CHAPTER 2

PERSONAL INCOME AND EXPENDITURE

2.0 THE PERSONAL SECTOR

SCOPE OF THE SECTOR[1]

The estimates for the personal sector relate primarily to private households and individuals resident in the United Kingdom. The income of residents is included in the national income even if earned elsewhere, for example, by government officials stationed abroad; and the estimate of total consumers' expenditure includes spending abroad by United Kingdom residents and excludes purchases in the United Kingdom by foreign tourists and other non-residents.

In addition to households, the sector includes unincorporated private businesses of sole traders and partnerships, and private non-profit-making institutions serving the personal sector. This covers, for example, charities, trade unions, universities, independent schools and voluntary hospitals, but not building societies or co-operatives. These non-profit-making institutions are regarded as 'groups of persons acting collectively for mutual benefit' [73, p. 100]. Only that part of their income which is derived from other sectors is treated as part of personal income (for example, government grants to universities or donations to charities by companies). Their expenditure on goods and services is included in personal expenditure and this covers, in particular, the pay of the employees of such bodies, which also appears on the other side of the account as part of income from employment.

The life funds of life assurance companies and the funds of superannuation or pension schemes organised by businesses or public authorities for their employees are also considered as the collective property of persons. Income received by the funds from outside the sector – i.e. employers' contributions and income from fixed property or investments but not premiums paid by persons – is included in the appropriate categories of personal income; and costs of administration (wages, commissions etc.) together with the share of profits allocated to the life assurance companies and their shareholders are treated as part of consumers' expenditure. Annuities and other benefits received by persons from life assurance companies or pensions received from superannuation schemes are treated as transfers within the personal sector and so do not appear as part of personal income or expenditure.

The sector is defined in the same way for the pre-1946 estimates and covers also the approved societies and insurance committees responsible for the local administration of the pre-1948 National Health Insurance Scheme.

The accounts of the personal sector are described below in the following sectors:

2.1 Income from employment, 1855–1965
2.2 Income from self-employment:
  Farmers, 1855–1965
  Non-farm, 1889–1965
2.3 Rent, interest and dividends, 1920–38, 1946–65
2.4 Consumers' expenditure at current and constant prices, 1870–1965
2.5 Taxes on income, 1920–38, 1946–65

These five sections cover all current transactions of the personal sector except for (a) national insurance benefits and other current grants received from public authorities, (b) payments of national insurance and health contributions, (c) transfers received from, and paid, abroad, and (d) foreign taxes paid abroad. Item (a) is estimated in Chapters 4.5 and 5.5, (b) in Chapter 4.1, (c) in Chapter 6.4 and (d) in Chapter 6.3. All these items, together with those estimated in this chapter, are brought together in Table 10, showing personal disposable income and expenditure for the sector as a whole for 1920–38 and 1946–65.

Bringing together all these series in Table 10 produces one further estimate, since the excess of personal income over personal expenditure represents saving by the personal sector before providing for depreciation and stock appreciation.[2] The fact that this potentially interesting series is obtained as a balancing item means, unfortunately, that it reflects all the errors and omissions in the other components of the table and its

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[1] See also C.S.O. [73], pp. 99–101.
[2] For further discussion of the points made in this and the following paragraph see C.S.O. [73], pp. 109–12.

reliability is, therefore, distinctly poor. The available data on changes in personal assets and liabilities is, even for the recent post-war period, still very incomplete and cannot provide a direct check on the residual estimates of personal savings.

Since the estimates of personal savings are not considered in a separate section it may be as well to note here that they include not only 'personal savings' as the term is commonly understood but also (a) the whole saving of self-employed farmers, traders, professional persons, etc., including the capital gains or losses due to stock appreciation; and (b) the collective saving done by non-profit-making bodies, life assurance companies and pension schemes.[1] On the other hand, saving by the purchase of cars and other durable goods (though not of houses) is excluded since these purchases are treated as consumers' expenditure. The stock of consumers' durables owned by the country's inhabitants has expanded greatly in the past century and has indeed risen in almost every year, so that the figures for personal savings might in one sense be regarded as a considerable understatement.

Where durable goods are acquired under hire purchase or other instalment credit agreements the total retail value of the goods is included as consumers' expenditure at the time of acquisition (see Chapter 2.4). The residual estimate of personal saving will thus be lower than the excess of personal income over actual cash outlays, for durable goods and other personal expenditure, at the time of acquisition; and will be correspondingly higher when hire purchase instalment payments are made in subsequent periods. Since the total amount of outstanding debts has, on the whole, been expanding, the former factor is usually the more important.

