

SECTION IX.—VARIATIONS IN NOMINAL AND EFFECTIVE WAGES.

1. **General.**—From the beginning of the year 1913, records have been kept of all changes in rates of wage and hours of labour, the number of workers affected, and the methods by which such changes are brought about. The results of these records have been published in the quarterly Labour Bulletins and in Labour Reports Nos. 5 to 10. In order to supplement the results thus obtained, investigations have been made regarding rates of wage in past years with a view to shewing their general trend in each State and in various industrial groups. The methods adopted for the collection of the data and computation of the results were explained in Report No. 2 (see pages 23-4), and will not be repeated here. The particulars given in this Section shew variations in nominal wages from year to year in each State and in various industrial groups. Index-numbers are also given shewing variations in effective wages in each State.

The total number of occupations for which particulars are available back to 1891 is 652. In 1913, however, the scope of the investigation was extended, and particulars for that and subsequent years are available for no fewer than 3948 male and 308 female occupations. The wages on which the index-numbers are based are, in the majority of cases, minimum rates fixed by industrial tribunals, but in some cases, particularly in the earlier years when no minimum rates had been fixed for many trades, either union or pre-dominant rates have been taken.

2. **Weighted Average Nominal Weekly Rate of Wage in each State and Commonwealth, 30th April, 1914, to 31st December, 1920.**—In the following table the weighted average nominal weekly rate of wage for adult workers (male and female separately), is shewn for each State and the Commonwealth, as at 30th April, 1914, and approximately quarterly intervals to the 31st December, 1920 :—

Weighted Average Nominal Weekly Rate of Wage Payable to Adult Workers for a Full Week's Work in each State and Commonwealth, 30th April, 1914, to 31st December, 1920.

Dates.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
MALES.							
30th April, 1914	55 9	54 3	52 8	54 4	62 2	52 6	55 1
30th June, 1914	55 11	54 4	52 10	54 4	62 9	52 7	55 3
30th September, 1914	56 2	54 7	53 4	54 5	62 10	52 8	55 6
31st December, 1914	56 2	54 7	53 5	54 6	62 10	52 8	55 7
31st March, 1915	56 3	54 8	53 4	54 3	63 1	52 9	55 7
30th June, 1915	56 8	54 8	53 4	54 3	63 1	52 9	55 9
30th September, 1915	56 10	54 11	53 8	54 3	63 1	52 9	56 0
31st December, 1915	57 7	55 3	54 4	54 8	63 4	53 3	56 6
31st March, 1916	58 2	56 7	55 1	55 8	63 4	53 9	57 3
30th June, 1916	58 11	57 0	56 5	56 1	63 4	54 4	57 11
30th September, 1916	59 6	57 9	57 11	56 6	63 8	54 9	58 8
31st December, 1916	61 11	58 10	60 4	59 0	65 2	57 0	60 8
31st March, 1917	62 7	60 0	61 2	59 8	65 5	57 6	61 5
30th June, 1917	63 5	61 2	62 4	61 0	66 4	57 7	62 5
30th September, 1917	63 9	62 3	63 5	61 6	67 10	58 6	63 3
31st December, 1917	64 5	63 0	65 3	63 1	68 11	59 7	64 2
31st March, 1918	64 8	63 2	65 4	63 1	69 0	59 10	64 4
30th June, 1918	64 9	63 4	65 7	63 3	69 5	60 2	64 6
30th September, 1918	65 0	63 9	67 0	63 7	69 6	60 4	65 0
31st December, 1918	65 11	65 6	69 6	65 6	70 4	61 2	66 5
31st March, 1919	66 0	66 7	70 0	65 10	70 7	61 10	67 8
30th June, 1919	66 9	67 5	71 6	66 9	71 2	62 9	68 7
30th September, 1919	69 9	68 5	72 6	68 3	73 11	63 11	69 9
31st December, 1919	76 9	72 0	78 7	70 5	77 8	69 0	74 11
31st March, 1920	81 2	74 3	81 6	72 0	78 10	73 4	78 0
30th June, 1920	82 9	77 5	86 10	73 4	81 0	74 2	80 7
30th September, 1920	87 0	83 1	89 5	78 9	85 9	79 3	85 1
31st December, 1920	94 0	86 1	91 6	82 3	89 9	85 9	89 10

