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CHAPTER 5

Wages by Industry and Region

Wages by Industry

The daily wages paid by the various manufacturing industries differed substantially. Among the 18 industries from the Weeks Report, the highest-wage industry paid double the lowest in 1860

TABLE 22

Daily Wages for 18 Manufacturing Industries, with Relative Wages and Rankings; Weeks Report, 1860-1880

	Dollars			Rank of Dollar Wages			Relative Wages			Rank of Wage Increase
	1860	1870	1880	1860	1870	1880	1860	1870	1880	1860-1880
Stove foundries	1.78	2.30	1.90	1	5	10	100	129	107	18
Furniture	1.74	2.24	2.23	2	9	5	100	129	128	14
Flour and grist mills	1.73	2.69	2.19	3	2	6	100	155	127	15
Hardware, cutlery, etc.	1.68	2.41	2.24	4	4	4	100	143	133	13
Tin and sheet iron works	1.68	3.18	2.29	5	1	3	100	189	136	12
Saw and planing mills	1.63	2.10	2.41	6	11	1	100	129	148	3
Carriage and wagon works	1.54	1.96	1.86	7	13	11	100	127	121	16
Flint and windowglass	1.46	2.47	2.33	8	3	2	100	169	160	2
Tanneries	1.34	2.26	1.93	9	8	9	100	169	144	6
Machinery	1.33	2.13	1.96	10	10	8	100	160	147	4
Cigars and tobacco	1.32	1.58	1.48	11	15	15	100	120	112	17
Iron blast furnaces, etc.	1.29	2.27	1.83	12	7	12	100	176	142	10
Paper manufacture	1.18	1.85	1.70	13	14	13	100	157	144	5
Brickmaking	1.18	2.30	1.68	14	6	14	100	195	142	9
Clothing	1.03	1.38	1.46	15	18	16	100	134	142	8
Breweries and distilleries	1.01	1.97	2.02	16	12	7	100	195	200	1
Woolen manufactures	0.96	1.52	1.32	17	16	17	100	158	138	11
Cotton manufactures	0.90	1.42	1.29	18	17	18	100	158	143	7
Median	1.34	2.19	1.92				100	163	143	
Weighted mean	1.32	1.92	1.77				100	145	134	
Simple mean	1.38	2.11	1.90				100	153	138	
Average deviation[a]										
Dollars	0.25	0.35	0.28							
Percent of mean	18	17	15							
Highest	1.78	3.18	2.41							
Lowest	0.90	1.38	1.29							
Highest ÷ lowest	2.0	2.3	1.9							

For explanation, see Appendix Table A-3.
[a] Computed from simple mean.

69

TABLE 23

Daily Wages for 13 Manufacturing Industries and for the Building Trades, with Relative Wages and Rankings; Aldrich Report, 1860-1890

	Dollars				Rank of Dollar Wages				Relative Wages				Rank of Wage Increase	
	1860	1870	1880	1890	1860	1870	1880	1890	1860	1870	1880	1890	1860-1880	1860-1890
Stone	1.53	2.92	2.13	3.04	1	1	2	1	100	191	139	199	8	3
Metals	1.47	2.24	1.91	2.15	2	4	4	3	100	152	130	146	11	10
Agricultural implements	1.37	2.05	1.56	1.77	3	5	8	7	100	150	114	129	12	11
Leather	1.27	1.94	1.67	1.61	4	6	7	9	100	153	131	127	10	12
Carriages and wagons	1.22	2.27	2.44	2.44	5	3	1	2	100	186	200	200	1	2
White lead	1.19	1.81	1.32	1.49	6	7	10	10	100	152	111	125	13	13
Illuminating gas	1.18	2.38	1.92	2.06	7	2	3	5	100	202	163	175	4	4
Books and newspapers	1.12	1.80	1.52	1.75	8	8	9	8	100	161	136	156	9	8
Ale, beer, porter	1.05	1.66	1.72	2.11	9	10	5	4	100	158	164	201	2	1
Lumber	1.04	1.67	1.71	1.82	10	9	6	6	100	161	164	175	3	5
Paper	0.87	1.21	1.26	1.31	11	13	11	12	100	139	145	151	7	9
Woolen goods	0.82	1.30	1.26	1.38	12	12	12	11	100	159	154	168	5	6
Cotton goods	0.79	1.36	1.16	1.27	13	11	13	13	100	172	147	161	6	7
Median[a]	1.18	1.81	1.67	1.77					100	153	142	150		
Weighted mean	1.19	1.79	1.54	1.75					100	150	129	147		
Simple mean	1.15	1.89	1.66	1.86					100	164	144	162		
Average deviation[b]														
Dollars	0.18	0.38	0.29	0.38										
Percent of mean	16	20	17	20										
Highest	1.53	2.92	2.44	3.04										
Lowest	0.79	1.21	1.16	1.27										
Highest ÷ lowest	1.9	2.4	2.1	2.4										
Building trades	1.69	3.06	2.14	2.68		–	–	–	100	181	127	159		

For explanation, see Appendix Table A-1.
a In the case of the relative wages the median was computed directly from the relative wages.
b Computed from simple mean.

and almost double in 1880 (Table 22);[1] the range for the middle half of the distribution was 50 cents per day in 1860 and 70 cents in 1880. Among the 13 manufacturing industries from the Aldrich Report, the highest-wage industry paid almost double the lowest in 1860, slightly more than double in 1880, and somewhat more than double in 1890 (Table 23). In both sets the lowest-paying tended throughout to be cotton goods; but the highest-paying varied: in the Weeks data, it was foundries in 1860, tin and sheet iron in 1870, and saw and planing mills in 1880; in the Aldrich data it was stone in 1860, 1870, and 1890, carriages and wagons in 1880.

Some check on these results can be had from the decennial census of manufacturing, which reports the number of employees and total wages during the years ended May 31, 1860, 1870, 1880, and 1890, by selecting 17 industries most nearly the same as those analyzed from the Weeks Report (Table 24). Average annual earnings per worker have been computed for approximately comparable industry classifications in each decennial year. Such averages depend on the accuracy of the census enumerations and industry classifications (firms turning out more than one kind of product are classified on the basis of their principal product). They are also subject to fluctuations from industry to industry and over time—because of changes in the distribution of employed among the different wage categories and variations in the days worked by the average earner during the year. Considerable disparity might well be expected, therefore, between the industry behavior of Weeks-Aldrich daily wages and of census annual earnings. On the other hand, the census undertook to reach every establishment of more than negligible size in each industry, and if the pattern was reasonably similar to that of the wage data, this would be a heartening indication that our small samples of Weeks-Aldrich firms have some value. Census data have the advantage, moreover, of covering decennially the full period 1860-90.

