug.....	119	97	128	140	124	133	115	131	135	121	127	116	111
Sept.....	117	94	122	134	122	134	117	131	132	123	125	115	110
Oct.....	119	95	129	137	128	133	119	135	136	131	130	120	112
Nov.....	122	97	127	132	126	135	117	135	134	131	129	113	107
Dec.....	128	98	130	130	130	136	118	137	135	127	130	117	116
1926													
Jan.....	130	97	139	135	127	133	112	135	132	107	128	116	109
Feb.....	128	89	131	143	130	133	118	136	133	127	130	110	106
March....	128	95	130	143	133	137	119	138	136	128	133	121	112
April.....	128	95	129	129	131	136	117	138	135	127	131	115	111
May.....	131	96	127	124	131	136	118	138	138	126	130	115	111
June.....	127	98	127	126	131	136	119	138	138	122	131	115	111
July.....	122	98	125	124	126	133	116	137	134	116	126	117	113
Aug.....	121	103	130	129	129	135	121	138	139	127	133	119	114
Sept.....	122	99	128	130	128	130	121	137	135	123	130	117	112
Oct.....	122	100	123	133	133	136	123	139	139	123	133	120	112
Nov.....	123	100	121	122	130	134	122	138	137	122	130	117	111
Dec.....	131	98	122	131	131	135	121	140	138	111	130	121	112

APPENDIX C

TABLE 225. RELATIVE MONEY EARNINGS, BY MONTHS (1914 = 100)
(in dollars)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1915													
Jan.....	104	91	99	103	86	105	94	103	95	110	95		
Feb.....	102	92	99	109	90	106	96	98	95	106	95		
March....	99	96	102	112	93	115	99	100	97	112	97		
April.....	102	97	101	105	96	104	99	101	92	116	97		
May.....	103	98	103	98	95	107	101	102	95	109	97		
June.....	101	102	102	101	98	105	102	102	101	111	98		
July.....	98	99	98	103	94	101	101	103	101	102	97		
Aug.....	97	102	102	107	97	100	98	102	98	108	98		
Sept.....	98	101	103	107	98	101	100	103	98	102	98		
Oct.....	100	100	99	111	99	100	102	105	100	109	100		
Nov.....	102	102	103	111	99	106	96	106	101	109	100		
Dec.....	106	101	105	106	105	108	103	106	99	110	101		
1916													
Jan.....	105	102	107	111	101	111	102	103	90	113	103		
Feb.....	107	101	112	120	108	117	104	102	96	115	106		
March....	109	102	113	123	109	116	106	104	98	118	108		
April.....	109	100	114	121	110	122	109	104	90	118	109		
May.....	111	105	119	107	116	125	112	105	97	121	111		
June.....	114	105	118	111	117	128	107	106	102	123	112		
July.....	110	103	112	106	108	126	109	103	99	106	107		
Aug.....	109	105	116	122	116	130	112	103	113	117	113		
Sept.....	112	110	120	134	120	134	115	105	115	124	117		
Oct.....	115	106	118	124	123	136	116	107	115	126	117		
Nov.....	117	109	122	118	125	137	119	110	118	124	120		
Dec.....	121	111	129	119	129	143	119	111	117	124	122		
1917													
Jan.....	123	105	130	125	129	140	114	110	111	122	123		
Feb.....	121	105	130	139	127	136	110	108	112	130	123		
March....	122	108	131	142	133	139	119	110	116	138	128		
April.....	122	104	128	124	128	139	120	110	113	135	125		
May.....	121	110	137	122	142	140	125	112	119	143	131		
June.....	128	112	140	127	141	144	130	112	121	141	133		
July.....	125	109	139	132	136	141	129	111	109	140	131		
Aug.....	127	111	138	138	142	148	133	113	126	135	134		
Sept.....	130	111	140	143	144	163	133	115	132	145	137		
Oct.....	134	112	144	145	160	150	135	117	137	150	143		
Nov.....	136	113	154	139	163	151	140	123	139	154	147		
Dec.....	139	112	156	138	161	154	138	122	139	163	147		
1918													
Jan.....	140	111	150	143	152	136	128	122	127	135	140		
Feb.....	142	113	143	159	158	149	131	123	132	141	144		
March....	142	116	163	169	167	160	140	133	141	153	155		
April.....	149	121	173	153	171	173	153	136	141	158	160		
May.....	154	122	179	162	186	178	160	135	150	172	167		
June.....	162	134	182	164	187	181	165	140	163	168	172		
July.....	164	131	192	174	185	185	166	139	151	170	173		
Aug.....	166	123	193	173	192	185	169	144	171	185	177		
Sept.....	172	133	198	173	203	194	178	149	180	185	186		
Oct.....	180	134	187	175	217	197	177	152	174	189	187		
Nov.....	187	141	170	163	201	192	176	154	175	172	178		
Dec.....	196	150	208	174	217	212	184	164	186	183	194		

APPENDIX C

617

TABLE 225 (continued)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1919													
Jan.....	184	144	188	188	210	199	179	161	191	180	188		
Feb.....	181	141	171	181	209	193	175	158	190	193	185		
March....	184	145	175	205	208	188	176	164	192	191	188		
April....	179	139	182	195	200	188	178	162	184	190	186		
May....	186	148	192	186	195	192	184	162	175	193	188		
June....	190	149	211	192	198	192	185	168	191	180	192		
July....	188	152	213	215	196	199	188	168	190	182	195		
Aug....	192	158	214	238	212	192	194	173	191	182	202		
Sept....	200	169	217	248	215	209	204	181	202	195	210		
Oct....	195	168	211	233	216	218	203	177	195	212	211		
Nov....	205	175	214	239	220	219	212	181	206	211	214		
Dec.....	213	180	249	258	224	223	217	198	208	205	225		
1920													
Jan.....	210	176	250	267	228	221	215	200	212	220	227		
Feb.....	210	171	246	280	229	224	208	200	208	210	225		
March....	217	185	253	292	242	233	214	211	223	224	235		
April....	204	180	257	269	237	233	227	208	230	218	233		
May....	227	195	260	293	245	234	229	216	241	226	240		
June....	228	194	269	292	247	238	232	218	247	223	241		
July....	225	193	264	253	240	241	230	213	223	230	236		
Aug....	221	193	267	256	245	237	228	217	256	235	240		
Sept....	225	193	260	234	250	247	224	219	258	230	238		
Oct....	227	191	226	256	252	235	223	224	265	247	237		
Nov....	225	190	225	231	249	238	222	220	266	197	230		
Dec.....	222	186	223	234	247	219	209	213	263	194	226		
1921													
Jan.....	226	163	207	224	232	206	187	209	241	194	211		
Feb.....	225	160	209	244	213	201	181	204	226	171	206		
March....	222	165	215	261	207	193	186	208	221	180	209		
April....	213	162	217	244	193	193	185	206	220	209	205		
May....	218	166	218	225	188	190	184	204	219	217	207		
June....	208	165	219	226	175	192	186	208	217	215	205		
July....	208	162	210	238	166	182	181	206	197	210	201	193	186
Aug....	202	164	210	253	170	183	180	206	212	212	202	200	192
Sept....	206	162	211	237	163	178	181	207	206	200	200	192	185
Oct....	206	155	200	210	165	178	182	208	206	192	194	200	189
Nov....	201	148	200	208	168	177	179	205	204	183	192	191	185
Dec.....	207	164	218	223	173	176	183	212	209	175	191	193	188
1922													
Jan.....	199	180	206	220	165	179	179	210	206	177	194	194	187
Feb.....	197	143	209	232	163	172	167	200	195	180	191	184	178
March....	199	150	201	209	171	182	174	211	192	187	192	204	193
April....	193	141	196	196	171	183	176	206	192	209	191	189	135
May....	199	156	200	205	176	186	182	210	198	215	196	195	189
June....	199	162	201	209	178	189	183	211	207	215	198	194	189
July....	194	163	201	232	171	194	184	208	211	190	196	194	183
Aug....	187	163	200	243	182	190	182	206	209	207	199	210	189
Sept....	198	162	200	240	190	201	189	216	212	209	203	209	183
Oct....	196	159	204	227	191	197	186	211	205	206	202	212	186
Nov....	201	163	214	222	230	204	192	215	215	217	205	204	194
Dec.....	205	161	218	222	206	209	193	219	216	216	206	206	188

TABLE 225 (continued)

Year and Month	Food	Beverages and Tobacco	Textiles	Clothing	Iron and Steel	Non-Ferrous Metals	Lumber and its Manufactures	Paper and Printing	Stone, Clay, and Glass	Land Vehicles	All Manufacturing Industries	Steam Railroads	
												Wage-Earners	Clerical Employees
1923													
Jan.....	201	155	216	244	204	210	186	213	204	191	206	209	187
Feb.....	200	155	218	250	205	207	187	213	202	210	206	191	177
March....	203	159	223	260	211	223	191	216	213	216	213	209	189
April.....	201	158	226	238	209	225	196	217	216	221	214	197	183
May.....	212	161	238	233	224	231	201	221	226	221	221	203	188
June.....	213	162	235	227	220	229	203	220	235	217	221	198	186
July.....	208	162	227	233	209	229	200	219	231	219	217	198	186
Aug.....	198	155	225	232	219	224	200	213	232	221	215	203	190
Sept.....	210	158	225	213	216	231	202	216	235	213	217	193	184
Oct.....	204	165	222	231	224	232	208	220	235	231	221	208	192
Nov.....	215	165	223	226	223	233	210	218	239	229	221	193	189
Dec.....	213	168	227	219	223	237	208	221	237	219	223	192	188
1924													
Jan.....	217	162	221	228	217	235	199	221	239	186	217	202	191
Feb.....	217	161	223	234	222	234	202	223	236	228	222	193	185
March....	216	163	219	231	223	235	205	225	234	223	221	202	189
April.....	217	160	215	221	222	230	205	226	231	223	218	194	189
May.....	221	163	211	214	217	228	203	225	232	213	216	196	192
June.....	211	166	204	213	206	223	203	224	232	198	210	189	187
July.....	205	162	196	210	191	212	192	220	227	187	201	195	192
Aug.....	192	167	205	220	203	226	197	220	230	200	207	196	191
Sept.....	199	161	213	230	205	232	200	225	225	205	209	196	189
Oct.....	196	160	223	229	211	235	201	228	233	212	213	207	195
Nov.....	204	166	222	222	212	231	201	227	232	207	211	194	187
Dec.....	222	168	233	226	223	233	204	231	234	208	216	204	193
1925													
Jan.....	224	167	229	239	221	234	190	230	226	176	209	208	193
Feb.....	221	157	229	251	224	227	200	230	232	223	219	190	183
March....	219	158	230	253	225	232	205	231	233	226	221	204	192
April.....	216	146	225	228	221	225	201	230	231	228	217	197	191
May.....	222	164	227	219	224	227	202	231	234	226	220	197	191
June.....	213	167	218	220	218	227	203	229	232	219	221	198	191
July.....	205	166	219	236	210	229	198	226	227	217	218	201	193
Aug.....	207	168	222	243	216	230	199	227	234	210	221	202	193
Sept.....	203	163	211	232	211	232	202	228	229	213	216	199	191
Oct.....	208	166	225	239	224	232	208	236	237	229	228	210	197
Nov.....	216	171	225	232	223	239	208	238	238	232	228	199	189
Dec.....	226	169	230	229	229	241	209	241	238	224	229	206	194
1926													
Jan.....	228	170	227	237	223	224	197	236	231	188	219	204	191
Feb.....	223	156	228	250	228	233	207	237	233	222	228	193	185
March....	223	166	227	249	231	238	206	240	237	222	230	211	197
April.....	222	166	224	224	228	237	203	240	236	222	227	200	193
May.....	227	167	221	216	227	237	205	240	239	219	226	200	193
June.....	220	167	221	219	227	235	207	240	239	211	226	199	193
July.....	210	169	214	214	217	229	198	236	231	200	219	201	195
Aug.....	207	179	222	226	220	232	206	237	237	217	226	204	195
Sept.....	212	171	221	225	221	225	209	237	232	212	224	201	193
Oct.....	210	173	230	233	230	235	213	241	240	222	231	206	196
Nov.....	213	174	228	212	226	232	211	240	238	212	226	203	193
Dec.....	228	170	232	229	229	235	210	244	240	193	226	210	196

NOTE TO TABLES 223, 224, AND 225

Some of the month-to-month fluctuations which are shown above may seem to exaggerate the actual movement. When analyzed, however, the large majority of these instances fall into the following sets of cases:

(1) The sharp decline in January, 1921, of the average earnings in beverages and tobacco, textiles, iron and steel, non-ferrous metals, lumber and stone, clay, and glass. These were due to the business depression of that period, which caused wages to be cut and many factories to go on part time.

(2) The recession which set in during May, June, and July of 1924 in the output of textiles, iron and steel, lumber, and automobiles.

(3) The attempts to relieve the war-time congestion of the railways in January, 1918, by closing down factories for a portion of each week upon the orders of the Fuel Administration. This reduced the average earnings in the iron and steel, non-ferrous metals, lumber, stone, clay and glass, and land vehicle industries.

(4) The loss of employment in November, 1918, because of the celebration of both the false and the true armistices.

(5) The slack season in the automobile industry, which in recent years has reached its depths in January.

(6) The seasonal fluctuations in the clothing industry, which have affected average earnings as well as employment, because of the rule in union plants that the burden of slack time is to be evenly divided.

(7) The tendency for the average earnings in the food industries to rise at the end of the year because of the decline in the numbers of cannery workers, with their lower average.

(8) The effect of the shopmen's strike in July and August, 1922, which caused the average earnings in the industries manufacturing railroad equipment to fall.

(9) A midsummer decline in the output of the glass industry.

APPENDIX D

SYSTEMS OF WEIGHTING USED FOR WAGE-RATES AND ANNUAL EARNINGS

TABLE 226. WEIGHTS EMPLOYED IN COMPUTING AVERAGE ANNUAL EARNINGS FOR ALL INDUSTRIES

Year	Manufacturing	Steam Railroads	Street Railways	Telephones	Telegraphs	Gas and Electricity	Clerical Workers	Coal Miners	Postal Employees	Federal Gov't Employees (executive departments)	Teachers	Ministers	Farm Labor	Total	Year
1890.....	154	28	3			1	20	8	1		15	4	55	289	1890
1891.....	157	30	3			1	19	8	1		15	4	58	296	1891
1892.....	161	33	3			1	19	9	1	1	15	4	60	307	1892
1893.....	165	33	3			1	19	9	1	1	15	4	63	314	1893
1894.....	169	31	3			1	18	10	1	1	16	4	65	319	1894
1895.....	173	30	3			1	18	10	1	1	16	4	68	325	1895
1896.....	177	32	3			2	18	10	1	1	16	4	70	334	1896
1897.....	181	32	4			2	17	10	1	1	16	4	73	341	1897
1898.....	185	34	4			2	17	10	1	1	17	4	75	350	1898
1899.....	189	36	5			2	17	11	1	1	17	4	78	361	1899
1900.....	195	39	5			2	18	12	1	1	17	4	80	374	1900
1901.....	200	41	5		1	2	19	14	1	1	17	5	83	388	1901
1902.....	207	46	5	3	1	2	21	21	1	1	18	5	85	414	1902
1903.....	213	50	6	3	1	2	23	23	2	1	18	5	88	433	1903
1904.....	219	50	6	3	1	2	24	24	2	1	18	5	90	445	1904
1905.....	228	53	7	4	1	2	26	25	2	1	19	5	93	466	1905
1906.....	237	58	8	5	1	3	29	26	2	1	19	5	95	490	1906
1907.....	246	64	8	5	1	3	31	27	2	1	20	5	98	511	1907
1908.....	256	64	8	5	1	3	33	28	2	1	20	5	100	516	1908
1909.....	265	67	9	5	1	3	36	29	2	1	21	5	103	537	1909
1910.....	267	64	10	6	1	3	38	30	2	1	21	5	106	562	1910
1911.....	269	63	10	6	1	4	39	29	2	1	22	5	103	554	1911
1912.....	271	65	10	6	1	4	41	30	3	1	22	5	101	560	1912
1913.....	273	69	10	6	2	4	42	30	3	1	23	5	98	566	1913
1914.....	276	64	10	7	2	4	45	31	3	1	24	5	96	568	1914
1915.....	292	64	11	7	2	4	49	29	3	2	25	5	94	587	1915
1916.....	309	64	11	8	2	4	54	29	3	2	25	5	92	608	1916
1917.....	326	64	11	8	2	4	58	30	3	2	26	5	89	628	1917
1918.....	343	64	11	8	2	5	63	30	3	3	26	5	87	650	1918
1919.....	360	66	11	8	3	5	67	31	3	4	27	5	85	678	1919
1920.....	380	70	11	9	3	5	67	31	3	3	28	5	82	677	1920
1921.....	378	67	11	9	3	5	55	33	4	2	29	5	80	571	1921
1922.....	368	62	11	9	3	5	58	34	4	2	30	5	77	593	1922
1923.....	351	60	11	10	3	5	60	35	4	2	30	5	75	651	1923
1924.....	317	60	11	10	3	5	61	31	4	2	31	5	73	618	1924
1925.....	320	60	11	11	3	5	63	30	4	2	31	5	68	616	1925
1926.....	323	61	11	11	3	5	63	30	4	2	32	5	66	619	1926

* Data on earnings missing.

APPENDIX D

621

TABLE 227. WEIGHTS EMPLOYED IN COMPUTING AVERAGES OF HOURLY EARNINGS, HOURS PER WEEK, AND FULL-TIME WEEKLY EARNINGS

Year	Cotton Goods	Boots and Shoes	Men's Clothing	Hosiery and Knit Goods	Woolens and Worsted	Lumber (sawmills)	Iron and Steel	Slaughtering and Meat-Packing	Manufacturing (payroll)	Metal Trades	Granite and Stone	Printing (book and job)	Printing (newsprint)	Lumber (planing mills)	Bakers	Year
1890.....	9	9	9	9	9	12	7	9	50	10	1	9	9	9	9	1890
1891.....	9	9	9	9	9	12	7	9	50	10	1	9	9	9	9	1891
1892.....	10	9	9	9	9	12	7	9	51	11	1	9	9	9	9	1892
1893.....	10	9	9	9	9	12	7	9	51	11	1	9	9	9	9	1893
1894.....	10	9	9	9	9	12	7	9	51	12	1	9	9	9	9	1894
1895.....	11	9	9	9	9	12	9	9	52	12	2	9	9	9	9	1895
1896.....	11	9	9	9	9	12	9	9	52	12	2	9	9	9	9	1896
1897.....	11	9	9	9	9	12	9	9	53	13	2	9	9	9	9	1897
1898.....	12	9	9	9	9	12	9	9	55	14	2	9	9	9	9	1898
1899.....	12	9	9	9	9	12	9	9	55	14	2	9	9	9	9	1899
1900.....	12	9	9	9	9	12	9	9	56	15	2	9	9	9	9	1900
1901.....	13	9	9	9	9	12	9	9	57	15	2	9	9	9	9	1901
1902.....	13	9	9	9	9	13	10	9	61	16	2	9	9	9	9	1902
1903.....	13	7	9	9	9	13	10	9	62	17	2	9	9	9	9	1903
1904.....	14	7	9	9	9	14	10	9	64	18	2	9	9	9	9	1904
1905.....	14	7	7	9	9	14	10	9	65	18	2	9	9	9	9	1905
1906.....	14	7	7	9	9	14	10	9	66	19	2	9	9	9	9	1906
1907.....	15	8	7	9	9	15	11	9	70	20	2	9	9	9	9	1907
1908.....	15	8	7	9	9	15	11	9	70	21	2	9	9	9	9	1908
1909.....	15	8	8	9	9	15	11	9	72	21	2	9	9	9	9	1909
1910.....	15	8	8	9	7	15	12	4	74	21	2	9	9	9	9	1910
1911.....	16	8	8	9	7	15	12	4	76	21	2	9	9	9	9	1911
1912.....	16	8	7	9	7	14	13	4	75	21	2	9	9	9	9	1912
1913.....	16	8	7	9	7	14	13	5	76	20	2	9	9	9	9	1913
1914.....	17	9	7	9	7	13	14	5	78	20	2	9	9	9	9	1914
1915.....	17	9	7	9	7	13	14	5	78	20	2	9	9	9	9	1915
1916.....	17	9	7	9	7	12	13	6	79	20	2	9	9	9	9	1916
1917.....	17	9	7	7	7	12	12	6	81	20	2	9	9	9	9	1917
1918.....	18	9	7	7	7	11	16	6	81	20	1	9	9	9	9	1918
1919.....	18	9	7	7	7	11	17	6	82	19	1	9	9	9	9	1919
1920.....	18	9	7	7	7	11	17	6	82	19	1	9	9	9	9	1920
1921.....	17	8	7	7	7	10	10	6	87	13	1	9	9	9	9	1921
1922.....	18	9	7	7	7	10	14	6	77	16	1	9	9	9	9	1922
1923.....	19	9	8	8	8	12	17	8	86	18	1	9	9	9	9	1923
1924.....	19	9	8	8	8	11	17	8	85	14	1	9	9	9	9	1924
1925.....	18	8	7	7	7	11	16	8	79	16	1	9	9	9	9	1925
1926.....	18	8	7	7	7	11	16	8	79	16	1	9	9	9	9	1926

APPENDIX D

TABLE 227 (continued)

Year	Manufacturing (union)	All Manufacturing	Building Trades	Unskilled Labor	Farm Labor	Coal Miners		Steam Railroad Employees	Able Seamen	Postal Employees	Federal Gov't Employees (executive departments)	Teachers	Ministers	Total	Year
						(anthracite)	(bituminous)								
1890.....	21	154	46	66	55	5	8	31	2	1	1	15	4	388	1890
1891.....	22	157	46	69	58	5	8	32	2	1	1	15	4	398	1891
1892.....	23	161	47	72	60	5	9	34	2	1	1	15	4	411	1892
1893.....	23	165	47	74	63	5	9	33	2	1	1	15	4	419	1893
1894.....	25	169	48	77	65	5	10	31	2	1	1	16	4	429	1894
1895.....	25	173	48	80	68	6	10	32	2	1	1	16	4	441	1895
1896.....	27	177	48	83	70	6	10	33	2	1	1	17	4	451	1896
1897.....	27	181	49	86	73	6	10	34	2	1	1	16	4	463	1897
1898.....	28	185	49	88	75	6	10	36	2	1	1	17	4	474	1898
1899.....	28	189	50	91	78	6	11	39	2	1	1	17	4	489	1899
1900.....	30	195	51	94	80	6	12	42	2	1	1	17	4	506	1900
1901.....	30	200	53	95	83	6	14	45	2	1	1	17	5	522	1901
1902.....	31	207	55	96	85	6	15	50	2	1	1	18	5	541	1902
1903.....	33	213	56	97	88	6	17	53	2	2	1	18	5	558	1903
1904.....	35	219	58	98	90	6	18	53	2	2	1	18	5	570	1904
1905.....	35	228	60	99	93	7	18	58	2	2	1	19	5	592	1905
1906.....	37	237	61	99	95	6	19	64	2	2	1	19	5	610	1906
1907.....	38	246	63	100	98	7	21	62	2	2	1	20	5	627	1907
1908.....	40	256	65	100	100	7	21	58	2	2	1	20	5	637	1908
1909.....	40	265	66	101	103	7	22	64	2	2	1	21	5	659	1909
1910.....	39	267	67	102	105	7	22	68	2	2	1	21	5	669	1910
1911.....	39	269	68	103	103	7	22	68	2	2	1	22	5	672	1911
1912.....	41	271	68	104	101	7	22	71	2	3	1	22	5	677	1912
1913.....	41	273	69	105	98	7	23	71	2	3	1	23	5	680	1913
1914.....	41	276	69	106	96	7	23	62	2	3	2	24	5	675	1914
1915.....	41	292	70	108	94	7	23	62	2	3	2	25	5	692	1915
1916.....	41	309	71	110	92	6	22	65	2	3	2	25	5	715	1916
1917.....	41	326	71	112	89	6	24	71	2	3	2	26	5	737	1917
1918.....	41	343	72	113	87	6	25	75	2	3	3	26	5	760	1918
1919.....	40	360	73	114	85	6	25	78	2	3	4	27	5	782	1919
1920.....	40	360	70	115	82	6	26	71	2	3	3	28	5	771	1920
1921.....	32	278	65	115	80	6	27	67	2	4	2	29	5	690	1921
1922.....	36	303	75	115	77	6	28	61	2	4	2	30	5	708	1922
1923.....	40	351	80	115	75	6	28	70	2	4	2	30	5	768	1923
1924.....	36	317	80	115	73	6	26	66	2	4	2	31	5	728	1924
1925.....	37	320	85	115	71	6	24	66	2	4	2	31	5	731	1925
1926.....	37	323	85	115	68	6	24	67	2	5	2	32	5	734	1926

APPENDIX E

AVERAGES OF ANNUAL EARNINGS IN STATES FOR SPECIFIC INDUSTRIES (BASIS FOR INTERPOLATION)

Where two averages are given for the same Census year, the size of the sample was altered. The first represents the average of the former sample, the second the average of the latter sample. Monthly averages were in the main computed from 1915 on, based on the average earnings in the industries covered by the United States Bureau of Labor Statistics and the New York Department of Labor. In a few cases (notably street railways and the gas and electrical industries) State earnings were used beyond 1921, but they are not published because of lack of space. They will be sent to any one on request.

