



Some Constituents of the National Income

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SOME CONSTITUENTS OF THE NATIONAL INCOME

*The Valedictory Address of the President, Professor A. L.
BOWLEY, C.B.E., Sc.D.*

[Given before the ROYAL STATISTICAL SOCIETY, June 18th, 1940]

Preliminary

THE no doubt laudable custom that a second address shall be exacted from the President on his termination of office has not been abrogated by the existing disturbances to detached and academic investigations. Thanks to the active co-operation of the Secretaries, of those members of the Council still in London, and especially of the office staff, who have carried on the usual routine of the Society in difficult circumstances, the issue of the *Journal* has not been interrupted, nor, I think, have its contents deteriorated. Possibly even the discussions on the Papers, carried on by correspondence, have been more mature than the impromptu speeches to which we are accustomed. The membership of the Society has hardly declined and the financial position gives no special cause for anxiety. With the new President and in general the same personnel, the Society may confidently hope that any further difficulties will be met with energy and efficiency.

In choosing my subject for to-day I naturally take that which has occupied a great part of my time for nearly two years, and which in fact is closely related to the first Paper I had the privilege of reading to the Society—that is, in 1895. It must not be assumed that I have thought of, or worked at, nothing but National Income during the intervening 45 years. Though all that I put forward to-day is on my own responsibility, and mainly without consultation with my colleagues, it is in fact largely the result of co-operative work. In 1938 the National Institute of Economic and Social Research delegated to a Committee of the London School of Economics the task of reporting on the National Income in any detail that should be found possible. During the twelve months or more prior to the outbreak of war, systematic research was carried on under my direction, with Mr. H. S. Booker as secretary and principal investigator. Since September I have worked through and extended the material, in consultation with Mr. H. Campion on several important problems. Only part of the subject has been completely explored, but I have the permission of the National

Institute to offer some results in a preliminary way, on the understanding that the Institute is in no way committed, and that revision and amendment may be made in any subsequent publication. As an Addendum to this paper, Mr. Champion has prepared a study of Salaries, on the same understanding as to the Institute's rights.

The central date for the investigation is 1931. For at that date we have the Censuses of Population and of Production, and the Ministry of Labour's Report on Earnings. Having established estimates for that year, we work back to 1924 to key on to the account that Lord Stamp and I gave for that year, and, on the other hand, carry it forward to 1938 or 1939. Here I do not attempt complete estimates, but only examine the course of the major constituents over the period. Also, having expressed my views on the measurement of Real Income at Manchester last November, I deal only with money income. Questions of definition do not arise till the relevant items have been measured. In fact I propose rather to examine the material and to test its sufficiency than to present any finished product. It may appear that I have spent my effort in straining at a gnat and swallowing a camel. But the gnats are interesting, if vexatious, creatures, and we cannot decide that they are unimportant till we have examined them. As to the camels, my gullet is less capacious than that of some writers on Income, but I have done my best to de-hump them and put them in suitable compounds.

It is only possible within the limitations of a Paper to describe the sources and methods and present the results. The whole *Journal* itself would not contain all the data and the tedious computations involved in their analysis. For example, there is an enormous mass of arithmetic behind the statement that the successive Returns of Earnings confirm the estimates of the course of wages derived from other sources.

The Number of "Persons Gainfully Occupied."

The Population Censuses of Great Britain show in considerable detail the numbers of persons classed as gainfully occupied at the Census dates. For intermediate years it is necessary to estimate them by interpolation and hypothesis.

The procedure adopted is to take the Registrar-Generals' estimates of numbers of all persons and their age and sex distribution each year, and apply to each grade the percentage of occupied to all recorded for the year 1931. In Table I it is seen that there have been significant changes in some of these percentages in recent decades, and it is interesting to speculate on their causes. For boys

under 18 years, and especially under 16 years, the percentage has diminished, it may be hoped for the reason that more continue their education or training after 16 years. On the other hand, for girls and young women in the grades up to 25 years the percentages occupied have increased, presumably a transfer from "helping mother" to paid work. In other age-groups below 65 years for males and 55 years for females there has been little change. In the higher age-groups for females the reduction (at least between 1911 and 1921) is due to lower employment of married women and widows. For males the reduction is only since 1921; this is possibly due to old-age pensions, possibly to greater reluctance to employ elderly men, possibly to changes in age-grouping within the grades. These changes apply to the relatively less important age-groups, while in the central grades which include the bulk of the occupied population the changes have been small, and smaller for the numerically more important males than for females.

The age-grouping in respect of occupation is not the same under 25 years as that in the Registrars' Annual Estimates, and adjusted percentages have been used as shown in the lower part of Table I.

The Census of North Ireland has not been taken at the same dates or in the same detail as that of Great Britain, but some estimate is available every year. The numbers computed as occupied in Great Britain have been raised year by year by a fraction falling from 1.0288 in 1924 to 1.0277 in 1931 and rising a little after 1931.

TABLE I
Occupied Persons as Percentage of all Persons

Great Britain

Age	Males				Females			
	1911	1921	1921	1931	1911	1921	1921	1931
14- ...	72.8	64.8	64.8	63.2	47.8	44.7	44.7	50.6
16- ...	92.0	91.5	91.5	89.8	69.4	71.2	71.2	75.6
18- ...	96.8	96.8	96.8	96.6	65.4	66.5	66.5	70.9
25- }	98.5	97.9	97.9	98.4	29.3	28.4	33.6	36.5
35- }			97.8	98.2			22.8	24.4
45- }	94.1	94.9	96.8	96.7	21.6	20.1	20.8	21.0
55- }			90.8	91.2			19.2	17.7
65- }	56.9	59.0	79.8	65.4	11.5	10.0	15.2	12.2
70- }			40.2	33.4			6.5	5.5
Aggregate 14-	92.7	91.8	91.8	90.5	35.4	33.7	33.7	34.2

Computed from the 22nd *Abs. of Lab. Stat.*, pp. 2-3.

*Percentages Applied to Annual Estimates of Population to
Approximate to Number Occupied*

Age-group	Males	Females
14-	51.6	40.0
15-	92.3	70.6
25-	98.4	36.5
35-	98.2	24.4
45-	96.7	21.0
55-	91.2	17.7
65-	47.9	8.2

TABLE II

*Estimated numbers of Occupied
Persons*

*Estimated numbers of
Wage-Earners*

Great Britain and Northern
Ireland

Great Britain and Northern
Ireland

Year	Males	Females	Total (0000's omitted) 1984	Males	Females	Total
1921	1401	583		1068	401	1469
1924	1413	627	2040	1060	429	1489
1925	1426	630	2056	1068	431	1499
1926	1438	632	2070	1075	431	1506
1927	1456	635	2091	1086	434	1520
1928	1467	637	2104	1092	434	1526
1929	1481	641	2122	1100	437	1537
1930	1495	642	2137	1109	437	1546
1931	1519	643	2162	1124	437	1561
1932	1537	642	2179	1135	436	1571
1933	1543	638	2181	1137	432	1569
1934	1549	633	2182	1139	429	1568
1935	1569	639	2208	1152	433	1585
1936	1587	645	2232	1163	436	1599
1937	1595	647	2242	1166	437	1603
1938	1613	653	2266	1177	441	1618

Estimated Distribution by Age of Occupied Persons

Great Britain and Northern Ireland

Age-group	Males			Females		
	1924	1931	1938	1924	1931	1938
14-21	164	151	141	299	286	274
21-55	683	681	679	626	626	626
55-65	112	122	127	54	63	71
65-	41	46	53	21	25	29
	1000	1000	1000	1000	1000	1000

The number of occupied persons in the United Kingdom exhibited in Table II have been computed by the methods described in the preceding paragraphs.