The earnings differentials shown by the census were slightly greater—the highest earnings having been a little more than double the lowest during 1860-80, and a little less than triple in 1890. On the whole, the high-wage industries had high annual earnings, and the low-wage industries low earnings. But the rankings were a long way from being exactly the same. For example, saw and planing mills and flour and grist mills were fairly high in wage rates but

[1] Gerhard Bry has objected to my use of the ratio of highest to lowest wage on the ground that it is unstable. I have retained it because of its simplicity and because it does not appear to be very unstable in this study. However, I have not placed undue weight upon it in my analysis of wage behavior.

TABLE 24

Average Annual Earnings of Wage Earners in 17 Manufacturing Industries, with Relative Earnings and Rankings; Census, 1860-1890

	Dollars				Rank of Dollar Earnings				Relative Earnings				Rank of Earnings Increases	
	1860	1870	1880	1890	1860	1870	1880	1890	1860	1870	1880	1890	1860-1880	1860-1890
Foundry and machine shop products	392	573	454	559	1	1	2	2	100	146	116	143	9	11
Carriages and wagons	362	387	411	508	2	10	4	4	100	107	114	140	10	12
Liquors, malt	358	543	465	685	3	3	1	1	100	152	130	191	2	1
Agricultural implements	342	481	388	466	4	5	7	7	100	141	113	136	11	13
Iron and steel, rolling mills	341	570	436	542	5	2	3	3	100	167	128	159	5	4
Liquors, distilled	324	394	410	467	6	9	5	6	100	122	127	144	6	9
Glass	322	496	378	465	7	4	8	8	100	154	117	144	8	10
Cigars and cigarettes	317	349	346	419	8	11	9	11	100	110	109	132	12	14
Flour and grist mills	315	249	298	383	9	15	13	12	100	79	95	122	16a	16
Leather	312	411	403	501	10	7	6	5	100	132	129	161	3	3
Lumber, sawed	298	267	215	289	11	14	15	15	100	90	72	97	17a	17a
Iron and steel, blast furnaces	285	453	304	437	12	6	11	9	100	159	107	153	13	6
Paper	254	398	349	427	13	8	10	10	100	157	137	168	1	2
Woolen goods	232	336	299	340	14	12	12	13	100	145	129	147	4	7
Cotton goods	196	288	244	302	15	13	14	14	100	147	124	154	7	5
Brick and tile	195	249	203	285	16	16	16	16	100	128	104	146	14	8
Chewing tobacco	189	239	196	233	17	17	17	17	100	126	104	123	15	15

Table 24, concluded

	Dollars				Rank of Dollar Earnings				Relative Earnings				Rank of Earnings Increases	
	1860	1870	1880	1890	1860	1870	1880	1890	1860	1870	1880	1890	1860-1880	1860-1890
The 17 manufacturing industries														
Median	315	394	346	437					100	125	110	139		
Weighted mean	277	363	325	412					100	131	117	149		
Simple mean	296	393	341	430					100	133	115	145		
Average deviation[b]														
Dollars	50	92	74	89										
Percent of mean	17	23	22	21										
Highest	392	573	465	685										
Lowest	189	239	196	233										
Highest ÷ lowest	2.1	2.4	2.4	2.9										
All manufacturing industries[c]														
Weighted Mean	297	384	345	427					100	129	116	144		

Source: Censuses of Manufactures, 1860-1890; see also Appendix Table A-9. The coverage of these industries in each year is as nearly the same as it was possible to make it.

[a] Decrease.
[b] Computed from simple mean.
[c] See Table 14.

somewhat lower in annual earnings, presumably because of fewer days worked during the year.

Industries with above-average wage levels in 1860 tended to increase less than the average. Of the nine Weeks-reported industries with above-median daily wages in 1860, six had smaller-than-median increases by 1880. Of the six Aldrich-reported industries with above-median wages in 1860, five had below-median wage increases by 1880 and four by 1890. So also with census annual earnings (Tables 22-24). These tendencies support Mitchell's findings for 1860-80: "All of the time, the highest group [males earning $2.50 or more] had the lowest relative wages."[2]

Nevertheless, there was no significant tendency for wage or earnings differentials to widen or narrow over the twenty- or thirty-year period. In general, the high-wage and -earnings industries of 1860 were also the high-wage and -earnings industries in 1880 and 1890, despite the fact that several industries shifted position rather distinctly. Three Aldrich Report industries had identical ranks in 1860 and 1890 (stone, 1; books and newspapers, 8; cotton goods, 13); three others changed one place in rank (metals, paper, and woolen goods); two others changed two or three places. Seven of the Weeks Report industries occupied the same rank in 1880 as in 1860 (hardware, tanneries, iron blast furnaces, paper, brickmaking, woolen goods, cotton goods); five others changed one to three places. Three census-reported industries held the same earnings rank in 1860 and 1890 (distilled liquors, 6; brick and tile, 16; and chewing tobacco, 17); four changed rank by one place; eight others changed rank three places or less.

Moreover, all of the three sources indicate a fairly stable average deviation of wages among industries—about 20 percent of the mean. The Aldrich and census data show a slight rise in deviation from 1860 to 1890, the Weeks data a slight decline from 1860 to 1880, both changes too small to suggest significant trends in inter-industry wage differentials for the industries and periods covered.[3]

Some industries may be primarily in high- or low-wage areas, or may be dominated by high- or low-paid occupations. Have these differences been the cause of inter-industry differentials? The effects of geographical and occupational composition will be examined later; we test here whether industry differentials persist *within* the same regions and occupations.

[2] *Gold, Prices, and Wages*, p. 167.
[3] The relative interquartile range was the same in 1880 as in 1860 in the Weeks and the census data. In the census data it shows a considerable drop from 1880 to 1890; in the Aldrich data, a small drop from 1860 to 1890.