TABLE 228. AVERAGES OF ANNUAL EARNINGS IN STATES
(in dollars)

Year	Butter, Cheese, and Condensed Milk	Bakeries	Canning and Preserving	Confectionery	Slaughtering and Meat-Packing	Cotton Manufacturing	Woolens and Worsteas	Knit Goods	Silk Goods	Man's Clothing	Women's Clothing	Shirts	Clothing as a Whole	Blast Furnaces and Rolling Mills
1889		365		365		337	363	273	317				403	474
1890		354		354		343	361	274	319				408	506
1891		366		366		348	371	278	327				409	518
1892		395		395		350	373	293	316				411	515
1893		339		339		377	367	273	296				422	503
1894		330		330		310	320	257	288				414	443
1895		334		334		336	343	270	324				423	474
1896		334		334		340	345	264	342				395	441
1897		358		358		335	355	266	379				398	461
1898		323		323		324	356	266	337				402	494
1899		333		333		332	363	277	343			290	399	538
1900				473		361	379	283	326	321			345	
1901				439		362	387	284	321	350			397	561
1902				420		362	387	297	343	394			398	601
1903				397		385	397	307	343	394			332	618
1903				441		392	399	301	356	410			344	606
1904				377	473	366	399	395	353	375			356	
1905				413	460	367	413	316	377	406			356	
1906				332	524	398	433	358	372	426			351	493
1907				335	543	439	443	347	407	430			365	423
1908				397	517	435	458	331	372	382			374	647
1908													350	422
1909	517	570	386	430	540	415	447	341	419	430			421	
1910	522	558	336	359	519	369	443	345	393	477	456	337	460	
1911	570	579	276	354	551	367	449	361	410	546	470	347	456	335
1912	592	583	374	363	530	393	480	357	423	513	480	342	480	343
1913	606	608	353	413	577	414	457	437	454	544	506	370	506	370
1914	631	603	327	443	586	407	494	400	467	508	488	370	488	
1915	721	608	411	472	719	406	507	422	439	614	656	431	614	515
1916	741	623	468	479	737	420	498	434	469	688	734	429	688	521
1916	763	693	504	509	799	503					803	468		
1917	877	779	592	579	916	590					888	521		
1918	1062	948	745	710	1149	746					1043	615		
1919	1268	1107	897	882	1327	844	1051	790	762	1178	1321	703		1698
1920	1574	1302	1044	1036	1538						1603	858		
1921	1345	1368	911	979	1456						1365	745		

TABLE 228 (continued)

Year	Foundries and Machine Shops	Sawmills	Planing Mills	Furniture	Tanned Leather	Boots and Shoes	Trunks and Valises	Saddlery and Harness	Paper and Pulp	Paper Boxes	Book and Job Printing	Druggists' Preparations	Rubber	Stone Quarrying
1889.....	503	409	369	424	466	491	437		411	323	518	400	385	465
1890.....	512	404	388	412	454	499	540		418	389	524	423	403	475
1891.....	534	418	389	408	449	495	581		416	382	516	398	399	493
1892.....	531	410	389	446	449	504	594		421	402	515	411	400	497
1893.....	505	395	375	394	435	480	550	523	404	399	546	399	419	484
1894.....	470	360	348	373	413	486	496	508	407	389	510	429	391	456
1895.....	521	366	349	400	429	468	478	541	404	391	508	418	430	450
1896.....	505	395	339	378	407	462	504	532	397	358	502	406	430	484
1897.....	509	415	331	371	416	454	508	556	402	349	501	415	428	479
1898.....	532	432	356	333	430	442	497	503	404	331	476	415	447	480
1899.....	537	448	{ 359 376	393	436	453	463	524	411	341	506	373	442	498
1900.....	537	476	383	408	428	449	470	485	407	352	502	401	445	508
1901.....	542	489	383	411	455	467	455	519	426	361	524	422	454	518
1902.....	567	503	442	426	477	472	412	513	451	349	513	445	472	529
1903.....	578	505	453	435	459	499	458	525	454	369	554	429	456	554
1904.....	{ 567 569	531	457	424	485	496	{ 454 463	508	458	357	550	445	484	557
1905.....	581	503	450	428	483	520	451	502	463	375	547	417	468	598
1906.....	602	555	464	467	507	529	493	483	466	383	558	420	472	628
1907.....	612	545	522	491	510	546	530	505	481	396	574	451	477	622
1908.....	548	545	478	503	495	530	515	616	493	394	609	448	509	645
1909.....	{ 598 592	{ 545 534	{ 508 542	{ 522 524	504	535	547	584	{ 503 500	406	609	441	{ 516 514	{ 701 677
1910.....	620	411	555	531	521	555	547	628	509	412	620	431	530	640
1911.....	631	381	625	538	530	563	566	662	515	418	632	431	540	655
1912.....	644	390	636	530	539	571	545	637	546	441	689	476	554	719
1913.....	649	396	716	629	498	600	668	711	563	455	690	494	587	756
1914.....	{ 704 730	{ 379 577	{ 698 682	{ 570 615	{ 591 590	{ 585 599	656	668	{ 554 611	{ 445 502	{ 685 835	{ 804 627	{ 596 588	{ 755 643
1915.....	709	546	661	604	561	596	587	823	639	508	858	656	653	686
1916.....	830	573	717	652			663	737		558	890	686	701	770
1917.....	948	630	819	754			764	806		636	934	743	822	869
1918.....	1208	812	967	801			804	977		767	1064	900	967	1112
1919.....	1329	920	1126	1065	1220	1108	1041	1133	1232	936	1298	1020	1163	1244
1920.....	1460	1141	1422	1299			1370	1227			1615	1186	1399	1556
1921.....	1283	1108	1303	1173			1198	1069			1649	1156	1121	1251

APPENDIX E

625

TABLE 228 (continued)

Year	Clay Products	Glass	Brass, Bronze, and Copper	Plated Ware	Tobacco	Beverages (non-spirituos)	Liquors, Malt	Carriages and Wagons	Railroad Cars and Rolling Stock	Motor Vehicles	Farm Equipment	Electrical Machinery	Street Railways	Gas and Electricity
1889.....	375	324	471	499	281	655	575	578	525		368	515		569
1890.....	426	347	464	533	305	654	554	600	539		445	556	589	575
1891.....	442	356			286	581	613	620	530		485	605	555	481
1892.....	440	400			297	654	585	627	539		501	573	531	524
1893.....	435	398			319	630	616	645	512		456	440	565	532
1894.....	346	358			317	648	607	619	467		397	603	512	581
1895.....	443	378	526		333	664	599	603	538		423	525	526	557
1896.....	345	387	500	487	317	653	601	601	495		525	505	512	588
1897.....	338	429	500	409	318	678	626	595	534		494	470	568	632
1898.....	368	458	510	500	319	648	628	613	576		513	528	554	633
1899.....	406	467	{ 515 508	475	325	{ 619 542	{ 576 633	{ 608 590	606		478	538	579	553
1900.....	406	456	513	448	337	542	669	604	611		531	515	617	575
1901.....	408	460	501	458	333	564	667	605	614		530	524	604	584
1902.....	429	474	503	525	358	576	715	614	627		558	525	567	
1903.....	449	443	523	525	359	555	697	613	663		566	507	560	
1904.....	418	492	517	523	362	572	699	610	{ 649 645		541	572	576	567
1905.....	452	498	572		348	580	711	593	625		574	577	599	568
1906.....	471	642	537	552	344	583	744	630	638		574	549	603	620
1907.....	465	617	490	679	370	628	748	668	646		564	540	{ 587 620	{ 676 828
1908.....	433	496	486	611	372	651	739	664	555		626	558	621	795
1909.....	486	514	{ 529 593	{ 722 720	359	597	733	646	592	648	{ 611 544	566	650	813
1910.....	519	563	604	664	366	638	832	676	675	731	572	600	670	812
1911.....	503	579	595	700	373	657	908	694	683	772	570	605	682	833
1912.....	542	598	790	707	380	651	918	701	639	689	611	622	{ 680 681	821
1913.....	579	655	743	700	389	653	918	709	764	789	652	639	714	853
1914.....	{ 545 583	{ 841 644	{ 706 675	{ 679 722	{ 386 436	{ 655 878	936	570	{ 758 758	{ 781 831	{ 585 755	{ 622 700	750	866
1915.....	604	863	697	735	432	866	957	739	794	832	745	715	765	862
1916.....	651	690	777			879	{ 956 1028	803			852		818	910
1917.....	770	841	911			939	1048	880			947		{ 896 890	{ 1097 1006
1918.....	842	990	1134			1137	1043	966			1176		1165	1258
1919.....	1137	1147	1272	1308	764	1302	1199	1190	1535	1364	1323	1259	1448	1467
1920.....	1409		1519			1404	1322	1302			1542		1636	1619
1921.....	1190		1298			1415	1543	1414			1375		1633	1561

APPENDIX F

ILLUSTRATION OF THE METHOD OF INTERPOLATION FOLLOWED FOR ALL MANUFACTURING INDUSTRIES 1889-1915 AND 1915-19

Year	Census Average	State Average	Relation of Census to State Average	Year	State Average	Adjust- ment	Estimated Census Average
1889.....	\$434.00	\$426.20	= + \$7.80	1889.....	\$426.20	+ \$7.80	= \$434
1899.....	426.00	445.33	= - 19.33	1890.....	433.74	+ 5.09	= 439
Total change in relative position of Census average to that of the States = - \$27.13				1891.....	439.95	+ 2.37	= 442
Annual adjustment = $\frac{-\$27.13}{10} = -\2.71				1892.....	446.77	+ .33	= 446
				1893.....	423.28	- 3.05	= 420
				1894.....	391.96	- 5.77	= 386
				1895.....	424.69	- 8.49	= 416
				1896.....	417.39	- 11.19	= 406
				1897.....	422.10	- 13.90	= 408
				1898.....	428.14	- 16.61	= 412
				1899.....	445.33	- 19.33	= 426
Year	Census Average	State Average	Relation of Census to State Average	Year	State Average	Adjust- ment	Estimated Census Average
1899.....	\$426.00	\$443.96	= - \$17.96	1899.....	\$443.96	- \$17.96	= \$426
1904.....	477.00	489.27	= - 12.27	1900.....	451.88	- 16.82	= 435
Total change in relation of Census to State average = - \$5.69				1901.....	471.18	- 15.68	= 456
Annual adjustment = $\frac{-\$5.69}{5} = -\1.14				1902.....	487.47	- 14.55	= 473
				1903.....	499.78	- 13.41	= 486
				1904.....	489.27	- 12.27	= 477
Year	Census Average	State Average	Relation of Census to State Average	Year	State Average	Adjust- ment	Estimated Census Average
1904.....	\$477.00	\$489.25	= - \$12.25	1904.....	\$489.25	- \$12.25	= \$477
1909.....	518.00	526.42	= - 8.42	1905.....	505.71	- 11.50	= 494
Total change in relation of Census to State average = - \$ 8.42				1906.....	516.74	- 10.73	= 506
Annual adjustment = $\frac{-\$8.42}{5} = -\1.68				1907.....	531.84	- 9.96	= 522
				1908.....	483.90	- 9.19	= 475
				1909.....	526.42	- 8.42	= 518
Year	Census Average	State Average	Relation of Census to State Average	Year	State Average	Adjust- ment	Estimated Census Average
1909.....	\$518.00	\$504.52	= + \$13.48	1909.....	\$504.52	+ \$13.48	= \$518
1914.....	580.00	592.48	= - 12.48	1910.....	549.78	+ 8.28	= 558
Total decrease in relation of Census to State average = - \$25.96				1911.....	533.94	+ 3.09	= 537
Annual adjustment = $\frac{-\$25.96}{5} = -\5.19				1912.....	552.12	- 2.10	= 550
				1913.....	585.40	- 7.29	= 578
				1914.....	592.48	- 12.48	= 580
Year	Census Average	State Average	Relation of Census to State Average	Year	State Average	Adjust- ment	Estimated Census Average
1914.....	\$580.00	\$530.08	= - \$50.08	1914.....	\$530.08	- \$50.08	= \$580
1919.....	1158.00	1177.82	= - 19.82	1915.....	611.56	- 44.03	= 568
Total change in relation of Census to State average = - \$30.36							
Annual adjustment = $\frac{-\$30.36}{5} = -\6.05							

The monthly averages of 1915 were found by the following method, which was followed (save for the changes noted in the text) for the Census years of 1919, 1921, 1923, and 1925.

The average earnings by months of 35 industries (New York and Bureau of Labor Statistics) were weighted by the relative numbers employed and the following averages obtained, which were transformed to a yearly basis. These are given in the first column, while the second column gives their ratios to that of the average for the year as a whole. The third column applies this ratio to the average for the year as a whole, which was found in the manner described above. In the Census years of 1919, 1921, 1923, and 1925, ratios worked out by this method were used to find the earnings for the separate months.

Month	Average Rate of Annual Earnings (in dollars)	Ratio to Average for 1915	Census Average (in dollars)
Av. for 1915.....	659.36	1.000	568
January.....	639.60	.970	551
February.....	641.16	.972	552
March.....	654.16	.992	563
April.....	655.20	.994	565
May.....	652.60	.990	562
June.....	661.96	1.004	570
July.....	651.04	.987	561
August.....	661.44	1.003	570
September.....	661.44	1.003	570
October.....	671.84	1.019	579
November.....	671.84	1.019	579
December.....	681.72	1.034	587

The methods followed to find the most probable earnings in the months intervening between December, 1915, and January, 1919, were:

1. The differences in dollars between the average of the Census and the Bureau of Labor Statistics and New York data were found to be for December, 1915, and January, 1919:

	Census	B.L.S. and New York	Difference
December, 1915.....	587.00	-681.70	-94.70
January, 1919.....	1090.00	-1135.70	-45.70

The difference between the two was thus narrowed in 37 months by \$49. This was an average monthly change of \$1.32.

2. The averages based on the Bureau of Labor Statistics and New York monthly figures were then adjusted by adding an amount which began with \$94.70 in December, 1915, and diminished by \$1.32 with each month. The averages of the Bureau of Labor Statistics and of New York are given in the first column of the following table, the amount of the most probable deviation in the second column, and the final estimate of what the most probable Census earnings would have been in the final column.

Year	Month	Ratio of Average Yearly Earnings (B.L.S. and N.Y.) (in dollars)	Amount of Deviation (in dollars)	Estimated Rate of Annual Earnings for Country as a Whole (in dollars)
1915	December	681.72	-94.70	587
1916	January	691.60	-93.36	598
	February	708.76	-92.04	617
	March	718.64	-90.72	628
	April	720.20	-89.39	631
	May	733.72	-88.07	646
	June	736.84	-86.74	650
	July	707.72	-85.42	622
	August	737.88	-84.10	654
	September	759.20	-82.77	676
	October	760.24	-81.45	679
	November	772.72	-80.12	693
	December	788.84	-78.80	710
1917	January	788.32	-77.48	711
	February	790.92	-76.15	715
	March	815.36	-74.83	741
	April	795.60	-73.50	722
	May	834.08	-72.18	762
	June	842.40	-70.86	772
	July	829.92	-69.53	760
	August	846.56	-68.21	778
	September	863.20	-66.88	796
	October	894.40	-65.56	829
	November	917.28	-64.24	853
	December	913.12	-62.91	850
1918	January	875.16	-61.59	814
	February	896.48	-60.26	836
	March	956.80	-58.94	898
	April	983.32	-57.62	926
	May	1025.52	-56.29	971
	June	1050.40	-54.94	995
	July	1058.20	-53.64	1005
	August	1079.00	-52.32	1027
	September	1121.64	-51.00	1071
	October	1136.20	-49.67	1087
	November	1080.56	-48.35	1032
	December	1174.16	-47.02	1127
1919	January	1135.68	-45.70	1090

Because of lack of space the averages used for interpolation subsequent to 1919 are not printed, but they will be sent to interested persons upon application.

APPENDIX G

THE GAIN OR LOSS IN TERMS OF DOLLARS

WITH THE AVERAGE PURCHASING POWER FOR THE DECADE 1890-99, WHICH WORKERS IN VARIOUS LINES OF INDUSTRY HAVE EXPERIENCED TOGETHER WITH THE AVERAGE MOVEMENT FOR THE PERIOD

This material is shown under three main headings:

- A. The Gain or Loss in Real Hourly Earnings
- B. The Gain or Loss in Real Full-Time Weekly Earnings
- C. The Gain or Loss in Real Annual Earnings

The first two tables are given in this Appendix, while the third is printed under Appendix H. The method followed was to divide the average money wages or earnings for each year by the cost of living index, and thus reduce all such averages to 1890-99 dollars. The gains and losses for the various years as compared with 1890-99 were then summated and averaged. In a few cases some other year or years were used as the base.

A. TABLE 229. HOURLY EARNINGS—GAIN OR LOSS SINCE 1890-99

(Change measured in 1890-99 dollars)

Year	All Industries			Manufacturing			Building Trades		
	Real Hourly Rates	Change from 1890-99 (= .211)		Real Hourly Rates	Change from 1890-99 (= .203)		Real Hourly Rates	Change from 1890-99 (= .346)	
		+	-		+	-		+	-
1900.....	.211			.203	.002		.253	.007	
1901.....	.213	.002		.203			.263	.017	
1902.....	.215	.004		.205	.002		.270	.024	
1903.....	.215	.004		.203			.274	.028	
1904.....	.219	.008		.205	.002		.284	.038	
1905.....	.224	.013		.209	.006		.294	.048	
1906.....	.226	.015		.209	.006		.401	.055	
1907.....	.223	.011		.205	.002		.394	.048	
1908.....	.228	.017		.207	.004		.413	.069	
1909.....	.230	.019		.207	.004		.419	.073	
1910.....	.229	.011		.203			.405	.069	
1911.....	.219	.008		.199		.004	.398	.052	
1912.....	.226	.015		.207	.004		.408	.062	
1913.....	.226	.015		.207	.004		.405	.059	
1914.....	.226	.015		.207	.004		.405	.059	
1915.....	.222	.021		.211	.008		.419	.073	
1916.....	.223	.021		.217	.014		.401	.055	
1917.....	.219	.006		.205	.002		.356	.010	
1918.....	.222	.011		.211	.008		.325		.021
1919.....	.223	.017		.221	.018		.325		.021
1920.....	.228	.025		.229	.026		.356	.010	
1921.....	.235	.044		.243	.045		.438	.090	
1922.....	.266	.055		.252	.049		.439	.093	
1923.....	.283	.072		.266	.063		.474	.128	
1924.....	.291	.080		.272	.069		.509	.163	
1925.....	.291	.080		.270	.067		.519	.173	
1926.....	.295	.084		.268	.065		.543	.197	
Totals.....		.675			.474	.004		1.690	.042
Net.....		.675			.470			1.648	
Average.....		.026			.017			.041	
Per cent of 1890-99 Average.....		12			8			12	

APPENDIX G

A. TABLE 229 (continued)

Year	Coal Mining			Unskilled Labor			Government Employees		
	Real Hourly Rates	Change from 1902 (= .214)		Real Hourly Rates	Change from 1890-99 (= .148)		Real Hourly Rates	Change from 1890-99 (= .448)	
		+	-		+	-		+	-
1900.....				.142		.006	.417		.031
1901.....				.147		.001	.417		.031
1902.....	.214			.145		.003	.408		.045
1903.....	.229	.015		.142		.006	.263		.085
1904.....	.248	.034		.145		.003	.358		.090
1905.....	.239	.025		.148			.358		.090
1906.....	.243	.029		.147		.001	.345		.103
1907.....	.230	.016		.145		.003	.332		.116
1908.....	.239	.025		.149	.001		.358		.090
1909.....	.237	.023		.154	.006		.363		.085
1910.....	.226	.012		.147		.001	.349		.099
1911.....	.221	.007		.145		.003	.345		.103
1912.....	.231	.017		.147		.001	.345		.103
1913.....	.219	.005		.148			.340		.108
1914.....	.221	.007		.149	.001		.354		.094
1915.....	.239	.025		.157	.009		.358		.090
1916.....	.244	.030		.160	.012		.340		.108
1917.....	.263	.049		.160	.012		.296		.152
1918.....	.270	.056		.181	.033		.269		.179
1919.....	.278	.064		.178	.030		.273		.175
1920.....	.271	.057		.166	.018		.264		.184
1921.....	.338	.124		.151	.008		.305		.143
1922.....	.362	.148		.157	.009		.327		.121
1923.....	.365	.151		.175	.027		.327		.121
1924.....	.348	.134		.176	.028		.336		.112
1925.....	.316	.102		.178	.030		.345		.106
1926.....	.311	.097		.179	.031		.354		.094
Totals.....		1.252			.250	.028			2.855
Net.....		1.252			.222				2.855
Average.....		.052			.008				.106
Per cent of 1890-99 Average.....		24			5			24	

APPENDIX G

631

A. TABLE 229 (continued)

Year	All Manufacturing			Industries for which Union Rates were Used					
	Real Hourly Rates	Change from 1890-99 (= .203)		Real Hourly Rates	Change from 1890-99 (= .330)		Real Hourly Rates	Change from 1890-99 (= .317)	
		+	-		+	-		+	-
1900.....	.205	.002		.328		.007	.314		.003
1901.....	.203			.327		.003	.314		.003
1902.....	.205	.002		.327		.003	.317		
1903.....	.203			.320		.010	.314		.003
1904.....	.206	.002		.327		.003	.317		
1905.....	.209	.006		.330			.320	.008	
1906.....	.209	.006		.323		.007	.317		
1907.....	.205	.002		.317		.013	.311		.006
1908.....	.207	.004		.320		.010	.304		.013
1909.....	.207	.004		.323		.007	.304		.013
1910.....	.203			.314		.016	.301		.016
1911.....	.199		.004	.310		.020	.298		.019
1912.....	.207	.004		.314		.016	.301		.016
1913.....	.207	.004		.314		.016	.295		.022
1914.....	.207	.004		.317		.013	.298		.019
1915.....	.211	.006		.323		.007	.304		.013
1916.....	.217	.014		.317		.013	.311		.006
1917.....	.205	.002		.287		.043	.288		.029
1918.....	.211	.008		.287		.043	.317		
1919.....	.221	.018		.294		.036	.311		.006
1920.....	.229	.026		.304		.026	.298		.019
1921.....	.243	.045		.376	.046		.349	.032	
1922.....	.232	.049		.383	.053		.349	.032	
1923.....	.266	.063		.393	.063		.361	.044	
1924.....	.272	.069		.419	.069		.380	.063	
1925.....	.270	.067		.419	.069		.390	.073	
1926.....	.268	.065		.419	.069		.399	.062	
Totals.....		.474	.004		.429	.312		.229	.206
Net.....		.470			.117			.123	
Average.....		.017			.004			.006	
Per cent of 1890-99 Average.....		8			1			2	

APPENDIX G

A. TABLE 229 (continued)

Year	Industries for which Union Rates were Used								
	Granite and Stone			Book and Job Printing			Newspaper Printing		
	Real Hourly Rates	Change from 1890-99 (= .407)		Real Hourly Rates	Change from 1890-99 (= .297)		Real Hourly Rates	Change from 1890-99 (= .448)	
		+	-		+	-		+	-
1900.....	.403		.004	.306	.009		.439		.009
1901.....	.407			.306	.009		.444		.004
1902.....	.411	.004		.306	.009		.444		.004
1903.....	.415	.008		.297			.435		.013
1904.....	.419	.012		.309	.012		.444		.004
1905.....	.419	.012		.315	.018		.457	.009	
1906.....	.411	.004		.315	.018		.448		
1907.....	.403		.004	.309	.012		.439		.009
1908.....	.419	.012		.324	.027		.457	.009	
1909.....	.423	.016		.327	.030		.461	.013	
1910.....	.399		.008	.318	.021		.444		.004
1911.....	.387		.020	.318	.021		.430		.018
1912.....	.391		.016	.324	.027		.435		.013
1913.....	.391		.016	.321	.024		.435		.013
1914.....	.391		.016	.327	.030		.439		.009
1915.....	.399		.008	.333	.036		.448		
1916.....	.383		.024	.312	.015		.417		.031
1917.....	.330		.077	.267		.030	.354		.094
1918.....	.322		.085	.244		.053	.314		.134
1919.....	.330		.077	.264		.033	.327		.121
1920.....	.342		.065	.285		.012	.327		.121
1921.....	.440	.033		.383	.086		.426		.022
1922.....	.468	.061		.410	.113		.452	.004	
1923.....	.476	.069		.419	.122		.448		
1924.....	.492	.085		.437	.140		.484	.036	
1925.....	.492	.085		.431	.134		.479	.031	
1926.....	.541	.134		.431	.134		.475	.027	
Totals.....		.535	.420		1.047	.128		.129	.623
Net.....		.115			.919				.494
Average.....		.004			.034				.018
Per cent of 1890-99 Average.....		1			11			4	

APPENDIX G

633

A. TABLE 229 (continued)

Year	Industries for which Union Rates were Used					
	Planing Mills			Bakers		
	Real Hourly Rates	Change from 1890-99 (= .295)		Real Hourly Rates	Change from 1890-99 (= .295)	
		+	-		+	-
1900.....	.295	.....	.....	.295	.....	.....
1901.....	.298	.003	.....	.298	.....	.002
1902.....	.298	.003	.....	.297	.002	.....
1903.....	.298	.003	.....	.295	.....	.....
1904.....	.301	.006	.....	.299	.004	.....
1905.....	.307	.012	.....	.313	.008	.....
1906.....	.304	.009	.....	.311	.006	.....
1907.....	.298	.003	.....	.293	.....	.002
1908.....	.307	.012	.....	.319	.014	.....
1909.....	.304	.009	.....	.326	.021	.....
1910.....	.298	.003	.....	.223	.018	.....
1911.....	.292	.....	.003	.226	.021	.....
1912.....	.295	.....	.....	.240	.035	.....
1913.....	.299	.....	.006	.244	.039	.....
1914.....	.299	.....	.006	.246	.041	.....
1915.....	.301	.006	.....	.254	.049	.....
1916.....	.292	.....	.003	.244	.039	.....
1917.....	.263	.....	.032	.223	.018	.....
1918.....	.242	.....	.053	.226	.021	.....
1919.....	.251	.....	.044	.258	.053	.....
1920.....	.398	.003	.....	.301	.096	.....
1921.....	.389	.004	.....	.379	.174	.....
1922.....	.394	.009	.....	.392	.187	.....
1923.....	.404	.109	.....	.396	.191	.....
1924.....	.443	.148	.....	.406	.203	.....
1925.....	.434	.139	.....	.414	.209	.....
1926.....	.425	.130	.....	.383	.178	.....
Totals.....		.781	.147		1.637	.004
Net.....		.634			1.623	
Average.....		.023			.000	
Per cent of 1890-99 Average.....		8			29	