Change in Age Distribution.

The well-known changes in the age and sex distribution of the population are naturally reflected in the ages of the occupied. The result is summarized in the lower part of Table II.

For both sexes the proportions under 21 years have diminished, those for the central group 21 to 55 years have changed little, and those in the higher age grades have increased.

Since gainful occupation diminishes rapidly among women after the age 25, the effect of this change is shown in a slow rate of increase in the total occupied in the whole period 1924 to 1938, and an actual fall from 1932 to 1935, when the low birth-rates of 1916-29 were effective.

Number of Wage-Earners. Earning Strength.

It is important to emphasize that for purposes of estimating the National Income by the method of aggregating individual incomes it does not matter much whether a person is counted as a wage-earner or as salaried and in the intermediate group so long as the number concerned is small, since the income in marginal cases is much the same in the two groups. But for purposes of estimating the wage-bill we must have some hypothesis on which to base the change in the number of wage-earners, and obtain factors to apply to a better-founded estimate at one date, in this case at 1931.

In my *Wages and Income Since 1860*, Appendix E, I classify the occupational groups in the Censuses as Wage-Earning and Others, and obtain

Percentage of Wage-Earners to All Occupied.

	Males	Females
1921	75.5	68.7
1931	74.0	68.0

Here shop-assistants are excluded from wage-earners.

I have assumed that the fall in the percentages here shown has continued uniformly from 1924 to 1938; *e.g.*, the percentage for males is taken as 75.05 in 1924 and 72.96 in 1938. These percentages are applied in Table II to the numbers occupied to obtain estimates of the numbers of wage-earners in each year.

Allowance is now to be made for the numbers of unemployed wage-earners. For this purpose the usual percentages of insured persons unemployed are averaged annually for males and females separately, with some adjustment in 1937 and 1938 to eliminate the effects of change in the method of enumeration and the inclusion of additional occupations (Table III).

The numbers of wage-earners thus discounted are shown as "Employed Wage-Earners" in Table III. The numbers for the year 1926 were placed in brackets and are subject to modification in the sequel, for the percentage unemployed that year, excluding as it does the men actually involved in the coal-stoppage, does not measure the whole reduction in employment; nor is it probable that it allows sufficiently for reduction of work in other industries.

TABLE III

Year	Unemployed Per cent.		Employed Wage-earners 0000's			Index-numbers						Aggregate annual Wages (exc. shop- assistants) £Mn.
	M	F	M	F	Total	Earning Strength	Wage-rates		Wage Bill			
							A ₁	B ₁	A ₂	B ₂	D	
1924	11.0	8.6	943	392	1335	1000	1000	1000	1000	1000	1000	1495
1925	12.2	8.6	938	394	1332	999	1014	1016	1013	1015	1015	1520
1926	(13.5)	(9.9)	(930)	(388)	(1318)	(390)	1016	1012	(1006)	(1002)	993	1485
1927	11.0	6.2	967	407	1374	1034	1015	1006	1049	1040	1040	1555
1928	12.3	7.0	958	404	1362	1026	1007	991	1033	1016	1016	1520
1929	11.6	7.3	972	405	1377	1039	1001	982	1040	1020	1020	1525
1930	16.5	14.8	926	376	1302	983	992	984	975	968	968	1450
1931	22.6	17.9	870	359	1229	929	979	965	910	897	897	1340
1932	25.2	13.7	849	377	1226	928	962	947	893	879	879	1315
1933	23.1	11.4	874	383	1257	953	949	940	904	896	896	1340
1934	19.3	10.0	917	386	1303	989	949	944	939	934	950	1420
1935	17.6	9.8	949	391	1340	1019	960	955	978	973	1000	1495
1936	14.8	8.6	991	398	1389	1058	985	982	1042	1039	1060	1585
1937	12.15†	7.7†	1024	403	1427	1088	1020	1019	1110	1109	1120	1675
1938	13.85†	11.6†	1014	390	1404	1072	1056	1059	1132	1135	1130	1690

† Adjusted from the published figures to allow for the change in the method of enumeration and for the inclusion of additional occupations.

It is noticeable that with the increase in female unemployment since 1936, the number at work is lower in 1938 than in 1924.

The index-numbers of wage-rates used as one factor in estimating the National Wage Bill make no allowance for change in distribution of the labour force by sex or age or between industries.

From details given on p. 497 below it appears that the average wage of males under 21 years is about 45 per cent. of adult wages. It may be taken for granted that the average earnings of men over 65 is lower than that of men aged 21 to 65, but it does not seem possible to judge how much lower. In the following Table the effect on average wages of the change in age distribution of males over the whole period 1924-38 is shown on various hypothesis.* By adult wage-rates is meant the average for men aged 21 to 65; by "elderly" is meant over 65 years, by "juveniles" under 21.

* For example, the central entry is computed from the lower part of Table II, thus :

$$\frac{141 \times 0.45 + 806 \times 1 + 53 \times 0.80}{164 \times 0.45 + 795 \times 1 + 41 \times 0.80} = 1.0113.$$

Effect of Changes of Age Distribution of Males on Average Wages (1924 to 1938)

Per cent. elderly to adult wages	Per cent. of juvenile to adult wages		
	40	45	50
50	1.009	1.007	1.006
75	1.012	1.011	1.009
80	1.013	1.011	1.010
85	1.013	1.012	1.012
100	1.015	1.014	1.012

The effect of the relative diminution of the young is therefore about 1.1 per cent. spread over 14 years.

For females the average wage over 21 years is about 64 per cent. of average adult wages. If the average wage over 55 years was also 64 per cent. of average adult wages, no correction would be needed between 1924 and 1938. If we assume that the average under 21 is 64 per cent. of the average 21 to 65, while over 65 the average is half that for 21 to 65, the correcting factor is 1.0057, that is about half that for males. The correction is in any case so small that it is unnecessary to aim at greater precision.

The effect of the increase in the number of male earners relative to female is of more importance.

Write kw for the average wage of females, where w is that of males.

Write I for the index-number of wages, allowing for no change in age or sex distribution.

Use the figures for employed wage-earners in 1924 and 1938.

Then a little consideration will show that when changes in sex and age distribution are taken into account, we should have for the change of the National Wage Bill from 1924 to 1938 :

$$\frac{1014 \times 1.011 + 390 \times 1.006k}{943 + 392k} I$$

instead of
$$\frac{1014 + 390}{943 + 392} I$$

k is known to be in the neighbourhood of 0.5, and the ratio of these two fractions hardly changes as k varies from 0.45 to 0.55.

The first fraction is nearly 2 per cent. greater than the first, and this is the whole increase to be applied over the period to allow for increased earning strength.

To obtain an index of earning strength we have therefore to increase the total numbers of employed wage-earners (Table III)

progressively about 0.14 per cent. per annum, and it is not worth while to try to adjust this regular progression. This having been done the column is transferred to the base 1000 in 1924 to give the index of earning strength in Table III.*

The Index of Wage-Rates.