FEMALES

Dates.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
30th April, 1914	26 9	27 4	26 11	24 1	37 4	25 10	27 2
30th June, 1914	26 9	27 4	27 10	24 1	37 4	25 10	27 2
30th September, 1914	26 10	27 9	26 11	24 1	37 4	25 10	27 4
31st December, 1914	26 10	27 9	27 1	24 1	37 4	25 10	27 4
31st March, 1915	26 10	26 11	27 2	24 0	37 5	26 3	27 1
30th June, 1915	27 2	26 11	27 2	24 0	37 5	26 3	27 2
30th September, 1915	27 3	26 11	26 11	24 0	37 5	26 0	27 3
31st December, 1915	27 5	26 11	26 11	24 6	37 5	26 0	27 4
31st March, 1916	27 7	27 11	26 11	24 6	37 5	26 4	27 9
30th June, 1916	27 7	27 11	26 11	24 6	37 5	27 9	27 9
30th September, 1916	27 11	28 2	27 2	24 10	37 5	27 9	28 1
31st December, 1916	28 7	28 5	27 3	24 10	38 10	28 3	28 5
31st March, 1917	29 1	28 10	27 5	25 9	38 10	28 4	28 11
30th June, 1917	29 3	28 10	27 9	27 3	38 10	28 4	29 1
30th September, 1917	30 2	29 7	30 0	27 8	38 10	28 4	30 0
31st December, 1917	30 5	30 4	30 5	27 10	39 10	28 5	30 5
31st March, 1918	31 0	30 5	30 5	27 10	39 10	28 5	30 9
30th June, 1918	31 3	30 6	30 8	28 6	39 10	28 5	30 11
30th September, 1918	31 5	30 9	32 3	28 6	39 10	28 5	31 3
31st December, 1918	31 10	31 3	32 10	29 5	39 10	28 9	31 9
31st March, 1919	33 6	32 2	33 0	29 5	39 11	28 9	32 8
30th June, 1919	35 7	32 2	33 2	29 7	39 11	28 9	32 9
30th September, 1919	34 0	32 3	33 10	29 7	39 11	28 9	33 0
31st December, 1919	40 8	34 5	36 4	39 3	43 7	33 0	37 1
31st March, 1920	41 8	35 11	41 3	35 9	47 6	33 11	39 0
30th June, 1920	41 9	37 9	41 7	35 9	48 0	39 11	39 10
30th September, 1920	43 8	40 9	44 1	40 1	48 0	41 4	42 5
31st December, 1920	46 0	43 1	44 11	40 7	52 11	41 10	44 6

(i.) *Adult Male Workers.*—It will be seen that the weighted average nominal weekly rate of wage for adult male workers for the whole Commonwealth advanced during the period reviewed by 34s. 9d. In all

the States except Queensland and New South Wales the increase was below the average, being in Tasmania 33s. 3d., in Victoria 31s. 10d., in South Australia 28s. 4d., and in Western Australia 27s. 7d. The increase in Queensland and New South Wales amounts to 38s. 3d. and 38s. 10d. respectively. At the 30th April, 1914, the highest average rate of wage was 62s. 2d. in Western Australia, followed in the order named by New South Wales, South Australia, Victoria, Queensland, and Tasmania. At the 31st December, 1920, New South Wales had the highest average rate of wage, followed in the order named by Queensland, Western Australia, Victoria, Tasmania and South Australia.

(ii.) *Adult Female Workers.*—During the period covered by the investigation, the weighted average nominal weekly rate of wage for adult female workers for the whole Commonwealth advanced 17s. 4d. The greatest increases occurred in New South Wales, Queensland and South Australia.

1921
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3. *Variations in Nominal Wage Index-numbers in Industrial Groups, 1901 to 1920.*—The following table shews variations in nominal wage index-numbers, the occupations having been classified in fourteen industrial groups. As already pointed out, these index-numbers are comparable throughout, and shew, not only the variations in wages in each industrial group, but also the relative wages as between the several groups :—

Variations in Nominal Wage Index-numbers (Adult Males) in different Industries in the Commonwealth, for years specified, 1901 to 1920. (Weighted Average Wage for all Groups in 1911 = 1,000.)

Particulars.	No. of occupations included.		Nominal Wage Index-Numbers.											
	1901 to 1912.	1918-20.	1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	
I. Wood, Furniture, etc.	27	270	1,019	1,125	1,144	*1142	1,161	1,174	1,245	1,288	1,345	1,479	1,855	
II. Engineering, Metal Works, etc.	101	636	945	1,084	1,104	1,113	1,127	1,174	1,211	1,268	1,340	1,512	1,803	
III. Food, Drink, etc.	34	576	871	901	1,038	1,074	1,085	1,127	1,194	1,241	1,288	1,478	1,742	
IV. Clothing, Hats, Boots, etc.	13	124	708	981	990	1,019	1,034	1,037	1,104	1,183	1,198	1,433	1,687	
V. Books, Printing, etc.	25	205	998	1,149	1,188	1,234	1,246	1,259	1,328	1,376	1,446	1,576	1,941	
VI. Other Manufacturing	102	875	907	1,013	1,037	1,076	1,093	1,125	1,203	1,245	1,289	1,470	1,736	
VII. Building	67	190	1,050	1,213	1,245	1,270	1,276	1,285	1,359	1,418	1,440	1,554	1,865	
VIII. Mining	71	161	1,067	1,194	1,216	1,270	1,272	1,299	1,420	1,528	1,532	1,724	2,026	
IX. Rail & Tram Services	68	224	1,021	1,113	1,164	1,165	1,165	1,187	1,236	1,286	1,345	1,532	1,816	
X. Other Land Transport	9	70	795	910	993	996	1,026	1,041	1,128	1,210	1,237	1,431	1,702	
XI. Shipping, etc.	74	193	751	871	942	953	972	1,026	1,163	1,194	1,257	1,518	1,716	
XII. Agricultural, Pastoral, etc.	8	72	627	839	944	965	965	969	1,073	1,192	1,231	1,370	1,699	
XIII. Domestic, Hotels, etc.	17	114	598	887	894	918	935	948	995	1,052	1,104	1,338	1,571	
XIV. Miscellaneous	36	233	759	929	1,015	1,045	1,054	1,065	1,137	1,185	1,234	1,389	1,656	
All Groups†	652	3,948	848	1,000	1,051	1,076	1,085	1,102	1,184	1,252	1,296	1,462	1,752	

* The slight decrease in this group was due to a reduction in the award rates in the Furniture Trade in New South Wales, resulting from an appeal made by employers. † Weighted average; see graph on page 97 hereof.