One test is to compare average deviations of daily wages among ten industries from the Weeks Report for the East and West. If industry differentials are partly due to geographical location, the dispersion should be smaller for the same industries within the East or the West, than within the United States as a whole. But nothing like this is observable in Table 25. In 1860 the relative average

TABLE 25

Average Deviation of Daily Wages among Ten Industries Having Data
Separately for East and West; Weeks Report, 1860 and 1880

	United States		East		West	
	1860	1880	1860	1880	1860	1880
Median	1.31	1.85	1.34	1.76	1.58	1.98
Simple mean	1.38	1.82	1.36	1.81	1.58	2.15
Average deviation[a]						
Dollars	0.23	0.26	0.22	0.28	0.24	0.47
Percent of mean	17	14	16	16	15	22
Highest	1.54	2.41	1.82	2.41	2.33	3.12
Lowest	0.96	1.32	0.94	1.31	1.04	1.25
Highest ÷ lowest	1.6	1.8	1.9	1.8	2.2	2.5

The industries were carriages and wagons, cigars and tobacco, clothing, furniture, iron blast furnaces, machinery, paper, saw and planing mills, stove foundries, and woolens; see Appendix Table A-3.
[a] Computed from the simple mean.

deviation was slightly smaller in the East and West than in the nation as a whole; but in 1880 it was somewhat larger, and the ratios of highest- to lowest-wage industry were even a bit higher in the West than in the United States for the same industries.

A second test is to compute the same deviation of annual earnings among industries with census data for five major regions of the United States: New England, Middle Atlantic including Delaware and Maryland, Central states including Kentucky, the South, and Pacific Coast states (Table 26). Again, the within-region deviations were, if anything, higher than those within the United States as a whole. The differences were not great; for most regions and for the United States, the inter-industry deviations were roughly 20 percent; though for the South and Far West, they were 25 to 31 percent. The ratio of the highest- to lowest-earnings industries also tended to be larger in the separate regions. The paradoxically greater deviations within the regions are undoubtedly due to the greater element of

TABLE 26

Average Deviation of Annual Earnings among 17 Manufacturing Industries, in the
United States and Five Major Regions; Census, 1860 and 1890

	United States		New England		Middle Atlantic[a]		South[a]		Central[b]		Pacific	
	1860	1890	1860	1890	1860	1890	1860	1890	1860	1890	1860	1890
Median	315	437	321	487	309	434	253	315	305	458	838	620
Simple mean	296	430	320	464	296	449	270	337	298	423	796	567
Average deviation[c]												
Dollars	50	89	66	92	49	94	67	102	48	92	224	174
Percent of mean	17	21	21	20	17	21	25	30	16	22	28	31
Highest	392	685	464	745	437	755	408	581	391	614	1,667	846
Lowest	189	233	146	281	188	266	146	170	185	249	357	246
Highest ÷ lowest	2.1	2.9	3.2	2.7	2.3	2.8	2.8	3.4	2.1	2.5	4.7	3.4

Source: Censuses of Manufactures, 1860-1890; and see Appendix Table A-9. The coverage of these industries in each year is as nearly the same as it was possible to make it.

[a] Maryland, Delaware, and West Virginia included in Middle Atlantic region.

[b] Kentucky included in Central region.

[c] Computed from simple mean.

randomness among a smaller number of establishments and workers. In any case, regional location does not seem to be an important source of inter-industry wage differentials.

Were inter-industry differentials traceable to occupational composition? Data of the First Annual Report for 1885 have been classified into hourly wage rates of teamsters in 27 industries, carpenters in 22 industries, and so on, for seven occupations occurring in eight or more industries (Table 27). The report offers enough wage data by occupation, industry, and area, to minimize the element of randomness arising out of differences in the wage practices of different establishments.

The average deviation for the same occupations occurring in different industries ranged from 17 percent for teamsters to 8 percent for patternmakers, with a mean of about 12 percent for the seven occupations—compared with 20 percent for the average deviation among the 37 industries computed without regard to occupational composition. Similar results were found for occupations and industries located in a single state—New York, where observations were obtainable for a substantial number of industries.

76

TABLE 27

Average Deviation of Hourly Wages among Different Manufacturing
Industries for the Same Selected Occupations, First Annual Report, 1885
(wage data in dollars)

	All States[a]				New York State			
		Mean	Average Deviation			Mean	Average Deviation	
	Indus-tries	Hourly Wage[b]	Dollars	Percent of Mean	Indus-tries	Hourly Wage[c]	Dollars	Percent of Mean
Teamsters	27	0.157	0.026	17	11	0.159	0.025	15
Carpenters	22	0.201	0.028	14	9	0.194	0.026	13
Patternmakers	8	0.252	0.021	8	d	d	d	d
Molders	8	0.272	0.030	11	4	0.291	0.036	12
Blacksmiths	18	0.222	0.023	10	6	0.202	0.020	10
Machinists	29	0.223	0.029	13	11	0.211	0.036	17
Laborers	34	0.134	0.016	12	11	0.120	0.017	14
Simple mean								
Six occupations[e]				13				14
The seven occu-pations				12				

[a] Not every state is represented by wage quotations.

[b] Weighted by employment.

[c] Simple mean.

[d] Less than four industries represented.

[e] Excluding patternmakers.

What part of the wage increase during 1860-90 was due to increase in wages within industries, and what part to the shift of workers from low-wage to high-wage industries? The answer can be given only from wage data that represent a substantial cross section of the nation's employment. This, the Weeks–Bulletin 18 data and the Aldrich data do not individually provide. In the former, the changing composition of employment had a slight lifting effect on average wages (at least for 1890) and in the latter a substantial depressing effect. A more reliable indication is supplied by the annual earnings data for 17 selected industries, which employed over 40 percent of the nation's factory production workers throughout the period. These data suggest that about one-fifth of the rise in average annual earnings was due to the shift of employment from lower- to higher-earnings industries (Table 28).