In Table III are given two index-numbers of wage-rates: A_1 that computed monthly for the London and Cambridge Economic Service and explained in detail in Memorandum 28 of that Service; B_1 that published by the Ministry of Labour, and discussed by Mr. Ramsbottom in the paper to the Royal Statistical Society (1935, Part IV) and brought up to later dates in the Journal 1938, p. 202, and 1939, p. 289. The structure of these numbers is well known. B_1 depends on a wider range of industries than does A_1 and it is adopted in the sequel. It is remarkable that they march closely together and are nearly identical in 1937 (compared with 1924).

Both index-numbers are on the basis of unchanged numbers and age and sex distribution and should therefore be applied to the index of earning strength to obtain an index of the National Wage Bill, not to the unadjusted numbers of earners.

They also neglect any change in the relative importance of industries. I have examined this effect in my *Wages and Income*, pp. 107–110. From 1924 to 1931 it is negligible, and from 1931 to 1935 the computed effect is an increase of under 1 per cent. in the industries covered by the Census of Production. But when mining and agriculture are included there may be some modification. I have combined this change with the more important adjustment that I proceed to discuss.

It is clear that index-numbers that depend primarily on changes of time- and piece-rates do not necessarily give an exact measurement of earnings. For apart from complete unemployment, for which allowance has already been made, there are facilities for increased earnings on piece and for overtime and less broken time, when industry is prosperous. Further it is well known that an arranged change in piece-rates is not necessarily proportional to the corresponding change in earnings. These relationships can be tested by the general returns of earnings published by the Ministry of Labour for 1924, 1928 and 1931, supplemented by information regarding coal-mines, railways and agriculture. On the basis of these data I estimated average earnings for males and females separately in my *Wages and Income*, p. 51. It remains to combine these by the help of the numbers of occupied wage-earners.

* For example: the figure for 1938 is $1000 \times 1404 \times 1.019 \div 1335 = 1072$.

Average Earnings

	Males		Females		All Wage-earners			
	Numbers 000's	Average	Numbers 000's	Average	Average		Index-numbers	
							B ₁	B ₃
1924	943	54.4s.	392	27.5s.	46.5s.=	100.0	100.0	100.0
1931	870	53.7s.	359	26.9s.	45.9s.	98.7	96.5	97.0
1935	949	54.7s.	391	27.3s.	46.7s.	100.5	95.5	96.3

Here the index-numbers first given are proportional to average earnings; B₁ is that from Table III, and B₃ is B₁ adjusted for the greater change in "earning strength" than in numbers occupied, a change which has already had its effect on the estimates of average earnings.

We find then that earnings of employed wage-earners had decreased rather less than rates between 1924 and 1931, and increased between 1931 and 1935, when rates dropped.

We can make a rough test of the relation between wage-rates and earnings by comparing the details of Mr. Ramsbottom's index with records of earnings in eight industries, viz.: Cotton, Wool, Boots, Bricks, Pottery, Coal, Railways and Iron and Steel Production. The first five depend on the statistics of members employed and earnings, given monthly in the Ministry of Labour Gazette. For this purpose the average earnings shown each November, as compared with those a year before, have been computed for comparison with Mr. Ramsbottom's December figures. For coal the average earnings per shift in the fourth quarter of each year are taken; for Railways the annual report on earnings for March or

TABLE IV

Index-numbers of Approximate Earnings (E) Compared with Constituents of Wage-Rates Numbers B₁ for December

	Cotton		Wool		Boots		Bricks		Pottery		Coal		Railways		Iron and Steel		General Average		
	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	
1924	100	100	(103)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1926	90	100	100	100	101	103	98	101	110	100	—	99	103	100	—	95	100	100	100
1928	99	100	102	100	93	98	95	101	103	100	87	87	102	96	96	90	97	96½	98
1929	94	94	103	99	100	98	96	101	103	100	87	87	102	96	98	90	98	96	98
1930	85	94	95	91	98	98	96	101	96	91	88	85	100	98	92	90	94	93½	94
1932	86	86	92	84	94	93	85	100	89	91	87	84	95	94	87	86	89	90	89
1934	86	86	95	82	95	93	94	100	95	91	87	84	95	95	98	89	93	90	93
1935	89	84	99	82	98	91	96	101	96	95	88	84	97	95	111	92	97	90½	97
1936	91	87	100	89	97	92	99	104	99	98	95	91	99	96	108	96	98½	94	98½
1937	98	92	95	89	97	96	103	104	99	100	103	97	102	99	118	110	102	98½	98½
1938	96	92	103	89	101	99	100	104	97	100	106	97	105	99	120	116	103	99½	99½

April each year; for Iron and Steel Production the annual earnings as computed by the Iron and Steel Institute. There are many minor and some more important difficulties in making the comparison, and it does not seem to be worth while to do more than give rough averages.

The series of general averages agree so closely till 1932 that it seems best not to modify the original index-numbers in Table III prior to 1934; but in the years of improving trade adjustment seems to be justified. The industries selected probably contain on the whole a larger element of piece-rates or greater opportunities of overtime (in the case of railways) than do industries in general, and a smaller increase than that suggested by the figures here is probably justified.* The following paragraphs throw some light on the problem.

The Wage Bill and Income Tax, Schedule D.

There is a close relationship between the computed index-numbers of the Wage Bill and "Actual Income" under the Income Tax, Schedule D. The data for the years 1924 to 1935 are given in Table V and in the accompanying diagram. 1926 is omitted from the computation, since the average number of occupied wage-earners in that year is doubtful.

By the usual method of partial correlation, in which the effect of the time-element is separated we obtain the equation

$$Y' = 434 + 0.57X + 4.6t, \pm 12$$

where Y' is the wage-bill index, $\text{£}X$ Mn is the actual income in Schedule D † and t is the number of years measured from 1930.

The mean square deviation of Y' as computed from Y the given index is approximately 12, or 1.2 per cent.

The fit of the computed line (Y') to the given line is very close from 1929 to 1934.

Y' is computed from values of Y raised in 1934 and 1935 on *a priori* evidence that earnings increased more than weights.

If, however, we used the original values of B_2 in these years we obtain a modified equation

$$Y_1' = 490 + 0.505X + 1.29t.$$

Neither equation should be regarded as representing a permanent relationship between the wage-bill and Schedule D. Different

* In Table IV it is noticeable that from 1935 to 1936 in the general averages earnings increased less than rates. It appears from more detailed records that rates were raised at a later stage in the period of improving trade than the increase of earnings, as indeed we might expect.

† The assessment of each year, *e.g.*, 1925-26, is compared with the wage bill of the previous year (*e.g.*, 1924).

Wage-Bill Index and Schedule D



X. Schedule D. Actual Income £ mn. x—x 1925-6 placed under 1924, etc.
 Y. Index of National Wage Bill. 1924 = 1,000. o—o.
 $Y' = 436 + .57X + 4.6t$, where t is number of years after 1930. - - - -

TABLE V

Schedule D		Wages-Bill Index Estimates Computed from Formula			
Year	Actual Income £ X mn.	Year	Y	Y'	Y ₁ '
1925-26	1033	1924	1000	995	1004
1926-27	1064	1925	1015	1017	1021
1927-28	1013	1926	—	993	996
1928-29	1065	1927	1040	1027	1024
1929-30	1078	1928	1016	1039	1032
1930-31	1032	1929	1020	1018	1010
1931-32	922	1930	968	959	956
1932-33	802	1931	897	896	896
1933-34	756	1932	879	874	874
1934-35	829	1933	896	920	912
1935-36	858	1934	949	941	928
1936-37	944	1935	1005	995	973

periods of years yield different coefficients. But a close relationship between the movements is demonstrated, and explanations may be sought in years where the divergence is at all considerable.