APPENDIX G

A. TABLE 229 (continued)

Year	Industries for which Payroll Data were Used								
	Payroll Rates Group			Cotton Goods			Boots and Shoes		
	Real Hourly Rates	Change from 1890-99 (= .145)		Real Hourly Rates	Change from 1890-99 (= .096)		Real Hourly Rates	Change from 1890-99 (= .172)	
		+	-		+	-		+	-
1900.....	.144		.001	.098	.002		.169		.003
1901.....	.142		.003	.097	.001		.165		.007
1902.....	.146	.001		.097	.001		.167		.005
1903.....	.144		.001	.096			.169		.003
1904.....	.142		.003	.095		.001	.174	.002	
1905.....	.146	.001		.097	.001		.177	.005	
1906.....	.148	.003		.101	.005		.174	.002	
1907.....	.148	.003		.108	.012		.172		
1908.....	.145			.111	.015		.175	.003	
1909.....	.148	.003		.108	.012		.181	.009	
1910.....	.146	.001		.104	.008		.170		.002
1911.....	.145			.103	.007		.169		.003
1912.....	.151	.006		.111	.015		.169		.003
1913.....	.154	.009		.108	.012		.175	.003	
1914.....	.154	.009		.110	.014		.175	.003	
1915.....	.155	.010		.116	.020		.174	.002	
1916.....	.168	.023		.119	.023		.182	.010	
1917.....	.167	.022		.120	.024		.162		.010
1918.....	.174	.029		.130	.034		.163		.009
1919.....	.186	.041		.137	.041		.181	.009	
1920.....	.196	.051		.166	.070		.191	.019	
1921.....	.190	.045		.142	.046		.215	.043	
1922.....	.194	.049		.144	.048		.220	.048	
1923.....	.210	.065		.159	.063		.224	.052	
1924.....	.213	.068		.168	.062		.218	.046	
1925.....	.206	.061		.147	.051		.213	.041	
1926.....	.203	.058		.137	.041		.220	.048	
Totals.....		.558	.008		.628	.001		.345	.045
Net.....		.550			.627			.300	
Average.....		.020			.023			.011	
Per cent of 1890-99 Average.....		14			24			6	

APPENDIX G

635

A. TABLE 229 (continued)

Year	Industries for which Payroll Data were Used								
	Men's Clothing			Hosiery and Knit Goods			Woolens and Worsteds		
	Real Hourly Rates	Change from 1890-99 (= .146)		Real Hourly Rates	Change from 1890-99 (= .107)		Real Hourly Rates	Change from 1890-99 (= .121)	
		+	-		+	-		+	-
1900.....	.143		.003	.096		.011	.128	.007	
1901.....	.142		.004	.102		.005	.126	.005	
1902.....	.140		.006	.107			.125	.004	
1903.....	.139		.007	.108	.001		.123	.002	
1904.....	.146			.105		.002	.121		
1905.....	.150	.004		.112	.005		.125	.004	
1906.....	.152	.006		.113	.006		.129	.008	
1907.....	.147	.001		.114	.007		.129	.006	
1908.....	.137		.009	.120	.013		.127	.006	
1909.....	.153	.007		.118	.011		.128	.007	
1910.....	.149	.003		.113	.006		.123	.002	
1911.....	.165	.019		.110	.003		.121		
1912.....	.168	.022		.117	.010		.134	.013	
1913.....	.184	.038		.122	.015		.128	.007	
1914.....	.184	.038		.124	.017		.131	.010	
1915.....	.188	.042		.135	.028		.136	.015	
1916.....	.193	.047		.138	.031		.148	.027	
1917.....	.185	.039		.134	.027		.155	.034	
1918.....	.187	.041		.134	.027		.159	.038	
1919.....	.190	.044		.131	.024		.196	.075	
1920.....	.242	.096		.142	.035		.214	.093	
1921.....	.276	.130		.149	.042		.224	.103	
1922.....	.321	.175		.155	.049		.268	.087	
1923.....	.324	.178		.170	.063		.225	.104	
1924.....	.327	.181		.175	.068		.237	.106	
1925.....	.318	.172		.177	.070		.215	.094	
1926.....	.314	.168		.184	.077		.204	.083	
Totals.....		1.451	.029		.635	.018		.942	.....
Net.....		1.422			.617			.942	
Average.....		.053			.023			.035	
Per cent of 1890-99 Average.....		36			21			29	

A. TABLE 229 (continued)

Year	Industries for which Payroll Data were Used								
	Lumber (sawmills)			Iron and Steel			Slaughtering and Meat-Packing		
	Real Hourly Rates	Change from 1890-99 (= .144)		Real Hourly Rates	Change from 1890-99 (= .215)		Real Hourly Rates	Change from 1890-99 (= .166)	
		+	-		+	-		+	-
1900.....	.141		.003	.221	.006		.154		.012
1901.....	.141		.003	.221	.006		.151		.015
1902.....	.143		.001	.228	.013		.153		.013
1903.....	.141		.003	.221	.006		.156		.010
1904.....	.141		.003	.209		.006	.159		.007
1905.....	.147	.003		.213		.002	.153		.013
1906.....	.151	.007		.215			.149		.017
1907.....	.148	.004		.211		.004	.146		.020
1908.....	.143		.001	.198		.017	.143		.023
1909.....	.145	.001		.202		.013	.148		.018
1910.....	.147	.003		.209		.006	.143		.023
1911.....	.143		.001	.206		.009	.144		.022
1912.....	.144			.213		.002	.144		.022
1913.....	.144			.224	.009		.143		.023
1914.....	.140		.004	.215			.144		.022
1915.....	.134		.010	.219	.004		.153		.013
1916.....	.144			.249	.034		.158		.008
1917.....	.145	.001		.249	.034		.153		.013
1918.....	.154	.010		.264	.049		.169	.003	
1919.....	.166	.022		.277	.062		.173	.007	
1920.....	.153	.009		.264	.049		.161		.006
1921.....	.137		.007	.232	.017		.199	.023	
1922.....	.144			.224	.009		.196	.030	
1923.....	.156	.012		.256	.041		.203	.037	
1924.....	.151	.007		.271	.056		.211	.045	
1925.....	.151	.007		.269	.054		.201	.035	
1926.....	.150	.006		.260	.045		.204	.038	
Totals.....		.092	1.036		.494	.069		.228	.299
Net.....		.056			.435				.071
Average.....		.002			.016				.002
Per cent of 1890-99 Average.....		1			7				2

APPENDIX G

637

B. TABLE 230. FULL-TIME WEEKLY EARNINGS — GAIN OR LOSS SINCE 1890-99

(Change measured in 1890-99 dollars)

Year	All Industries			Manufacturing			Building Trades		
	Real Weekly Earnings	Change from 1890-99 (= \$10.73)		Real Weekly Earnings	Change from 1890-99 (= \$12.07)		Real Weekly Earnings	Change from 1890-99 (= \$17.35)	
		+	-		+	-		+	-
900.....	\$10.52		.21	\$12.07			\$17.00		.35
901.....	10.52		.21	11.95		.12	17.18		.17
902.....	10.52		.21	11.95		.12	17.35		
903.....	10.41		.32	11.83		.24	17.35		
904.....	10.69		.11	11.83		.24	17.70		.35
905.....	10.84	.11		12.07			18.22	.87	
906.....	10.84	.11		11.95		.12	18.56	1.21	
907.....	10.62		.11	11.71		.36	18.04	.69	
908.....	10.94	.21		11.71		.36	19.09	1.74	
909.....	11.05	.32		11.83		.24	19.26	1.91	
910.....	10.62		.11	11.47		.60	18.39	1.04	
911.....	10.52		.21	11.23		.84	18.04	.69	
912.....	10.73			11.59		.48	18.39	1.04	
913.....	10.73			11.47		.60	18.22	.87	
914.....	10.73			11.47		.60	18.22	.87	
1915.....	11.16	.43		11.59		.48	18.74	1.39	
1916.....	11.16	.43		11.95		.12	17.87	.52	
1917.....	10.52		.31	11.10		.97	15.79		1.56
1918.....	10.73			11.23		.84	14.40		2.95
1919.....	10.84	.11		11.59		.48	14.23		3.12
1920.....	11.05	.32		11.71		.36	15.79		1.56
1921.....	11.70	.97		12.55	.48		19.26	1.91	
1922.....	12.23	1.50		12.91	.84		19.26	1.91	
1923.....	12.98	2.25		13.52	1.45		20.52	3.17	
1924.....	13.20	2.47		13.64	1.57		22.38	5.03	
1925.....	13.31	2.58		13.64	1.57		22.90	5.55	
1926.....	13.41	2.68		13.52	1.45		23.94	6.59	
Totals.....		14.49	1.70		7.36	8.17		37.65	9.71
Net.....		12.79				.81		27.94	
Average.....		0.47				0.08		1.08	
Per cent of 1890-99 Average.....		4						6	

APPENDIX G

B. TABLE 230 (continued)

Year	Coal Mining			Unskilled Labor			Government Employees		
	Real Weekly Earnings	Change from 1902 (= \$11.71)		Real Weekly Earnings	Change from 1890-99 (= \$8.82)		Real Weekly Earnings	Change from 1890-99 (= \$19.55)	
		+	-		+	-		+	-
1900.....				\$8.47		.35	\$18.18		1.37
1901.....				8.56		.26	17.99		1.56
1902.....	\$11.71			8.47		.35	17.60		1.95
1903.....	12.08			8.29		.53	16.42		3.13
1904.....	12.91	1.20		8.38		.44	16.42		3.13
1905.....	12.48	.77		8.56		.26	16.62		2.93
1906.....	12.72	1.01		8.47		.35	15.84		3.71
1907.....	11.98	.27		8.29		.53	15.44		4.11
1908.....	12.50	.79		8.64		.18	16.42		3.13
1909.....	12.33	.62		8.82			16.81		2.74
1910.....	11.81	.10		8.29		.53	16.23		3.32
1911.....	11.56		.15	8.11		.71	15.84		3.71
1912.....	12.06	.34		8.29		.53	16.03		3.52
1913.....	11.48		.25	8.38		.44	15.84		3.71
1914.....	11.56		.15	8.29		.53	16.03		3.52
1915.....	12.47	.76		8.73		.09	16.42		3.13
1916.....	12.51	.80		8.82			15.44		4.11
1917.....	12.97	1.26		8.82			13.49		6.06
1918.....	13.11	1.40		9.88	1.06		12.12		7.43
1919.....	13.41	1.70		9.61	.79		12.12		7.43
1920.....	13.09	1.38		8.91	.09		11.73		7.82
1921.....	16.28	4.57		8.11		.71	13.88		5.67
1922.....	17.47	5.76		8.47		.35	14.86		4.69
1923.....	17.63	5.92		9.35	.53		14.86		4.69
1924.....	16.85	5.14		9.44	.62		15.25		4.30
1925.....	15.28	3.57		9.61	.79		15.64		3.91
1926.....	15.03	3.32		9.61	.79		16.23		3.32
Totals.....		41.05	.55		4.67	7.14		.....	108.10
Net.....		40.50				2.47			108.10
Average.....		1.50				0.09			4.00
Per cent of 1890-99 Average.....		13				1			20

APPENDIX G

639

B. TABLE 230 (continued)

Year	Transportation			Professional (teachers and ministers)			Farm Labor		
	Real Weekly Earnings	Change from 1890-99 (= \$10.98)		Real Weekly Earnings	Change from 1890-99 (= \$11.18)		Real Weekly Earnings	Change from 1890-99 (= \$4.39)	
		+	-		+	-		+	-
1900.....	\$10.54		.44	\$11.29	.11		\$4.48	.09	
1901.....	10.43		.55	11.40	.22		4.57	.18	
1902.....	10.43		.55	11.18			4.57	.18	
1903.....	10.32		.66	10.96		.22	4.57	.18	
1904.....	10.54		.44	11.40	.22		4.83	.44	
1905.....	10.65		.33	11.63	.45		5.09	.70	
1906.....	10.65		.33	11.63	.45		5.09	.70	
1907.....	10.43		.55	11.52	.34		4.87	.48	
1908.....	10.98			12.41	1.23		5.18	.79	
1909.....	10.98			12.63	1.45		5.18	.79	
1910.....	10.76		.32	12.19	1.01		5.05	.66	
1911.....	10.76		.32	12.30	1.12		4.92	.53	
1912.....	10.98			12.63	1.45		5.05	.66	
1913.....	10.87		.11	12.52	1.34		5.05	.66	
1914.....	10.87		.11	12.86	1.68		4.87	.48	
1915.....	11.42	.44		13.42	2.24		5.00	.61	
1916.....	11.00	.11		12.75	1.57		5.00	.61	
1917.....	10.43		.55	11.40	.22		5.18	.79	
1918.....	11.97	.99		9.95		1.23	5.31	.92	
1919.....	11.00	.11		10.06		1.12	5.49	1.10	
1920.....	11.86	.88		10.06		1.12	5.44	1.05	
1921.....	12.52	1.54		13.30	2.12		4.06		.31
1922.....	12.96	1.98		15.43	4.25		4.26		.13
1923.....	12.74	1.76		15.32	4.14		4.70	.31	
1924.....	12.85	1.87		15.43	4.25		4.70	.31	
1925.....	13.07	2.09		15.32	4.14		4.70	.31	
1926.....	13.18	2.20		15.54	4.36		4.74	.35	
Totals.....		13.67	5.06		38.36	3.69		13.88	.44
Net.....		8.91			34.67			13.44	
Average.....		0.33			1.26			0.50	
Per cent of 1890-99 Average.....		3			11			11	

APPENDIX G

B. TABLE 230 (continued)

Year	All Manufacturing			Industries for which Union Rates were Used					
				Union Rates Group			Metal Trades		
	Real Weekly Earnings	Change from 1890-99 (= \$12.07)		Real Weekly Earnings	Change from 1890-99 (= \$17.70)		Real Weekly Earnings	Change from 1890-99 (= \$17.20)	
		+	-		+	-		+	-
1900.....	\$12.07			\$17.17		.53	\$16.86		.34
1901.....	11.95		.12	16.99		.71	16.68		.52
1902.....	11.95		.12	16.82		.88	16.51		.69
1903.....	11.83		.24	16.46	1.24		16.17	1.03	
1904.....	11.83		.24	16.64	1.06		16.17	1.03	
1905.....	12.07			16.82		.88	16.51		.69
1906.....	11.95		.12	16.46	1.24		16.34		.86
1907.....	11.71		.36	15.93	1.77		15.82	1.38	
1908.....	11.71		.36	16.28	1.42		15.48	1.72	
1909.....	11.83		.24	16.28	1.42		15.48	1.72	
1910.....	11.47		.60	15.75	1.95		15.14	2.06	
1911.....	11.23		.84	15.40	2.30		14.96	2.24	
1912.....	11.59		.48	15.40	2.30		14.96	2.24	
1913.....	11.47		.60	15.40	2.30		14.79	2.41	
1914.....	11.47		.60	15.40	2.30		14.79	2.41	
1915.....	11.59		.48	15.75	1.95		15.14	2.06	
1916.....	11.95		.12	15.22	2.48		15.14	2.06	
1917.....	11.10		.97	13.63	4.07		13.76	3.44	
1918.....	11.23		.84	13.63	4.07		14.79	2.41	
1919.....	11.59		.48	13.63	4.07		14.28	2.92	
1920.....	11.71		.36	13.81	3.89		13.42	3.78	
1921.....	12.55	.48		17.35	.35		16.17	1.03	
1922.....	12.91	.84		17.70			16.34		.86
1923.....	13.52	1.45		18.23	.53		16.86		.34
1924.....	13.64	1.57		19.29	1.59		17.89	.69	
1925.....	13.64	1.57		19.29	1.59		18.06	.86	
1926.....	13.52	1.45		19.12	1.42		18.40	1.20	
Totals.....		7.36	8.17		5.13	43.18		2.75	40.24
Net.....			.81			38.05			37.49
Average.....			0.03			1.41			1.39
Per cent of 1890-99 Average.....						8			8

APPENDIX G

641

B. TABLE 230 (continued)

Year	Industries for which Union Rates were Used								
	Granite and Stone			Book and Job Printing			Newspaper Printing		
	Real Weekly Earnings	Change from 1890-99 (= \$19.42)		Real Weekly Earnings	Change from 1890-99 (= \$16.49)		Real Weekly Earnings	Change from 1890-99 (= \$21.85)	
		+	-		+	-		+	-
1900.....	\$18.45		.97	\$16.00		.49	\$20.98		.87
1901.....	18.04		.78	16.00		.49	20.98		.87
1902.....	18.84		.58	15.67		.82	20.76		1.09
1903.....	18.64		.78	15.34	1.15		20.32		1.53
1904.....	18.84		.58	15.67	.83		20.54		1.31
1905.....	18.84		.58	16.00		.49	20.98		.87
1906.....	18.45		.97	15.67		.82	20.54		1.31
1907.....	18.06	1.36		15.34	1.15		19.88		1.97
1908.....	18.64		.78	15.67	.82		20.54		1.31
1909.....	18.84		.58	15.67	.82		20.76		1.09
1910.....	17.87		1.55	15.17	1.32		20.10		1.75
1911.....	17.28		2.14	15.17	1.32		19.45		2.40
1912.....	17.28		2.14	15.50	.99		19.67		2.18
1913.....	17.00		2.33	15.34	1.15		19.67		2.18
1914.....	17.28		2.14	15.50	.99		19.67		2.18
1915.....	17.48		1.94	15.01	1.48		20.10		1.75
1916.....	16.70		2.72	14.84	1.65		18.57		3.28
1917.....	14.67		4.85	12.70	3.79		15.73		6.12
1918.....	13.98		5.44	11.71	4.78		13.98		7.67
1919.....	14.87		4.85	12.53	3.96		14.64		7.21
1920.....	14.95		4.47	13.60	2.80		14.64		7.21
1921.....	19.23		.19	17.31	.82		18.79		3.06
1922.....	20.39	.97		18.30	1.81		20.76		1.09
1923.....	20.97	1.55		18.47	1.98		20.54		1.31
1924.....	21.56	2.14		19.29	2.80		21.63		.22
1925.....	21.75	2.33		18.96	2.47		21.41		.44
1926.....	23.69	4.27		18.96	2.47		21.63		.22
Totals.....		11.96	42.72		12.35	32.10		.....	62.69
Net.....			21.46			19.75			62.69
Average.....			1.17			0.73			2.32
Per cent of 1890-99 Average.....			6			4			11

APPENDIX G

B. TABLE 230 (continued)

Year	Industries for which Union Rates were Used					
	Planing Mills			Bakers		
	Real Weekly Earnings	Change from 1890-99 (= \$15.64)		Real Weekly Earnings	Change from 1890-99 (= \$13.09)	
		+	-		+	-
1900.....	\$15.38		.16	\$12.70		.39
1901.....	15.54			12.57		.52
1902.....	15.38		.16	12.70		.39
1903.....	15.23		.31	12.30		.79
1904.....	15.54			12.57		.52
1905.....	15.70	.16		12.57		.52
1906.....	15.38		.16	12.44		.65
1907.....	15.07		.47	11.91		1.18
1908.....	15.54			12.70		.39
1909.....	15.54			13.09		
1910.....	15.07		.47	12.83		.26
1911.....	14.76		.78	12.70		.39
1912.....	14.92		.62	12.83		.26
1913.....	14.61		.93	12.83		.26
1914.....	14.14		1.40	12.96		.13
1915.....	14.61		.93	13.35	.26	
1916.....	14.14		1.40	12.70		.39
1917.....	12.43		3.11	11.52		1.57
1918.....	11.19		4.35	11.52		1.57
1919.....	11.50		4.04	12.70		.39
1920.....	13.52		2.02	14.27	1.18	
1921.....	17.40	1.86		18.06	4.97	
1922.....	17.25	1.71		18.59	5.50	
1923.....	18.18	2.64		18.85	5.76	
1924.....	19.89	4.35		19.37	6.28	
1925.....	19.58	4.04		19.64	6.55	
1926.....	19.11	3.57		18.33	5.24	
Totals.....		18.33	21.31		35.74	10.67
Net.....			2.98		25.17	
Average.....			0.11		0.93	
Per cent of 1890-99 Average.			1		7	

APPENDIX G

643

B. TABLE 230 (continued)

Year	Industries for which Payroll Data were Used								
	Payroll Rates Group			Cotton Goods			Boots and Shoes		
	Real Weekly Earnings	Change from 1890-99 (= \$9.00)		Real Weekly Earnings	Change from 1890-99 (= \$5.96)		Real Weekly Earnings	Change from 1890-99 (= \$10.09)	
		+	-		+	-		+	-
1900.....	\$8.91		.09	\$6.08	.12		\$9.89		.20
1901.....	8.82		.18	6.02	.06		9.69		.40
1902.....	9.00			5.96			9.69		.40
1903.....	8.82		.18	5.90		.06	9.59		.50
1904.....	8.73		.27	5.84		.12	9.99		.10
1905.....	8.91		.09	5.96			10.19	.10	
1906.....	9.00			6.20	.24		9.89		.20
1907.....	9.00			6.56	.60		9.79		.30
1908.....	8.73		.27	6.68	.72		9.99		.10
1909.....	8.91		.09	6.44	.48		10.29	.20	
1910.....	8.73		.27	6.08	.12		9.69		.40
1911.....	8.64		.36	5.96			9.84		.61
1912.....	8.91		.09	6.44	.48		9.28		.81
1913.....	9.00			6.26	.30		9.69		.40
1914.....	8.91		.09	6.26	.30		9.69		.50
1915.....	9.09	.09		6.56	.60		9.48		.61
1916.....	9.81	.81		6.73	.77		9.99		.20
1917.....	9.63	.63		6.73	.77		8.58		1.61
1918.....	9.81	.81		7.27	1.31		8.48		1.61
1919.....	10.26	1.26		7.39	1.43		9.18		.91
1920.....	10.44	1.44		8.58	2.62		9.28		.81
1921.....	9.99	.99		7.45	1.49		10.39	.30	
1922.....	10.35	1.35		7.67	1.61		10.70	.61	
1923.....	11.16	2.16		8.40	2.44		10.90	.81	
1924.....	11.16	2.16		8.34	2.38		10.70	.61	
1925.....	10.71	1.71		7.75	1.79		10.49	.40	
1926.....	10.63	1.63		7.33	1.37		10.80	.71	
Totals.....		15.03	1.96		22.00	.18		3.74	10.57
Net.....		13.06			21.82				8.83
Average.....		0.48			0.81				0.25
Per cent of 1890-99 Average.....		5			14				2

APPENDIX G

B. TABLE 230 (continued)

Year	Industries for which Payroll Data were Used								
	Men's Clothing			Hosiery and Knit Goods			Woolens and Worsted		
	Real Weekly Earnings	Change from 1890-99 (= \$8.09)		Real Weekly Earnings	Change from 1890-99 (= \$6.46)		Real Weekly Earnings	Change from 1890-99 (= \$7.18)	
		+	-		+	-		+	-
1900.....	\$7.93		.16	\$5.75		.71	\$7.61	.43	
1901.....	7.85		.24	6.07		.39	7.47	.29	
1902.....	7.69		.40	6.40		.06	7.32	.14	
1903.....	7.60		.49	6.40		.06	7.25	.07	
1904.....	8.01		.08	6.20		.26	7.04		.14
1905.....	8.25	.16		6.65	.19		7.32	.14	
1906.....	8.33	.24		6.72	.26		7.54	.36	
1907.....	8.09			6.72	.26		7.54	.36	
1908.....	7.52		.57	6.98	.52		7.40	.22	
1909.....	8.33	.24		6.85	.39		7.47	.29	
1910.....	8.01		.06	6.52	.06		7.04		.14
1911.....	8.90	.81		6.33		.13	6.80		.29
1912.....	8.98	.89		6.59	.13		7.54	.36	
1913.....	9.47	1.38		6.78	.32		7.18		
1914.....	9.47	1.38		6.78	.32		7.18		
1915.....	9.55	1.46		7.30	.84		7.40	.22	
1916.....	9.63	1.54		7.43	.97		8.11	.93	
1917.....	9.14	1.05		7.04	.58		8.47	1.29	
1918.....	9.06	.97		7.04	.58		8.62	1.44	
1919.....	9.06	.97		6.78	.32		10.06	2.87	
1920.....	11.25	3.16		7.36	.90		10.34	3.16	
1921.....	12.46	4.37		7.62	1.16		10.84	3.66	
1922.....	14.08	5.99		7.88	1.42		10.12	2.94	
1923.....	14.24	6.15		8.59	2.13		10.99	3.81	
1924.....	14.40	6.31		8.85	2.39		11.20	4.02	
1925.....	14.00	5.91		9.04	2.58		10.63	3.45	
1926.....	13.91	5.82		9.43	2.97		10.12	2.94	
Totals.....		48.80	2.02		19.29	1.61		33.39	.57
Net.....		46.78			17.68			32.82	
Average.....		1.73			0.65			1.21	
Per cent of 1890-99 Average.....		21			10			17	