The relatively expanding industries were mainly those producing hard goods—durable consumer and producers' products. It was the hard goods industries that were mainly the high-wage and high-earnings industries in both 1860 and 1890, and their aggregate share grew from less than half to more than two-thirds of the total

TABLE 28

Effect of Fixed versus Current Employment Weights on Wages or Earnings
Indexes, 1860-1890

	1860	1870	1880	1890
Weeks–Bulletin 18 Report:[a] Daily wages, 17 industries, weighted by industrial composition of employment in:				
Current year	100	146	134	150[a]
1860	100	148	137	147[a]
Effect of changing employment	–	−2	−3	+3[a]
Aldrich Report: Daily wages, 13 industries, weighted by industrial composition of employment in:				
Current year	100	151	130	148
1860	100	162	142	160
Effect of changing employment	–	−11	−12	−12
Census: Annual earnings, 17 industries, weighted by industrial composition of employment in:				
Current year	100	131	117	149
1860	100	128	110	139
Effect of changing employment	–	+3	+7	+10

The employment weights were employment as reported by the censuses of manufactures for those states from which wage data were reported. For all states in which wage data were reported for any industry, requisite employment data by industry were available. In the Aldrich wage data, only New England and the Middle Atlantic states plus Maryland and Ohio were represented. In the census annual earnings data, all states were represented both in the earnings and the employment weights.

[a] Data by industry in the Weeks Report cover only 1860-80. The wage index for 1880-90 had to be extended by means of wages in ten manufacturing occupations reported from twelve large cities by the Department of Labor in its Bulletin 18. These wage data were weighted by occupational employment data for the states in which the cities were located, from the censuses of manufactures. In this table in 1890 wages were weighted by the occupational distribution of employment in 1880. The index of change from 1880 to 1890 was then linked to the index of change from 1860 to 1880.

employed by the 17 industries. All of the eight hard goods industries, except iron and steel blast furnaces, expanded their shares of employment; all of the nine soft goods industries, except malt liquors and cigars and cigarettes, contracted their shares. The biggest relative expansion of employment occurred for the high-wage basic metals and metal products; the biggest relative contraction for the low-wage cotton and woolen textiles.

Other data might yield other results, but we conclude from this section: that substantial wage variation did exist among different

industries, the highest-wage industry having paid roughly double the lowest, and the average deviation in wage rates among the different industries having been roughly 20 percent of the mean wage; that this variation was not due to regional location of the various industries; that perhaps a third of it could have been due to differences in occupation-mix; that the rankings of industries in the national wage or earnings scale tended to maintain themselves fairly well throughout the thirty years, with a few instances, however, of an industry drastically altering its pay scale relative to other industries; and that there was no significant tendency for the wage dispersion among industries either to widen or to narrow over the three decades; and finally that about one-fifth of the rise in wages and earnings may have been due to the relative shift of workers from the low-wage soft goods industries—especially textiles—to the high-wage hard goods industries—especially basic metals and metal products.

Wages by Region

The regional structure of wages is most effectively analyzed by industries and occupations.

TABLE 29

Weighted Average Daily Wage-Rates in Manufacturing Industries for the East, West, and South; Weeks Report, 1860-1880

	1860	1865	1870	1875	1880
	CURRENT DOLLARS				
East	1.23	1.71	1.84	1.78	1.68
West	1.74	2.39	2.42	2.32	2.30
South	0.99	1.07	1.07	1.15	1.17
	PERCENTAGE OF WAGES IN THE EAST				
West	141	139	132	130	137
South	80	62	58	65	70

For explanation, see Appendix Table A-3.

Differentials in daily wages by industry over time may be computed from data of the Weeks Report, covering three major regions (Table 29). Inter-regional differences were substantial—with wage levels highest in the West, intermediate in the East, and lowest in the South. The alignments persisted over the twenty years to 1880, but southern and western wages rose less rapidly, so that southern

wages fell relatively further below eastern wages, and western wages may have fallen somewhat toward eastern wages.

The 18 industries in the Week Report are not all represented in each region. What are the results if we compare only industries with representation in both East and West or East and South?

Ten industries offer wage data for both East and West; though the number of establishments in one or the other region is usually very small, and even in the same industry firms may produce somewhat different products in different regions.

TABLE 30

Percentage Ratio of Daily Wages in Western and Southern Establishments to Those in Eastern Establishments; Identical Industries, Weeks Report, 1860-1880

Industry	1860	1865	1870	1875	1880
WESTERN WAGES IN PERCENT OF EASTERN					
Clothing	240	253	256	244	224
Woolen goods.	134	135	119	128	134
Furniture	129	93	94	85	84
Iron blast furnaces, rolling mills, etc.	127	128	130	130	127
Cigars and tobacco	119	198	198	168	185
Carriages and wagons	108	71	75	66	72
Machinery	104	102	102	81	93
Paper	88	98	59	60	73
Stove foundries	88	112	78	73	104
Saw and planing mills	84	145	132	152	155
Median percentage	114	120	111	107	116
SOUTHERN WAGES IN PERCENT OF EASTERN					
Cigars and tobacco	61	57	51	50	54
Paper	71	38	53	58	57
Saw and planing mills	65	86	79	84	84
Median ratio	65	57	53	58	57

For explanation, see Appendix Table A-3.

The wage differentials varied widely among these industries (Table 30). Wages were higher in the West for most industries in most years, but the pattern was mixed. The ratio of western to eastern wages ranged in 1860 from as high as 2.40 for clothing to 0.84 for saw mills. In four industries wages were consistently higher in the West than in the East throughout 1860-80, but in the remaining six,

they were often lower—consistently lower in paper and lower in all but one or two quinquennial dates in foundries and furniture. The median of the ten industries indicates a slight rise in the ratio of western to eastern wages, though the entire change occurred during the Civil War years, and no significant trend was observable after 1865.

Only three industries had establishments in the South, but each provided wage comparisons in all three regions. These were cigars and tobacco, paper, and saw and planing mills. In all three, wages were consistently lower in the South, and in two—cigars and tobacco and saw and planing mills—lower relative to the West than to the East. Wages in the South were further below the other two regions in 1880 than in 1860, but almost the entire widening occurred between the quinquennial years 1860 and 1865; thereafter the South-East differential remained roughly constant. It would appear from our very small sample that wages tended to be lower in the East than in the West and still lower in the South, and that these differentials tended to widen during the Civil War, but not between the end of the Civil War and 1880.

