

SECTION IV.—CHANGES IN RATES OF WAGES.

1. **General.**—Arrangements have been made for records to be kept from the commencement of the year 1913 of all changes in rates of wages and hours of labour, and the number of workers to which these apply, as well as of the methods by which such changes were brought about. Results will be systematically furnished by using the method of index-numbers, which will be computed for different groups of industries and for different localities. By way of preliminary to the publication of the results of these current investigations, inquiries have been made with a view to shewing the general course of, and fluctuation in, wages since the year 1891. The data were mainly collected on the forms already referred to (see specimen in Appendix I.), from the secretaries of trade unions, and refer generally to the "union" rate of wages. In some cases returns were also received from certain Government departments (e.g., as to wages of railway employees). The returns furnished by trade union secretaries were carefully examined on receipt and were checked, where possible, by reference to awards of industrial courts and determinations of wages boards; in case of any apparent discrepancy or anomaly, they were referred back for further investigation, generally through the labour agents and correspondents of the Bureau. In some cases the particulars received from the trade unions were supplemented by returns compiled from information given in official reports of State departments. It may be mentioned, however, that the particulars given in such reports and other official documents are, for most of the States, meagre and unsatisfactory, and that owing to certain limitations in the methods of compilation and presentation, such data as are given are not generally suitable to form the basis of a comprehensive investigation, such as is now attempted. Hence the necessity arose for collecting most of the data *de novo*.

2. **Methods of Compilation and Weighting.**—After being checked, the returns were tabulated for each State and each class of industry and an arithmetic average wage was computed for each year, State and class. Owing to the difficulty in obtaining any satisfactory data as to the number of persons engaged in each of the occupations for which the wages were specified, no *detailed* system of weights could be applied;* arithmetic averages were therefore taken. In the computation of the final results, however, a careful system of weighting was adopted. For example, in computing the results for each State in any year the average wage in each industry was multiplied by a number (weight) representing the relative number of persons engaged

* Though a great deal of information as to the number of persons engaged in different industries and occupations is available from the Census results, it was found impracticable to bring the classification of these results into line with the detailed classification of occupations in the trade union returns of wages.

in that industry in the particular State. The sum of the products thus obtained, divided by the sum of the weights, represents the relative aggregate wage for the particular year and State.*

The whole question of weighting was referred to in some detail in Report No. I. (*Prices, Price Indexes and Cost of Living*) of the labour and industrial branch of this Bureau. With the necessary verbal modifications, many of the statements there made and the problems there considered in regard to the subject of prices, etc., refer equally to the question of weighting in other investigations, such as the present. Any inquirer wishing to thoroughly understand the subject may refer to that report.

3. Variations of Wage Index Numbers in Various Industries 1891 to 1913.—The total number of different occupations for which particulars as to wages are available, back to 1891, is 652. These wages relate generally to union rates, but in a few cases, more especially for the earlier years, when there were no union rates fixed, predominant or most frequent rates have been taken. The 652 occupations have been distributed over the fourteen industrial groups already specified and index-numbers computed for each group for the whole Commonwealth. Wage index-numbers for similar industry groups in each State are not published, since the data for the various occupations included were not sufficiently extensive or uniform to furnish fully comparable results. The wages refer generally to the capital town of each State, but in industries such as mining and agriculture, the rates in the more important industrial centres have been taken.

The following table shows wage index-numbers for the whole Commonwealth in each of the fourteen industrial groups during the years specified, wages in the year 1911 being taken as the base (= 1000). Rates of wages for females are not included.

* The weights used in the computation of the wage index-numbers were as follows:—

Wage Index-Numbers, Weights used for each Industrial Group*.

Particulars.	I	II.	III.	IV.	V.	VI.	VII.	VIII.	IX	X	XI.	XII	XIII.	XIV.
N.S.W. ...	136	228	199	84	65	102	252	343	187	74	137	704	134	902
Vic. ...	118	195	160	95	58	141	190	157	136	54	65	455	95	734
Q'land ...	67	62	108	33	20	34	70	133	73	22	45	352	45	302
S.A. ...	24	71	45	16	13	40	68	29	48	17	44	182	24	223
W.A. ...	65	36	32	7	8	16	32	142	40	9	32	118	31	158
Tas. ...	25	14	17	6	5	7	20	49	10	6	12	104	10	80
C'with ..	435	606	561	231	169	400	632	853	494	182	335	1,915	330	2,399

* As to classification in industrial groups, see page 6.