4. Variations in Nominal Wage Index-Numbers in States, 1901 to 1920.—The following table shews, by means of index-numbers, the variations in wages for all industries in each State, the weighted average wage for the Commonwealth in 1911 being taken as base (= 1000). These results are based generally upon rates of wage prevailing in the capital towns of each State, but in certain industries, such as mining, agriculture, etc., rates are necessarily taken for places outside the metropolitan areas:—

Variations in Nominal Wage Index-numbers (Adult Males) in different States, for years specified 1901 to 1920. (Weighted Average Wage for Commonwealth in 1911 = 1,000.)

Particulars.	No. of occupations included.		Nominal Wage Index-Numbers.											
	1901 to 1912.	1913-20.	1901.	1910.	1911.	1912.	1913.	1914.	1916.	1916.	1917.	1918.	1919.	1920.
N.S. Wales..	158	874	858	968	1,003	1,058	1,088	1,086	1,124	1,208	1,257	1,286	1,498	1,835
Victoria..	150	909	796	924	885	1,038	1,058	1,068	1,078	1,148	1,229	1,278	1,404	1,679
Queensland	87	627	901	960	997	1,010	1,027	1,042	1,060	1,177	1,273	1,356	1,534	1,785
S. Australia	134	587	819	951	1,013	1,048	1,061	1,062	1,067	1,151	1,231	1,278	1,373	1,618
W. Australia	69	489	1,052	1,116	1,152	1,191	1,214	1,226	1,236	1,272	1,345	1,372	1,516	1,751
Tasmania..	54	482	719	772	799	934	1,025	1,028	1,039	1,112	1,163	1,168	1,346	1,674
C'wealth*	652	3,948	848	955	1,000	1,051	1,076	1,085	1,102	1,184	1,252	1,296	1,462	1,752

* Weighted average ; see graph on page 97.

The significance of the above figures since 1906 can be better appreciated by reference to the graph on page 97 which shews, of course, not only variations in wages in each State from year to year, but also the difference in wage-level as between the several States. From this graph it is clearly seen that, excluding Western Australia, the difference between nominal wages in the several States has decreased very considerably since 1906. This difference is shewn at any point by the vertical distance between the graphs. Wages in Queensland and in New South Wales have increased since 1914 at a higher rate than in any other State. The graphs for Victoria and South Australia lie very close together throughout the period. In Tasmania the first determination under the Wages Boards Acts, 1910-1911, came into force in 1911. Since then wages in that State have increased rapidly, and their general level is now near the average for the Commonwealth.

5. Average Nominal Weekly Wage in the Several States, 1891 to 1920.—The following table shews the average weekly rate of wage payable to adult male workers in each State from 1891 to 1920. The wages given in this table are relatively identical with the index-numbers shewn in the table above.

**Average Nominal Rates of Wage Payable to Adult Male Workers in each State
for the years specified from 1891 to 1920.**

Particulars.	1891.	1896.	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
N. S. Wales	44	1 42	1 43	1 49	7 51	5 54	3 55	9 56	2 57	7 61	11 66	5 65	11 70	9 94
Victoria	40	5 38	9 40	9 47	4 50	6 53	2 54	3 54	7 55	3 58	10 63	0 65	6 72	0 86
Queensland	46	6 44	8 46	2 49	2 51	1 51	9 52	8 58	5 54	4 60	4 65	3 69	6 78	7 91
S. Australia	41	7 41	8 42	0 48	9 51	11 58	9 54	4 54	5 54	8 59	0 63	1 65	6 70	5 82
W. Australia	52	4 53	7 53	11 57	2 59	0 61	0 62	2 62	10 63	4 65	2 68	11 70	4 77	8 89
Tasmania	38	6 35	6 36	10 39	6 41	0 47	10 62	6 52	8 53	3 57	0 59	7 61	2 69	0 85
Commonwealth	43	5 41	10 43	6 48	11 51	3 53	10 55	1 55	7 56	6 60	8 64	2 66	5 74	11 89

The average weekly rate in 1920 was highest in New South Wales, followed in the order named by Queensland, Western Australia, Victoria, Tasmania and South Australia. In each of the States of New South Wales, Victoria and Queensland, the rates shew an increase in each of the years specified except in 1896, when there was a decrease compared with 1891. In South Australia there was an increase in each of the years specified, while in Western Australia the average rates remained constant in 1901, 1906, and 1907, with increases in each other year. In Tasmania there was a decrease in 1896 and again in 1907, and substantial increases in 1912 and 1913. During the period 1911 to end of the year 1920, the average weekly rate of wage in New South Wales has increased 83 per cent., in Victoria 70 per cent., in Queensland 79 per cent., in South Australia 59 per cent., in Western Australia 52 per cent., in Tasmania 110 per cent., and the weighted average weekly rate for the Commonwealth has increased from 51s. 3d. to 89s. 10d., an increase of 75 per cent

6. Average Nominal Weekly Wage Payable in Industrial Groups, 1891 to 1920.—The following table shews for each of the years indicated the average weekly wages payable in each of the fourteen industrial groups. The wages are *relatively* identical with the index-numbers shewn in the table on page 92.