Thus far, the regional wage comparisons cover only 1860-80. For 1880-90, we have two separate surveys covering large numbers of workers and establishments: the *First Annual Report of the Commissioner of Labor* for 1885 and the Dewey-Census Report for 1890.[4]

For 1885 daily wages were higher in the West and lower in the South, than in the East; but the differences were much smaller than those indicated by the Weeks Report for the earlier years: the First Annual Report shows western wages to have been 6 percent above eastern in thirteen industries with establishments in both regions, and southern wages 19 percent below eastern in five industries (Table 31). In 1890, the Dewey Report on hourly wages indicated still smaller differentials—whether for industries common to those in the First Annual Report or for a mixed list. Southern establishments paid wages equal to or higher than eastern in three industries. Only 7 out of 15 industries paid higher wages in the West than in the East.

Are we to conclude that the regional wage differentials were very high and unchanging in the years up to and including 1880, but then fell very sharply in 1885 and again, mildly, in 1890? Such a conclusion would surely be unsafe.

The Weeks Report had the virtue of enabling us to compare wages

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[4] The Dewey Report was actually made in connection with the 1900 census, but the establishments were asked to report their wages for 1890 also.

for the same firms, occupations, and industries over time, but it was restricted to a small number of establishments. This small sample has several pitfalls. First, wages may vary widely among establishments within the same industry. Second, industries are broad classifications; a manufacturer of tobacco products in one region may produce plug tobacco, in another mainly fine-cut. Third, the occupations with wage data varied from one establishment to another as from accidents of record-keeping. The First Annual and the Dewey Reports, covering hundreds of establishments and

TABLE 31

Percentage Ratio of Wages in Manufacturing Industries in Southern and Western States to Those in Eastern States, 1885 and 1890; First Annual and Dewey Reports

	First Annual Report, Daily Wages 1885	Dewey Report, Hourly Wages 1890
WESTERN WAGES IN PERCENT OF EASTERN		
Leather	115	118
Paper	114	88
Lumber	106	100
Glass	105	111
Agricultural implements	105	107
Foundries and metal working	100	98
Woolen goods	88	117
Carriages and wagons	81	70
Median percentage: the eight industries	105	104
Median percentage: mixed list	106[a]	100[b]
SOUTHERN WAGES IN PERCENT OF EASTERN		
Cotton goods	81	95
Metals	87	100
Woolen goods	67	87
Median percentage: the three industries	81	95
Median percentage: mixed list	81[c]	90[d]

For explanation, see Chapter 2 and Appendix Tables A-7 and A-8.

[a] In addition to the above eight industries: boots and shoes 107 percent, liquors and beverages 133, machines and machinery 122, tobacco 84, brick 109.

[b] In addition to the above eight: clothing 207, cotton goods 98, breweries 80, iron and steel 107, flour mills 116, furniture 83, printing 73.

[c] In addition to the above three: tobacco 58, and lumber 107.

[d] In addition to the above three: clothing 99, glass 127, leather 79, breweries 93, lumber 80, foundries and metal working 100, flour mills 50, furniture 55, printing 67.

more than a hundred thousand workers, are less subject to the kind of variation that occurs if an abnormally high- or low-wage firm happens to represent an industry in a state or region. But all that these various data entitle us to say is, that wages in most industries were probably higher in the West and lower in the South than in the East throughout 1860-90, with the differentials varying among industries and over time, but with no net trend apparent.

This regional behavior of wage rates was broadly confirmed by average annual earnings (Table 32). Compared with the Middle Atlantic states, earnings were about the same in the Central (Middle West) states, 10-30 percent lower in the South, and much higher in the Pacific states. Again, the differentials varied widely among industries, with several having higher earnings in the South than in the Middle Atlantic states in certain years though only in the cigar and cigarette industry was this true in both initial and terminal years.[5]

Annual earnings are the only data which cover the whole nation for the entire period. In all the regions outside the Middle Atlantic, earnings tended to decline in relation to those in the Middle Atlantic, the decline being substantial in the South and enormous in the Far West (where earnings in 1860 had been extremely high). Some industries moved counter to this relative trend in all regions but in the great majority of industries earnings moved down compared with the East. For the United States as a whole, only saw mills had absolute earnings that were not higher in 1890 than in 1860. In the South, flour and grist mills, paper, and chewing tobacco had lower earnings in 1890; but eleven of the twelve Pacific Coast industries paid lower absolute dollar earnings in 1890 than thirty years before.

These declines in relative and even in absolute earnings outside the Middle Atlantic region brought the average annual earnings for New England, the Central West, and the Pacific Coast closer to those for the Middle Atlantic; but the decline for the South depressed its earnings relatively further below eastern earnings in 1890. The net effect may have been that average annual earnings showed, in general, less interstate dispersion in 1890 than in 1860 (Table 33). Thirteen industries manifested declines in relative average deviations among states, and the median declined from 21 to 17 percent. The decline, however, occurred in the last decade; most of the industries had a higher dispersion in 1880 than in 1860. Thus the census earnings confirm the Weeks wages, in showing an increase in

[5] R. A. Lester has found that the North-South wage differential varied widely in recent years. "A Range Theory of Wage Differentials," *Industrial and Labor Relations Review*, July 1952, p. 484.

TABLE 32

Percentage Ratio of Average Annual Earnings in Four Major Regions to Those in the Middle Atlantic Region, for 17 Manufacturing Industries; Census, 1860-1890