On the evidence of these figures I propose to adopt the number 993 as the wage-bill index for 1926.

For the years 1934 to 1938 the evidence is somewhat conflicting.

Using provisional estimates for Schedule D for the years 1937-38 to 1939-40, we have alternative estimates as follow :

Estimates of Wage-Bill Index

	A ₂	B ₂	Y'	Y ₁ '	Adopted	
1934	939	$934 \times 1.016 =$	949	941	928	950
1935	978	$973 \times 1.030 =$	1002	995	973	1000
1936	1042	$1039 \times 1.024 =$	1064	1048	1019	1060
1937	1110	$1109 \times 1.016 =$	1127	1090	1054	1120
1938	1132	$1135 \times 1.016 =$	1153	1075	1038	1130

Here the multiplier applied to B₂ is obtained by assuming that the general excess of the movement of earnings over rates is half that indicated by Table IV. For 1935 the excess is in the same proportion as that indicated by the Wage Census (p. 499 above).

During the time of expanding employment, 1935-37, the wage index-numbers show a stronger movement than does Schedule D, and are I think to be preferred.

In 1938 there was a reaction in industry and employment, and it would be anticipated that the factor to be applied to B would be less than unity. But the tendency to increased wage-rates was continued, while the actual amount of Schedule D is not known to me at the time of writing.

From these considerations I adopt the figures shown in the last column with considerable hesitation.

The results are shown under D in Table III.

For completeness at this stage the Wage-Bill Index is applied to the estimate of earnings in 1931 discussed below and the results are shown in the last column of Table III. So far the earnings of shop-assistants are excluded.

It is interesting to compare the estimate for 1924, here £1,496 Mn, with that made in *The National Income, 1924* (Bowley and Stamp), which (excluding shop-assistants) was £1,480 mn. The present estimate is based primarily on reports on earnings in 1931, worked back by index-numbers of wage-rates and earning-strength. The earlier estimate was based on the Wage Census of 1906, worked forward by estimates of the occupied and employed population, and wage-indices computed partly from the Wage Returns of 1924, but largely from other sources. A possible error of ± 5 per cent. was suggested for 1924. It is very remarkable that the two estimates differ by only 1 per cent.

The whole series from 1924 to 1931 is about 1 per cent. higher than that given in my *Wages and Income*, p. 77. From 1931 to 1935 it is $1\frac{1}{2}$ per cent. higher. The revision of the wage and earnings index and of the number occupied for 1936 makes the new estimate 1 per cent. lower than the old in that year.

Note on Wages of Juveniles.

There is need for a systematic study of the rates of wages of boys, girls and young persons up to the age at which full adult rates are received, and indeed of the progression of earnings also for younger adults when the maximum is not reached till after some years of experience. I commend such a study to Fellows of the Society or to competitors for the Frances Wood Memorial Prize. Meanwhile I have put together the data relating to the subject in "Standard Time Rates and Hours of Labour, 1929," a publication which was kindly annotated for me at the Ministry of Labour in connection with another investigation, so that most of the figures used apply to the year 1937.

The Table and diagram given should be regarded as the results of only a preliminary and rough investigation, the main purpose of which was to estimate the effect on "earning strength" of the relative falling-off of young earners. On any reasonable hypothesis that effect was found (p. 497 above) to be trifling.

The averages in Table VI are simple averages based on 262 entries for males (including 49 for agriculture) and 128 for females.

The entries are not distributed in accordance with the importance of industries, but nothing appeared to be gained by any system of weighting; one which I applied did not affect the result.

TABLE VI
Juveniles' Weekly Wage-Rates
(shillings)

Age	14	15	16	17	18	19	20	21
Males								
Bricks, chemicals ...	13·1	15·8	19·1	23·2	28·9	34·1	39·3	—
Metal, engineering ...	11·2	13·4	15·9	19·4	25·3	29·8	34·3	—
Textiles ...	11·3	13·2	16·7	20·9	26·3	31·1	36·2	—
Clothing ...	11·4	14·5	19·5	24·1	29·0	32·9	35·8	—
Boots (minimum) ...	12·0	16·0	20·0	25·0	30·0	36·0	44·0	—
Food ...	12·6	14·7	17·6	21·5	27·5	33·9	42·0	—
Wood, furniture ...	—	—	15·5	17·1	25·6	34·1	41·5	—
Paper, printing ...	11·3	15·0	19·2	24·4	30·2	36·4	44·5	—
Building, artisans ...	9·8	11·3	14·2	17·2	21·5	28·5	40·8	—
„ labourers ...	14·4	14·4	21·5	21·5	28·7	28·7	43·1	—
Transport ...	16·0	16·0	20·0	25·0	30·0	35·0	—	—
Distribution ...	12·1	14·6	18·4	23·0	28·7	36·1	42·5	—
Agriculture *	11·2	13·9	16·8	20·4	23·9	26·6	29·0	—
Miscellaneous ...	—	15·2	18·0	22·6	28·6	34·2	39·8	—
General average ...	12·1	14·3	18·0	21·8	27·4	32·7	39·0	—
Females								
Chemicals ...	11·8	13·8	16·1	19·4	22·2	24·2	26·0	28·1
Metal, engineering ...	10·5	12·3	14·6	17·2	22·0	24·6	25·2	25·3
Textiles ...	10·8	13·4	16·4	20·1	24·0	26·3	27·9	28·5
Clothing ...	10·1	13·0	17·0	21·1	25·7	28·3	30·6	31·6
Boots... ..	12·0	16·0	20·0	25·0	30·0	30·0	30·0	30·0
Food ...	11·8	14·7	16·7	20·9	24·5	27·3	29·5	34·1
Furniture ...	10·7	12·8	16·6	21·9	29·0	33·8	38·6	38·6
Paper, printing ...	8·9	11·4	15·9	22·3	25·6	27·3	29·0	31·6
Distribution ...	10·2	12·4	15·1	18·2	23·1	26·9	30·2	32·7
Miscellaneous ...	—	11·8	14·4	18·1	22·4	25·5	29·0	30·9
General average ...	10·6	13·2	16·3	20·4	24·9	27·4	29·6	31·1