**Average Nominal Rate of Wage Payable to Adult Male Workers in each
Industrial Group, for the years specified from 1891 to 1920.**

Particulars.	1891.	1896.	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Group I.	52	5 48	2 52	3 56	2 57	8 58	7 58	6 59	6 60	2 63	10 66	0 68	11 75	9 95
" II.	47	8 47	7 48	5 51	7 54	6 56	7 57	0 57	9 60	2 62	1 65	0 68	8 77	6 92
" III.	36	2 37	11 44	7 47	6 50	9 53	2 55	0 55	8 57	9 61	2 63	7 66	0 75	6 89
" IV.	38	3 36	5 36	3 50	0 50	3 50	9 52	3 53	0 53	2 56	7 59	7 61	5 73	5 86
" V.	63	5 60	1 51	0 56	6 58	11 60	11 63	3 63	10 64	6 68	1 70	6 74	1 80	9 99
" VI.	46	4 44	8 46	5 48	6 51	11 53	1 55	1 56	0 57	8 61	8 63	10 66	1 75	4 88
" VII.	50	6 47	6 53	10 59	7 62	1 63	10 65	1 65	5 65	10 69	8 72	5 74	3 79	8 95
" VIII.	53	1 53	10 54	8 59	10 61	2 62	4 65	1 65	2 66	7 72	9 78	4 78	6 88	4 103
" IX.	50	10 51	0 52	4 55	0 57	0 59	7 59	8 59	8 60	10 63	4 65	11 68	11 78	6 93
" X.	39	6 36	0 40	9 45	7 46	7 50	10 51	1 52	8 53	4 57	10 62	0 63	3 78	4 87
" XI.	38	2 34	6 38	5 43	11 44	7 48	3 48	10 49	10 52	7 59	1 61	2 64	5 77	9 98
" XII.	34	10 33	6 32	1 40	11 43	0 45	4 49	5 49	6 49	8 55	0 61	1 63	1 70	3 87
" XIII.	32	10 30	6 30	8 33	1 45	5 45	10 47	0 47	11 48	7 51	0 53	11 56	7 68	7 80
" XIV.	39	7 38	7 38	10 45	6 47	7 52	0 53	7 54	0 54	7 58	3 60	9 63	3 71	3 84
ALL GROUPS	43	5 41	10 43	6 48	11 51	3 53	10 55	1 55	7 56	6 60	8 64	2 66	5 74	11 89

It may be seen that in 1920 the weekly rate of wage was highest in Group VIII. (Mining), 103s. 10d., while the lowest average weekly rate was in Group XIII. (Domestic, Hotels, etc.), where the rate was 80s. 6d. The average weekly rate for all groups together increased in all the years since 1891 except in 1896. The rate in 1901 was the same as in 1891, (43.5d.), but in 1918 had increased to 66s. 5d., in 1919 to 74s. 11d., and in 1920 to 89s. 10d.

7. **Nominal Wages and Effective Wages.**—Wages are said to be *nominal* when they refer to the actual amounts of money received in return for labour, and are described as *effective* when their equivalence in purchasing power is expressed, that is their purchasing power according to some definite "composite unit" or "regimen," the cost of which is ascertained at a particular date or during a particular period adopted as a datum for reference. From what was said in Section IV., par. 3, of Labour Report No. 6, it is obvious that "effectiveness" of wages can be unequivocally ascertained only when changes in price vary normally, that is to say, when it is practicable and reasonable to regard the "composite unit" as continuously applicable. Estimates of the effectiveness of wages when the original regimen or composite unit ceases to be of reasonable application, as may be the case in times of severe drought, war, etc., become of more or less questionable validity. At such times some modification of the accustomed regimen may (or should) take place, and in the degree to which such modification may occur, effective wages will become involved in uncertainty. It should, consequently, be borne in mind that index-numbers of effective wages, computed on the supposition of the continual maintenance of a constant regimen cannot be taken to really represent unequivocally the actual effectiveness of wages: they represent rather what *would* have been the effectiveness of wages, had the "composite unit" throughout been virtually the one in use with the wage-earning community. The limitations indicated in Section IV., par. 3, of Labour Report No. 6, already referred to, apply also here. *Fundamental changes in the usage of commodities vitiate this or any other method*, as is obvious from the analysis of the technique for properly ascertaining price-indexes outlined in Report No. 1, Appendix VIII., pp. 23 to 38, and in Appendix I. of Labour Report No. 9. Just as there is no unequivocal means of comparing price-indexes, between say a rice-eating and a meat-eating community, or between a community living according to a very elementary standard of comfort, and one living according to a more advanced standard, so there is in its degree no unequivocal method of computing effectiveness of wages, when the circumstances of the time involve material changes in the "regimen," or are characterised by a temporary passing through abnormal conditions, profoundly affecting the conditions of living.

8. **Variations in Effective Wages in each State, 1901 to 1920.**—In comparing wages, two elements are of obvious importance, viz., (i.) hours worked per day or week, etc., and (ii.) the purchasing-power of money (in regard to the composite unit adopted). Thus 60s. per week of 60 hours is equivalent to 48s. per week of 48 hours on the time basis. Similarly, on the purchasing-power basis, if the purchasing-power *fall* one-fifth, i.e., if the index-number of the purchasing-power *rise*

from 1000 to 1250*, then 60s. per week (the index-number being 1250), is effectively equal only to 48s. (when the index-number was 1000). Or, again, if the purchasing power rise one-third, as is implied by a *fall* in the index-number from 1000 to 750, then 60s. per week originally would, as regards the composite unit, be equal in purchasing power to 80s. Ignoring altogether for the present the number of hours worked, and subject to the limitations referred to in the preceding paragraph, and further assuming that the real value of the average wages is to be measured by their purchasing power in regard to the "composite unit" adopted, then we can reduce the actual average wages paid to their effective value by applying the purchasing-power-of-money index-numbers to the nominal wages index-numbers. The following table shews the effective wage index-numbers in each State for each of the years indicated from 1901 to 1920.