Industry	New England				South[a]				Central[a]				Pacific			
	1860	1870	1880	1890	1860	1870	1880	1890	1860	1870	1880	1890	1860	1870	1880	1890
Liquors, malt	123	85	98	99	118	75	85	77	101	77	94	81	258	92	97	112
Iron and steel, rolling mills	120	94	89	90	84	104	78	74	117	108	104	104	–	–	–	–
Leather	118	119	109	108	84	37	60	63	101	81	109	107	216	94	141	131
Carriages and wagons	113	123	115	115	97	75	73	81	98	88	94	91	266	172	151	137
Foundries and machine shops	109	98	104	99	112	104	80	88	104	92	99	92	458	207	144	141
Cotton goods	109	110	109	102	78	68	70	61	103	95	95	78	–	–	–	–
Lumber, sawed	108	99	96	108	90	84	90	101	103	101	125	106	261	163	178	172
Cigars and cigarettes	107	125	111	120	110	145	69	118	93	99	95	101	297	85	74	101
Liquors, distilled	106	135	101	91	53	52	58	42	74	119	100	84	191	113	116	55
Paper	106	106	107	103	145	100	82	74	112	98	110	94	149	167	161	145
Agricultural implements	106	94	110	103	102	67	72	79	113	101	118	97	263	127	137	159
Iron and steel, blast furnaces	106	154	99	112	75	76	68	92	112	99	84	111	–	–	–	–
Woolen goods	103	109	106	99	76	57	57	72	108	82	78	82	237	123	133	73
Glass	95	86	107	87	92	30	87	82	92	125	99	98	–	–	–	–
Flour and grist mills	93	97	112	107	78	49	54	50	109	130	117	104	281	221	179	151
Brick and tile	71	81	83	89	86	63	62	72	90	70	84	84	182	69	106	118
Chewing and smoking tobacco	–	–	–	–	75	52	43	50	89	117	85	91	–	–	–	–
Median percentage	106	103	107	103	86	68	70	74	103	99	99	94	262	125	139	134
Simple mean	106	108	104	102	91	73	70	75	101	99	99	94	255	138	136	125
Number of industries with:																
Decrease since 1860	–	6	7	10	–	14	15	14	–	12	10	11		11	10	12
Increase since 1860	–	9	8	6	–	3	1	3	–	5	7	0		1	2	0
No change	–	1	1	0	–	0	1	0	–	0	0	0		0	0	0

[a] Maryland, Delaware, and West Virginia included in Middle Atlantic region; Kentucky in Central region.

Source: Appendix Table A-9.

TABLE 33

Average Deviation of Average Annual Earnings of Employees in 17 Manufacturing Industries, among States: United States and Five Major Regions; Census, 1860-1890

(percent)

Industry	United States				New England		Middle Atlantic[a]		South[a]		Central[a]		Pacific	
	1860	1870	1880	1890	1860	1890	1860	1890	1860	1890	1860	1890	1860	1890
Brick and tile	39.9	26.7	25.1	28.1	13.4	18.5	35.9	7.0	26.0	24.8	50.8	15.9	12.8	10.5
Liquors, distilled	38.3	38.8	32.6	35.2	15.0	16.4	25.1	21.8	31.0	27.1	11.3	27.8		
Foundries and machine shops	32.4	20.9	22.6	13.6	11.6	5.6	7.1	7.0	28.1	12.1	7.5	7.9	13.3	3.5
Flour and grist mills	27.9	57.4	31.5	30.8	13.3	9.8	4.0	13.4	13.2	27.0	11.5	8.9	13.6	8.4
Cigars and cigarettes	24.6	28.4	26.5	19.1	9.8	10.1	35.5	10.6	9.6	19.5	20.7	7.6		
Woolen goods	24.1	26.2	30.7	20.2	8.7	10.5	2.1	8.9	27.4	28.1	8.3	10.2	1.8	39.8
Lumber, sawed	22.3	30.2	26.9	21.8	3.7	12.5	4.4	13.5	17.0	18.6	8.0	13.4	15.4	9.4
Leather	22.1	35.5	28.5	19.8	7.3	11.6	7.6	11.9	8.9	28.6	11.5	6.1	5.2	3.3
Chewing and smoking tobacco	21.1	44.3	53.5	51.1			16.8	9.8	19.6	62.4	11.1	26.7		
Iron and steel, rolling mills	21.1	20.7	20.1	12.7	8.2	13.9	8.9	10.0	25.9	11.5	19.9	10.1		
Carriages and wagons	20.4	32.2	30.6	17.4	12.7	10.1	4.0	8.6	19.1	15.2	6.7	9.0	22.6	8.6
Agricultural implements	19.3	26.6	22.7	14.8	8.3	9.6	8.7	6.9	15.0	17.8	8.2	11.5	12.8	17.0
Paper	18.3	19.5	22.6	11.9	6.9	3.6	8.3	6.3	36.3	15.9	12.9	8.7		
Liquors, malt	17.4	25.4	12.2	17.2	6.5	7.1	4.2	9.4	18.8	12.2	8.0	8.8		
Cotton goods	14.3	17.0	21.7	16.6	3.4	4.3	5.3	10.0	13.7	7.2	13.9	10.4		
Iron and steel, blast furnaces	14.1	39.3	32.2	16.2			8.1	13.7	18.7	15.0	8.1	13.5		
Glass	7.7	31.8	15.8	7.1			4.9	7.3			13.0	5.2		
Median deviation	21.1	28.4	26.5	17.4	8.5	10.1	7.6	9.8	18.8	18.2	11.3	10.1	13.1	9.0
Number of industries with:														
Decrease since 1860	–	3	5	13	–	4	–	7	–	9	–	8	–	6
Increase since 1860	–	14	12	4	–	10	–	10	–	7	–	9	–	2
No change	–	0	0	0	–	0	–	0	–	0	–	0	–	0

Source: Censuses of Manufactures, 1860-1890; see also Appendix Table A-9.

[a] Maryland, Delaware, and West Virginia included in the Middle Atlantic region; Kentucky in the Central region.

85

geographical dispersion of earnings by 1880, in the face of a net decrease between 1860 and 1890. In addition to a net decline in the interstate dispersion of earnings within the United States as a whole, there were also net declines within the southern, central, and Pacific regions where the states seemed to be somewhat closer, in their average earnings, in 1890 than in 1860.

Regional disparities in wages and earnings have been analyzed by industry. But the same industry may conceivably employ different combinations of occupations in different regions; say, more unskilled workers in the South and more skilled workers in the East. We now compare wages and earnings in different states and regions for the same occupation.

First we analyze the occupational wages between 1870 and 1890 reported by the Department of Labor in its Bulletin 18. This report gathered daily wages for ten occupations more or less identifiable with manufacturing, though found in other industries, and four occupations identifiable with the building trades, also found in other industries. All except laborers were skilled and all were from large cities—two in the South, five each in the East and West. None of the occupational wages were identified by establishments, but the continuity of the quotations suggests that the same occupations were reporting from one year to the next. The number of establishments was probably small.