Variations in Wage Index-Numbers in different Industries in the Commonwealth, 1891 to 1912. (Wages in 1911 = 1,000.)

Particulars.	No. of Occupations included.	1891	1896	1901.	1906	1907	1908	1909.	1910	1911.	1912.
I Wood, Furniture, etc.	27	909	835	906	910	932	934	938	975	1,000	1,017
II. Engineering, Metal Work, etc.	101	875	873	888	900	915	930	935	946	1,000	1,038
III Food, Drink, etc.	34	751	747	878	895	910	913	922	936	1,000	1,047
IV Clothing, Hats, Boots, etc	13	720	725	722	857	872	884	953	965	1,000	1,009
V Books, Printing, etc	25	907	850	866	872	879	888	931	959	1,000	1,034
VI Other Manufacturing	102	892	861	895	894	893	903	911	935	1,000	1,023
VII. Building	67	813	764	866	883	911	919	932	959	1,000	1,027
VIII. Mining, Quarries, etc	71	949	880	893	915	935	934	938	978	1,000	1,048
IX. Railway Services, etc	68	892	894	918	920	923	927	956	965	1,000	1,046
X. Other Land Transport	9	848	772	874	874	893	919	919	977	1,000	1,091
XI. Shipping, etc.	5	856	773	892	894	901	904	983	984	1,000	1,082
XII. Agriculture, etc.	18	810	779	747	800	870	877	938	951	1,000	1,082
XIII. Domestic, Hotels, etc	17	723	671	674	683	686	706	819	838	1,000	1,125
XIV Miscellaneous	36	832	812	817	830	875	883	908	957	1,000	1,093
All Groups*	652	848	816	848	866	893	900	923	955	1,000	1,051

* Weighted Average; see graph in par 2, Section VIII hereof.

NOTE.—The figures in the above table are comparable horizontally, but are not directly comparable vertically. This is evident from the fact that the average wage in each industry group (and for all groups) in 1911 is made equal to 1000.

The above figures (for all groups combined) are shewn in the graph in paragraph 2 of the last section of this report. It may be seen that the index-numbers increase during the whole period under review except in 1896, when there was a fall. The wage index-number increased from 848 in 1891 to 1000 in 1911, and 1051 in 1912. It will be observed that the increase from 1891 to 1911 was relatively greatest in Classes XIII. (Domestic, Hotels, etc.), IV. (Clothing, Hats, Boots, etc.), and III. (Food, Drink, Tobacco, etc.), and it is probably in the industries and occupations included in these groups that "sweating" was most prevalent. The relative increase is least in Class VIII. (Mining, Quarries, etc.), the index-number for that group having increased only from 949 in 1891 to 1000 in 1911 and 1018 in 1912.

The index-numbers given in the above table are readily reversible, that is to say any year, other than the year 1911, can be taken as base. For example, in Class I. (Wood, Furniture, etc.), if it be desired to ascertain the relative wages compared with, say, £1 in 1891, the index-numbers throughout must be divided by 909 (the index-number in the year to be taken as base). This gives the index-number for 1901 = 19s. 11d. ($\frac{909}{909}$), for 1911 = £1 2s. 0d. ($\frac{1000}{909}$), and for 1912 = £1 2s. 5d. ($\frac{1017}{909}$). Again, for all groups combined, for every £1 payable on the average in 1901, the amount in 1911 was £1 3s. 7d. ($\frac{1000}{848}$), and in 1912 was £1 4s. 9d. ($\frac{1051}{848}$).

In this manner, computing the amount of wages payable in 1901, 1911 and 1912 corresponding to £1 in 1891, the following results are obtained:—

Average Relative Amount of Wages payable in each Industrial Group in 1901, 1911 and 1912, compared with £1 payable on the Average in 1891.