In computing these effective wage index-numbers the nominal wage index-numbers given in paragraph 4 hereof have been divided by the purchasing-power-of-money index-numbers in Section IV., paragraph 5 hereinbefore. The resulting index-numbers shew for each State and for the Commonwealth for the years specified the variations in *effective* wages.

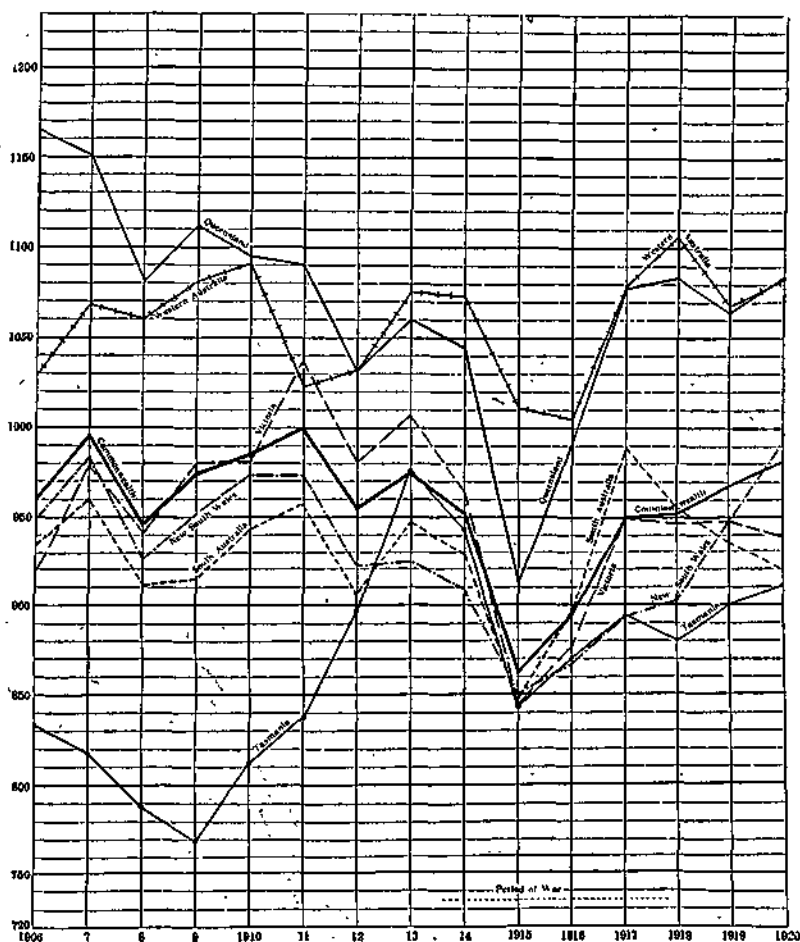
Variations in Effective Wages in each State and Commonwealth, for the Years specified, 1901 to 1920.†

Particulars.	1901.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
N.S.W.	961	973	973	922	924	909	850	857	893	902	948	904
Victoria	916	981	1,037	981	1,007	964	844	877	950	947	948	930
Queensland . . .	1,172	1,095	1,090	1,032	1,060	1,045	912	991	1,078	1,083	1,064	1,035
S. Australia . .	948	943	957	966	947	929	847	898	989	957	935	919
W. Australia . .	1,024	1,091	1,023	1,032	1,076	1,073	1,011	1,005	1,079	1,107	1,068	1,083
Tasmania	827	812	838	896	976	943	843	870	894	880	900	911
Commonwealth .	964	985	1,000	955	976	952	862	894	950	952	968	982

† As to the effect in abnormal periods, see Section IV., par. 3, of Labour Report No. 6.

The figures in the above table from the year 1906 onwards are shewn in the graph on page 98. A comparison between this graph with that on the preceding page shews that the difference between nominal and effective wages is very marked. In the first place, the whole nature of the graphs is entirely different. Instead of having a series of lines shewing a practically continuous and rapid upward trend, the effective wages shew a series of fluctuating points, in which (except for Tasmania) no very marked tendency is immediately discernible. It will be seen that, generally speaking; the years 1907, 1909, 1910, 1911, 1913, 1916, 1917, 1918 and 1919, were marked by increases in effective wages, but that in each of the years 1908, 1912, 1914 and 1915, there were rapid decreases. In 1920 effective wages decreased in Victoria and South Australia, and increased in the remaining States. In each of these years in which effective wages declined there was a rapid increase in cost of food and groceries (see graphs on pp. 31-34).

* Or from any value to one-fifth greater.

EFFECTIVE WAGE INDEX-NUMBERS IN EACH STATE, AND COMMONWEALTH,
1906 to 1920.