APPENDIX G

645

B. TABLE 230 (continued)

Year	Industries for which Payroll Data were Used								
	Lumber (sawmills)			Iron and Steel			Slaughtering and Meat-Packing		
	Real Weekly Earnings	Change from 1890-99 (= \$9.35)		Real Weekly Earnings	Change from 1890-99 (= \$14.46)		Real Weekly Earnings	Change from 1890-99 (= \$9.95)	
		+	-		+	-		+	-
1900.....	\$9.07		.28	\$15.04	.58		\$9.35		.60
1901.....	9.07		.28	14.89	.43		9.05		.90
1902.....	9.07		.28	15.47	1.01		9.25		.70
1903.....	8.88		.47	15.04	.58		9.35		.60
1904.....	8.98		.37	13.88		.58	9.55		.40
1905.....	9.36		.09	14.46			9.25		.70
1906.....	9.44	.00		14.46			8.95		.99
1907.....	9.26		.09	14.17		.29	8.76		1.19
1908.....	8.88		.47	13.16		1.30	8.56		1.39
1909.....	9.07		.28	13.59		.87	8.86		1.09
1910.....	9.16		.19	14.08		.43	8.66		1.29
1911.....	8.88		.47	13.74		.72	8.66		1.29
1912.....	8.88		.47	14.03		.43			1.29
1913.....	8.88		.47	14.75	.29		8.66		1.29
1914.....	8.60		.75	14.03		.43	8.66		1.29
1915.....	8.32		1.03	14.32		.14	9.15		.80
1916.....	8.79		.56	16.63	2.17		9.45		.50
1917.....	8.60		.75	16.77	2.31		9.15		.80
1918.....	8.98		.37	17.64	3.18		8.76		1.19
1919.....	9.44	.00		18.22	3.76		8.36		1.69
1920.....	8.79		.56	16.63	2.17		7.76		2.19
1921.....	7.95		1.40	14.75	.29		9.65		.30
1922.....	8.42		.93	14.17		.29	9.85		.10
1923.....	9.07		.28	15.18	.72		10.65	.70	
1924.....	8.79		.56	15.04	.58		10.75	.80	
1925.....	8.79		.56	14.60	.14		10.05	.10	
1926.....	8.70		.65	14.17		.29	10.15	.20	
Totals.....		.18	12.61		18.21	5.77		1.80	22.48
Net.....			12.43		12.44				20.68
Average.....			0.46		0.46				0.77
Per cent of 1890-99 Average.....			5		3				8

APPENDIX H

BALANCE OF GAIN AND LOSS, IN DOLLARS, FOR SPECIFIC INDUSTRIES OVER THE AVERAGE OF THE YEARS 1890-99, FOR HOURLY RATES, FULL-TIME WEEKLY EARNINGS, AND ANNUAL EARNINGS OF THE EMPLOYED

TABLE 231. AVERAGE ANNUAL EARNINGS—AVERAGE NET YEARLY CHANGE IN REAL MONEY EARNINGS

Year	All Industries (excluding farm labor)			Manufacturing			Steam Railroads			Street Railways		
	Real Money Earnings	Change from 1890-99 (= \$474)		Real Money Earnings	Change from 1890-99 (= \$420)		Real Money Earnings	Change from 1890-99 (= \$550)		Real Money Earnings	Change from 1890-99 (= \$540)	
		+	-		+	-		+	-		+	-
1890.....	\$469		5	\$424	4		\$539		11	\$540		
1891.....	483	9		437	17		550			524		16
1892.....	498	14		441	21		556	6		529		11
1893.....	479	5		420			561	11		524		16
1894.....	465		9	399		21	567	17		524		16
1895.....	483	9		428	8		561	11		524		16
1896.....	465		9	407		13	550			535		5
1897.....	465		9	407		13	545		5	556	16	
1898.....	465		9	412		8	539		11	556	16	
1899.....	469		5	416		4	534		16	578	38	
1900.....	465		9	412		8	517		33	572	32	
1901.....	474			424	4		512		38	556	16	
1902.....	469		5	428	8		506		44	518		22
1903.....	469		5	420			512		38	502		35
1904.....	469		5	416		4	523		27	529		11
1905.....	483	9		433	13		512		38	562	22	
1906.....	479	5		424	4		512		38	556	16	
1907.....	474			418		4	528		22	524		16
1908.....	465		9	395		25	556	6		540		
1909.....	488	14		428	8		534		16	556	16	
1910.....	493	19		437	17		528		22	529		11
1911.....	474			407		13	534		16	518		22
1912.....	483	9		416		4	545		5	508		32
1913.....	493	19		420			556	6		513		27
1914.....	493	19		416		4	572	22		529		11
1915.....	502	28		416		4	600	50		551	11	
1916.....	517	43		437	17		583	33		540		
1917.....	498	24		433	13		556	6		491		49
1918.....	512	38		449	29		655	105		508		32
1919.....	512	38		466	46		611	61		562	23	
1920.....	521	47		475	55		633	83		562	22	
1921.....	550	76		479	59		660	110		626	86	
1922.....	569	95		500	80		693	143		626	86	
1923.....	597	123		538	118		677	127		637	97	
1924.....	597	123		529	109		671	121		659	119	
1925.....	597	123		533	113		666	116		653	113	
1926.....	611	137		542	122		671	121		648	108	
Totals....		989	33		815	66		1110	337		766	271
Net.....		956			749			773			495	
Average...		35.41			27.74			28.63			18.33	
Per cent of 1890-99 Average		7			7			5			3	
Divisor...		27			27			27			27	

Note: The years 1890-99 were omitted in calculating the totals and averages.

APPENDIX H

647

TABLE 231 (continued)

Year	Telephones		Telegraphs			Gas and Electricity			Clerical Workers		
	Real Money Earnings	Change from 1902 (= \$368)	Real Money Earnings	Change from 1902 (= \$491)		Real Money Earnings	Change from 1890-99 (= \$651)		Real Money Earnings	Change from 1890-99 (= \$935)	
		+ -		+ -			+ -			+ -	
1800.....						\$563	12		\$823		112
1801.....						581	70		870		65
1802.....						615	36		870		65
1803.....						627	24		926		9
1804.....						691	40		954	19	
1805.....						659	8		972	37	
1806.....						870	19		963	28	
1807.....						705	54		972	37	
1808.....						696	45		1010	75	
1809.....						600		51	982	47	
1900.....						557		64	954	19	
1901.....						571		80	935		
1902.....	\$368		\$491						926		9
1903.....	842	26	404	8					898		37
1904.....	840	28	522	31		483	168		916		19
1905.....	850	18	507	16		473	178		935		
1906.....	846	22	497	6		488	163		898		37
1907.....	828	40	505	14		495	156		870		65
1908.....	848	20	529	38		493	158		916		19
1909.....	854	14	513	22		509	142		935		
1910.....	825	43	506	15		484	167		898		37
1911.....	817	51	506	15		490	161		916		19
1912.....	829	39	503	12		482	169		907		28
1913.....	819	49	522	31		481	170		898		37
1914.....	843	25	534	43		469	182		907		28
1915.....	853	20	581	90		473	179		926		9
1916.....	882	14	542	51		457	194		916		19
1917.....	845		431		60	478	173		832		103
1918.....	816		381		110	501	150		776		159
1919.....	841		391		100	532	129		776		159
1920.....	843		400		91	501	180		757		178
1921.....	421	53	471		20	554	97		870		65
1922.....	464	96	494		7	585	66		898		37
1923.....	457	89	484		7	579	72		907		28
1924.....	471	103	490		1	613	38		935		
1925.....	462	94	484		7	603	48		935		
1926.....	493	95	504	13		613	38		963	28	
Totals....		564	502		400	408		3292		47	1022
Net.....		62			8			3292			1045
Average..		2.58			0.13			131.68			33.70
Per cent of 1890-99 Average		1			0			20			4
Divisor....		24			24			26		27	

Note: The years 1890-99 were omitted in calculating the totals and averages.

APPENDIX H

649

TABLE 231 (continued)

Year	Federal Employees (in executive departments)			Teachers			Ministers		
	Real Money Earn- ings	Change from 1892-99 (= \$1074)		Real Money Earn- ings	Change from 1890-99 (= \$286)		Real Money Earn- ings	Change from 1890-99 (= \$777)	
		+	-		+	-		+	-
1890.....				\$248		37	\$769		8
1891.....				262		23	777		
1892.....	\$1074			265		20	785	8	
1893.....	1106	32		276		9	808	31	
1894.....	1149	75		291	6		847	70	
1895.....	1138	64		296	11		808	31	
1896.....	1095	21		296	11		769		8
1897.....	1063		11	299	14		754		23
1898.....	1020		54	305	20		738		39
1899.....	999		75	311	26		707		70
1900.....	977		97	311	26		692		85
1901.....	977		97	314	29		676		101
1902.....	956		118	311	26		668		109
1903.....	924		150	308	23		653		124
1904.....	924		150	328	43		660		117
1905.....	934		140	342	57		660		117
1906.....	913		161	342	57		653		124
1907.....	870		204	342	57		660		117
1908.....	913		161	376	91		692		85
1909.....	913		161	393	108		684		93
1910.....	859		215	385	100		622		155
1911.....	848		226	385	100		645		132
1912.....	848		226	399	114		660		117
1913.....	827		247	399	114		653		124
1914.....	816		258	406	120		676		101
1915.....	848		226	435	140		723		54
1916.....	816		258	408	123		684		93
1917.....	730		344	362	77		598		179
1918.....	634		440	316	31		544		233
1919.....	612		462	328	43		497		280
1920.....	580		494	328	43		497		280
1921.....	644		430	439	154		639		143
1922.....	709		365	519	234		707		79
1923.....	709		365	524	239		693		85
1924.....	730		344	531	246		715		63
1925.....	741		333	537	243		738		39
1926.....	753		321	530	245		761		16
Totals.....			6994		2694				3340
Net.....			6994		2694				3340
Average.....			259.04		106.81				120.00
Per cent of 1890-99 Average.....			24		37				15
Divisor.....		37			37			27	

Note: The years 1890-99 were omitted in calculating the totals and averages.

APPENDIX H

TABLE 231 (continued)

Year	Food Group			Textile Group			Clothing Group			Iron and Steel Group		
	Real Money Earnings	Change from 1889-99 (= \$393)		Real Money Earnings	Change from 1890-99 (= \$311)		Real Money Earnings	Change from 1890-99 (= \$372)		Real Money Earnings	Change from 1890-99 (= \$524)	
		+	-		+	-		+	-		+	-
1900.....				\$308		3	\$385		7	\$508		16
1901.....				302		9	365		7	514		10
1902.....				308		3	376	4		519		5
1903.....				295		16	368		4	508		16
1904.....				286		25	365		7	493		31
1905.....				292		19	379		7	514		10
1906.....				302		9	379		7	519		5
1907.....				308		3	365		7	508		16
1908.....				308		3	372			472		52
1909.....	\$428	35		308		3	387	15		519		5
1910.....	412	19		289		22	379		7	508		16
1911.....	400	7		283		28	398	26		493		31
1912.....	412	19		299		12	383	11		498		25
1913.....	408	15		305		6	387	15		508		16
1914.....	404	11		295		16	365		7	514		10
1915.....	412	19		308		3	394	22		503		21
1916.....	420	27		323	12		405	33		550	26	
1917.....	400	7		320	9		383	11		566	42	
1918.....	416	23		336	25		383	11		608	84	
1919.....	436	43		343	31		443	71		603	79	
1920.....	432	39		361	50		458	86		603	79	
1921.....	479	88		355	44		480	108		640	16	
1922.....	479	88		367	56		487	115		661	37	
1923.....	495	102		398	87		506	134		655	131	
1924.....	502	109		379	68		484	112		645	121	
1925.....	498	105		383	72		495	123		655	131	
1926.....	506	113		383	72		480	108		665	141	
Totals.....		865	0		526	180		1026	39		887	286
Net.....		865			349			937			601	
Average.....		48.06			12.81			26.56			22.26	
Per cent of 1890-99 Average....		12			4			10			4	

APPENDIX H

651

TABLE 231 (continued)

Year	Lumber Group			Leather Group			Paper and Printing Group		
	Real Money Earnings	Change from 1890-99 (= \$334)		Real Money Earnings	Change from 1890-99 (= \$447)		Real Money Earnings	Change from 1890-99 (= \$496)	
		+	-		+	-		+	-
1900.....	\$381	47		\$389		58	\$451		45
1901.....	384	50		402		45	468		30
1902.....	397	63		398		49	451		45
1903.....	384	50		398		49	461		35
1904.....	401	67		407		40	468		30
1905.....	381	47		420		27	471		25
1906.....	401	67		411		35	461		35
1907.....	381	47		402		45	436		60
1908.....	387	53		416		31	478		20
1909.....	384	50		420		27	478		20
1910.....	321		13	407		40	461		35
1911.....	324		10	402		45	456		40
1912.....	351	17		402		45	481		15
1913.....	384	50		411		36	488		10
1914.....	384	50		409		45	478		20
1915.....	387	53		411		36	498		
1916.....	397	63		416		31	471		25
1917.....	377	43		389		58	422		74
1918.....	391	57		389		58	427		69
1919.....	414	80		420		27	468		40
1920.....	414	80		425		22	498		
1921.....	394	60		465	18		558	60	
1922.....	424	90		478	31		608	109	
1923.....	454	120		483	36		615	119	
1924.....	458	124		478	31		635	139	
1925.....	448	114		474	27		640	144	
1926.....	484	150		478	31		658	169	
Totals.....		1663	23		174	850		730	673
Net.....		1639				676		57	
Average.....		60.70				25.04		2.11	
Per cent of 1890-99 Average.....		18				6		0.4	

TABLE 231 (continued)

Year	Stone, Clay, and Glass Group			Beverages and Tobacco Group			Land Vehicles Group		
	Real Money Earnings	Change from 1890-99 (= \$431)		Real Money Earnings	Change from 1890-99 (= \$478)		Real Money Earnings	Change from 1890-99 (= \$490)	
		+	-		+	-		+	-
1900.....	\$440	9		\$459		19	\$461		29
1901.....	444	13		445		23	466		24
1902.....	448	17		446		33	466		24
1903.....	444	13		421		57	461		29
1904.....	457	26		426		53	477		20
1905.....	474	43		425		53	476		15
1906.....	500	69		411		67	500	10	
1907.....	461	30		408		72	485		5
1908.....	435	4		445		33	495	5	
1909.....	465	34		435		43	495	5	
1910.....	440	9		421		57	524	34	
1911.....	418		13	411		67	539	49	
1912.....	431			421		57	505	15	
1913.....	435	4		416		62	564	74	
1914.....	405		26	406		72	534	44	
1915.....	405		26	411		67	593	103	
1916.....	397		34	397		81	598	103	
1917.....	388		43	344		134	583	93	
1918.....	409		22	330		148	573	83	
1919.....	440	9		363		115	588	93	
1920.....	474	43		368		110	573	83	
1921.....	491	60		368		110	598	108	
1922.....	504	73		382		96	662	172	
1923.....	543	112		387		91	691	201	
1924.....	556	125		392		86	662	172	
1925.....	547	116		387		91	691	191	
1926.....	552	121		392		86	652	162	
Totals.....		930	164		0	1993		1805	146
Net.....		706				1998		1659	
Average.....		23.37				73.81		61.44	
Per cent of 1890-99 Average.....		7				15		13	

APPENDIX I

A RANKING OF THE NON-AGRICULTURAL WAGE GROUPS IN THE ORDER OF THE RELATIVE GAINS IN THE AVERAGE YEARLY EARNINGS OF EMPLOYED WORKERS MADE BY 1926 OVER THE BASES OF 1890-99 AND 1914, RESPECTIVELY

Ranking	Wage Group	1890-99		Ranking	Wage Group	1914	
		Index of Money Earnings	Index of Real Earnings			Index of Money Earnings	Index of Real Earnings
1.	Teaching	448	186	1.	Anthracite Coal	295	170
2.	Fruit and Canning	428	183	2.	Paper Boxes	250	144
3.	Bituminous Coal	366	153	3.	Book and Job Printing	250	144
4.	Clay	356	148	4.	Silk	248	143
5.	Newspaper Printing	343	143	5.	Newspaper Printing	247	142
6.	Women's Clothing *	341	145	6.	Clay	246	141
7.	Lumber	339	141	7.	Trunks and Valises	245	141
8.	Woolens	337	140	8.	Marble and Stone	245	141
9.	Hosiery	333	138	9.	Women's Clothing	244	141
10.	Printing, Book and Job	333	138	10.	Woolens	243	140
11.	Rubber	329	137	11.	Plated Ware	241	139
12.	Iron and Steel	328	136	12.	Hosiery	237	137
13.	Silk	322	134	13.	Telephone	235	136
14.	Butter and Cheese *	320	136	14.	Brass and Bronze	233	135
15.	Railway Cars	318	132	15.	Bituminous Coal	230	133
16.	Men's Clothing *	315	134	16.	Rubber	230	133
17.	Paper and Pulp	314	130	17.	Men's Clothing	229	132
18.	Petroleum Refining	312	129	18.	Furniture	228	133
19.	Paper Boxes	304	126	19.	Foundries	227	131
20.	Furniture	299	124	20.	Gas and Electricity	227	131
21.	Bread and Baking	294	123	21.	Teaching	226	130
22.	Steam Railways	293	123	22.	Bread	225	130
23.	Street Railways	290	120	23.	Glass	224	129
24.	Foundries	288	120	24.	Iron and Steel	223	128
25.	Tanned Leather	286	119	25.	Leather	223	129
26.	Brass and Bronze	285	118	26.	Confectionery	221	127
27.	Marble and Stone	283	117	27.	Druggists' Preparations	221	127
28.	Plated Ware *	276	118	28.	Paper and Pulp	219	126
29.	Trunks and Valises	274	114	29.	Electrical Machinery	216	125
30.	Confectionery	272	113	30.	Slaughtering	214	124
31.	Planing Mills	271	113	31.	Street Railways	212	122
32.	Druggists' Preparations	270	112	32.	Fruit and Canning	211	122
33.	Cotton	268	111	33.	Railway Cars	209	120
34.	Electrical Machinery	267	111	34.	Petroleum Refining	207	120
35.	Agricultural Implements	260	108	35.	Cotton	206	118
36.	Glass	260	108	36.	Steam Railways	203	117
37.	Slaughtering	259	110	37.	Planing Mills	203	117
38.	Saddlery and Harness	258	110	38.	Motor Vehicles	198	114
39.	Clerks (Manufacturing)	252	104	39.	Boots and Shoes	197	113
40.	Boots and Shoes	250	104	40.	Lumber	196	113
41.	Shirts	241	103	41.	Ministers	195	112
42.	Clerks (Railway)	240	100	42.	Shirts	194	112
43.	Ministers	235	96	43.	Butter and Cheese	193	111
44.	Postal Service	232	96	44.	Tobacco	193	111
45.	Carriages	229	95	45.	Clerks (Railway)	193	112
46.	Gas and Electricity	227	94	46.	Saddlery	192	110
47.	Tobacco	208	87	47.	Agricultural Implements	189	109
48.	Beverages	207	86	48.	Clerks (Manufacturing)	184	106
49.	Government Employees	188	70	49.	Postal	184	106
				50.	Carriages	182	105
				51.	Beverages	170	96
				52.	Telegraph	164	94
				53.	Government Employees	159	91

* 1899 and 1890 = 100.

APPENDIX H

TABLE 231 (continued)

Year	Stone, Clay, and Glass Group			Beverages and Tobacco Group			Land Vehicles Group		
	Real Money Earnings	Change from 1890-99 (= \$431)		Real Money Earnings	Change from 1890-99 (= \$478)		Real Money Earnings	Change from 1890-99 (= \$490)	
		+	-		+	-		+	-
1900.....	\$440	9		\$459	19		\$461		29
1901.....	444	13		445	23		466		24
1902.....	448	17		445	33		466		24
1903.....	444	13		421	57		461		29
1904.....	457	26		425	53		470		20
1905.....	474	43		425	53		475		15
1906.....	500	69		411	67		500	10	
1907.....	461	30		406	72		485		5
1908.....	435	4		445	33		495	5	
1909.....	465	34		435	43		495	5	
1910.....	440	9		421	57		524	34	
1911.....	418		13	411	67		539	49	
1912.....	431			421	57		505	15	
1913.....	435	4		418	62		564	74	
1914.....	405		26	406	72		534	44	
1915.....	405		26	411	67		593	103	
1916.....	397		34	397	81		598	104	
1917.....	388		43	344	134		583	93	
1918.....	409		22	330	148		573	83	
1919.....	440	9		368	115		585	95	
1920.....	474	43		368	110		573	83	
1921.....	491	60		368	110		598	108	
1922.....	504	73		382	96		662	172	
1923.....	543	112		387	91		691	201	
1924.....	556	125		392	86		662	172	
1925.....	547	116		387	91		681	191	
1926.....	552	121		392	86		652	162	
Totals.....		930	164		0	1903		1805	146
Net.....		766				1906		1650	
Average.....		28.37				73.81		61.44	
Per cent of 1890-99 Average.....		7				15		13	

APPENDIX I

A RANKING OF THE NON-AGRICULTURAL WAGE GROUPS IN THE ORDER OF THE RELATIVE GAINS IN THE AVERAGE YEARLY EARNINGS OF EMPLOYED WORKERS MADE BY 1926 OVER THE BASES OF 1890-99 AND 1914, RESPECTIVELY

Ranking	Wage Group	1890-99		Ranking	Wage Group	1914	
		Index of Money Earnings	Index of Real Earnings			Index of Money Earnings	Index of Real Earnings
1.	Teaching	448	186	1.	Anthracite Coal	295	170
2.	Fruit and Canning	428	182	2.	Paper Boxes	250	144
3.	Bituminous Coal	386	162	3.	Book and Job Printing	250	144
4.	Clay	356	148	4.	Silk	248	143
5.	Newspaper Printing	343	143	5.	Newspaper Printing	247	142
6.	Women's Clothing *	341	145	6.	Clay	246	141
7.	Lumber	339	141	7.	Trunks and Valises	245	141
8.	Woolens	337	140	8.	Marble and Stone	245	141
9.	Hosiery	333	138	9.	Women's Clothing	244	141
10.	Printing, Book and Job	333	138	10.	Woolens	243	140
11.	Rubber	329	137	11.	Plated Ware	241	139
12.	Iron and Steel	328	136	12.	Hosiery	237	137
13.	Silk	322	134	13.	Telephone	235	135
14.	Butter and Cheese *	320	136	14.	Brass and Bronze	233	135
15.	Railway Cars	318	132	15.	Bituminous Coal	230	132
16.	Men's Clothing *	315	134	16.	Rubber	230	132
17.	Paper and Pulp	314	130	17.	Men's Clothing	228	132
18.	Petroleum Refining	312	129	18.	Furniture	228	132
19.	Paper Boxes	304	126	19.	Foundries	227	131
20.	Furniture	299	124	20.	Gas and Electricity	227	131
21.	Bread and Baking	294	123	21.	Teaching	226	130
22.	Steam Railways	293	122	22.	Bread	225	130
23.	Street Railways	290	120	23.	Glass	224	129
24.	Foundries	288	120	24.	Iron and Steel	223	128
25.	Tanned Leather	286	119	25.	Leather	223	129
26.	Brass and Bronze	285	118	26.	Confectionery	221	127
27.	Marble and Stone	283	117	27.	Druggists' Preparations	221	127
28.	Plated Ware *	276	118	28.	Paper and Pulp	219	126
29.	Trunks and Valises	274	114	29.	Electrical Machinery	216	125
30.	Confectionery	273	113	30.	Slaughtering	214	124
31.	Planing Mills	271	113	31.	Street Railways	212	122
32.	Druggists' Preparations	270	112	32.	Fruit and Canning	211	122
33.	Cotton	268	111	33.	Railway Cars	209	120
34.	Electrical Machinery	267	111	34.	Petroleum Refining	207	120
35.	Agricultural Implements	260	108	35.	Cotton	206	118
36.	Glass	260	108	36.	Steam Railways	203	117
37.	Slaughtering	259	110	37.	Planing Mills	203	117
38.	Saddlery and Harness	258	110	38.	Motor Vehicles	198	114
39.	Clerks (Manufacturing)	253	104	39.	Boots and Shoes	197	113
40.	Boots and Shoes	250	104	40.	Lumber	196	113
41.	Shirts	241	103	41.	Ministers	195	112
42.	Clerks (Railway)	240	100	42.	Shirts	194	112
43.	Ministers	235	98	43.	Butter and Cheese	193	111
44.	Postal Service	232	96	44.	Tobacco	192	111
45.	Carriages	229	95	45.	Clerks (Railway)	193	112
46.	Gas and Electricity	227	94	46.	Saddlery	192	110
47.	Tobacco	208	87	47.	Agricultural Implements	189	109
48.	Beverages	207	86	48.	Clerks (Manufacturing)	184	108
49.	Government Employees	168	70	49.	Postal	184	108
				50.	Carriages	182	105
				51.	Beverages	170	98
				52.	Telegraph	164	94
				53.	Government Employees	159	91

* 1890 and 1899 = 100.

BIBLIOGRAPHICAL NOTE

THIS is not a complete bibliography of the movement of wage-rates, earnings, unemployment, and the cost of living in the United States. It is merely a list of some of the more important sources which the student of wage history will wish to consult. Reasons of space prevent a full bibliography from being published at this time, but it is hoped that this note may be of some service, despite the necessary omissions.

I. GENERAL PROBLEMS OF METHOD

- Brissenden, Paul F., *Earnings of Factory Workers*, Census Monograph x, Washington, 1929.
- Fisher, Irving, *The Making of Index Numbers*, Houghton Mifflin, Boston, 3d ed., rev., 1927.
- Hansen, Alvin H., 'The Best Measure of Real Wages,' *Supplement, American Economic Review*, March, 1926; pp. 5-16.
- James, A. E., 'The Dewey Report on Wages in Manufacturing Industries in the United States,' *Quarterly Publications of the American Statistical Association*, September, 1907; pp. 319-44.
- Mitchell, Wesley C., *Gold, Prices, and Wages Under the Greenbacks*, University of California Press, Berkeley, 1908.
- 'Methods of Presenting Statistics of Wages,' *Quarterly Publications of the American Statistical Association*, December, 1905; pp. 325-43.
- *The Making and Using of Index Numbers*, Bulletin 113, United States Bureau of Labor Statistics, Washington, 1915.
- Moore, Henry L., 'The Variability of Wages,' *Political Science Quarterly*, March, 1907; pp. 62-73.
- Olivier, Maurice, *Les Nombres Indices de la Variation des Prix*, Marcel Giard, Paris, 1927.
- United States Department of Labor, Bureau of Labor Statistics, *History of Wages in the United States from Colonial Times to 1928*, Bulletin 499, Washington, 1929.
- Wolman, Leo, 'Wages, Hours, and Labor Cost,' *Recent Economic Changes*, National Bureau of Economic Research, New York, 1929; vol. II, pp. 430-46.

II. GENERAL WORKS

- Douglas, Paul H., 'An Examination of the Wage Studies of the National Industrial Conference Board,' *Journal of the American Statistical Association*, September, 1931; pp. 893-904. See reply of Margaret Stecker, *ibid.*, June, 1932, pp. 258-63, and rejoinder, pp. 263-66.
- 'The Movement of Real Wages and Its Economic Significance,' *Supplement, American Economic Review*, March, 1926; pp. 17-53.