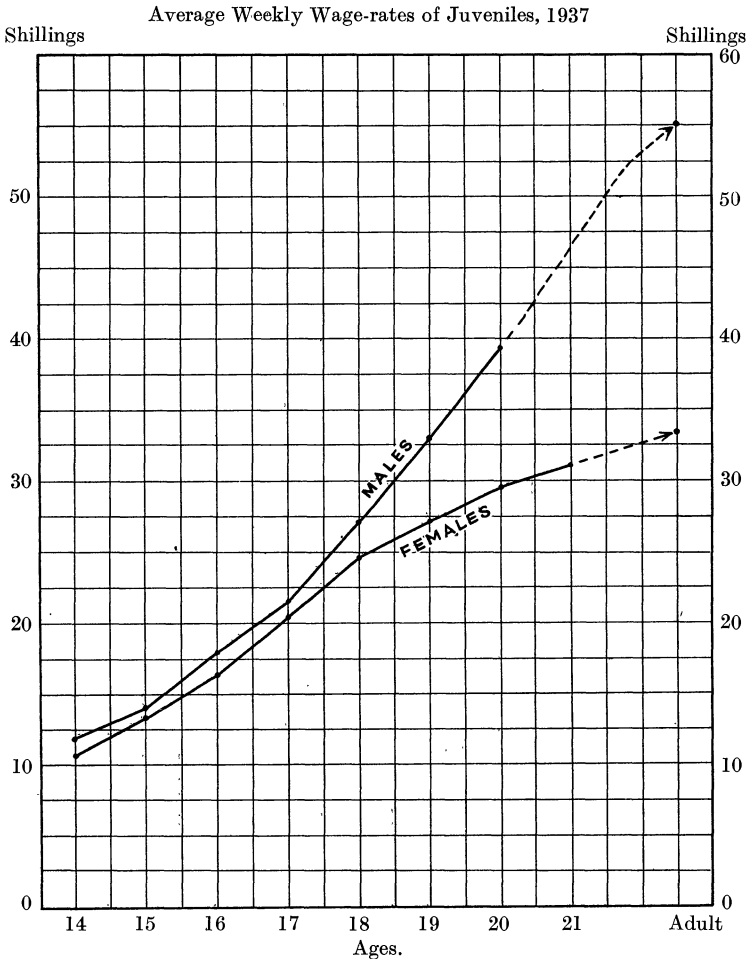
* In the year 1933.

There is considerable variety in the upward steps in wages year by year in different occupations, and there is often a distinction between apprentices and others. On the whole the statements confirm the general impression that in unskilled male occupations wages start higher, increase at first more rapidly and reach their maximum at an earlier age, than in skilled occupations. In the latter the wage at 20 years is considerably below the standard rate for adults, and it appears that there is a sudden jump at the age 21.

From the Table and diagram it is seen that girls start at nearly the same rates as boys, but make slower progress especially after

17 years of age, and by the time they are 21 are usually receiving adult wages. The actual age at which adult rates are payable varies from trade to trade.

The dotted lines in the diagram are intended to indicate progress towards an average adult wage of 55s. to 60s. for men and 33s. to 36s. for women.



The general averages for females agree closely with those recorded in the *New Survey of London Life and Labour*, Vol. VI, pp. 82-4. Their earnings in factories, workshops, etc., average 13s. 6d. at 14 to 16 years, 18s. 6d. at 16 to 18, 25s. 6d. at 18 to 20, 30s. 6d. at 20 to 25, and 33s. 6d. for all ages 20 to 65. It might have been

expected that London wages would be higher than provincial, but the figures here assembled do not support this view.

Total wages in 1931.

The Population Censuses of England and Wales and of Scotland of 1931 and that of Northern Ireland in 1926, together with some subsidiary information, enable us to classify gainfully occupied persons as follows :

United Kingdom, 1931
(000's)

	Males	Females	Totals
Wage-earners	9,035	3,793	12,828
Shop-assistants, etc.	606	494	1,100
Salaried and employers in agriculture	215	20	235
Others	2,548	1,211	3,759
Workers on own account	965	361	1,326
Total	13,369	5,879	19,248
Unemployed	2,014	575	2,589
Total	15,383	6,454	21,837

In this total is included an estimate of the number of fishermen and seamen absent on Census night.

In the present section shop-assistants are distinguished from other wage-earners and subsequently from the rest of the salaried group, since the various sources of information about their earnings do not allow any class distinction in their case between manual operatives and salaried or administrative.

For weekly earnings we depend primarily on the returns for "Average Earnings in the Principal Industries in Great Britain and Northern Ireland" in the week October 18th to 29th, 1931, summarized in the *Ministry of Labour Gazette*, 1933 (pp. 8, 45, 82). These, when supplemented by the periodic returns of coal-miners' earnings, cover the Industrial Groups III–XIV in Table VII. Other sources are used for agriculture and railway earnings. For domestic servants a small special investigation was carried out, which gave sufficient information to allow of a fairly reliable estimate. For other occupations we depended on known wage-rates for particular occupations or for the class of labour employed. Allowance was made for the value of board, lodging and clothing in the cases where it was relevant.

In the main group covered by the Ministry of Labour's returns there were in some cases difficulties in judging the relative import-

ance of firms employing less than ten persons and of larger firms, for which the returns were separately given. In all cases there was a little doubt whether the returns, which were on a voluntary basis, were closely typical of the whole industries.

The whole of the data were treated independently by Mr. Booker and myself. His first estimate of the total was $3\frac{1}{2}$ per cent. below mine; of this difference (£47 mn.) £15 mn. was due to coal-miners earnings, where I found evidence of a higher average number of shifts, £5 mn. to his use of minimum rates (instead of earnings) in agriculture, £13 mn. to an allowance for deficiency in the returns from small building employers, where the earnings were at lower rates than in larger firms, and the remaining £14 mn. came from a number of industries, and principally from the assumption that small firms were insufficiently represented. I have not had the opportunity of collating these estimates with him completely, but I think that we would agree to at least half of my additions, so that we might write the total wage bill at £1,330 \pm 10 mn., so far as this variation of estimate is concerned. In this paper, however, I have taken the higher quantity, £1,340 mn., as the principal estimate.

Apart from this difference of interpretation of the data there is the possibility of small errors in every factor and estimate involved. These are independent of each other and tend to cancel out, and would in that case give a margin of some 1 per cent. or less in the total.

Another consideration is that the earnings returns are for one week in October, and may not be applicable as the average of the year 1931. Actually changes in wage-rates were very small during the year, and the fluctuations in employment were not such as to lead us to expect any important difference in the relation between earnings and rates, when October is compared with the whole year.

There is, however, the further consideration whether the number recorded in the Census as employed in April was equal to the average number employed during the year. Among insured persons the percentage unemployed was 20.4 in April and 21.3 as the average for 1931 (21.9 in October), so that the percentage not unemployed was 79.6 in April and 78.7 for the year. But the insured population increased by 3 per cent. during the year, and the number of insured persons employed was very nearly the same in April as the average for 1931. In the occupations outside insurance the relationship may have been different, and on the whole it seems best not to adjust the main estimate, but to realize that here is a further error of less than 1 per cent. It may be added that various systems of

TABLE VII
Estimate of Earnings and of Salaries under £125 p.a. in 1931
 United Kingdom