One important feature common to both graphs (nominal and effective wages) is the manner in which the graphs for the individual States have, on the whole, approached more closely together. With the adoption of differential rates of wage fixed according to the relative purchasing-power of money, it appears probable that this tendency will continue in the future.

In the table on page 96 the effective wage index-numbers are all computed to the one base, that of the Commonwealth for 1911. The index-numbers, however, are comparable in all respects, and comparisons may therefore be made as to the increase or decrease in the effective wage index-number for any State over any period of years. Thus it will be seen that, comparing 1920 with 1901, there has been an increase in the index-numbers in New South Wales, Victoria, Western Australia, and Tasmania, and a decrease in the remaining States. Similarly, comparing

1920 with 1911 the index-numbers shew that there has been an increase in three of the States, New South Wales, Western Australia and Tasmania, while the index-numbers for the remaining States shew decreases.

9. Variations in Effective Wages and Standard of Comfort, 1901 to 1920.—In the preceding paragraph particulars are given as to variations in effective wages in each State, due allowance having been made for variations in the purchasing-power of money, though not for unemployment. Attention has also been drawn to the limitations to which they are subject in abnormal times.

If 48 hours per week be the time for which a given wage is paid, say 60s., then for the purpose of estimating the aggregate average earnings, account must be taken of the proportion of time spent in unemployment. For example, if the working days be 300 per year, and the time unemployed be 6 per cent., the actual proportion of working time is 94 per cent., i.e., 18 days are idle in every 300, or 6 per cent. of the period. Similarly, if of the employable an average of only 94 per cent. are employed, the measure of unemployment is again 6 per cent., and the employment index-number is 940, i.e., 940 in 1000, or 94 per cent.

For years prior to 1913 the data available as to unemployment are so meagre that comparative results allowing for variations both in the purchasing-power of money and in unemployment cannot be accurately computed for the several States. In the subjoined table, however, the percentage of unemployment for the whole Commonwealth at the end of the years specified has been used in order to obtain results shewing the variations in unemployment upon effective wages. Column I. shews the nominal rate of wage index-numbers (see paragraph 5 hereof), and Column II. the relative percentages unemployed (see Section III.). Applying these percentages to the numbers shewn in Column I., and deducting the results from each corresponding index-number, so as to allow for relative loss of time, the figures in Column III. are obtained. These figures are then recomputed with the year 1911 as base, and are shewn in Column IV. In Column V. the purchasing-power-of-money index-numbers are shewn, and in Columns VI. and VII. the effective wage index-numbers are given, firstly, for full work, and secondly, allowing for lost time. These are obtained by dividing the figures in Column I. and IV., respectively, by the corresponding figures in Column V. The resulting index-numbers shew for the Commonwealth for the years specified the variations in *effective wages* or in what may be called the "standard of comfort."*

A comparison between the figures in Columns I. and VI. shews the relation between the nominal rates of wage and the purchasing efficiency of these rates. The figures in Column VII. (see graph on page 101) shew variations in *effective wages* after allowing not only for variations in purchasing-power of money, but also for the relative extent of unemployment.

* This expression must not be confused with "standard of living." A change in the standard of living necessarily involves a change in regimen (see Labour Report No. 1), that is, a change in the nature or in the relative quantity of commodities purchased, or both. A change in the "standard of comfort" merely implies a variation in effective wages, which variation may, or may not, result in, or be accompanied by, a change in the "standard of living."

Unemployment, and Nominal and Effective Wage Index-numbers, for the Years specified, 1901 to 1920.†

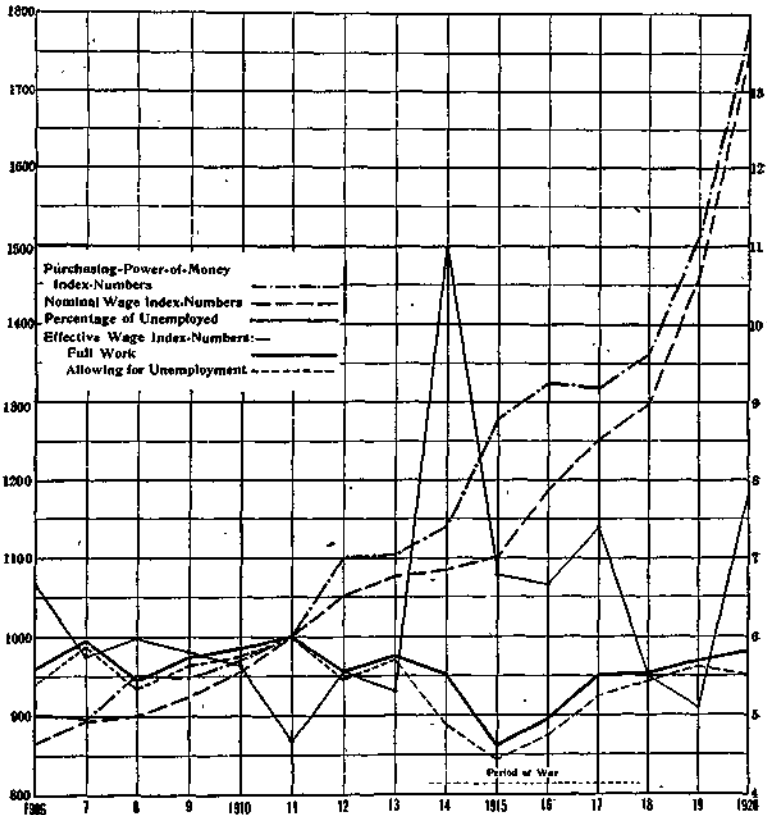
Year.	I. Nominal Wage Index- Numbers.	II. Percentage Unem- ployed.	Rate of Wage Index- Numbers, allowing for Lost Time.		V. Purchas- ing Power of Money Index- Numbers.	Effective Wage Index-Numbers.	
			III. Actual.	IV. Recom- puted. (1911 = 1,000).		VI. Full Work.	VII. Allowing for Unemploy- ment.
1901	846	6.6	793	832	880	964	945
1906	866	6.7	808	848	902	960	940
1907	893	5.7	842	884	897	996	986
1908	900	6.0	846	888	951	946	934
1909	923	5.8	870	913	948	974	963
1910	955	5.6	901	946	970	985	974
1911	1,000	4.7	953	1,000	1,000	1,000	1,000
1912	1,051	5.5	993	1,042	1,101	955	946
1913	1,076	5.3	1,021	1,071	1,104	975	970
1914	1,085	11.0	966	1,014	1,140	952	889
1915	1,102	6.8	1,027	1,078	1,273	862	844
1916	1,184	6.7	1,106	1,169	1,324	894	876
1917	1,252	7.4	1,159	1,216	1,318	950	923
1918	1,290	5.5	1,225	1,285	1,362	952	943
1919	1,462	5.2	1,366	1,454	1,510	968	963
1920	1,762	7.8	1,615	1,693	1,785	982	950