- Douglas, Paul H., 'Wages and Earnings in 1928,' *American Journal of Sociology*, May, 1928; pp. 1021-29.
- Douglas, Paul H., and Lamberson, Frances, 'The Movement of Real Wages, 1890-1918,' *American Economic Review*, September, 1921; pp. 409-26.
- Hansen, Alvin H., 'Factors Affecting the Trend of Real Wages,' *American Economic Review*, March, 1925; pp. 27-42.
- 'The Buying Power of Labor During the War,' *Journal of the American Statistical Association*, March, 1922; pp. 56-66.
- Jones, F. W., 'Real Wages in Recent Years,' *American Economic Review*, June, 1917; pp. 319-30.
- Kuczynski, Robert R., *Arbeitslohn und Arbeitszeit in Europa und Amerika, 1870-1909*, Julius Springer, Berlin, 1913.
- Maher, Amy G., *Wage Rates, Earnings, and Fluctuation of Employment: Ohio, 1914-26*, Information Bureau on Women's Work, Toledo, 1928.
- National Industrial Conference Board, New York, *The Economic Status of the Wage-Earner in New York and Other States*, 1928.
- *Wages, Hours, and Employment in American Manufacturing Industries, July, 1914-January, 1924, 1924*.
- *Wages in the United States*, 1926.
- *Wages in the United States, 1914-26*, 1927.
- *Wages in the United States, 1914-27*, 1928.
- *Wartime Changes in Wages*, 1919.
- Nearing, Scott, *Wages in the United States, 1808-10*, Macmillan, New York, 1911.
- Rubinow, Isaac M., 'The Recent Trend of Real Wages,' *American Economic Review*, December, 1914; pp. 793-817.
- Wolman, Leo, *Growth of American Trade Unions, 1880-1923*, National Bureau of Economic Research, New York, 1924.

III. THE MOVEMENT OF THE COST OF LIVING

- Barnett, George E., 'A Critique of Cost of Living Studies,' *Journal of the American Statistical Association*, September, 1921; pp. 904-09.
- 'Index Numbers of the Total Cost of Living,' *Quarterly Journal of Economics*, February, 1921; pp. 240-63.
- Carr, Elma B., 'Cost of Living Statistics of the United States Bureau of Labor Statistics and the National Industrial Conference Board,' *Journal of the American Statistical Association*, December, 1924; pp. 484-507.
- International Labour Office, *Methods of Compiling Cost of Living Index Numbers*, Series N., no. 6, Geneva, 1925.
- Massachusetts Commission on the Cost of Living, *Report of*, Boston, 1910.
- Massachusetts Special Commission on the Necessaries of Life, *Reports of*, Boston, 1920-27.
- Meeker, Royal, 'The Possibility of Compiling a Cost of Living Index,' *Monthly Labor Review*, March, 1919; pp. 617-25.
- Monthly Labor Review*, periodical surveys of the cost of living made and published by the Bureau of Labor Statistics, Washington. For the earlier

- data, see May, 1919, pp. 167-69; January, 1920, pp. 17-68, 167-69; October, 1920, p. 65; November, 1921, pp. 76-83; May, 1922, pp. 68-77.
- National Bureau of Economic Research, *News Bulletin*, September, 1928.
- National Industrial Conference Board, New York, *The Cost of Living Among Wage-Earners, Anthracite Region of Pennsylvania*, 1922.
- *The Cost of Living in New York City*, 1926.
- *The Cost of Living in the United States, 1914-26*, 1927.
- *The Cost of Living in the United States, 1914-27*, 1928.
- *The Cost of Living in the United States, 1928*, 1929.
- *The Cost of Living in Twelve Industrial Cities*, 1928.
- *Wartime Changes in the Cost of Living, July, 1914-November, 1918*, 1919.
- See, also, the Conference Board *Bulletin* and their *Service Letter*.
- Pearl, Raymond, *The Nation's Food*, Saunders, Philadelphia, 1920.
- United States Department of Labor, Bureau of Labor Statistics, Washington, *Cost of Living and Retail Prices of Food*, 18th Annual Report, 1903.
- *Cost of Living and Retail Prices in the United States*, Bulletin 54, 1904.
- *Cost of Living in the United States*, Bulletin 357, 1924.
- *Methods of Procuring and Computing Statistical Information of the Bureau of Labor Statistics*, Bulletin 326, 1923.
- *Prices and Cost of Living*, June, 1928, Special Bulletin.
- *Retail Prices: 1890-1911*, Bulletin 105; *1890 to June, 1912*, Bulletin 106; *1890 to August, 1912*, Bulletin 108; *1890 to December, 1912*, Bulletin 113; *1890 to December, 1913*, Bulletin 140; *1907 to December, 1919*, Bulletin 156; *1907 to December, 1915*, Bulletin 197; *1907 to December, 1916*, Bulletin 228; *1913 to December, 1919*, Bulletin 270; *1913 to December, 1920*, Bulletin 300; *1913 to December, 1921*, Bulletin 315; *1913 to December, 1922*, Bulletin 334; *1913 to December, 1923*, Bulletin 336; *1913 to December, 1924*, Bulletin 396; *1913 to December, 1925*, Bulletin 418; *1890-1926*, Bulletin 445.
- *Retail Prices of Food: 1890-1904*, Bulletin 59, 1905; *1890-1905*, Bulletin 65, 1906; *1890-1906*, Bulletin 71, 1907; *1890-1907*, Bulletin 77, 1908.
- *Series on Wholesale Prices*, Bulletins 39, 45, 51, 57, 63, 69, 75, 81, 87, 93, 99, 114, 149, 181, 200, 226, 269, 296, 320, 335.
- *Wages and Cost of Living*, Bulletin 53, 1904.
- *Wholesale Prices: 1890-1923*, Bulletin 367; *1890-1925*, Bulletin 410; *1890-1926*, Bulletin 440; *1890-1927*, Bulletin 473.

IV. WAGE-RATES AND HOURS OF WORK

1. General

- United States Department of Labor, Bureau of Labor Statistics, Washington, *Industrial Survey of Selected Industries in the United States*, Preliminary Report, Bulletin 265, 1919.
- *Wages and Hours of Labor, 1904*, 19th Annual Report, 1905.
- *Wages and Hours of Labor in Manufacturing Industries: 1890-1904*, Bulletin 59; *1890-1905*, Bulletin 65; *1890-1907*, Bulletin 77.

2. *Union Industries*

Barnett, George E., 'Growth of Labor Organization in the United States 1897-1914,' *Quarterly Journal of Economics*, August, 1916; pp. 780-91.

— 'Statistical Appendix; Membership of American Trade Unions 1897-1914,' *Quarterly Journal of Economics*, August, 1916; pp. 838-46.

— 'The Present Position of American Trade Unions,' *Supplement American Economic Review*, March, 1922; pp. 44-45.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Union Scale of Wages and Hours of Labor*: Bulletin 131; May 15 1913, Bulletin 143; May 1, 1914, Bulletin 171; May 1, 1915, Bulletin 194; May 15, 1916, Bulletin 214; May 15, 1917, Bulletin 245; May 15 1918, Bulletin 259; May 15, 1919, Bulletin 274; May 15, 1920, Bulletin 286; May 15, 1921, Bulletin 302; May 15, 1922, Bulletin 325; May 15 1923, Bulletin 354; May 15, 1925, Bulletin 404; May 15, 1927, Bulletin 457; 1927-28 (Supplement to Bulletin 457), Bulletin 476; May 15 1928, Bulletin 482.

— *Wages and Hours of Labor in Foundries and Machine Shops*, Bulletin 471.

3. *Textiles*

Howard, Stanley E., *The Movement of Wages in the Cotton Manufacturing Industry of New England Since 1860*, National Council, Cotton Manufacturers, Boston, 1920.

Maher, Amy G., *Ohio Wage-Earners in the Manufacture of Textiles and Textile Products, 1914-27*, Information Bureau on Women's Work, Toledo, 1929.

Monthly Labor Review, Bureau of Labor Statistics, Washington, June, 1924, p. 80; September, 1924, pp. 36-42.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Boot and Shoe and Hosiery and Knit Goods Industries, 1890-1912*, Bulletin 134.

— *Wages and Hours of Labor in the Boot and Shoe and Hosiery and Underwear Industries, 1907-13*, Bulletin 154.

— *Wages and Hours of Labor in the Cotton, Woolen, and Silk Industries: 1890-1912*, Bulletin 128; 1907-13, Bulletin 150; 1907-14, Bulletin 190.

— *Wages and Hours of Labor in Cotton Goods Manufacturing: 1920*, Bulletin 288; 1922, Bulletin 345; 1924, Bulletin 371; 1910-26, Bulletin 446.

— *Wages and Hours of Labor in Cotton Goods Manufacturing and Finishing: 1916*, Bulletin 239; 1918, Bulletin 262.

— *Wages and Hours of Labor in the Hosiery and Underwear Industry: 1907-14*, Bulletin 177; 1922, Bulletin 328; 1907-24, Bulletin 376; 1907-26, Bulletin 452.

— *Wages and Hours of Labor in Woolen and Worsted Goods Manufacturing: 1916*, Bulletin 238; 1918, Bulletin 261; 1920, Bulletin 289; 1922, Bulletin 327; 1910-26, Bulletin 443.

4. *Iron and Steel*

Monthly Labor Review, Bureau of Labor Statistics, Washington, June, July, and August, 1924.

- United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Iron and Steel Industry: 1907-12*, Bulletin 151; *1907-13*, Bulletin 168; *1907-15*, Bulletin 218; *1907-20*, Bulletin 305; *1907-22*, Bulletin 353; *1907-26*, Bulletin 442.
5. *Lumber and Its Products*
United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Lumber, Mill-Work, and Furniture Industries: 1890-1912*, Bulletin 129; *1907-13*, Bulletin 153; *1916*, Bulletin 225.
— *Wages and Hours of Labor in Lumber Manufacturing: 1921*, Bulletin 317; *1923*, Bulletin 363.
6. *Clothing*
Kilchin, Morris, *Employment and Earnings of Workers, 1925*, New York Governor's Advisory Commission, Cloak, Suit, and Skirt Industry, New York.
— *Wages and Wage Scales, 1925*, New York Governor's Advisory Commission, Cloak, Suit, and Skirt Industry, New York.
United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor: in the Cigar and Clothing Industries, 1911 and 1912*, Bulletin 135; *in the Clothing and Cigar Industries, 1911-13*, Bulletin 161; *in the Men's Clothing Industry, 1911-14*, Bulletin 187; *in the Men's Clothing Industry, 1922*, Bulletin 329; *in the Men's Clothing Industry, 1911-26*, Bulletin 435.
7. *Boots and Shoes*
Monthly Labor Review, Bureau of Labor Statistics, Washington, June, 1924.
United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor: in the Boot and Shoe and Hosiery and Knit Goods Industries, 1890-1912*, Bulletin 134; *in the Boot and Shoe and Hosiery and Underwear Industries, 1907-13*, Bulletin 154; *1907-14*, Bulletin 178; *in the Boot and Shoe Industry, 1907-16*, Bulletin 232; *in the Boot and Shoe Industry, 1907-18*, Bulletin 260; *in the Boot and Shoe Industry, 1907-20*, Bulletin 278; *in the Boot and Shoe Industry, 1907-22*, Bulletin 324; *in the Boot and Shoe Industry, 1907-26*, Bulletin 450.
8. *Cigars*
United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor: in the Cigar and Clothing Industries, 1911 and 1912*, Bulletin 135; *in the Clothing and Cigar Industries, 1911-13*, Bulletin 161.
9. *Slaughtering and Meat-Packing*
Clark, Edna, *History of the Controversy Between Labor and Capital in the Slaughtering and Meat-Packing Industry of Chicago*. (Unpublished thesis, University of Chicago Library.)
Monthly Labor Review, Bureau of Labor Statistics, Washington, May, 1924.
United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Slaughtering and Meat-Packing*

2. *Union Industries*

Barnett, George E., 'Growth of Labor Organization in the United States, 1897-1914,' *Quarterly Journal of Economics*, August, 1916; pp. 780-95.

— 'Statistical Appendix; Membership of American Trade Unions, 1897-1914,' *Quarterly Journal of Economics*, August, 1916; pp. 838-46.

— 'The Present Position of American Trade Unions,' *Supplement, American Economic Review*, March, 1922; pp. 44-45.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Union Scale of Wages and Hours of Labor*: Bulletin 131; May 15, 1913, Bulletin 143; May 1, 1914, Bulletin 171; May 1, 1915, Bulletin 194; May 15, 1916, Bulletin 214; May 15, 1917, Bulletin 245; May 15, 1918, Bulletin 259; May 15, 1919, Bulletin 274; May 15, 1920, Bulletin 286; May 15, 1921, Bulletin 302; May 15, 1922, Bulletin 325; May 15, 1923, Bulletin 354; May 15, 1925, Bulletin 404; May 15, 1927, Bulletin 457; 1927-28 (Supplement to Bulletin 457), Bulletin 476; May 15, 1928, Bulletin 482.

— *Wages and Hours of Labor in Foundries and Machine Shops*, Bulletin 471.

3. *Textiles*

Howard, Stanley E., *The Movement of Wages in the Cotton Manufacturing Industry of New England Since 1860*, National Council, Cotton Manufacturers, Boston, 1920.

Maher, Amy G., *Ohio Wage-Earners in the Manufacture of Textiles and Textile Products, 1914-27*, Information Bureau on Women's Work, Toledo, 1929.

Monthly Labor Review, Bureau of Labor Statistics, Washington, June, 1924, p. 80; September, 1924, pp. 36-42.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Boot and Shoe and Hosiery and Knit Goods Industries, 1890-1912*, Bulletin 134.

— *Wages and Hours of Labor in the Boot and Shoe and Hosiery and Underwear Industries, 1907-13*, Bulletin 154.

— *Wages and Hours of Labor in the Cotton, Woolen, and Silk Industries: 1890-1912*, Bulletin 128; 1907-13, Bulletin 150; 1907-14, Bulletin 190.

— *Wages and Hours of Labor in Cotton Goods Manufacturing: 1920*, Bulletin 288; 1922, Bulletin 345; 1924, Bulletin 371; 1910-26, Bulletin 446.

— *Wages and Hours of Labor in Cotton Goods Manufacturing and Finishing: 1916*, Bulletin 239; 1918, Bulletin 262.

— *Wages and Hours of Labor in the Hosiery and Underwear Industry: 1907-14*, Bulletin 177; 1922, Bulletin 328; 1907-24, Bulletin 376; 1907-26, Bulletin 452.

— *Wages and Hours of Labor in Woolen and Worsted Goods Manufacturing: 1916*, Bulletin 238; 1918, Bulletin 261; 1920, Bulletin 289; 1922, Bulletin 327; 1910-26, Bulletin 443.

4. *Iron and Steel*

Monthly Labor Review, Bureau of Labor Statistics, Washington, June, July, and August, 1924.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Iron and Steel Industry: 1907-12*, Bulletin 151; *1907-13*, Bulletin 168; *1907-15*, Bulletin 218; *1907-20*, Bulletin 305; *1907-22*, Bulletin 353; *1907-26*, Bulletin 442.

5. *Lumber and Its Products*

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Lumber, Mill-Work, and Furniture Industries: 1890-1912*, Bulletin 129; *1907-13*, Bulletin 153; *1915*, Bulletin 225.

— *Wages and Hours of Labor in Lumber Manufacturing: 1921*, Bulletin 317; *1923*, Bulletin 363.

6. *Clothing*

Kilchin, Morris, *Employment and Earnings of Workers, 1925*, New York Governor's Advisory Commission, Cloak, Suit, and Skirt Industry, New York.

— *Wages and Wage Scales, 1925*, New York Governor's Advisory Commission, Cloak, Suit, and Skirt Industry, New York.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor: in the Cigar and Clothing Industries, 1911 and 1912*, Bulletin 135; *in the Clothing and Cigar Industries, 1911-13*, Bulletin 161; *in the Men's Clothing Industry, 1911-14*, Bulletin 187; *in the Men's Clothing Industry, 1922*, Bulletin 329; *in the Men's Clothing Industry, 1911-26*, Bulletin 435.

7. *Boots and Shoes*

Monthly Labor Review, Bureau of Labor Statistics, Washington, June, 1924.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor: in the Boot and Shoe and Hosiery and Knit Goods Industries, 1890-1912*, Bulletin 134; *in the Boot and Shoe and Hosiery and Underwear Industries, 1907-13*, Bulletin 154; *1907-14*, Bulletin 178; *in the Boot and Shoe Industry, 1907-16*, Bulletin 232; *in the Boot and Shoe Industry, 1907-18*, Bulletin 260; *in the Boot and Shoe Industry, 1907-20*, Bulletin 278; *in the Boot and Shoe Industry, 1907-22*, Bulletin 324; *in the Boot and Shoe Industry, 1907-26*, Bulletin 450.

8. *Cigars*

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor: in the Cigar and Clothing Industries, 1911 and 1912*, Bulletin 135; *in the Clothing and Cigar Industries, 1911-13*, Bulletin 161.

9. *Slaughtering and Meat-Packing*

Clark, Edna, *History of the Controversy Between Labor and Capital in the Slaughtering and Meat-Packing Industry of Chicago*. (Unpublished thesis, University of Chicago Library.)

Monthly Labor Review, Bureau of Labor Statistics, Washington, May, 1924.

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Slaughtering and Meat-Packing*

Industry: 1919, Bulletin 252; *1921*, Bulletin 294; *1922*, Bulletin 373; *1925*, Bulletin 421; *1927*, Bulletin 472.

10. *Farm Labor*

Blodgett, James N., *Wages of Farm Labor in the United States, 1866-1902*, Bulletin 26 of the United States Department of Agriculture, Washington, 1903.

Holmes, George K., *Wages of Farm Labor*, Bulletin 99 of the United States Department of Agriculture, Bureau of Statistics, Washington, 1912.

Turner, Victoria B., 'Agricultural Wage-Earners in United States Bureau of Labor Statistics,' *Monthly Labor Review*, December, 1922.

United States Department of Agriculture, Bureau of Statistics, Bulletin 99, Washington, 1912. Contains statistics of the wages of farm labor for the years 1906 and 1909, missing from the *Agricultural Yearbook*.

— *Crops and Markets*, published monthly by the Bureau of Agricultural Economics, Washington, gives quarterly rates of farm wages for January, April, July, and October.

— *Wages of Farm Labor in the United States, 1866-99*, Bulletin 22, 1901.

— *Yearbook*, 1921, pp. 784-85, and for other years. Contain statistics of the wages of farm labor.

11. *Unskilled Labor*

Abbott, Edith, 'The Wages of Unskilled Labor,' *Journal of Political Economy*, June, 1905; pp. 321-67.

Burgess, W. R., 'Index Numbers for the Wages of Common Labor,' *Journal of the American Statistical Association*, June, 1922; pp. 101-03.

Coombs, Whitney, *The Wages of Unskilled Labor in the Manufacturing Industries in the United States, 1890-1924*, Columbia University Press, New York, 1926.

Federal Reserve Bank of New York, *Monthly Review*, 1921-. Contains statistics of the wages of unskilled labor.

National Industrial Conference Board, *Wages in the United States, 1914-26*, New York, 1926.

12. *Car Building*

United States Department of Labor, Bureau of Labor Statistics, Washington, *Wages and Hours of Labor in the Building and Repairing of Steam Railroad Cars: 1890-1912*, Bulletin 137; *1907-13*, Bulletin 163.

13. *Ministers*

Committee on the Conservation and Advance of the Methodist Episcopal Church, *General Minutes of the Methodist Episcopal Church*, Evanston, 1923-.

National Council of Congregational Churches, *Congregational Grey Book* (annual), New York, 1922-.

14. *Coal Mining*

Agreement Between Illinois Coal Operators' Association and U. M. W. District 12, Chicago, 1920.

Anthracite Bureau of Information, *Report of the Anthracite Coal Strike Commission with Subsequent Agreements and Report of the United States Coal Commission*, Philadelphia, 1920.

- Anthracite Coal Strike Commission, *Report of*, Washington, 1903.
- Fisher, W. E., *Wage-Rates in the Anthracite Industry*, pp. 14-15. (Mimeographed report issued by the Coal Commission.)
- George, John E., 'The Coal Miners' Strike of 1897,' *Quarterly Journal of Economics*, January, 1898; pp. 186-208.
- Illinois Bureau of Labor Statistics, *Annual Coal Reports of*, Springfield: 1891, pp. 25, 26, 64-71, 82-101, 112-27, 144-57, 172-91; 1893, pp. xxix, xxx, xxxvi, xxxvii, 12-17, 26-89, 50-61, 72-81, 92-103; 1894, pp. xxxiv, xxxix, xl, 14-21, 36-53, 62-77, 90-103, 116-29; 1895, pp. xxix, xxxv, xxxvi, 16-23, 34-51, 64-79, 90-101, 112-27; 1896, pp. 21, 22; 1897, p. xxxiv; 1898, p. 19; 1899, p. vii; 1900, p. 4; 1901, p. 3; 1902 p. 6; 1903, p. 4; 1904, p. 4; 1905, p. 13; 1906, p. 4; 1907, p. 1; 1908, p. 5; 1909, p. 3; 1910, p. 6.
- Illinois *Coal Reports*, 1882-1926.
- Illinois Department of Mines and Minerals, *Annual Coal Reports of*, Springfield: 1925, p. 76; 1926, p. 67.
- Indiana Department of Mines and Mining, *Annual Reports of*, Indianapolis, 1914-. Prior to 1914, see *Reports*, Department of Statistics.
- Indiana Department of Statistics, *Biennial Reports of*, Indianapolis: 1903-04, pp. 533, 554; 1905-06, p. 710.
- Indiana Industrial Board, Department of Mines and Mining, *Annual Reports of*, Indianapolis, 1914-15; p. 9.
- Indiana Legislative Reference Bureau, *Yearbook of*, Indianapolis: 1917, p. 401; 1918, p. 465; 1919, p. 349; 1920, pp. 751, 752; 1921, p. 529; 1922, p. 169; 1923, p. 390; 1924, pp. 485-86; 1925, p. 218.
- Interstate Conferences, Coal Operators and Coal Miners at Indianapolis and Cleveland, *Proceedings*, Indianapolis, 1912.
- Lubin, Isador, *Miners' Wages and the Cost of Coal*, Institute of Economics Series, McGraw-Hill, New York, 1924.
- Michigan Mining Scale, Saginaw, 1920.
- National Industrial Conference Board, 'Wages and Hours in Anthracite Mining, June, 1914-October, 1921,' *Research Report 47*, New York, 1922.
- Ohio Bureau of Labor, *Annual Reports of*, Columbus, 1890-1912.
- *Bulletin on 'Mines and Quarries, 1912-26.'*
- Ohio Bureau of Labor Statistics, *Annual Reports of*, Columbus: 1890, p. 42; 1891, p. 24; 1892, pp. 180-82; 1895, pp. 91-95; 1896, pp. 31-35; 1897, pp. 112-18; 1898, pp. 75-78; 1901, pp. 298, 299; 1903, p. 463; 1904, p. 415; 1905, p. 376; 1906, p. 390; 1907, p. 474; 1908, p. 494; 1909, p. 446; 1910, p. 442; 1911, p. 478; 1912, p. 488.
- Ohio Department of Industrial Relations, *Bulletins on 'Statistics of Mines and Quarries in Ohio,'* Columbus: 1921, pp. 27, 28, 38; 1922, pp. 28, 29, 36; 1923, pp. 28, 29, 36; 1924; 1925, pp. 25, 26, 34.
- Ohio Industrial Commission, *Bulletins on 'Statistics of Mines and Quarries in Ohio,'* Columbus: 1914, pp. 14, 18; 1915, pp. 39, 40, 52; 1916, pp. 35, 36, 49; 1917, pp. 28, 29, 36; 1918, pp. 28, 29, 34; 1919, pp. 27, 28, 35.

- Pennsylvania Department of Internal Affairs, *Annual Reports of the Secretary*, part III, 'Industrial Statistics': 1902, pp. 434, 435; 1903, pp. 415, 424; 1904, pp. 385, 394; 1905, pp. 453, 464; 1906, pp. 40, 48; 1907, pp. 83, 94; 1908, pp. 187, 197; 1909, pp. 278, 287; 1910, pp. 285, 292; 1911, pp. 259, 267; 1912, pp. 321, 326.
- *Report on the Productive Industries of 1916, 1917, 1918, 1919* (combined report), pp. 63, 77, 102, 117, 142, 156, 182, 197; 1920, pp. 72, 84; 1921, pp. 184, 197; 1923, pp. 191, 207.
- Suffern, Arthur E., *Conciliation and Arbitration in the Coal-Mining Industry*, Houghton Mifflin, Boston, 1915.
- Sydenstricker, Edgar, *Collective Bargaining in the Anthracite Coal Industry*, Bulletin 191 of the United States Bureau of Labor Statistics, Washington, 1916.
- United Mine Workers of America, District no. 6, *Scale Handbook*, Columbus, 1922.
- United States Bureau of the Census, volumes on 'Mines and Quarries' in *Eleventh, Twelfth, and Fourteenth Censuses*.
- United States Coal Commission, *Report of*, Washington, 1925; vols. I-V.
- United States Department of Commerce and Labor, Bureau of the Census, *Special Reports, Mines and Quarries, 1902*, Washington; p. 666.
- United States Department of Labor, Bureau of Labor Statistics, Washington, *Hours and Earnings: in Anthracite and Bituminous Coal Mining, 1921-22*, Bulletin 316; in *Anthracite and Bituminous Coal Mining, 1922 and 1924*, Bulletin 416; in *Bituminous Coal Mining, 1922, 1924, and 1926*, Bulletin 454.
- United States Geological Survey, *Mineral Resources of the United States*, vol. II (non-metals), Washington: 1889; 1890, p. 149; 1891, p. 181; 1893, p. 194; 1900; 1901, p. 297; 1904, p. 419; 1910, p. 41; 1915, p. 362; 1918, p. 716; 1921, p. 494; 1922, p. 492; 1923, pp. 552, 572.
- United States House of Representatives, 62d Congress, *House Document No. 1442*, Washington; pp. 27-28.
- West Virginia Department of Mines, *Annual Reports of*, Charleston, 1897-.
- *Annual Report of*, 1924; p. 249.
15. *Teachers*
- Arnett, Trevor, *Teachers' Salaries in Certain Endowed and State-Supported Colleges and Universities*, General Education Board, New York, 1928.
- Burgess, W. R., *Trends of School Costs*, Russell Sage Foundation, New York, 1920; pp. 32-33.
- National Education Association, 'Teachers' Salaries and Salary Trends in 1923,' *Research Bulletin*, vol. I, no. 3, May, 1923; p. 27.
- United States Commissioner of Education, *Annual Reports of*, Washington, 1889-1926.
- United States Department of the Interior, Bureau of Education, *Statistics of State School Systems, 1924-25*, Bulletin 13, Washington, 1927.
- *Statistics of State School Systems, 1925-26*, Bulletin 39, 1927.