Industrial Group	EARNERS						EMPLOYERS, MANAGERS, AND NON-MANUAL OPERATIVES								
	Males			Females			Males			Females					
	Numbers	Weekly Earnings	Numbers	Weekly Earnings	Numbers	Annual Earnings	Numbers	Under £125	Per cent.	Average Salary	Numbers	Under £125	Per cent.	Average Salary	
	000's	Shillings	000's	Shillings	000's	£ Mn.	All	Under £125		£	000's	Under £125		£	
I. Fishing	38	44-0	1	22-0	2-5	4	20	70	20	70	0-2	80	80	80	0-1
II. Agriculture	778	34-0	52	25-0	6-1	65	20	70	20	70	2-0	80	80	80	0-2
III. Coal Mines	920	49-0	4	24-0	20-2	108	16	70	16	70	1-7	75	86	86	0-3
Other Mines, etc.	91	51-3	2	26-5	6-3	11	16	70	16	70	0-7	75	86	86	0-1
IV. Mineral Products	44	65-2	2	29-2	5-2	7	20	62	20	62	1-2	75	86	86	0-1
Bricks, Pottery, Glass	134	51-7	47	22-4	11-6	19	20	62	13	80	4-1	85	77	77	0-4
V. Chemicals, etc.	110	58-8	36	27-5	46-5	18	13	80	17-8	65	17-8	65	80	72	0-4
VI. Iron and Steel production	129	54-7	1	22-4	14-1	17	21	63	21	63	2-8	80	72	72	0-3
Engineering	326	52-4	19	26-8	65-3	42	20	65	20	65	19-5	80	75	75	2-0
Electrical Engineering	139	50-6	45	27-4	37-2	20	12	70	12	70	17-7	80	77	77	1-4
Vehicles	256	57-3	23	28-5	39-4	37	24	70	24	70	14-5	80	77	77	1-3
Ships	145	51-8	2	26-9	13-1	18	13	48	13	48	2-5	91	68	68	0-3
Other Metal Industries	400	52-3	91	22-8	60-1	55	16	66	16	66	20-8	75	74	74	1-8
Precious Metals, Watches	20	57-8	11	26-2	5-6	4	20	70	20	70	3-4	80	75	75	0-3
VII. Cotton	151	45-3	269	27-2	16-0	34	22	74	22	74	4-7	88	72	72	0-6
Wool	85	49-3	121	27-6	10-9	18	22	74	22	74	3-1	88	72	72	0-4
Other Textiles	107	49-3	252	26-5	25-2	29	22	74	22	74	16-1	88	72	72	1-4
Dyeing, Bleaching	72	49-3	21	24-3	8-6	10	22	74	22	74	3-2	88	72	72	0-3

VIII.	Leather	...	42	52.7	21	29.9	7	9.4	25	70	3.8	70	85	0.4
IX.	Clothing	...	203	53.6	435	27.6	54	57.9	14	80	37.6	80	73	2.8
X.	Food	...	193	58.2	126	26.3	35	87.3	12	88	57.7	65	80	3.9
	Drink	...	73	56.9	17	23.8	11	24.2	24	80	3.4	64	90	0.7
	Tobacco	...	12	58.8	29	36.7	4	6.9	20	75	3.3	70	80	0.3
XI.	Wood, Furniture	...	184	52.0	25	26.8	24	33.0	20	75	6.6	80	75	0.9
XII.	Paper	...	38	57.2	12	26.3	6	4.4	15	65	1.9	60	90	0.1
	Stationery	...	22	56.1	48	26.8	6	8.7	25	60	5.6	80	70	0.4
	Printing	...	161	77.4	72	29.2	35	61.7	22	63	21.4	82	71	2.1
XIII.	Building, Contracting	...	790	58.2	4	27.0	111	94.7	14	85	9.6	90	85	1.9
XIV.	Rubber	...	26	57.3	16	27.0	5	8.2	30	60	4.0	66	90	0.4
	Other manufactures	...	69	52.9	40	28.0	11	24.5	30	60	12.2	66	90	1.2
XV.	Gas, Water, Electricity	...	187	62.3	3	26.5	28	33.1	15	75	4.8	75	77	0.7
XVI.	Railway Transport	...	458	66.4	6	30.0	74	67.7	10	80	9.7	50	90	1.0
	Road Transport	...	359	62.2	6	32.8	54	46.1	30	70	11.8	90	70	1.7
	Other Transport	...	288	55.0	6	27.0	38	53.8	20	70	7.5	80	75	1.2
XVII.	Distribution	...	505	50.0	116	27.0	68	425.4	28	70	140.0	77	66	15.4
	Banking, etc.	...	42	50.0	19	20.0	6	261.3	15	80	71.9	55	93	6.8
XVIII.	Defence	...	336	45.7	3	28.0	37	39.3	8	74	3.3	55	82	0.4
	Central Government	...	32	58.6	10	39.5	5	235.8	20½	74	79.4	55	82	6.8
	Local Government	...	408	52.6	68	26.0	56	83.9	15	76	27.8	41	87	2.0
	Police	...	—	—	—	—	—	67.0	0	0	—	—	—	0.0
XIX.	Teachers	...	—	—	—	—	—	66.8	1	111	164.0	3½	106	0.7
	Nurses	...	—	—	—	—	—	—	—	—	151.6	76	80	9.2
	Professions	...	69	50.0	83	23.0	13	65.0	18	72	51.0	75	77	3.9
	Others	...	—	—	—	—	—	148.2	0	0	36.8	20	80	0.6
XX.	Entertainments, Sport	...	55	52.0	16	24.0	8	44.7	20	75	30.8	70	85	2.5
XXI.	Personal Service	...	507	36.0	1,604	22.0	124	86.2	25	75	107.3	85	70	8.0
XXII.	Other	...	32	36.0	8	25.0	4	8.9	20	70	7.8	75	78	0.6
	Total	...	9,035	51.6	3,793	24.2	1,340	2,548.0	17½	73	1,209.0	62½	77	90.0

weighting the separate returns within the total have been tested, and that they give very nearly the same results.

The remaining difficulty is in estimating the number of weeks to be applied to the October earnings to obtain annual earnings. More study and more information are needed here. Provisionally absence from work owing to holidays (usually without pay at that date) and from sickness is taken as averaging 4 weeks per annum, so that the weekly earnings in Table VII are multiplied by 48 to obtain annual earnings.

After consideration of all these elements it seems reasonable to regard the estimate of total annual earnings as subject to a margin of error of less than 5 per cent., or, since the possible errors suggest an over- rather than an under-estimate, as between £1,280 mn. and £1,370 mn. This is exclusive of shop-assistants.

Salaries below the Income Tax Exemption Limit.

As in the years 1911 and in 1924, a direct investigation was made into salaries by questionnaires issued to employers. We were successful in obtaining a great deal of information, and at least for the purpose of Table VII, which is to obtain the total of earned incomes other than wages below the exemption limit of £125, the returns were sufficient.

In the computation which leads to the total (£90 mn.) there are a very large number of independent estimates of percentages and averages, and so far as these are concerned the majority of the entries are unlikely to be more than 10 per cent. in error and the total should be correct within 5 per cent. But there is some doubt about the numbers to which these percentages should be applied. The columns headed "Numbers. All" include the entries in the Population Census under Employers and Managers (except in Agriculture), as well as estimates of the numbers of non-manual operatives, and it is doubtful how far the returns to the questionnaires included the superior group. Also in some cases there were included rather arbitrary estimates for quite small employers. Taking all these uncertainties into consideration, we may with some confidence write the total as between £80 mn. and £100 mn., keeping £90 mn. as the most probable estimate.

Of course we have not in this Table the material for computing average salaries of all employed, but only the average of the lower 17 per cent. of the men and the lower 62 per cent. of the women. Since the men include beginners preponderantly, while the women include many who have reached their maximum, it is not surprising that the average in these sections is greater for women than for men.

The numbers of those with small salaries are not stated in the Table, to save space. The last line may be written :

Under £125 per annum

	Numbers	Average Salary	Aggregate of Salaries
	000's	£	£ Mn.
Males	448	73	33
Females	746	77	57
Total	1,194	75	90

Shop-assistants.

It will be seen in the sequel that when the aggregate number of incomes is to be estimated, it is necessary to know what employees are classed as "weekly wage-earners, employed by way of Manual Labour" and are assessed on a half-yearly basis. Unfortunately neither the instructions nor the practice are clear as regards employees in shops. Shop-managers, shop-walkers, window-dressers, are given as examples of occupations "not regarded as manual," while working-dressmakers are "regarded as manual." Counterhands are not named. The covering definition is: "'Manual Labour' includes all occupations which depend mainly on the exercise of physical exertion, even though a considerable amount of dexterity and training may be involved."