† As to the effect in abnormal periods, see Section IV., par. 3, of Labour Report No. 8.

The above figures for the years 1906 to 1920, inclusive, are shown in the graph on page 101. It may be seen from the graph that the nominal wage index-number has steadily increased, and that the increase has been at a somewhat greater rate (except in the years 1908, 1912, 1914, 1915, and 1918) than the increase in the purchasing-power-of-money index-numbers. Owing to the decreases in these years the effective wage index-numbers (both "Full Work" and "Allowing for Unemployment") do not, on the whole, show any general increase, but fluctuate between a range which reached its maximum in 1911, and its minimum in 1915. In 1907 there was a large decrease in unemployment, which is reflected in the "peak" in the effective wage index-number for that year. The rise in the purchasing-power-of-money index-number in 1908, which was a drought year, caused a considerable fall in effective wages. From that year, however, until the year 1911, the effective wage index-number steadily increased from 934 to 1000, but this increase was almost counterbalanced by the fall in 1912, which was due to the large increase in the purchasing-power-of-money index-number and the smaller increase in unemployment. In 1913 the purchasing-power-of-money index-number was practically the same as that for 1912, while nominal wages increased and unemployment decreased, with the result that the effective wage index-numbers, both for full work and allowing for unemployment, show an increase. The effective wage index-numbers for 1914 both show a decrease on the preceding year. This decrease is particularly marked in the case of the index-numbers in which allowance is made for unemployment. In 1915 there was a decrease in unemployment when compared with the preceding year, but on the other hand the cost of food and groceries showed a very substantial increase, so that while nominal wages increased slightly, effective wages index-numbers, both for full work and allowing for unemployment, show a large decrease, and are, in fact, lower

than for any other year covered by the investigation. In 1916, 1917, 1918, and again in 1919 the effective wage index-numbers both for full work and allowing for unemployment shew an increase, due to the fact that the increase in nominal wages index-number has been greater than the increase in the index-numbers shewing cost of food, groceries, and house rent. In 1920 the effective wage index-number for full work shews an increase, but owing to the somewhat large increase in unemployment, the effective wage index-number allowing for unemployment shews a decrease.

Unemployment, Purchasing-Power of Money, and Nominal and Effective Wage Index-Numbers, 1906 to 1920.



EXPLANATORY NOTE.—Each space in the horizontal scale represents one year. The vertical spaces on the left represent the scale for the index-numbers for purchasing-power of money and wages, while the scale on the right from 4 to 11, represents the percentage of unemployment.

10. Relative Productive Activity and Effective Wages, 1871 to 1920.—The preceding tables refer to the matter of variations in effective wages, having regard to fluctuations in purchasing-power of money and extent of unemployment. Another important matter in any investigation into increases in rates of wage is the question of increase in *relative output* or production per head of population, measured quantitatively. If measured by mere value, increase of price would have the effect of making an equal

production with that of a time when prices were lower, shew an increase which would, of course, be misleading. For example, the annual figures shewing the estimated value of production from the Commonwealth industries do not directly shew whether there has been any increase in the *quantity* produced, since the price-level at the time is itself a factor in the determination of the values. Before, therefore, any estimate of the relative increase or decrease in production (that is, in the relative quantity of output) can be formed, the variations due to the price element must be eliminated. This is done in the table on page 103, in which Column I. shews the estimated *value* of production (a) in the aggregate and (b) per head of mean population. In Column II. the estimated value of production per head of population is shewn in the form of index-numbers with the year 1911 as base; that is to say, the production per head in 1911 is made equal to 1000, and the values for the other years computed accordingly. In Column III. Wholesale and Production price index-numbers are given; it is assumed that these index-numbers reflect, with substantial accuracy, variations in Wholesale and Production prices in the Commonwealth as a whole. The figures in Column IV. are obtained by dividing the figures for each year in Column II. by the corresponding figures in Column III. They shew the estimated relative productive activity per head of population, taking the year 1911 as the basic or standard year, the fluctuations due to variations in prices having been eliminated. The results given by the application of the Wholesale price-index numbers may be regarded as merely confirming the results given in the final column which are to be taken as the best measure of the relative productive activity per head of population.