V. ANNUAL EARNINGS

1. *Manufacturing*

Brissenden, Paul F., *Earnings of Factory Workers*, Census Monograph x, Washington, 1929.

Connecticut Bureau of Labor Statistics, *Annual Reports of*, Hartford, 1888-1908.

Iowa Bureau of Labor Statistics, *Reports of*, Des Moines, 1895-.

Massachusetts Bureau of Statistics (1889-1918), Department of Labor and Industry (1919-21), *Annual Reports on the Statistics of Manufactures*, Boston, 1889-1926.

Monthly Labor Review, Bureau of Labor Statistics, Washington, February, 1922, to February, 1928.

New Jersey Bureau of Statistics, *Annual Reports of*, Trenton, 1892-1916.

New York (State) Department of Labor, *Course of Employment in New York State, 1914-21*, Special Bulletin 113, Albany.

New York (State) Industrial Commission, *Industrial Bulletin* (monthly), Albany, September, 1921, to January, 1927.

— *Labor Market Bulletin* (monthly), October, 1915, to August, 1921.

Ohio Bureau of Labor Statistics, *Annual Reports of*, Columbus, 1894-1912.

Pennsylvania Department of Internal Affairs, *Annual Reports of the Secretary*, part III, Harrisburg, 1892-1912.

— Bureau of Statistics and Information, *Reports on Productive Industries*, 1916-26.

Pennsylvania Department of Labor and Industry, Bureau of Statistics and Information, *Reports of the Commissioner*, part I, Harrisburg, 1913-15.

South Carolina Department of Agriculture, Commerce, and Industry, *Annual Reports of*, Columbia, nos. 1-15, 1909-23.

United States Bureau of the Census, *Census of Manufactures*, Washington, 1889, 1899, 1904, 1909, 1914, 1919, 1921, 1923, 1925, 1927, preliminary issues of 1923, press releases of 1923, and Bulletins of 1923 and 1925.

Wisconsin Bureau of Labor Statistics, *Biennial Reports of*, Madison, 1889-1911.

2. *Railways*

Connecticut Public Utilities Commission, *Annual Reports of*, Hartford, 1917-26.

Illinois Department of Labor, *Employment Bulletins*, Springfield (monthly), August, 1922, to January, 1925.

Illinois Public Utilities Commission, *Annual Reports of*, Springfield, 1915-16.

Illinois Railroad and Warehouse Commission, *Annual Reports of*, Springfield, 1899-1914.

Iowa Board of Railroad Commissioners, *Annual Reports of*, Des Moines, 1890-95.

Kansas Board of Railroad Commissioners, *Annual Reports of*, Topeka, 1890-95.

- Pennsylvania Department of Internal Affairs, *Annual Reports of the Secretary*, part III, 'Industrial Statistics': 1902, pp. 434, 435; 1903, pp. 415, 424; 1904, pp. 385, 394; 1905, pp. 453, 464; 1906, pp. 40, 48; 1907, pp. 83, 94; 1908, pp. 187, 197; 1909, pp. 278, 287; 1910, pp. 285, 292; 1911, pp. 259, 267; 1912, pp. 321, 326.
- *Report on the Productive Industries of 1916, 1917, 1918, 1919* (combined report), pp. 63, 77, 102, 117, 142, 156, 182, 197; 1920, pp. 72, 84; 1921, pp. 184, 197; 1923, pp. 191, 207.
- Suffern, Arthur E., *Conciliation and Arbitration in the Coal-Mining Industry*, Houghton Mifflin, Boston, 1915.
- Sydenstricker, Edgar, *Collective Bargaining in the Anthracite Coal Industry*, Bulletin 191 of the United States Bureau of Labor Statistics, Washington, 1916.
- United Mine Workers of America, District no. 6, *Scale Handbook*, Columbus, 1922.
- United States Bureau of the Census, volumes on 'Mines and Quarries' in *Eleventh, Twelfth, and Fourteenth Censuses*.
- United States Coal Commission, *Report of*, Washington, 1925; vols. I-V.
- United States Department of Commerce and Labor, Bureau of the Census, *Special Reports, Mines and Quarries, 1902*, Washington; p. 666.
- United States Department of Labor, Bureau of Labor Statistics, Washington, *Hours and Earnings: in Anthracite and Bituminous Coal Mining, 1921-22*, Bulletin 316; in *Anthracite and Bituminous Coal Mining, 1922 and 1924*, Bulletin 416; in *Bituminous Coal Mining, 1922, 1924, and 1926*, Bulletin 454.
- United States Geological Survey, *Mineral Resources of the United States*, vol. II (non-metals), Washington: 1889; 1890, p. 149; 1891, p. 181; 1893, p. 194; 1900; 1901, p. 297; 1904, p. 419; 1910, p. 41; 1915, p. 362; 1918, p. 716; 1921, p. 494; 1922, p. 492; 1923, pp. 552, 572.
- United States House of Representatives, 62d Congress, *House Document No. 1442*, Washington; pp. 27-28.
- West Virginia Department of Mines, *Annual Reports of*, Charleston, 1897-.
- *Annual Report of*, 1924; p. 249.
15. *Teachers*
- Arnett, Trevor, *Teachers' Salaries in Certain Endowed and State-Supported Colleges and Universities*, General Education Board, New York, 1928.
- Burgess, W. R., *Trends of School Costs*, Russell Sage Foundation, New York, 1920; pp. 32-33.
- National Education Association, 'Teachers' Salaries and Salary Trends in 1923,' *Research Bulletin*, vol. I, no. 3, May, 1923; p. 27.
- United States Commissioner of Education, *Annual Reports of*, Washington, 1889-1926.
- United States Department of the Interior, Bureau of Education, *Statistics of State School Systems, 1924-25*, Bulletin 13, Washington, 1927.
- *Statistics of State School Systems, 1925-26*, Bulletin 39, 1927.

V. ANNUAL EARNINGS

1. *Manufacturing*

Brissenden, Paul F., *Earnings of Factory Workers*, Census Monograph x, Washington, 1929.

Connecticut Bureau of Labor Statistics, *Annual Reports of*, Hartford, 1888-1908.

Iowa Bureau of Labor Statistics, *Reports of*, Des Moines, 1895-.

Massachusetts Bureau of Statistics (1889-1918), Department of Labor and Industry (1919-21), *Annual Reports on the Statistics of Manufactures*, Boston, 1889-1926.

Monthly Labor Review, Bureau of Labor Statistics, Washington, February, 1922, to February, 1928.

New Jersey Bureau of Statistics, *Annual Reports of*, Trenton, 1892-1916.

New York (State) Department of Labor, *Course of Employment in New York State, 1914-21*, Special Bulletin 113, Albany.

New York (State) Industrial Commission, *Industrial Bulletin* (monthly), Albany, September, 1921, to January, 1927.

— *Labor Market Bulletin* (monthly), October, 1915, to August, 1921.

Ohio Bureau of Labor Statistics, *Annual Reports of*, Columbus, 1894-1912.

Pennsylvania Department of Internal Affairs, *Annual Reports of the Secretary*, part III, Harrisburg, 1892-1912.

— Bureau of Statistics and Information, *Reports on Productive Industries*, 1916-26.

Pennsylvania Department of Labor and Industry, Bureau of Statistics and Information, *Reports of the Commissioner*, part I, Harrisburg, 1913-15.

South Carolina Department of Agriculture, Commerce, and Industry, *Annual Reports of*, Columbia, nos. 1-15, 1909-23.

United States Bureau of the Census, *Census of Manufactures*, Washington, 1889, 1899, 1904, 1909, 1914, 1919, 1921, 1923, 1925, 1927, preliminary issues of 1923, press releases of 1923, and Bulletins of 1923 and 1925.

Wisconsin Bureau of Labor Statistics, *Biennial Reports of*, Madison, 1889-1911.

2. *Railways*

Connecticut Public Utilities Commission, *Annual Reports of*, Hartford, 1917-26.

Illinois Department of Labor, *Employment Bulletins*, Springfield (monthly), August, 1922, to January, 1925.

Illinois Public Utilities Commission, *Annual Reports of*, Springfield, 1915-16.

Illinois Railroad and Warehouse Commission, *Annual Reports of*, Springfield, 1899-1914.

Iowa Board of Railroad Commissioners, *Annual Reports of*, Des Moines, 1890-95.

Kansas Board of Railroad Commissioners, *Annual Reports of*, Topeka, 1890-95.

- Massachusetts Railroad Commission, *Annual Reports* of, Boston, 1889-1910.
- Minnesota Railroad and Warehouse Commission, *Annual Reports* of, St. Paul, 1890-95.
- National Industrial Conference Board, *Wages, Hours, and Employment of Railroad Workers*, New York, 1924.
- New York Central Railroad Company, *Annual Reports* of, 1890-95.
- New York (State) Board of Railroad Commissioners, *Annual Reports* of (2 volumes each year), Albany, 1889, 1907.
- New York (State) Public Service Commission, 1st District, *Annual Reports* of, Albany, 1908-20.
- New York (State) Transit Commission, *Annual Reports* of, Albany, 1921-24.
- Ohio Public Utilities Commission, *Annual Reports* of, Columbus, 1907-23.
- Pennsylvania Department of Internal Affairs, *Annual Reports* of the Secretary, part iv, Harrisburg, 1890-1914.
- Bureau of Statistics and Information, *Annual Reports* of, 1916-21.
- Pennsylvania Department of Labor and Industry, Statistics and Information Bureau, *Annual Report* of, Harrisburg, 1915.
- United States Bureau of the Census, *Census of Electrical Industries*, 'Street and Electric Railways' (every five years), 1902, 1907, 1912, 1917, 1922.
- *Transportation by Land*, Washington, 1890.
- United States Interstate Commerce Commission, Bureau of Statistics, *Annual Reports on the Statistics of Railways in the United States*, Washington, 1895-1926.
- *Wage Statistics, Class I Steam Railroads in the United States* (monthly), July, 1921, to December, 1926.
- Wisconsin Industrial Commission, *Wisconsin Labor Market*, Madison (monthly), January, 1922, to December, 1926.
3. *Telegraph and Telephone*
- American Telephone and Telegraph Company, *Annual Reports to the Stockholders*, New York, 1902-24.
- Pennsylvania Department of Internal Affairs, *Annual Reports* of the Secretary, part iv, Harrisburg, 1903-16.
- Bureau of Statistics and Information, *Reports on Productive Industries*, 1916-21.
- United States Bureau of the Census, *Census of Electrical Industries*, 'Telephone and Telegraph,' Washington, 1922.
4. *Gas and Electric Companies*
- Illinois Department of Labor, *Bulletins* (monthly), Springfield, August, 1922, to January, 1925.
- New York (State) Industrial Commission, *Industrial Bulletin* (monthly), Albany, October, 1921, to February, 1925.
- New York (State) Public Service Commission, 1st District, *Annual Reports* of, Albany, 1908-23.
- Pennsylvania Department of Internal Affairs, Bureau of Statistics and Information, *Reports on Productive Industries*, Harrisburg, 1916-21.

- United States Bureau of the Census, *Census of Electrical Industries*, 'Central Electric Light and Power Stations,' Washington, 1922.
- *Census of Manufactures*, 'The Gas and Coke Industries,' 1923.
- *Eleventh Census*, 'Manufactures — Reports for Selected Industries: Electrical Industries in New York,' 1890.
- Wisconsin Bureau of Labor Statistics, *Biennial Reports* of, Madison, 1889-1911.
- Wisconsin Industrial Commission, *Wisconsin Labor Market* (monthly), Madison, January, 1922, to December, 1924.
5. *Ministers*
- Committee on the Conservation and Advance of the Methodist Episcopal Church, *General Minutes of the Methodist Episcopal Church*, Evanston, 1923-.
- National Council of Congregational Churches, *Congregational Grey Book* (annual), New York, 1922-.
6. *Teachers*
- National Education Association, 'Public School Salaries in 1924-25,' *Research Bulletin*, vol. III, nos. 1 and 2, 1925.
- 'Teachers' Salaries and Salary Trends in 1923,' *Research Bulletin*, vol. I, no. 3, May, 1923; p. 27.
- 'The Ability of the States to Support Education,' *Research Bulletin*, vol. IV, nos. 1 and 2, 1926.
- United States Department of the Interior, Bureau of Education, *Annual Reports* of, Washington, 1889-1926.
- *Biennial Survey of Education, 1918-20*, Bulletin 29, 1923.
- *Statistics of State School Systems*, Bulletin 31, 1924.
7. *Postal and Government Employees*
- Beyer, William C., 'Municipal Salaries Under the Changing Price-Level,' *Supplement, National Municipal Review*, March, 1926.
- Philadelphia Bureau of Municipal Research, *Comparative Salary Data*, 1916.
- United States Bureau of the Census, *Official Register of the United States*, Washington, 1889-1921.
- United States House of Representatives, 70th Congress, 1st Session, *Hearings Before the Committee on the Civil Service*, H.R. 6518, Washington, 1928.
- 66th Congress, 2d Session, *Report of the Congressional Joint Commission on Re-Classification of Salaries*, House Document 686, Washington, 1920.
- United States Post Office Department, *Annual Reports* of, Washington, 1890-1926.
- United States Secretary of the Interior, *Reports* of, Washington, up to 1905.
8. *Merchant Marine*
- United States Bureau of Navigation, *Merchant Marine Statistics*, Washington, 1924-28.
- United States Commissioner of Navigation, *Annual Reports* of, Washington, 1894-1921.

VI. UNEMPLOYMENT

- Berridge, William A., 'Cycles of Employment and Unemployment in the United States, 1914-21,' *Journal of the American Statistical Association*: part i, March, 1922, pp. 42-55; part ii, June, 1922, pp. 227-40.
- *Cycles of Unemployment in the United States, 1903-1922*, Houghton Mifflin, Boston, 1923.
- 'Employment and Buying Power in 1928,' *American Journal of Sociology*, May, 1929; pp. 1030-44.
- 'Employment in the United States in 1927,' *American Journal of Sociology*, May, 1928; pp. 92-99.
- 'Industrial Employment in the Present Business Cycle,' *Harvard Review of Economic Statistics*, October, 1923.
- 'Labor and the Business Cycle. Some Industrial Aspects,' *Harvard Review of Economic Statistics*, July, 1928; pp. 34-43.
- Bradford, Ernest S., *Industrial Unemployment: A Statistical Study of its Extent and Causes*, Bulletin 310 of the United States Bureau of Labor Statistics, Washington, 1922.
- Connecticut Public Utilities Commission, *Annual Reports of*, Hartford, 1917-25.
- Croxton, Frederick E., *Unemployment in Columbus, Ohio, 1921-25*, Bulletin 409 of the United States Bureau of Labor Statistics, Washington, 1927.
- Federal Reserve Board, *Federal Reserve Bulletin* (monthly), Washington, December, 1923, to February, 1926.
- Hart, Hornell, *Fluctuations in Unemployment in Cities of the United States, 1902-17*; Studies from the Helen S. Trounstone Foundation, Cincinnati, 1918.
- Hurlin, Ralph G., 'Three Decades of Employment Fluctuations,' *New York Times Annalist*, October 24, 1921; pp. 387-88.
- Hurlin, Ralph G., and Berridge, William A., *Employment Statistics for the United States*, Russell Sage Foundation, New York, 1926.
- King, Willard I., *Employment, Hours, and Earnings in Prosperity and Depression*, National Bureau of Economic Research, New York, 1923.
- *Income in the United States, 1909-19*, National Bureau of Economic Research, New York, 1922.
- Massachusetts Bureau of Statistics (1889-1918), Department of Labor and Industry (1919-21), *Annual Reports on the Statistics of Manufactures*, Boston, 1889-1921.
- *Quarterly Reports on the State of Unemployment in Organized Industries*, Boston, 1908-20.
- Massachusetts Department of Labor and Industries, Division of Statistics, monthly mimeographed *Bulletins on Unemployment of Organized Building Tradesmen*, Boston, April, 1927-.
- *Massachusetts Industrial Review* (monthly), January, 1921, to December, 1923.
- *Statistics of Labor Organizations in Massachusetts, 1921 and 1922*; pp. 18-22.
- Massachusetts Railroad Commission, *Annual Reports of*, Boston, 1889-1910.

- Monthly Labor Review*, Bureau of Labor Statistics, Washington, February, 1926.
- National Bureau of Economic Research, *Business Cycles and Unemployment*, McGraw-Hill, New York, 1923.
- *Income in the United States*, vol. II, 1922.
- *Recent Economic Changes*, vols. I and II, New York, 1929; especially pp. 466-78.
- National Industrial Conference Board, 'The Unemployment Problem,' *Research Report 41*, New York, 1921.
- New Jersey Bureau of Statistics, *Annual Reports* of, Trenton, 1892-1916.
- New York (State) Department of Labor, Bureau of Labor Statistics, *Annual Reports* of, Albany, 1897-1912.
- *Course of Employment in New York State, 1914*, Special Bulletin 85, 1916.
- *Course of Employment in New York State, 1914-21*, Special Bulletin 113, 1922.
- *Idleness Among Organized Workers* (quarterly), 1913-14.
- *Idleness of Organized Wage-Earners: in 1913*, Bulletin 58; in 1914, Bulletin 69; in the *First Half of 1915*, Bulletin 73.
- New York (State) Industrial Commission, *Industrial Bulletin*, Albany, January, 1926.
- New York (State) Public Service Commission, 1st District, *Annual Reports* of, Albany, 1908-20.
- New York (State) Transit Commission, *Annual Reports* of, Albany, 1921-25.
- Ohio Department of Industrial Relations and the Industrial Commission, *Rates of Wages, Fluctuation of Employment, Wage and Salary Payments in Ohio, 1923*, Columbus, 1923.
- Pennsylvania Department of Internal Affairs, *Annual Reports* of the Secretary, Harrisburg, 1890-1914.
- Bureau of Statistics and Information, *Reports on Productive Industries, 1915-21*.
- United States Bureau of the Census, *Census of Manufactures, 1899, 1921, and 1923. Eleventh Census*, Washington, 1890; vol. XII, pp. 448-71.
- *Occupations at the Twelfth Census*, Special Report; pp. 76-77.
- United States Bureau of Labor Statistics, *Unemployment in New York City*, Bulletin 172, 1915.
- *Unemployment in the United States*, Bulletin 195, 1916.
- United States Commissioner of Labor, *Eighteenth Annual Report* of, Washington, 1903; pp. 288-89.
- United States Interstate Commerce Commission, *Annual Reports on the Statistics of Railways in the United States*, Washington, 1889-1925.
- United States Senate, 70th Congress, 2d Session, *Hearings Before the Committee on Education and Labor on 'Unemployment in the United States'*, Washington, 1929.
- Watkins, Ralph J., *Industrial and Commercial Ohio*, Bureau of Business Research, Ohio State University, Columbus, 1929; vol. I, part 2.
- West, Miriam E., *Employment Indexes in the United States and Canada*, Committee on Governmental Labor Statistics of the American Statistical Association, New York, 1929.

INDEX OF SUBJECTS

- Absenteeism, 8, 9, 11, 218, 462, 478
 Agricultural areas, board and lodging costs, 65-67; measurement of cost of living, 65-69
 Agricultural implement industry. *See* Farm equipment industry
 Agricultural products, collapse in prices, 66; fall in exchange value, 568
 Agriculture in the United States, depression of, 275
 Anthracite coal-mining industry, 154-60; average annual money earnings, 350; average daily and weekly earnings, 154-60; average hourly earnings, 160-62; full-time weekly earnings, 154-60, 204; hours of labor, 160; increase in earnings, 157-59; increase in purchasing power, 156; increase in regularity of employment, 154, 155; interpolation of earnings, 345-46; movement of real annual earnings, 352-57; purchasing power, 161-62; real earnings compared with bituminous, 355; unemployment, 456. *See also* Coal-mining
 Armistice, 244, 256
 Automobile industry, 234, 307, 309, 310; and tire manufacture, 81
 Average earnings. *See* Earnings
 Bakers' union, 123
 Baking industry, 77, 95, 96, 97, 98, 100, 113, 118, 119, 120, 122, 123, 124, 250, 252, 253, 254, 255, 312; average annual earnings, 623; full-time weekly earnings, 642; gain or loss in hourly rates, 633
 Bargain theory of wages, 562
 Benefit and welfare systems, 489, 563
 Beverage industry, 251, 302, 303, 304, 305, 312; average annual earnings, 625
 Birth-rate, decline in, 482, 566
 Bituminous coal-mining industry, 142-54; annual earnings, 146; average annual money earnings, 350; daily earnings, 142-43, 145; determination of daily earnings, 142, 146 ff.; full-time weekly earnings, 142-46, 204; hourly earnings, 151-54; hours of labor, 148-51; interpolation of earnings, 346-49; movement of real annual earnings, 352-59; real full-time weekly earnings, 144; real wages, 144-45; relative daily and full-time weekly earnings, 142-48; unemployment, 456. *See also* Coal-mining
 Blast furnaces, steel works, and rolling mills, 251, 270, 271, 272, 273, 274; average annual earnings, 623; fluctuations in earnings, 273-74
 Board and lodging costs, in agricultural areas, 65-67
 Bonuses, 218, 373
 Book and job printing, 77, 96, 97, 98, 100, 113, 118, 119, 120, 124, 251, 291, 292, 293, 294; average annual earnings, 624; full-time weekly earnings, 641; gain or loss in hourly wage-rates, 632
 Boot and shoe industry, 77, 78, 81, 90, 101, 102, 104, 107, 108, 114, 124, 126, 127, 129, 234, 251, 264, 265, 266, 267, 268, 270, 288, 289, 290, 312; average annual earnings, 624; effect of widespread use of automobile, 290; full-time weekly earnings, 643; gain or loss in hourly earnings, 634
 Boxboard industry, 81
 Brass, bronze, and copper industry, 251, 276, 279, 280, 281, 312; average annual earnings, 625
 Bread and other bakery products. *See* Baking industry
 Brewing industry, 251, 302, 303, 305, 306; effect of prohibition on, 306
 Bronze industry. *See* Brass, bronze, and copper industry
 Budgetary studies of the United States Bureau of Labor Statistics, 492 ff.; analysis, 494-98
 Budgets, change in, and increase in standard of living, 498-99
 Building costs, 68; index of, 39, 40
 Building trades, 73, 77, 81, 93, 94, 174, 219, 559, 562; average annual earnings, 476-80; full-time weekly earnings, 137-39, 204, 637; gain or loss in hourly earnings, 629; hourly wage-rates, 134-39; hours of labor, 73, 134-39; labor supply, 452-55; real wages, 134, 214; relative stability in arithmetic, 76; statistics, 76-81; unemployment, 447, 450-52

- Butter, cheese, and condensed milk.
See Dairy products industry
- Canning industry, 250, 252, 253, 254, 255, 256, 312; average annual earnings, 623
- Capital, rapid growth, 566-67
- Capital goods, greater increase in supply than in consumers' goods, 514. *See also* Industries, basic
- Capitalism, welfare type, cause of weakening unionism, 563
- Car-building industry, 77, 94, 234, 308, 309, 310. *See also* Railroad rolling stock
- Carriage industry, 251, 306, 307, 308, 309, 310, 312; average annual earnings, 625
- Census of Electrical Industries*, cited, 329, 331, 334
- Census of Manufactures*, cited, 79, 93, 217, 218, 358
- Census of Occupations*, cited, 93, 431, 452
- Census studies, 322
- Chain index, of employment, 435, 436; of wages, 82, 83
- Charitable services, 487-89
- Chemical industries, 251; average annual earnings, 296, 298; movement of earnings, 295-98; relative real annual earnings, 296, 297, 298
- Cigar industry, 77, 94, 234, 251, 302, 303, 304, 305, 306, 312
- Cigarette industry, 251, 302, 303, 304, 305, 306, 312
- Clay products industry, 251, 298, 299, 300, 301, 302, 312; average annual earnings, 625
- Clergy. *See* Ministers
- Clerical labor, 390, 391, 392; gain or loss in annual earnings, 647; increase in relative number employed, 368; reasons for slight increase in real wages, 366-68; in manufacturing, average annual earnings, 363; real annual earnings, 365; in railroad industry, average annual earnings, 361-63; relative real annual earnings, 364-65; sources of statistics, 360-62
- Clothing, proportion of budget, 492; wholesale price index, 37; wholesale prices of, 609
- Clothing industry, 44, 45, 47, 49, 51, 52, 62, 65, 68, 101, 102, 104, 107, 114, 116, 124, 125, 126, 127, 129, 250, 263-70, 312; average annual earnings, 623; average money earnings, 265; average rate of yearly earnings, 610-12; gain or loss in annual earnings, 650; greatest relative increase in full-time weekly earnings, 125-29; relative average annual earnings, 266; relative money earnings, 616-18; relative real annual earnings, 267, 268; relative real earnings, 613-15
Men's, 77, 78, 106, 234, 250, 264, 265, 266, 267, 268, 269, 311, 312, 562; average annual earnings, 623; gain or loss in full-time weekly earnings, 644; gain or loss in hourly earnings, 635
Women's, 251, 264, 265, 266, 267, 268, 269, 312; average annual earnings, 623
- Coal, retail prices, 37
- Coal-mining industry, 81, 142-65, 390, 391, 392, 562; agreement of 1898, 142, 144, 149; annual earnings, bituminous, anthracite, and all coal, 648; average annual earnings, 343-57, 469-70; collective bargaining, 142, 157; defects in employment statistics of the Census Bureau, 343-44; effect on earnings due to World War, 142; employment statistics of the Geological Survey, 344-45; full-time weekly earnings, 162, 165, 204, 637; gain or loss in hourly earnings, 630; hourly earnings, 164, 165; hours of labor, 163; interpolation of earnings, 349; movement of real annual earnings, 352-57; real earnings, greatest gains in anthracite, 355; real wages, 164, 214, 356-57; strikes, 156, 157, 344, 349, 351, 352, 355; unemployment, 455-57; wage-rates, 142-65
- Collectivism, 575
- Colleges and universities, growth in enrollment, 572
- Communism, 573
- Communist manifests, 574
- Confectionery industry, 250, 252, 253, 254, 255, 256, 312; average annual earnings, 623
- Construction industry. *See* Building trades
- Consumption, annual studies, 62-63. *See also* Industries
- Copper industry. *See* Brass, bronze, and copper industry
- Cost of living, annual studies in consumption, 62-63; basis of figures, 45, 54-55, 56; for farm labor, 188-89, 393; increase due to World War, 201; index, 37, 40, 53-59, 60-69, 97, 99, 100, 121-22; indexes of the National Industrial Conference Board and