For "manufacturing" occupations, wage rates tended actually to be higher in southern than in eastern or western cities (Table 34). Median wages for the manufacturing occupations were higher in the two southern cities than in the East and West in 1870, 1875, and 1880, and were lower only in 1885 and 1890. Wages were higher in all quinquennial years for boilermakers, cabinetmakers, and iron molders; in several quinquennial years, for compositors and stonecutters; in 1875 and 1880, even for the unskilled category laborers. For building occupations, however, southern wages were below the other regions by 10 to 20 percent in all quinquennial years.

The comparison between eastern and western wages was similarly mixed. In the manufacturing occupations, wages tended to average a few percent higher in the West (as we have already discovered from our industry data). But in two of the four building occupations, they were lower in the West. Again, in both South and West daily wages tended to decline relatively to those in the East. Wages were relatively lower in 1890 than in 1870 in seven of the ten manufacturing occupations and in three of the four building occupations; in several remaining occupations the rise was either inappreciable or nonexistent.

We have compared regional differentials of industry wages without regard to occupations and regional differentials of occupational wages without regard to industry. We now compare regional wage differentials for the same occupations in the same industries, relying on the First Annual Report for 1885 and the Dewey Report for 1890.

TABLE 34

Percentage Ratio of Daily Wages in Southern and Western Establishments to Those in Eastern Establishments for the Same Occupation: 10 Manufacturing and Four Building Occupations, Bulletin 18, 1870-1890

	Southern					Western				
	1870	1875	1880	1885	1890	1870	1875	1880	1885	1890
Manufacturing occupations										
Blacksmiths	104	94	100	98	96	107	114	107	106	104
Boilermakers	159	164	159	115	110	128	129	125	120	110
Cabinetmakers	143	152	137	128	118	102	98	108	85	90
Compositors	110	112	103	98	99	108	116	111	104	104
Iron molders	116	132	119	115	116	108	114	111	108	107
Laborers	85	108	112	97	97	99	104	105	103	102
Machinists	93	103	100	86	85	118	112	110	108	108
Patternmakers	139	129	107	105	93	101	97	98	98	90
Stonecutters	100	98	114	90	85	85	94	104	96	109
Teamsters	87	93	88	87	87	100	99	100	98	100
Median percentage	107	110	110	98	97	105	108	108	104	104
Building occupations										
Bricklayers and masons	86	84	109	93	86	96	110	126	119	112
Carpenters and joiners	87	96	83	81	81	92	97	88	88	84
Painters	80	69	75	81	63	87	87	85	86	81
Plumbers	89	96	85	71	70	107	108	107	102	103
Median percentage	87	90	84	81	76	94	103	98	95	94

For explanation, see Appendix Table A-4.

For 1885 we examine wages in selected occupations in cotton goods, woolen goods, and metal industries—using those occupations and industries with wages of substantial numbers of workers and establishments recorded in at least three major regions (Table 35). Southern establishments paid lower wages than Middle Atlantic establishments in every one of the cotton-goods and woolen-goods occupations and in five of the seven metals occupations. Again the differentials varied widely. Compared to the Middle Atlantic, southern wages ranged in cotton goods from 51 percent for teamsters to 94 percent for male weavers, in woolen goods from 35 percent for

loom fixers to 68 percent for mule spinners, and in metals from 75 percent for teamsters to 121 percent for machinists.

The above comparisons are for occupations without regard to age or sex of the workers. However, since most occupations are engaged in more or less exclusively by workers of the same sex, this limitation is not serious. Nevertheless we can check our results by comparing adult-male wages in certain occupations in different regions (Table 36). In 1885, adult males invariably received lower wages in the South than in the East or West, and the same may be

TABLE 35

Percentage Ratio of Average Hourly Wages in Selected Occupations and Industries of Major Regions to Those in Middle Atlantic States, First Annual Report, 1885

	New England	South	Central	Pacific
Cotton goods				
Teamsters	71	51		
Carpenters	107	75		
Machinists	75	83		
Weavers, male	115	94		
Weavers, female	103	77		
Loom fixers	95	79		
Mule spinners	77			
Laborers	97	62		
Median percentage	96	77		
Woolen goods				
Teamsters	85			
Carpenters	109		105	
Machinists	77		98	
Weavers, male	95		101	111
Weavers, female	105	59	99	
Loom fixers	79	35	78	85
Mule spinners	82	68	78	
Laborers	88		109	88
Median percentage	87	59	99	88
Metals				
Teamsters		75	104	
Carpenters		96	114	171
Machinists	98	121	121	155
Patternmakers	98	98	102	
Molders	86	101	82	120
Blacksmiths	111	86	127	171
Laborers	102	95	111	
Median percentage	98	96	111	163

For explanation, see Chapter 2 above.

said for adult females. Weavers in cotton goods and packers in tobacco offer separate comparisons for males and females; in each the southern wages were below eastern wages. Western wages were below the East for three of the five metal-goods occupations, for male and female weavers in woolen goods, and for female tobacco

TABLE 36

Daily Wages of Workers of the Same Sex, in the Same Occupation and Industry: Selected Data for Southern, Eastern, and Western States; First Annual Report, 1885

	Dollars per Day			Percentage of Eastern Wages	
	South	East	West	South	West
ADULT MALES					
Cotton goods					
Weavers	0.86	1.10		78	–
Metals and metallic goods					
Heaters	3.50	4.03	4.34	87	107
Heaters' helpers	1.50	1.87	1.71	80	91
Laborers	0.92	1.19	1.17	77	98
Puddlers	2.36	3.24	3.52	73	108
Puddler's helpers	1.31	1.92	1.70	68	88
Median	1.50	1.92	1.71	77	98
Tobacco					
Foremen	2.09		2.86	–	
Laborers	0.84	1.13	1.33	74	118
Lumpmakers	1.18	1.67	1.88	71	112
Packers	0.60	2.00	2.34	30	117
Stemmers	0.60		0.93	–	
Median	0.84	1.67	1.88	71	117
Woolen goods					
Weavers		1.59	1.40	–	88
ADULT FEMALES					
Cotton goods					
Weavers	0.77	0.99		78	–
Spinners	0.65	0.73		89	–
Tobacco					
Packers	0.83	1.33	1.29	62	97
Stemmers	0.54	0.75		72	–
Woolen goods					
Weavers	0.75	1.18	0.88	64	75

Only those occupations, industries, and states were selected for which wage quotations covered a substantial number of workers.