It should be observed that the index-numbers for the years from 1914 to 1920 cover a period which in several respects was abnormal. At the beginning of that period there was a severe and extensive drought, and again in 1918 drought conditions were prevalent. Further, the enlistments for war service took from industry over 300,000 adult males in the prime of life, while the dislocation of industry owing to the altered conditions arising out of the war must also have adversely affected the productivity of the Commonwealth. It is impossible to measure these effects quantitatively, but steps are being taken to further investigate the matter.

Estimated Value of Australian Production, 1906 to 1920.

Year.	Agricultural.	Pastoral.	Dairy, Poultry, and Bee Farming.	Forestry & Fisheries.	Mining.	Manufacturing.	Total.
	£1000.	£1000.	£1000.	£1000.	£1000.	£1000.	£1000.
1906 ...	25,349	45,389	13,611	4,879	26,643	31,172	147,043
1907 ...	30,500	50,660	15,584	4,826	28,317	36,155	166,042
1908 ...	37,150	47,269	15,045	4,286	24,557	36,637	164,934
1909 ..	41,056	50,864	15,064	4,462	23,036	39,713	174,195
1910 ..	39,752	56,993	17,387	4,789	23,222	45,598	187,741
1911 ..	38,774	50,725	19,107	5,728	23,494	50,767	188,595
1912 ..	45,754	51,615	20,280	6,432	25,645	57,032	206,748
1913 ..	46,162	57,866	20,341	6,338	25,810	61,536	218,103
1914 ..	36,052	60,265	21,562	6,419	22,275	63,922	209,495
1915 ..	73,769	65,607	21,156	5,777	22,428	62,883	251,620
1916 ..	60,207	89,939	26,949	5,505	23,606	64,205	270,411
1917 ..	57,967	93,435	31,326	5,523	25,581	69,797	283,629
1918 ...	58,080	98,297	33,738	7,137	26,156	75,261	298,669
1919-20	72,234	109,062	38,830	10,170	19,725	98,162	348,183

Estimated Relative Productive Activity in Commonwealth for the Years specified, 1871 to 1920.

Year.	I.		II.	III.		IV.	
	Estimated Value of Production.			Relative Value of Production per head 1911=1,000.	(a)	(b)	Estimated Relative Productive Activity per head Index-Numbers Year 1911=1,000.
	(a) Total. (000 omitted.)	(b) Per Head of Popula- tion.	Wholesale Price- Index- Number Year 1911= 1,000.		Production Price- Index- Number Year 1911= 1,000.	*	†
1871 ..	£ 46,700	£ 27.46	665	1,229	..	541	..
1881 ..	71,116	30.83	747	1,121	..	666	..
1891 ..	96,087	29.65	718	945	..	760	..
1901 ..	114,585	29.96	726	974	..	745	..
1906 ..	147,043	35.94	871	948	..	919	..
1907 ..	166,042	39.90	967	1,021	..	947	..
1908 ..	164,934	38.97	944	1,115	1,070	847	882
1909 ..	174,195	40.29	976	993	995	933	981
1910 ..	187,741	42.43	1,028	1,000	973	1,028	1,057
1911 ..	188,595	41.28	1,000	1,000	1,000	1,000	1,000
1912 ..	206,748	43.68	1,058	1,170	1,101	904	961
1913 ..	218,103	44.77	1,085	1,088	1,050	997	1,033
1914 ..	209,495	42.40	1,027	1,149	1,266	894	811
1915 ..	251,620	51.02	1,236	1,604	1,426	771	867
1916 ..	270,411	55.47	1,344	1,504	1,498	894	897
1917 ..	283,629	57.47	1,392	1,662	1,604	838	868
1918 ..	298,669	59.37	1,438	1,934	1,763	744	816
1919-20 ..	348,183	66.36	1,608	2,312	2,110	696	762

* Relative Production per head if computed by application of Wholesale Price Index-numbers.

† Relative Production per head (computed by application of Production Price Index-numbers, the basis being indicated in Production Bulletin No 13).

SECTION X.—OPERATIONS UNDER ARBITRATION AND WAGES BOARD ACTS.

1. **General.**—Particulars regarding operations under the Commonwealth Arbitration Acts and the various State Acts for the regulation of wages and hours and conditions of labour, shewing the number of boards authorised and constituted, also those which had and which had not made any award or determination in each State, the number and territorial scope of awards or determinations, and the number of industrial agreements, in force, were first compiled to the 31st December, 1913.*

These particulars have from time to time been revised, and reviews to the end of approximately quarterly periods have been published in the periodical Labour Bulletins and Quarterly Summaries to the 31st December, 1920. Information has also been compiled and included in the later issues of the Labour Bulletin and Quarterly Summary respecting the estimated number of workpeople affected by awards or determinations and industrial agreements in each State. The following tabular statement gives particulars of the operations in each State and under the Commonwealth Statutes during each quarter of the years 1916 to 1920†:—

* Information as to the main provisions of the various Acts in force may be found in the Official Year Book No. 13, pages 992 to 995.

† For particulars for previous years see Labour Reports, Nos. 6 to 10.