- Massachusetts Commission on the Necessaries of Life, 48-49, 53, 56; indexes of the United States Bureau of Labor Statistics, 43-46, 50-53, 55; measurement of, in agricultural areas, 65-69; movement in, 19-42, 549; of seamen, 171, 173; relative, 5, 60-61; retail prices, 88, 39; urban compared with rural, 65-69
- Cotton goods industry, 77, 78, 84, 85, 100, 101, 102, 104, 107, 108, 114, 124, 126, 127, 129, 234, 250, 257, 258, 259, 260, 261, 262, 263, 311, 312; average annual earnings, 623; gain or loss in full-time weekly earnings, 643; gain or loss in hourly earnings, 634
- Custom shops, 219
- Dairy products industry, 250, 252, 253, 254, 255, 256, 312; average annual earnings, 623
- Definition of terms used, 6-14
- Dependents, a factor in measuring real income, 13; relative number per worker, 486-87
- Distilleries, 302
- Distribution, 514; marginal productive theory, 524
- Druggists' preparations, 251, 295, 296, 297, 298, 312; average annual earnings, 624
- Earnings: absolute and relative money, in the tobacco and beverage industries, 303; actual, defined, 6; average actual weekly, defined, 7-8; average daily, of railway workers, 166, 167; average daily and weekly, in anthracite coal-mining, 154-60; average full-time weekly, of unskilled labor, 177; full-time, 75; full-time annual, as computed by Brissenden, 594-98; in anthracite coal-mining, 157-59, 160-62; in union industries, 139-41; methods used in computing, 7 ff.; most probable in manufacturing during intercensal years, 220-31; of seamen, 170-73; sources for interpolating average in manufacturing, 233-38
- Annual, 646-52; in bituminous coal-mining, 146; in service industries, 371; in transportation, 320-29; of mercantile employees, 369-70; of ministers, 202; of teachers, 199
- Average annual, computation of, 14; defined, 8; in all manufacturing, 549-51; in basic industries, 313, 315-17; in chemicals, 296, 298; in clothing, 265, 266; in coal-mining, 343-57; in food, 252-53; in gas, 330; in general groups of manufacturing, 551-62; in industry as a whole, 389-400; in intermediate industries, 313, 315-17; in iron and steel, 271; in leather, 287; in lumber, 283; in manufacturing, 217-20, 230-31, 239-40, 245-47, 549-52; in manufacturing and transportation, 463-69; in paper and printing, 291, 292; in public utilities, 333-34; in transportation, 325; in vehicles, 307; of active workers, defined, 11-12; of clerical labor in manufacturing and railroads, 361-63; of Government employees, 372-74; of industries producing for final consumption, 313, 315-17; of letter carriers, 377; of postal employees, 375; of public school teachers, 382; of railroad workers, 552; of salaried labor in manufacturing, 361-62; of stone, clay, and glass, 299; of teachers, 382; of manual workers in manufacturing, transportation, and coal-mining, 469-70; of unskilled labor with allowance for unemployment, 476-80; sources of error in computing, 8-10; unemployment as a factor in measuring, 11-12; with allowance for unemployment, 461-80
- Average real, in industries, basic, intermediate, and producing for final consumption, 314; in tobacco and beverages, 304; weekly, of unskilled labor, 176
- Brissenden's actual average annual, 604-06; compared with present study, 607-08; defects in, 606-07
- Daily, in bituminous coal-mining, 142-43, 145; methods of determining, 142, 146 ff.; of teachers, 199-200
- Full-time weekly, 8; average gain, 212-14; averages, 130; defined, 7; gain or loss, 131-33, 637-45; greatest relative increase in clothing, 125, 129; highest in iron and steel, 125; in all industry, 209-14; in anthracite coal-mining, 154-60, 204; in bituminous coal-mining, 142-46, 204; in building, 137-39, 204; in coal-mining, 162, 165, 204; in manufacturing, 119-31, 204; of farm laborers, 204; of Federal employees, 191, 192, 193-95, 199, 204; of ministers, 204; of postal employees, 192-95; of railway workers, 168-69; of seamen, 204; of teachers, 204; of transportation workers, 204; of unskilled laborers, 204

Hourly, 74, 75, 95-112; average annual gains in manufacturing, 110-12; average gain in all industry, 207-08; defined, 7; gain or loss, 629-36; in all industry, 205; in bituminous coal-mining, 151-54; in coal-mining, 164, 165; in payroll manufacturing, 100-09; in union manufacturing, 95-100; methods used in determining, 206-08; movement in, 206-08; of Federal employees, 197-99; of postal employees, 197-98; of unskilled labor, 183-84

Movement, according to distance from consumer, 311-19; in industry as a whole, 389-400; in building with allowance for unemployment, 470-76; in chemicals, 295-98; in coal-mining, 352-59; in iron and steel, 270-74; in leather, 286-90; in lumber, 282-86; in manufacturing, 217-49; in manufacturing and transportation, 463-69; in metals, 274-81; in paper and printing, 290-95; in public utilities, 332-42; in stone, clay, and glass, 298-302; in textiles, 261-63; in tobacco and beverages, 302-06; in transportation, 324-29; in vehicles, 306-10; of manual workers in manufacturing, transportation, and coal-mining, 469-70; of payroll workers, 125; of steam railroad employees, 320-21, 324-29; of street railway employees, 322-29; of teachers, 382; of unskilled labor allowing for unemployment, 476-80

Real, causes of increase in, 557-68; compared with physical productivity, 509-24; compared with productivity value, 524-37; in printing, 296; in tobacco, 305-06; of farm labor, 187

Real annual, of clerical labor, 365

Real full-time weekly, in bituminous coal-mining, 144

Relative annual, in public utilities, 335-36; in textiles, 259; of ministers, 386

Relative daily and full-time weekly, in bituminous coal-mining, 142-48

Relative real annual, in basic industries, 315; in chemicals, 296, 297, 298; in clothing, 267, 268; in foods, 254-57; in intermediate industries, 315; in iron and steel, 272-73; in leather, 288-90; in lumber, 284-86; in paper and printing, 291, 293, 294; in public utilities, 339-42; in stone, clay, and glass, 300-02; in tobacco and beverages, 302-06; of Govern-

ment employees, 376, 379; of industries producing for final consumption, 315; of ministers, 388-89; of postal employees, 379; of railroad clerical labor, 364-65; of railroad salaried labor, 361-62

Statistics in manufacturing, in Connecticut, Iowa, Massachusetts, New Jersey, Ohio, Pennsylvania, South Carolina, Wisconsin, 221-22

Weekly, of ministers, 203; of teachers, 199-202

Economic statistics, value of, 3-4

Edgermen, 82

Electric motor industry, 311

Electrical industries, 332, 333, 334, 335, 336, 337, 339, 390, 391, 392; average annual earnings, 330, 625; gain or loss in annual earnings, 647; movement of earnings, 329-31

Electrical machinery industry, 251, 274, 275, 276, 277, 278, 311, 312; average annual earnings, 625

Elevated railways, 323

Employment, chain index, 435, 436; Douglas and Stinebower index, 430 ff., 439 ff.; estimated total in manufacturing, 438; fluctuations, 420-21; increase in regularity, in anthracite coal-mining, 154, 155; King's study of, 420; monthly index by United States Federal Reserve Board, 418-19; most probable index for Massachusetts, 437; movement of, in relation to normal labor supply, 441. *See also* Unemployment

Employment statistics, in coal-mining, 343-45; in manufacturing, 217-18, 235; method of interpolation, 434 ff.; of United States Bureau of Labor Statistics, 412-16, 418, 420, 446, 447; studies by Hurlin and Berridge, 416-17; use in determining amount of unemployment, 421

Engel's laws, 492, 493, 498

Executive employees, real wages of, 195; compared with real wages of general workers, 199

Factories. *See* Manufacturing industries
Family, change in composition, 483-85; decline in size, 482-83

Farm equipment industry, 251, 274, 275, 276, 277, 278, 312; average annual earnings, 625

Farm labor, 174, 390, 391, 392, 393, 395 ff.; cost of living indexes, 188-89; day labor, 185; full-time weekly earn-

- ings, 204; low level of wages, 189-90; monthly wages, 186, 187; movement into urban industries, 212; real earnings, 187; real wages, 214; wages, 69; wage studies, 184-90; weekly wages, 186
- Farm management surveys, 187
- Federal employees, 390, 391, 392; annual vacations, 191; full-time weekly earnings, 191, 192, 193-95, 199; hourly earnings, 197-99; hours of service, 191-92, 196, 199; overtime work, 191-92; real wages, 194-99; sick leave, 191
- Field agents, 47, 49, 52, 74, 221
- Fines, 218
- Food, 492-98, 499-501
- Food commodities, 43, 49, 62; used in United States Department of Labor retail food index, 19, 20
- Food industries, 251, 252-57, 312; average annual earnings of employed wage-earners, 252-53; average rate of yearly earnings by months, 610-12; gain or loss in annual earnings, 650; real wages, 256-57; relative money earnings, 616-18; relative real annual earnings of employed wage-earners, 254-57; relative real earnings, 613-15
- Food price indexes, retail, of United States Bureau of Labor Statistics, 19-22; analysis of, 22-32; divergence from wholesale price index, 22 ff.; methods of computation, 19-22, 34-35; most probable, 36; projected, 22; revised, 33-36; summary, 32-33
- Food price indexes, wholesale, of United States Bureau of Labor Statistics, 22-24; divergence from retail price indexes, 23 ff.; most probable, 34-35
- Food prices, 21, 35-36, 39, 40, 68
- Foundries and machine shops, 77, 81, 251, 271, 272, 273, 274, 312; average annual earnings, 624
- Freight rates, 68
- Fruit and vegetable canning industry. *See* Canning industry
- Fuel and light, 45, 49, 51; retail movement, 38; wholesale price index, 37; wholesale prices of, 609
- Full-time earnings. *See* Earnings
- Furniture manufacturing industry, 39, 44, 47, 51, 68, 77, 94, 251, 282, 283, 284, 285, 312; average annual earnings, 624
- Furniture, wholesale prices of, 609
- Gas industry, 320, 332, 333, 334, 335, 336, 337, 339, 340, 341, 390, 391, 392; average annual earnings, 330, 625; gain or loss in annual earnings, 647; movement of earnings, 329-31; retail prices in, 37
- Glass industry, 251, 298, 299, 300, 301, 302, 312; average annual earnings, 625
- Government employees, annual earnings, 372-80, 649; average annual salaries, 372-74; bonuses, 373; decline in real earnings, 376-77; full-time weekly earnings, 204, 638; gain or loss in earnings, 630, 638, 649; in District of Columbia, 372-77; real wages, 214; relative movement of money earnings, 375; relative real annual earnings, 376, 379. *See also* Executive employees, Federal employees, and Postal employees
- Governmental services, 487-89
- Granite and stone trade, 96, 97, 98, 100, 113, 118, 119, 120, 121, 123; gain or loss in full-time weekly wages, 641; gain or loss in hourly rates, 632
- Hand trades, 219
- High schools, growth in enrollment, 570
- Highway construction, 454
- Hosiery and knit goods industry, 77, 78, 101, 102, 104, 107, 108, 114, 124, 126, 127, 129, 234, 250, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 270, 312; gain or loss in full-time weekly earnings, 644; gain or loss in hourly earnings, 635. *See also* Knit goods industry
- Hourly earnings. *See* Earnings
- Hourly wage-rates. *See* Wage-rates
- Hourly wages. *See* Wages
- Hours of labor, 6; in all industry, 208-09; in anthracite coal-mining, 160; in bituminous coal-mining, 148-51; in building, 134-39; in coal-mining, 163; in manufacturing, 112-18; in manufacturing and building, 73; of Federal employees, 191-92, 196, 199; of postal employees, 192, 196; of railway workers, 166, 167; of teachers, 199-200; of unskilled labor, 180-81; relative stability, 76
- House furnishings, 44-45, 65, 68
- Housing, 68; indexes, 62
- Immigration, and labor supply, 564-66; curtailment, 178, 179; net volume of, 565
- Income, average money, from labor of families, defined, 12; average real, of each member of working-class, 12-13;

Hourly, 74, 75, 95-112; average annual gains in manufacturing, 110-12; average gain in all industry, 207-08; defined, 7; gain or loss, 629-36; in all industry, 205; in bituminous coal-mining, 151-54; in coal-mining, 164, 165; in payroll manufacturing, 100-09; in union manufacturing, 95-100; methods used in determining, 206-08; movement in, 206-08; of Federal employees, 197-99; of postal employees, 197-98; of unskilled labor, 183-84

Movement, according to distance from consumer, 311-19; in industry as a whole, 389-400; in building with allowance for unemployment, 470-76; in chemicals, 295-98; in coal-mining, 352-59; in iron and steel, 270-74; in leather, 286-90; in lumber, 282-86; in manufacturing, 217-49; in manufacturing and transportation, 463-69; in metals, 274-81; in paper and printing, 290-95; in public utilities, 332-42; in stone, clay, and glass, 298-302; in textiles, 261-63; in tobacco and beverages, 302-06; in transportation, 324-29; in vehicles, 306-10; of manual workers in manufacturing, transportation, and coal-mining, 469-70; of payroll workers, 125; of steam railroad employees, 320-21, 324-29; of street railway employees, 322-29; of teachers, 382; of unskilled labor allowing for unemployment, 476-80

Real, causes of increase in, 557-68; compared with physical productivity, 509-24; compared with productivity value, 524-37; in printing, 295; in tobacco, 305-06; of farm labor, 187

Real annual, of clerical labor, 365

Real full-time weekly, in bituminous coal-mining, 144

Relative annual, in public utilities, 335-36; in textiles, 259; of ministers, 886

Relative daily and full-time weekly, in bituminous coal-mining, 142-48

Relative real annual, in basic industries, 315; in chemicals, 296, 297, 298; in clothing, 267, 268; in foods, 254-57; in intermediate industries, 315; in iron and steel, 272-73; in leather, 288-90; in lumber, 284-86; in paper and printing, 291, 293, 294; in public utilities, 339-42; in stone, clay, and glass, 300-02; in tobacco and beverages, 302-06; of Govern-

ment employees, 376, 379; of industries producing for final consumption, 315; of ministers, 888-89; of postal employees, 379; of railroad clerical labor, 364-65; of railroad salaried labor, 361-62

Statistics in manufacturing, in Connecticut, Iowa, Massachusetts, New Jersey, Ohio, Pennsylvania, South Carolina, Wisconsin, 221-22

Weekly, of ministers, 203; of teachers, 199-202

Economic statistics, value of, 3-4

Edgemen, 82

Electric motor industry, 311

Electrical industries, 332, 333, 334, 335, 336, 337, 339, 390, 391, 392; average annual earnings, 330, 625; gain or loss in annual earnings, 647; movement of earnings, 329-31

Electrical machinery industry, 251, 274, 275, 276, 277, 278, 311, 312; average annual earnings, 625

Elevated railways, 323

Employment, chain index, 435, 436; Douglas and Stinebower index, 430 ff., 439 ff.; estimated total in manufacturing, 438; fluctuations, 420-21; increase in regularity, in anthracite coal-mining, 154, 155; King's study of, 420; monthly index by United States Federal Reserve Board, 418-19; most probable index for Massachusetts, 437; movement of, in relation to normal labor supply, 441. *See also* Unemployment

Employment statistics, in coal-mining, 343-45; in manufacturing, 217-18, 235; method of interpolation, 434 ff.; of United States Bureau of Labor Statistics, 412-16, 418, 420, 446, 447; studies by Hurlin and Berridge, 416-17; use in determining amount of unemployment, 421

Engel's laws, 492, 493, 498

Executive employees, real wages of, 195; compared with real wages of general workers, 199

Factories. *See* Manufacturing industries
Family, change in composition, 483-85; decline in size, 482-83

Farm equipment industry, 251, 274, 275, 276, 277, 278, 312; average annual earnings, 625

Farm labor, 174, 390, 391, 392, 393, 395 ff.; cost of living indexes, 188-89; day labor, 185; full-time weekly earn-

- ings, 204; low level of wages, 189-90; monthly wages, 186, 187; movement into urban industries, 212; real earnings, 187; real wages, 214; wages, 69; wage studies, 184-90; weekly wages, 186
- Farm management surveys, 187
- Federal employees, 390, 391, 392; annual vacations, 191; full-time weekly earnings, 191, 192, 193-95, 199; hourly earnings, 197-99; hours of service, 191-92, 196, 199; overtime work, 191-92; real wages, 194-99; sick leave, 191
- Field agents, 47, 49, 52, 74, 221
- Fines, 218
- Food, 492-98, 499-501
- Food commodities, 43, 49, 62; used in United States Department of Labor retail food index, 19, 20
- Food industries, 251, 252-57, 312; average annual earnings of employed wage-earners, 252-53; average rate of yearly earnings by months, 610-12; gain or loss in annual earnings, 650; real wages, 256-57; relative money earnings, 616-18; relative real annual earnings of employed wage-earners, 254-57; relative real earnings, 613-15
- Food price indexes, retail, of United States Bureau of Labor Statistics, 19-22; analysis of, 22-32; divergence from wholesale price index, 22 ff.; methods of computation, 19-22, 34-35; most probable, 36; projected, 22; revised, 33-36; summary, 32-33
- Food price indexes, wholesale, of United States Bureau of Labor Statistics, 22-24; divergence from retail price indexes, 22 ff.; most probable, 34-35
- Food prices, 21, 35-36, 39, 40, 68
- Foundries and machine shops, 77, 81, 251, 271, 272, 273, 274, 312; average annual earnings, 624
- Freight rates, 68
- Fruit and vegetable canning industry. *See* Canning industry
- Fuel and light, 45, 49, 51; retail movement, 33; wholesale price index, 37; wholesale prices of, 609
- Full-time earnings. *See* Earnings
- Furniture manufacturing industry, 39, 44, 47, 51, 63, 77, 94, 251, 282, 283, 284, 285, 312; average annual earnings, 624
- Furniture, wholesale prices of, 609
- Gas industry, 330, 332, 333, 334, 335, 336, 337, 339, 340, 341, 390, 391, 392; average annual earnings, 330, 625; gain or loss in annual earnings, 647; movement of earnings, 329-31; retail prices in, 37
- Glass industry, 251, 298, 299, 300, 301, 302, 312; average annual earnings, 625
- Government employees, annual earnings, 372-80, 649; average annual salaries, 372-74; bonuses, 373; decline in real earnings, 376-77; full-time weekly earnings, 204, 638; gain or loss in earnings, 630, 638, 649; in District of Columbia, 372-77; real wages, 214; relative movement of money earnings, 375; relative real annual earnings, 376, 379. *See also* Executive employees, Federal employees, and Postal employees
- Governmental services, 487-89
- Granite and stone trade, 96, 97, 98, 100, 113, 118, 119, 120, 121, 123; gain or loss in full-time weekly wages, 641; gain or loss in hourly rates, 632
- Hand trades, 219
- High schools, growth in enrollment, 570
- Highway construction, 454
- Hosiery and knit goods industry, 77, 78, 101, 102, 104, 107, 108, 114, 124, 126, 127, 129, 234, 250, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 270, 312; gain or loss in full-time weekly earnings, 644; gain or loss in hourly earnings, 635. *See also* Knit goods industry
- Hourly earnings. *See* Earnings
- Hourly wage-rates. *See* Wage-rates
- Hourly wages. *See* Wages
- Hours of labor, 6; in all industry, 206-09; in anthracite coal-mining, 160; in bituminous coal-mining, 148-51; in building, 134-39; in coal-mining, 163; in manufacturing, 112-18; in manufacturing and building, 73; of Federal employees, 191-92, 196, 199; of postal employees, 192, 196; of railway workers, 166, 167; of teachers, 199-200; of unskilled labor, 180-81; relative stability, 76
- House furnishings, 44-45, 65, 68
- Housing, 68; indexes, 52
- Immigration, and labor supply, 564-66; curtailment, 178, 179; net volume of, 565
- Income, average money, from labor of families, defined, 12; average real, of each member of working-class, 12-13;

- dependents a factor in measurement of real, 13; free or non-pecuniary, defined, 13; increase of real, as indicated by changes in proportion spent for foods, 499-501, and for sundries, 501-03; per capita, 14; psychic, 87, 507
- Industrial accident compensation, 489
- Industrial risks, 575
- Industrial statistics, 73
- Industrial system, success of, 3-4
- Industries, basic, intermediate, and producing for final consumption, average annual money earnings, 313, 315-17; average real earnings, 314; defined, 311; fluctuations in earnings, 312; fluctuations in employment, 311; list of, 312; reasons for fluctuations, 317-18; reasons for higher level of wages, 318-19; relative real annual earnings, 315
- Industry as a whole, average annual gains and losses in earnings, 395-98, 646; average annual gains or losses in purchasing power, 213-14; average full-time weekly gains in earnings, 212-14; average hourly gains in earnings, 207-08, 629; full-time weekly earnings, 209, 637; hourly earnings, 205, 206-08; hours per week, 208-09; methods of weighting averages of groups, 204; methods of weighting used in computing indexes, 390-95; real earnings, 391; relative money earnings, 391; relative weights used, 204, 390; relative real annual earnings, according to methods of constant and changing weights, 394
- Interest rate, fall in, 566-67
- Intermediate industries. *See* Industries
- Interpolation, methods used, 626-28
- Interurban electric railways, 323
- Iron and steel industry, 77, 78, 91, 101, 102, 104, 107, 114, 116, 117, 124, 125, 126, 127, 129, 234, 251, 311, 312; average annual money earnings of employed wage-earners, 271; average rate of yearly earnings, 610-12; full-time weekly earnings highest in, 125; gain or loss in annual earnings, 650; gain or loss in full-time weekly earnings, 645; gain or loss in hourly earnings, 636; movement of earnings, 270-74; relative money earnings, 616-18; relative real annual earnings of employed wage-earners, 272-73; relative real earnings, 613-15
- Iron and steel works. *See* Blast furnaces, steel works, and rolling mills
- Job printing. *See* Book and job printing
- Knit goods industry, average annual earnings, 623. *See also* Hosiery and knit goods industry
- Labor, unskilled. *See* Unskilled labor
- Labor organization. *See* Trade unionism
- Labor-saving devices, 485
- Labor supply, 430-34; abnormal increase for urban industries during periods of prosperity, 440; decrease in rate of growth, 564; in building, 452-55; in manufacturing and transportation, 431-34; methods used by Douglas and Stinebower in correcting estimates of, 442 ff.; methods used in computing, 431 ff.; movement of employment in relation to, 441. *See also* Employment, and Unemployment
- Labor turnover, 9-10, 338
- Land transportation. *See* Steam railroads, and Street railways
- Land vehicle industry, average rate of yearly earnings, 610-12; gain or loss in annual earnings, 652; relative money earnings, 616-18; relative real earnings, 613-15
- Leather industry, 234, 312; average annual earnings of employed wage-earners, 287, 624; gain or loss in annual earnings, 651; movement of earnings, 286-90; relative real annual earnings of employed wage-earners, 288-90. *See also* Tanning industry
- Leisure, 117, 209, 485, 575; defined, 13
- Light. *See* Fuel and light
- Liquors, malt, average annual earnings, 625
- Lumber industry, 77, 78, 79, 80, 82, 251; average annual earnings of employed wage-earners, 283; average rate of yearly earnings, 610-12; gain or loss in annual earnings, 651; gain or loss in full-time weekly earnings, 645; gain or loss in hourly earnings, 636; movement of earnings, 282-86; relative money earnings, 616-18; relative real annual earnings of employed wage-earners, 284-86; relative real earnings, 613-15
- Machine shops. *See* Foundries and machine shops
- Manufacturing industries, 390, 391, 392; actual movement of hour, and earnings, 95-133; average annual earn-

ings, 217-20, 239-40, 463-70, 646; average annual gain of wage-earners, 247-49; average annual gains, 646; average annual gains in hourly earnings, 110-12, 629; average earnings, sources for interpolating, 233-38; average gain or loss in full-time weekly earnings, 131-33; average number of employed wage-earners, 217, 218, 219; average rate of yearly earnings, 610-12; full-time weekly earnings, 119-33, 204, 637; hourly earnings, 108-09; hourly wage-rates, 95-112; hours of labor, 73, 112-18; hours of labor of unskilled males, 180-81, 183; labor supply, 431-34; labor turnover, 338; methods employed in collecting Census data, 217-18; methods used in determining relative trend of money values and of real earnings in specific groups, 250-52; most probable earnings during intercensal years, 220-31; movement of money and real earnings of employed wage-earners, 217-49; real wages, 131-33, 134, 196, 214; relative growth of fixed capital, 568-67; relative money earnings, 616-18; relative movement of real earnings, 231-32; relative purchasing power of annual earnings, 239-40; relative real earnings, 613-15; relative stability in nineties, 76; salaried labor, 358-68; use of State statistics, 220 ff.; wage-rates, 73-94. *See also* Earnings, Unemployment, Unskilled labor, and Wage data