Source: *First Annual Report of the Commissioner of Labor* (1886), pp. 151-172.

TABLE 37

Percentage Ratio of Daily Wages in Southern, Eastern, and Western Establishments to Those in Middle Atlantic Establishments; Selected Occupations, Males 16 and Older, Dewey-Census Report, 1890

	New England	South	Central	Pacific
Cotton goods				
Foremen	94	71		
Laborers	100	55		
Card hands	91	64		
Spinners	88	29		
Dyehouse hands	136			
Median percentage	93	60		
Woolen goods				
Foremen	107			
Laborers	92			
Card hands	125			
Spinners	150			
Dyehouse hands	100			
Median percentage	107			
Agricultural implements				
Foremen			85	
Laborers			117	
Machinists			100	
Molders			104	
Carpenters			133	167
Median percentage			104	
Foundries and metal working				
Foremen	103		100	140
Laborers	93	79	107	143
Blacksmiths	83	83	73	117
Blacksmith helpers		60	75	110
Machinists	88		88	
Machinists' helpers	100	75	100	147
Median percentage	93	77	94	140
Iron and steel mills				
Foremen		100	110	
Blacksmiths		91	114	
Machine hands		108	167	
Machinists		110	135	
Molders		88	104	
Median percentage		100	114	
Glass				
Laborers		77	115	
Molders			83	
Blowers		90	85	
Paper mills				
Laborers	92		92	
Machine tenders	100			

Table 37, *concluded*

	New England	South	Central	Pacific
Printing				
Foremen	100	95	91	
Laborers	150	100	130	
Tanners				
Laborers	145		127	164
Lumber				
Laborers		100	117	142
Machine tenders		76	94	129
Clothing				
Laborers			190	
Cutters		91		
Cigars				
Cigar makers	· 194	111	144	

For explanation, see Appendix Table A-8.

packers; but western wages were above eastern in the three male tobacco occupations.

For 1890 similar regional comparisons are available for homogeneous occupations and industries, but we confine this comparison entirely to males 16 and older (Table 37). Again southern wages were lower in most occupations, notably so in cotton goods, metal working, glass, and clothing. Exceptions were foremen, machine hands, and machinists in iron and steel mills, laborers in printing and lumber, and cigar makers. Wages were generally less unfavorable in the South for skilled occupations, but there were exceptions: printing foremen received 5 percent less in the South than in the Middle Atlantic, printing laborers about the same in both regions.[6] New England wages were generally mixed in relation to the Middle Atlantic, so that it would be hard to tell which were typically higher or lower.

For 1885 average deviation of wages among states was further computed for identical occupations in the same industries (Table 38). The deviations tended to be less than those in Table 33 for cotton goods and woolens, and more for metals, but on the whole the differences were not very significant. Narrowing the regional and interstate comparisons to the same occupations within the same

[6] Compare with the findings of Harry Ober, "Occupational Wage Differentials, 1907-1947" *Monthly Labor Review*, August 1948, p. 129.

TABLE 38

Average Deviation of Hourly Wages in Selected Occupations and Industries, among States within Regions, and among Regions; First Annual Report, 1885

	Number of States[a]	AVERAGE DEVIATION AS PERCENT OF AVERAGE WAGE FOR REGION[b]					DIFFERENCE BETWEEN TWO REGIONS AS PERCENT OF AVERAGE OF THE TWO REGIONS[c]					
		All States	New England	Middle Atlantic[d]	South[e]	Central[f]	South-N.E.	South-M.A.	South-Central	N.E.-M.A.	N.E.-Central	M.A.-Central
Cotton goods												
Teamsters	7	25	2	–	7		20	30	–	7	–	–
Carpenters	8	23	5	3	12		37	19	–	29	–	–
Machinists	9	15	7	11	15		10	6	–	13	–	–
Weavers, male	12	16	5	18	16		20	26	–	3	–	–
Weavers, female	13	13	8	12	1		30	24	–	6	–	–
Loom fixers	8	8	2	5	8		18	43	–	3	–	–
Laborers	11	10	10	13	20	–	40	24	–	7	–	–
Median		15	5	12	12		20	24		7		
Woolen goods												
Teamsters	9	13	13	16			–	·	–	16	–	–
Carpenters	10	17	18	16			–	–	–	8	–	–
Machinists	12	14										
Weavers, male	14	25										
Weavers, female	15	19	9	18		24		–	–	6	6	1
Loom fixers	13	19	14	14						18		
Mule spinners	15	16										
Laborers	13	13										
Median		17										
Metals and metallic goods												
Teamsters	8	19		3		7						
Carpenters	9	19										
Machinists	13	15										
Patternmakers	7	7										
Molders	9	11										
Blacksmiths	14	23										
Laborers	14	11										
Median		15										

notes on following page

industry yielded results not significantly different from those computed for the industries without regard to occupational composition.

Were the wage differences between regions greater than those between states within the same region? Observing the cotton-goods occupations for 1885 (Table 38), we find that so far as South-East differentials are concerned, this was definitely so. For example, in the case of carpenters in the cotton-goods industry, the percentage difference in average hourly wages between the South and Middle Atlantic was several times the average percentage deviation among states within the Middle Atlantic and southern regions. There were exceptions—notably male weavers—but in general the greater wage differences between South and East seemed to hold for all occupations of the industry. Only cotton goods, however, offered wage data for a sufficient number of southern states to make such a comparison possible.

Hourly earnings by state, region, industry, and occupation, computed by the National Bureau of Economic Research; average deviation computed in this study. Only those occupations and industries were used here for which there were data for seven or more states.

ᵃ Number of states for which the National Bureau computed average hourly wage data by industry, occupation, and states.

ᵇ Computed by subtracting the average hourly wage for all workers and firms reported in that industry and occupation for each state, from the average for the same industry and occupation in that region, then adding these differences without regard to sign, and dividing by the number of states for which wage quotations were available. This yielded the average deviation in cents per hour, which was then expressed as a percentage of the average hourly wage for that region.

ᶜ Computed by taking the difference between the average hourly wages of the two regions and dividing by the average for the two regions.

ᵈ Includes Maryland, Delaware, and West Virginia.

ᵉ Excludes the above three states and Texas.

ᶠ Includes Kentucky.