We have found on enquiry that some distributors include all shop-assistants in their general return to the Income-Tax authorities, merging them with clerks, etc., while others include them in the special return relating to manual labour.

As a compromise it has been decided for the present purpose to assume that the number of shop-assistants receiving less than £125 per annum—approximately 50s. weekly—is equal to the number returned as manual labourers, and that the remainder are included among the number assessed on an annual basis for income tax.

We have received reports that cover 125,000 shop-assistants—that is, about 12 per cent. of the number so classed in the Census of 1931—and the numbers and average salaries of those receiving less than £125 per annum in 1938.

Salaries of Shop-assistants in 1938

Percentage under £125 p.a.	Males 39	Females 89
Average salary :		
Under £125	£61·4	£78·3
£125 or more	£189	£162
All... ..	£139	£87

It is quite possible that the returns, which came from large distributors, do not contain a sufficient proportion of quite low rates

for young girls, and that the average (about 35s. weekly) for all females is too high. I have reduced the average under £125 somewhat arbitrarily in the estimates that follow.

Our returns indicate that salary-rates were nearly stationary from 1924 to 1936, that they rose $2\frac{1}{2}$ per cent. in 1938 and a further 1 per cent. in 1939.*

From this information we have to deduce the proportions and average salaries under £125 in 1931 and subsequent years, and under £150 from 1924 to 1930.

As regards the numbers concerned we have from the Population Census :

Salesmen and Shop-assistants

(000's)

	Males	Females
Great Britain, 1921	352	411
" 1931	511	484
Northern Ireland, 1926	11	9

The statistics of Insured Persons under the heading "Distribution" have a wider content, especially of males, many of whom are presumably drivers and porters.

Insured Persons : Distribution

(000's)

Great Britain and Northern Ireland	Males	Females
1924	808	544
1931	1,137	738
1939	1,282	814

The increase here is much more rapid than that shown by the Census. In the sequel I have taken the Census figures with a uniform rate of growth from 1924 and 1931, and assumed an annual increase of 1 per cent. from 1931 to 1938 and no change in 1939, since the Insurance statistics indicate stationariness.

The change in the income-tax exemption limit, the movement in rates of salary and the correction for the presumed over-estimate of women's salaries affect the proportion and average rates below and above the exemption limit. After trying various hypotheses I have provisionally adopted the estimates in the following Table. These may be modified in the light of further information.

* See Mr. Campion's paper, p. 531 below.

TABLE VIII A
Shop-assistants
 Estimates of factors involved

	Year	Limit £150			Limit £125			
		1924	1930	1931	1936	1937	1938	1939
Males								
Total number (000's) ...		409	505	521	546	551	558	538
Below limit :								
Percentage ...		50	50	42	42	39	39	39
Number (000's) ...		204	252	219	229	215	218	218
Av. salary (£) ...		80	80	62	62	61.4	61.4	61.4
Females								
Total number (000's) ...		443	485	493	498	503	508	508
Below limit :								
Percentage ...		95	95	91	91	89	89	89
Number (000's) ...		421	462	449	453	447	452	452
Av. salary (£) ...		75	75	72	72	70.7	70.7	70.7

Between 1924 and 1930 and again between 1931 and 1936 uniform progression in numbers is assumed, and we obtain :

TABLE VIII B
Shop-assistants, Numbers and Aggregate Salaries
 Male and Female

Year	Number (000's)			Aggregate salaries, £ mn.			Add roundsmen wages to small salaries £ mn.
	Under £150	£150 and over	Total	Under £150	£125 and over	Total	
1924	625	227	852	48	43	91	57
1925	640	235	875	50	44	94	59
1926	655	243	898	51	45	96	60
1927	670	251	921	52	47	99	61
1928	684	260	944	53	48	101	62
1929	699	268	967	54	50	104	63
1930	714	276	990	55	52	107	64
	Under £125			Under £125	£125 and over		
1931	668	346	1,014	46	64	110	55
1932	671	349	1,020	46	65	111	55
1933	674	352	1,026	46	66	112	55
1934	677	355	1,032	46	67	113	55
1935	680	358	1,038	47	67	114	56
1936	682	362	1,044	47	67	114	56
1937	662	392	1,054	45	73	118	54
1938	670	396	1,066	45	75	120	54
1939	670	396	1,066	45	76	121	54

These estimates should be regarded as subject to margin of error

of ± 10 per cent. throughout.* In particular some modification is probably needed to allow for the changing stress of unemployment.

In the Table on p. 513 the number classified as shop-assistants is 1,100,000; the excess of 86,000 over the number 1,014,000 in Table VIII A and B is due to the inclusion of "Roundsmen and Van Salesmen," whose annual earnings are about £9 mn. This sum is added to obtain the last column in VIII B.

Income in the year 1931

In consequence of the reduction of the income-tax exemption limit for earned income from £162 to £125 in the year 1931-32, a considerable number of incomes, estimated at 1,100,000, were assessed as taxable, though many were not taxed owing to additional allowances. The greater part of this number was presumably drawn from the "Intermediate Class," that is recipients of earned incomes less than £162 arising from non-manual work. The number in this class was estimated at 1,990,000 in 1924 (when the exemption limit was £150) with an aggregate income of £190 mn.

United Kingdom, 1931

	Total	Occupied Persons		Aggregate Income under £125 or Manual
		Under £125 or Manual	£125 and over Non-Manual	
	00,000's	00,000's	00,000's	£ Mn.
Employers	40	12	28	90
Managers				
Salaried				
On own account	13	6 <i>18</i>	7	50 <i>140</i>
Shop-assistants	11	7	4	55
Wage-earners	128	128	0	1,340
Total	192	153	39	1,535
Unemployed at Census date	26	—	—	—
Total	218	—	—	—

This Table shows 1,800,000 persons in the Intermediate Class (if as in 1924 shop-assistants are counted with wage-earners) with an aggregate income of £140 mn. The average income (under £125) at £78 is to be compared with the £95 (under £150) estimated in 1924.

The number of individuals assessed to tax in 1931-32 was estimated by the Income-tax Commissioners at about 4,900,000; the exact number is not known, and is less than the number of separate

* In *Wages and Income*, p. 77, the estimate for shop-assistants was £120 mn. in 1924, £100 mn. in 1931, and £120 mn. in 1936. These figures include some distributors who were not shop-assistants, and assumed (in the absence of evidence to the contrary) that the movement in salaries and unemployment was parallel to that in wage-rates.

assessments of income, since many persons are assessed under more than one schedule or more than once under one schedule. Among the individuals assessed is a considerable number who are not occupied and derive their income solely from property. A current estimate of this number is 250,000. Thus there are presumed to be about 4,650,000 individuals with incomes £125 or more, partly or wholly derived from gainful occupation. This is 750,000 in excess of the number of occupied persons (as shown in the Table above), whose income from occupation is £125 or over. The gap is serious, both as regards number and aggregate income, and is still under investigation.

One possible way of filling the gap can thus be found :

(a) Among the wage-earners may be included some, especially in Industrial Orders XVII to XX who are not regarded as manual and assessed half-yearly (including here some of the shop-assistants with less than £125 per annum).

(b) Among the salaried some will have additional income from property or supplementary work which bring their incomes from under to over £125.