Non-union, 563

Payroll, 93, 94; gain or loss in full-time weekly earnings, 643; gain or loss in hourly earnings, 634; hourly earnings, 100-09; hours of labor, 114-15

Union, 93, 94, 562; full-time weekly earnings, 119-25; hourly earnings, 95-100

Manufacturing statistics, 76-81

Marble and stone industry, 77, 251, 298, 299, 300, 301, 302, 312

Marketing, 514

Material progress, measurement of, 3 ff.
Meat-packing industry. *See* Slaughtering and meat-packing industry

Men's clothing industry. *See* Clothing industry

Mercantile employees, annual earnings, 369-70

Metal trades, 89, 96, 97, 98, 100, 113, 118, 119, 120, 123, 251; gain or loss in

full-time weekly earnings, 640; gain or loss in hourly rates, 631; movement of earnings, 274-81; other than machinery, 281

Metals, non-ferrous, average rate of yearly earnings, 610-12; relative money earnings, 616-18; relative real earnings, 613-15

Mill work, 77, 94

Mining industries, 179. *See also* Anthracite coal-mining industry

Ministers, 385-88, 390, 391, 392; annual earnings, 202; decline in real earnings, 386-88; full-time weekly earnings, 204; gain or loss in annual earnings, 649; Methodist and Congregational salaries, 385-86; relative annual money earnings, 386; relative real annual earnings, 388-89; weekly earnings, 203

Motor vehicles, bodies and parts, 251, 306, 307, 308, 309, 312; average annual earnings, 625. *See also* Vehicle industry

Mutual benefit systems, 563

Newspaper printing, 77, 96, 97, 98, 100, 113, 114, 118, 119, 120, 123; gain or loss in full-time weekly earnings, 641; gain or loss in hourly rates, 632

Newspaper and periodical printing, 251, 291, 292, 293, 295

Occupation statistics, 73, 93, 431, 452

Official Register, cited, 372, 373, 374

Output. *See* Productivity

Overtime work, 191-92, 218, 249

Packing-house workers' organization, 256

Paper and boxboard industries, 81

Paper and printing industries, average annual money earnings of employed wage-earners, 291, 292; average rate of yearly earnings, 610-12; gain or loss in annual earnings, 651; movement of earnings, 290-95; relative money earnings, 616-18; relative real annual earnings of employed wage-earners, 291, 293, 294; relative real earnings, 613-15

Paper and pulp industry, 81, 251, 291, 292, 293, 294, 295, 312; average annual earnings, 624

Paper box industry, 251, 291, 292, 293, 294, 295; average annual earnings, 624

Paper industry, 234

Part-time work, 218, 249

- Payroll, statistics, 76-77; studies, 78-80, 81, 88, 89; workers, movement of money earnings, 125. *See also* Manufacturing industries
- Periodical printing. *See* Newspaper and periodical printing
- Personnel, practice improved, 563; reclassification act, 375
- Petroleum refining, 81, 251, 295, 296, 297, 298, 312
- Planing mills, 96, 97, 98, 100, 113, 118, 119, 120, 123, 124, 251, 282, 283, 284, 285, 286, 312; average annual earnings, 624; gain or loss in full-time weekly wages, 642; gain or loss in hourly rates, 633
- Plated ware industry. *See* Silver and plated ware industry
- Population, adult, proportion gainfully employed, 485-86; change in age composition, 484
- Postal employees, 372, 390, 391, 392; advance since 1920, 380; annual vacation, 192; average annual money earnings, 375, 377-78; full-time weekly earnings, 192-95; gain or loss in annual earnings, 648; hourly earnings, 197-98; hours of service, 192, 196; real wages, 195-99; relative average salary, 378; relative real earnings, 378, 379; sick leave, 192
- Post-war inflation of credit, 242
- Pottery industry, 81
- Poverty, 478, 575
- Power industry. *See* Electrical industries
- Price indexes, most probable retail, of commodities other than foods, 38-40; movement in cost of living shown by, 21-22; wholesale, 526; wholesale, of clothing, 37
- Price level, 526, 558, 559, 563
- Price movement, relative, 527
- Price quotations, secured from ship-building centers, 43
- Price system, 557 ff.
- Printing industry, 312; real earnings, 295. *See also* Book and job printing; Newspaper and periodical printing; Paper and printing industries
- Productivity, advance in average, 557-61; increase in, compared with increase in real wages, 504-48; per capita, 507-09; problem and methods of measurement, 504-09
- Productivity, physical, 557, 560, 561; compared with real earnings, 509-24; in anthracite and bituminous coal-mining, 515-17; in electrical industries, 523-24; in gas, 522-23; in manufacturing, 509-24; in telephone, 521; increase in, 546; indexes of, 505-07; on railroads, 517-19; on street railways, 519-20; reasons for failure of real earnings to keep pace with, 514; relative, 547
- Productivity value, 557, 560, 561; comparison with real earnings, 524-37; decrease or increase of worker's share, 537-46; in coal-mining, 533-37; in manufacturing, 529-32; vital defects of, 537-39
- Professional workers, real wages, 214
- Prohibition, 306, 567
- Prosperity, 575; factors affecting, 481 ff.
- Psychic income, 87, 507
- Public school teachers, causes for greater gains in real wages, 384-85; money earnings, 381; movement of average annual salary, 382; real annual earnings, 382-83; statistics, 381; weekly earnings, 201-02
- Public utility commissions, 337
- Public utility industries, average annual money earnings, 333-34; control of rates, 337; labor turnover, 338; movement of earnings, 332-42; relative average annual earnings, 335-36; relative real annual earnings, 339-42; stability of earnings, 333 ff.
- Pulp industry. *See* Paper and pulp industry
- Purchasing power. *See* Wages, Real
- Questionnaires, 47, 49, 52, 221
- Quota laws, 565-66
- Railroad commissions, 320-21
- Railroad rate regulation, 326-27
- Railroad rolling stock, 251, 306, 307, 308, 309, 312; average annual earnings, 625. *See also* Car-building industry
- Railroad strikes, 328
- Railway statistics, 166. *See also* Street railways
- Railway workers, average daily earnings, 166, 167; full-time weekly earnings, 168-69; hours of labor, 166, 167; real wages, 167-70; wages included in Hurlin study, 174; weekly wages, 167
- Ranking, of industries according to relative gains, 654
- Real earnings. *See* Earnings
- Real wages. *See* Wages

- Rent, 39, 40, 41, 44, 47, 49, 52, 62, 68, 492
- Repair and custom shops, 219
- Rolling mills. *See* Blast furnaces, steel works, and rolling mills
- Rubber goods industry, 295, 296, 297, 298, 312; average annual earnings, 624
- Rural population, decrease in, 68, 178, 190, 212
- Saddlery and harness industry, 251, 287, 288, 289, 290, 312; average annual earnings, 624
- Sailing vessels, 170, 171
- Salaried labor, average annual earnings, 361-62; reasons for slight increase in real wages, 366-68; relative real annual earnings, 364; sources of statistics, 358-60
- Salaries. *See* Wages
- Savings, increase in, 568-70
- Sawmills, 80, 101, 102, 104, 107, 114, 117, 124, 126, 127, 129, 251, 282, 283, 284, 285, 286, 312; average annual earnings, 624
- School, increase in attendance, 570-72. *See also* Public school teachers
- Seamen, cost of living, 171, 173; full-time weekly earnings, 204; wages and earnings, 170-73
- Service industries, annual earnings, 371
- Sewing machine industry, 311
- Shirt industry, 251, 264, 265, 266, 267, 268, 269; average annual earnings, 623
- Shoe industry. *See* Boot and shoe industry
- Shop committee systems, 563
- Short-time work, 218, 249
- Sick leave, of Federal employees, 191; of postal employees, 192
- Silk goods industry, 77, 94, 234, 250, 257, 258, 259, 260, 261, 262, 263, 311, 312; average annual earnings, 623
- Silver and plated ware industry, 251, 276, 279, 280, 281, 312, 625
- Slaughtering and meat-packing industry, 77, 78, 91, 92, 93, 101, 102, 104, 107, 114, 124, 126, 127, 129, 250, 252, 253, 254, 255, 256, 312; average annual earnings, 623; gain or loss in full-time weekly earnings, 645; gain or loss in hourly earnings, 636
- Socialist movement, reasons for losses in, 573-75
- Soft drink industry, 251, 302, 305
- Spanish War, 39, 448
- Spirits, 39; wholesale price indexes, 37. *See also* Brewing industry, and Tobacco and beverage industry
- Standards of living, 63-64; increase in, 498-99; inertia in, 64, 65
- States, average annual earnings in, 623-25; manufacturing wage statistics in, 221-22, 233
- Statistics. *See* various kinds of statistics; i.e., Occupation statistics, Railway statistics, etc.
- Steam railroads, 332, 333, 334, 335, 336, 339, 340, 390, 393-94; average rate of yearly earnings, 611-12; gain or loss in annual earnings, 646; movement of earnings, 320-21, 324-29; relative money earnings, 617-18; relative real earnings, 614-15
- Steam vessels, 170, 171
- Steel industry. *See* Iron and steel industry
- Steel works. *See* Blast furnaces, steel works, and rolling mills
- Stone, clay, and glass industries, average annual earnings of employed wage-earners, 299; average rate of yearly earnings, 610-12; gain or loss in annual earnings, 652; movement of earnings, 298-302; relative money earnings, 616-18; relative real annual earnings, 300-02; relative real earnings, 613-15
- Stone quarrying, average annual earnings, 624
- Stone trades, 96, 97, 98, 100, 115, 121
- Street and sewer work, 73
- Street railways, 81, 320, 332, 333, 334, 335, 336, 339, 340, 390, 393-94; average annual earnings, 625; gain or loss in annual earnings, 646; movement of earnings, 322-29
- Strikes. *See* Coal-mining, and Railroad strikes
- Substitute commodities, in relation to cost of living, 63-64
- Subways, 322
- Sundries, 44, 47, 48, 49, 492-97, 501-03
- Tanning industry, 251, 287, 288, 289, 290
- Teachers, 390, 391, 392; hours of labor, 199-200; increase in real wages, 202. *See also* Public school teachers
- Teachers' earnings, annual, 199; daily, 199-200; full-time weekly, 204; gain or loss in annual, 649; weekly, 199-202
- Telegraph and telephone industry, 320, 331-32, 333, 334, 336, 337, 338, 339, 390, 391, 392; gain or loss in annual earnings, 647

- Textile industry, 250, 257-61; average rate of yearly earnings, 610-12; gain or loss in annual earnings, 650; relative annual earnings of employed wage-earners, 259; relative money earnings, 616-18; relative purchasing power of average annual earnings of employed wage-earners, 257, 260; relative real earnings, 613-15; trend of real annual earnings, 261-63
- Time-workers, 74-75
- Tire manufacture, 81
- Tobacco and beverage industries, absolute and relative money earnings, 303; average rate of yearly earnings, 610-12; average real earnings, 304; gain or loss in annual earnings, 652; movement of earnings, 302-06; reasons for decline in real earnings, 305-06; relative money earnings, 616-18; relative real annual earnings, 302-06; relative real earnings, 613-15; wholesale price of, 609
- Tobacco industry, 39, 251, 302, 303, 304, 305, 306; average annual earnings, 625; wholesale price indexes, 37
- Trade unionism, decline in strength, 572-75; rôle in securing wage advances, 562-64. *See also* Union industries
- Transportation industries, 179; annual earnings, 320-29; average annual money earnings, 325; full-time weekly earnings, 204; labor supply, 431-34; movement of real earnings, 324-29; real wages, 214; wages, 166-73. *See also* Steam railroads, Street railways, and Unemployment
- Trunk and valise industry, 251, 287, 288, 289, 290, 312; average annual earnings, 624
- Unemployment, 218, 573; a factor in measurement of actual earnings, 11-12; Brissenden's index, 598-603; Census statistics, 409; changes produced in earnings of four separate combinations of workers, 461-62; combined index for manufacturing, transportation, and building, 458-59; combined index for manufacturing, transportation, building, and mining, 460; Croxton's study, 424-25; Douglas and Stinebower index for manufacturing and transportation, 430 ff., 439 ff., 443, 444, 448-49, 461 ff.; effect of inclusion on index of earnings, 464-69; employment statistics as an aid in determining, 416-21; estimated percentages in manufacturing and transportation, 445, 446; estimates of the amount of, 403-29; Hart's index of, in the non-agricultural wage-earning class, 415, 421-24; in building, 447, 450-52; in coal-mining, 455-57; local Censuses of, 424-25; Marxian theory, 421; National Bureau of Economic Research estimate in non-agricultural labor, 425-29; New York and Massachusetts statistics, of unionists, 405-09; percentages in various cities, 413; United States Bureau of Labor 1901 study, 409-10; United States Bureau of Labor Statistics surveys, 412-16, 418-20, 446, 447. *See also* Employment
- Union industries, earnings, 139-41; gain or loss in full-time weekly earnings, 640; gain or loss in hourly earnings, 631; hourly wage-rates, 141; method of obtaining indexes, 139; purchasing power, 141. *See also* Manufacturing industries
- Union rates studies, 81
- Union wage-rates, 76-77
- Unionism. *See* Trade unionism
- Unionists, 77; reduction of purchasing power, 121, 123, 125
- Unskilled labor, 73; actual earnings, 462; average annual earnings, 476-80; average full-time weekly earnings, 177; average weekly earnings, 176; average weekly wages, 175; causes of failure to share in advance in real wages, 179; chief factors in movement of real wages, 178-79; effect on wages, due to World War, 178; full-time weekly earnings, 204; gain or loss in full-time weekly earnings, 638; gain or loss in hourly earnings, 630; hourly earnings, 183-84; hourly wages, 181-83; hours of labor, 180-81; real wages, 178, 182, 214; wage studies, 174-84
- Urban industries, movement of farm labor into, 212
- Urban labor, 393, 395 ff.; wages, 69
- Vacations, of Federal employees, 191; of postal employees, 192
- Value in exchange, relative, 525, 527-28
- Vehicle industry, 251; average annual money and real earnings of employed wage-earners, 307, 308; movement of earnings, 306-10; relative real annual earnings, 309

- Wage data, in manufacturing, for California, Delaware, Illinois, Maryland, Massachusetts, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, and Wisconsin, 233
- Wage policy of the American Federation of Labor, 504
- Wage rates, 7, 552-54; defined, 6; fixation by union agreement, 827; in coal-mining, 142-65; in manufacturing and building, sources and methods for a study, 73-94; union, 76-77
- Wage-rates, hourly, 73, 74, 75; in building, 134-39; in manufacturing, 95-112; in union industries, 141
- Wage series, relative changes of individual, 399-400
- Wage studies, 80, 81; farm labor, 184-90; problem of interpolation, 91-93; unskilled labor, 174-84
- Wages: adjustment during World War, 43; average of aggregates, 86-88; average per hour, 74; bargain theory of, 562; group averages, 93-94; index for all industry, 85; methods of obtaining averages for each industry, 81-91; methods used in computing, 7 ff.; movement for unskilled labor, 174 ff., 186, 187; of farm labor, 69, 186, 187, 189-90; of seamen, 170-73; of transportation workers, 166-73; proportion of net value of manufacturing, 544-46; proportion of total value of manufacturing, 540-42
- Full-time weekly*, 8; defined, 7
- Hourly*, defined, 7; in building, 138; of unskilled labor, 181-83
- Real*, 87; causes and consequences of increase, 557-80; effect of immigration curtailment on, 565-66; factors in increase of, 481-91; gains in coal-mining during World War, 144; in all industry, 213-14; in anthracite coal-mining, 156, 161-62; in bituminous coal-mining, 144-45; in building, 134, 214; in coal-mining, 164, 214, 356-57; in factories, 134; in food, 256-57; in manufacturing, 131-33, 196, 214, 231-32, 239-40, 244; in textiles, 257, 260; in union industries, 121, 123, 125, 141; increase in, 85; increase, measured by increase in productivity, 504-48; of clerical labor, 366-68; of executive employees, 195, 199; of farm labor, 214; of Federal employees, 194-99; of Government employees, 214; of ministers, 202-03, 368; of postal employees, 195-99; of professional workers, 214; of railway workers, 167-70; of salaried labor, reasons for slight increase, 366-68; of teachers, 201, 202, 384-85; of transportation workers, 214; of unskilled labor, 178, 179, 182, 214, 480; problem of measuring changes in, 3-15; relative gain in manufacturing, transportation, and coal-mining, 470
- Weekly*, of farm labor, 186; of railway workers, 167
- Wagons. *See* Carriage industry
- War. *See* World War, and Spanish War
- Weighting, used in computing indexes for annual earnings, 620; for cost-of-living indexes, 48-49, 62-63; for industry as a whole, 204, 390-95; for wage-rates, 621-22
- Welch Bill, 377
- Welfare services, 487-89
- Women's clothing industry. *See* Clothing industry
- Woolen goods industry, 77, 78, 101, 102, 104, 107, 108, 114, 124, 126, 127, 129, 234, 250, 257, 258, 259, 260, 261, 262, 263, 311, 312; average annual earnings, 623; gain or loss in full-time weekly earnings, 644; gain or loss in hourly earnings, 635
- Working-class, changes in economic condition, 4-5; consequences of improved material well-being, 568 ff.; gain from philanthropic sources, 489; price quotations for budgets of, 43-44
- World War, adjustment of wages during, 43; and cost of living, 201, 572; difficulty of estimating labor supply during, 441-42; effect on earnings in coal-mining, 142, 144; effect on real wages of ministers, 202-03; effect on real wages of teachers, 201; effect on wage-rates in slaughtering and meat-packing, 256; effect on wages of unskilled, 178; fall of interest rate a factor in meeting cost of, 567; money earnings in manufacturing during, 241
- Worsted goods industry. *See* Woolen goods industry

INDEX OF AUTHORS

- Aldrich Committee on Wages and Prices, 84, 265
 Alschuler, Samuel, 92, 93, 256
 Amalgamated Clothing Workers, 129
 American Federation of Labor, 385, 504
 American Federation of Teachers, 385
 American Telephone and Telegraph Company, 331, 519

 Barnett, George D., 88
 Bartlett, J. H., 377
 Battey, Alvin D., 549
 Berridge, William A., 416, 417, 422, 436
 Bezanson, Anne, 478
 Bituminous Commission, 354
 Bowley, A. G., 481
 Brissenden, Paul Frederick, 217, 218, 338, 593-606
 Brown, Herbert D., 374
 Burnett-Hurst, A. R., 481

 Carr, Elma B., 52
 Chapin, R. C., 48
 Clothier, Robert Clarkson, 478
 Cobb, C. W., 524, 567, 602
 Connecticut, Bureau of Labor Statistics, 221
 Connecticut, Public Utilities Commission, 323
 Coombs, Whitney, 174, 175, 176
 Copeland, Morris A., 489
 Croxton, Frederick E., 424, 425

 Day, E. E., 505, 506, 507, 508
 Douglas, Dorothy, 489
 Douglas, Paul H., 21, 65, 121, 122, 180-84, 188, 372, 373, 478, 489, 506, 509, 567, 602, 607
 Durand, E. Dana, 519

 Edie, Lionel D., 546, 548
 Engel, Friedrich, 492, 493
 Engels, Frederick, 574

 Fisher, W. E., 159, 346
 Frankel, Emil, 338

 Garfield, H. A., 344
 Givens, Meredith, 425, 427, 428, 443, 444, 451, 452

 Hart, Hornell, 415, 421, 422, 423, 424, 425, 430, 453, 459
 Hillquit, Morris, 574
 Hogg, Margaret H., 481
 Holmes, George K., 185
 Hoover, Herbert, 63, 64
 Hurlin, Ralph G., 174, 175, 176, 177, 178, 416, 417, 478

 Illinois, Bureau of Labor Statistics, 347
 Illinois, Department of Labor, 323, 330
 Illinois, Department of Mines and Minerals, 347
 Illinois, Public Utilities Commission, 323
 Illinois, Railroad and Warehouse Commission, 323
 Indiana, Department of Mines and Mining, 348
 Indiana, Department of Statistics, 348
 Indiana, Legislative Reference Bureau, 348
 Iowa, Board of Railroad Commissioners, 321
 Iowa, Bureau of Labor Statistics, 222

 Jennison, Florence T., 549

 Kansas, Board of Railroad Commissioners, 321
 Kansas, Railroad Commission, 360
 Kelvin, Lord, 4
 King, W. I., 65-69, 187, 188, 211, 212, 393, 420, 427, 453, 454, 477, 478, 598, 599

 Lamberson, Frances, 21
 Lane Commission, 168, 327
 Leland, Simeon E., 488
 Levin, Nathan, 485
 Little, 48
 Lorens, Max O., 166

- Maher, Amy, 366
 Marx, Karl, 421, 574
 Massachusetts, Bureau of Statistics of Labor, 221, 442
 Massachusetts, Commission on the Necessaries of Life, 41, 42, 46-50, 56, 58, 495
 Massachusetts, Department of Labor and Industries, 221, 405, 418, 442, 450
 Massachusetts, Railroad Commission, 322
 Meriam, Lewis, 191
 Metropolitan Life Insurance Company, 412; Statistical Department, 485
 Minnesota, Railroad and Warehouse Commission, 321
 More, L. B., 48
 National Bureau of Economic Research, 425, 426, 427, 489, 545
 National Education Association, 381, 385
 National Industrial Conference Board, 46-53, 56, 58, 174, 176, 178, 180, 181, 183, 487, 554
 New Hampshire, Bureau of Labor, 220
 New Jersey, Bureau of Statistics of Labor and Industries, 221
 New York, Board of Railroad Commissioners, 321
 New York, Bureau of Labor Statistics, 405
 New York Central Railroad Company, 321, 360
 New York, Department of Labor, 233-37, 252, 405, 418, 439, 450, 623, 627
 New York, Federal Reserve Bank, 176
 New York, Public Service Commission, 329, 330
 New York, Railroad Commission, 322
 New York, State Industrial Commission, 253, 359
 Ohio, Bureau of Labor Statistics, 221, 348, 358, 359
 Ohio, Department of Industrial Relations, 359
 Ohio, Division of Labor Statistics, 369
 Ohio, Industrial Commission, 359
 Ohio, Public Utilities Commission, 323
 Ohio State University, Bureau of Business Research, 369
 Pearl, Raymond, 63, 64
 Pennsylvania, Department of Internal Affairs, 221, 321, 323, 329, 331, 332, 344, 345, 348, 359
 Pennsylvania, Railroad Commission, 360
 Roosevelt, Theodore, 191
 Ross, Stanley, 174
 Rubinow, I. M., 21, 122
 Russell Sage Foundation, 174
 Schultz, Henry, 601
 Scott Company, 478
 Scott, Walter Dill, 478
 Sears, Roebuck and Company, 65
 Seligman, E. R. A., 489
 Shipbuilding Labor Adjustment Board, 43
 Slichter, Sumner Huber, 338
 Snyder, Carl, 526, 548
 Soule, George, 507, 508
 South Carolina, Commissioner of Agriculture, Commerce and Industries, 222
 Steward, Luther C., 191
 Stewart, Walter W., 506
 Stinebower, L. D., 430
 Straightoff, F. H., 48
 Suffern, Arthur Elliott, 352
 Sydenstricker, Edgar, 157
 Thomas, Woodlief, 505, 506, 509, 510, 519
 Thorp, Willard L., 447, 449
 Tryon, F. G., 345
 United States, Anthracite Coal Commission, 158, 351, 355
 United States, Anthracite Coal Strike Commission, 156, 157
 United States, Bureau of Education, 381, 385, 570, 571, 572
 United States, Bureau of Labor, 20, 40, 48, 49, 73-76, 174, 180, 410
 United States, Bureau of Labor Statistics, 7, 19-46, 48, 50-59, 78-83, 90, 91, 92, 181, 233-38, 252, 264, 270, 275, 282, 289, 291, 295, 298, 302, 306, 307,

- 338, 409, 412, 416, 417, 418, 419, 420,
 435, 439, 446, 447, 449, 492, 497, 526,
 554, 595, 596, 623, 627
 United States, Bureau of Mines, 422
 United States, Bureau of Navigation,
 170
 United States, Bureau of the Census, 79,
 93, 217, 250, 252, 306, 323, 330, 343,
 358, 543, 594
 United States, Census Office, 344, 540
 United States, Coal Commission, 142,
 147, 346
 United States, Commission on Indus-
 trial Relations, 157
 United States, Commissioner of Edu-
 cation, 366, 381, 422
 United States, Commissioner of Labor,
 410, 492, 497, 499
 United States, Commissioner of Naviga-
 tion, 170
 United States, Congress, 373, 380
 United States, Congress, House, Joint
 Commission on Reclassification of
 Salaries, 373
 United States, Department of Agri-
 culture, 184, 185, 187, 390
 United States, Department of Com-
 merce, 419
 United States, Department of Labor, 19
 United States, Federal Reserve Board,
 418, 419
 United States, Food Administration, 63
 United States, Geological Survey,
 148, 150, 344, 345, 346, 349, 428,
 United States, Interstate Comm-
 mission, 166, 320, 332, 359
 434, 517
 United States, Postmaster General,
 377
 United States, President's Commis-
 sion of 1903, 355
 United States, Railway Administra-
 tion, 168
 United States, Railway Labor Bo-
 ard, 328
 United States Steel Corporation, 52
 United States, War Labor Board,
 328
 Watkins, Ralph I., 369, 452
 Weaver, Donald, 548
 Weber, Harold N., 227, 228, 517
 West, Miriam E., 420
 West Virginia, Department of Mi-
 nes, 348
 Western Union Telegraph Comp-
 any, 332
 Wilson, Woodrow, 158, 328
 Wisconsin, Bureau of Labor Statis-
 tics, 221, 329
 Wisconsin, Industrial Commission, 330,
 360, 418
 Wolman, Leo, 88, 425, 427, 428, 444,
 444, 451, 452, 572, 573