Industrial Groups.	Nominal Rates of Wages in—				Industrial Group.	Nominal Rates of Wages in—			
	1891.	1901.	1911.	1912.		1891.	1901.	1911.	1912.
I. Wood, etc.	s. d.	s. d.	s. d.	s. d.	IX. Railways, etc.	s. d.	s. d.	s. d.	s. d.
II. Engineering, etc.	20 0	19 11	22 0	22 5		X. Other Land, etc.	20 0	20 7	22 5
III. Food, etc.	20 0	23 5	26 8	27 11	XI. Shipping, etc.	20 0	20 2	23 4	25 3
IV. Clothing, etc.	20 0	19 9	27 5	27 8	XII. Agriculture, etc.	20 0	18 5	24 8	27 9
V. Books, etc.	20 0	19 1	22 1	22 10	XIII. Hotels, etc.	20 0	18 8	27 8	27 11
V. Other Manufactures	20 0	20 1	22 5	22 11	XIV. Miscellaneous	20 0	19 8	24 0	26 3
VII. Building	20 0	21 4	24 7	25 3	All Groups*	20 0	20 0	23 7	24 9
VIII. Mining, etc.	20 0	18 10	21 1	21 5					

* Weighted Average.

NOTE.—For reasons already indicated the above figures are comparable horizontally (from year to year), but are not directly comparable vertically.

The above figures show that for all groups combined for every £1, payable on the average according to rates of wages prevailing in 1891, the same amount was payable in 1901, while the amounts payable in 1911 and 1912 were 23s. 7d. and 24s. 9d. respectively. The greatest relative increase, as between 1891 and 1912, occurred in Groups III. and XIII. and the smallest in Group VIII.

4. Variations in Wage Index-Numbers in Different States 1891 to 1912.—The following table shows the progress in rates of wages for all industries in each State, wages in 1911 being taken as the base (= 1000). These results are based generally upon rates of wages prevailing in the capital town of each State, but in certain industries, such as mining, rates are necessarily taken for places other than the capital towns.

Variations in Wage Index-Numbers in different States, 1891 to 1912.
(Wages in 1911 = 1,000.)

Particulars	No. of Occupations included.	Index-Numbers									
		1891.	1896.	1901.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
New South Wales	158	858	819	855	833	907	910	939	965	1,000	1,055
Victoria	150	801	768	808	819	870	884	900	938	1,000	1,054
Queensland	87	919	874	903	911	916	927	948	962	1,000	1,013
South Australia	134	801	803	809	821	847	857	893	939	1,000	1,035
Western Australia	69	887	908	913	914	914	921	927	969	1,000	1,034
Tasmania	54	939	854	899	937	900	906	915	966	1,000	1,168
Commonwealth*	652	848	816	848	866	893	900	923	955	1,000	1,051

* Weighted Average; see graph in par. 2, Section VIII. hereof

NOTE.—The figures in the above table are comparable horizontally, but are not directly comparable in the vertical columns. This is evident when it is considered that wages in each State in 1911 are taken equal to 1000.

The above table shews that the relative increase from 1891 to 1911 was greatest in Victoria and South Australia, and least in Tasmania, but in the last named State there was a remarkable increase, amounting to nearly 17 per cent., in 1912. This is, no doubt, accounted for to a large extent by the fact that the wages board system was first adopted in Tasmania in that year.

The index-numbers are reversible, and, as an illustration, the following results have been computed in the manner indicated in the preceding paragraph.

Average Amount of Wages Payable in each State in 1901, 1911, and 1912, compared with £1 payable on the average in 1891.

Year.	N.S.W.		Vic.		Q'land.		S.A.		W.A.		Tas.		C'wth.*	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1891	20	0	20	0	20	0	20	0	20	0	20	0
1901	19	11	20	2	19	10	20	2	20	7	19	2
1911	23	4	25	0	22	0	25	0	22	6	21	4
1912	24	7	26	4	22	2	25	10	23	4	24	9

* Weighted Average.

NOTE.—For reasons already indicated, the above figures are directly comparable vertically but not horizontally.

It may be seen that the relative increase as between 1891 and 1912 was greatest in Victoria, where it amounted to 6s. 4d. per £1, or 31.7 per cent. It was least in Queensland, where it was 2s. 2d. per £1, or 10.8 per cent.