(c) Among the salaried there are many married women, whose incomes are merged with their husbands' in assessment, and then the couple counts only as an individual.

(d) There is at present no basis for deciding how many of those working on their own account are assessed to tax.

On the assumptions that these classes account for 750,000 persons, and that their aggregate earned income is £60 mn. (*i.e.* £80 per head, men or women), the gap is closed. Part of this £80 mn. is included in the wage-earners aggregate, part in salaried. The Intermediate Class in the Income Total is replaced by a "residual class" that includes those incomes which are not assessed to tax or included under wages. The amount to be included is £80 mn., *viz.*, the £140 mn. in the table less £60 mn.

Income from property that brings individual incomes above £125 is already included in the Income-tax total. Any earned income from occasional or supplementary sources should be added, but the amount is not known and can hardly be great enough to affect the total perceptibly.

The estimate for the total of the constituents of national income so far considered in 1931-32 is then :

Assessed to Income-tax ("actual income")	∴	£2,065 mn.
Shop-assistants under £125	∴	55 ± 5
Wage-earners	∴	1,340 ± 40
Residual class	∴	80 ± 20
		<hr/>
Total of these constituents	∴	£3,540 ± 50

The Income-tax assessment for Schedules A, B, C is that for the year 1931-32, that for D and E for 1932-33, which is assessed of the previous year's earnings. Income from wages is excluded from E.

The margins of uncertainty indicated are in part complementary, so that less than their sum is suggested for the total. It is possible, however, that on further investigation the £80 mn. for the residual class may need to be modified.

Total National Income, 1924-38.

There is still a number of relatively small constituents to be brought into account in any statement of Total Income. In Table IX these are included, whether they are definitely ascertained or are the subject of rough estimates, subject to considerable revision after further investigation.

The separate lines of the Table may be briefly explained :

1. The assessments for Schedules A, B, C for each Fiscal Year, such as 1925-26, are taken as applicable to the corresponding Calendar Year, 1925.

2. The assessments for Schedules D and E are antedated one year, so that the assessment for 1926-27 is taken as applicable to 1925.

The entries for 1938 are provisional.

3. Owing to the change in the method of assessment of profits from a three-year average to one year an addition is necessary in 1924.

4 and 5 have already been explained (pp. 498-514 above).

6. It has been assumed that the 1924 estimate is still valid till 1930, and then reduced at the time of the lowering of the exemption limit. Since 1931 some variation is assumed in parallelism with other entries.

7. Income from property accruing to persons whose total income is under the exemption limit is in some cases assessed under Gross Income and subtracted to arrive at Actual Income; in other cases there is no record. The whole sum was estimated from rough data at £77 mn. in 1924, and again at £45 mn. in 1931, with subsequent adjustments to 1938. In the absence of information the estimate for 1924 has been repeated till 1930, and then reduced as in line 6.

8. Besides the income of Charities, etc., assessed under Gross Income and subtracted to obtain Actual Income, it is known that a sum (estimated at £12 rising to £15 mn.) is unassessed. This estimate has been included.

9. It is assumed that interest at 1s. per annum is payable on outstanding certificates less the number purchased in the same year.

TABLE 1A
Preliminary Estimates of National Income
(£ mn.)

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Actual Income:															
1. Schedules A, B, C	390	387	403	418	435	442	452	479	482	478	482	487	489	507	515
2. " D, E	1,686	1,738	1,713	1,775	1,800	1,776	1,726	1,585	1,523	1,616	1,682	1,801	1,938	2,045	2,000
3. Adjustment for date	118	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2,194	2,125	2,116	2,193	2,235	2,218	2,178	2,064	2,005	2,094	2,164	2,288	2,427	2,552	2,515
Wages and earnings:*															
4. Shop-assistants	1,600	59	60	61	62	63	64	55	55	55	55	56	56	54	54
5. Wage-earners	190	1,518	1,486	1,554	1,520	1,525	1,448	1,342	1,315	1,340	1,421	1,496	1,586	1,676	1,691
6. Residual class	190	190	190	190	190	190	190	30	80	80	90	100	100	100	85
Unearned Income:															
7. Small property	77	77	77	77	77	77	77	45	46	48	50	52	56	60	60
8. Charities	42	47	48	50	51	52	53	54	53	54	54	57	61	62	65
9. Savings certificates	16	16	17	17	16	16	16	16	16	17	18	18	18	19	20
Sundries:															
10. Pensions	93	92	92	94	90	86	82	84	82	78	77	75	74	73	72
11. Employers' contributions	35	32	30	29	28	29	29	30	32	33	35	36	36	37	37
12. Others	26	16	26	26	41	51	47	37	2	26	38	31	25	26	18
A. Total	4,273	4,172	4,142	4,291	4,310	4,307	4,184	3,807	3,686	3,825	4,002	4,209	4,439	4,659	4,617
Transfers:															
13. Income due to Foreigners	25	25	25	25	25	25	25	25	26	27	28	30	30	35	35
14. National Debt Interest	268	261	272	275	272	270	265	260	251	187	184	185	185	185	185
B. Total: A less 10, 13, 14	3,887	3,794	3,753	3,897	3,923	3,926	3,812	3,438	3,327	3,533	3,713	3,919	4,150	4,366	4,325
B. In round numbers	3,900	3,800	3,750	3,900	3,925	3,925	3,800	3,450	3,325	3,550	3,700	3,900	4,150	4,375	4,325

* Under £150 or £125 p.a.

The items printed in italics are specially subject to revision.

10. Pensions here include war pensions to men and dependents and medical treatment, non-contributory Old Age Pensions and the Government grant to Contributory Pensions.

11. Employers' contributions to the National Unemployment and Health Funds, which are not included in Actual Income under Schedules D and E, are here included, on the assumption that they are additive to the income of wage-earners which has been computed as including only those actually at work. It is arguable that the Government's contribution should be included. Or we might take the total amount of benefits less the workers' contributions, in which case we should substitute :

Benefits less Workers' Contributions (£ mn.)
(Health and Unemployment)

1924	...	...	...	39	1932	...	...	...	105
1925	...	...	...	41	1933	...	...	...	78
1926	...	...	...	49	1934	...	...	...	83
1927	...	...	...	44	1935	...	...	...	81
1928	...	...	...	49	1936	...	...	...	80
1929	...	...	...	53	1937	...	...	...	—
1930	...	...	...	97	1938	...	...	...	—
1931	...	...	...	115					

In Table IX, however, the procedure followed in 1924 has been adopted. If the new figures were used there would have to be an adjustment under "transfers."

12. This includes an allowance for evasion less over-assessment in 1924, which has been dropped in subsequent years; an adjustment for income from real property rising £1 mn. per annum between the years of re-assessment, when it is put at zero; a rough estimate of income accruing to Government from property or trading at home, and an addition (or subtraction) for excess of overseas Government receipts over payments.

13. This is largely conjectural.

14. Rough estimates are made of the interest payable to foreigners on the National Debt and are subtracted from the total interest paid.

The Total A corresponds to Aggregate Income in the 1924 study (Bowley and Stamp), while the Total B was termed Social Income. The figures here differ from the earlier owing to an adjustment in line 3 (using final instead of provisional assessments), additions in lines 8 and 9, and a modification and addition in line 12. Since probably there is some duplication of shop-assistants salaries in 1924 in lines 2 and 4, in the final line the total is reduced.