Capital formation by the personal sector is covered in Chapter 9, but prior to 1946 it is not possible to separate personal capital formation by non-farm unincorporated businesses. Separate estimates for agriculture (for 1920–38) and for construction of dwellings for the private sector[2] are given in Chapter 9. The pre-war data on transactions in financial assets by the personal sector are also very inadequate and no attempt is made to present a capital account for the sector.[3]

Details of the series covered in this chapter are given in the sections which follow.

2.1 INCOME FROM EMPLOYMENT, 1855–1965

DEFINITION OF THE SERIES

As presently defined by the C.S.O. [73, p. 120] income from employment consists of the following forms of income:

(a) Cash earnings of wage-earners and salaried employees, before deduction of direct tax or insurance contributions, *less* any payments to employees for expenses incurred as part of their employment and less expenses of employment recognised for tax allowances (e.g. for tools and clothing).

(b) Income in kind of civilian employees, consisting of the imputed value of goods and services supplied by employers free or below cost (e.g. to farm workers, coal miners or domestic servants).

(c) Directors' fees.

(d) Pay, cash allowances and income in kind of H.M. Forces.

(e) Employers' national insurance and health contributions. (These are regarded as part of the employees' income deducted at source.)

(f) Employers' contributions to superannuation and other pension schemes;[4] plus certain compensation payments to injured employees or to their dependants.

In Table 21 items (a) to (c) are reclassified as wages or salaries, and items (d), (e) and (f) are each shown separately. The basis for the distinction between wages

and salaries is essentially the occupational classification of the employees. Salary-earners are defined as 'administrative, technical and clerical' employees and this includes managers, superintendents and works foremen; research, experimental, development, technical and design employees other than operatives; draughtsmen, travellers and office (including works office) employees. Directors' fees are also included in salaries. All other classes of employees are classified as operatives and treated as wage-earners. There are a number of border-line categories: shop assistants, policemen and firemen are treated as wage-earners, and nurses are classified as salary-earners.

For 1920–38 the definition of all items is effectively

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[1] Their saving is defined as the excess of their income from property and from premiums, etc. over the sum of benefits paid, administrative costs and the share of life assurance company profits allocated to stockholders.

[2] They would include some expenditure by companies but in the pre-war period corporate fixed investment in dwellings was very small.

[3] For post-war years see the Blue Book [75], e.g. 1968, Tables 23 and 74.

[4] In the case of unfunded schemes the contribution represents the amounts actually paid in pensions and gratuities to retired employees, and not the currently accruing liability to pay pensions in the future to present employees.

the same except that the deduction for expenses of employment may be limited in scope;[1] and works foremen are treated as wage-earners, not as salaried workers.

Before 1920 the distinction between the three categories: wages, salaries and income from self-employment is somewhat uncertain;[2] and until 1899 Forces' pay is included with wages and salaries. Directors' fees are included only to the extent that they were received by persons with total incomes in excess of the tax exemption limit.

Employers' contributions to national health and unemployment insurance began in July 1912; contributions to pensions are allowed for on a very approximate basis from 1890 onwards but no estimate is included for earlier years.

The available estimates for wages, salaries, Forces' pay and employers' contributions are given in Table 21, for 1855–1965 and the data for 1920–38 for each of these categories is classified by industry in Table 22. Total income from employment, together with profits and income from self-employment, is classified by industry for 1920–38 in Table 9.

SOURCES AND METHODS OF ESTIMATION

1938, 1946–1965

Estimates for these years are given in the Blue Book [75, e.g. 1968, Table 1] by the Central Statistical Office. They are obtained from three main sources. Total income from employment is estimated mainly from income tax (P.A.Y.E.) data; and the classification by industry of origin and by type of income is derived partly from the Censuses of Production and Distribution, Government accounts and other sources and partly from Ministry of Labour statistics of numbers employed[3] and average wage or salary earnings. Wages and salaries in the final industry group 'other services' are taken to be the residual difference between the total derived from tax data and the sum of the independent estimates for all other industries.

1939–1945

Official estimates for 1938–45 were given by the C.S.O. in *Statistical Digest of the War* [77, p. 200] in a form consistent with the then current estimates for 1946–9 given in the *National Income White Paper* [65, Cmd. 7933, 1950, pp. 14 and 40]. It is thus possible to compare the 1938 and 1946 estimates in [77] and [65] for the five components of income from employment with those currently given in the Blue Book and reproduced in Table 21.

The discrepancies are due to the following factors:

(a) Employers' contributions to national insurance were treated in [77] as an indirect tax and so excluded from income from employment.

(b) Employers' contributions to superannuation schemes, etc. were included in [77] as part of wages, salaries or Forces' pay.

(c) Shop assistants, policemen and firemen were classified as salaried employees.

(d) Differences in estimation.

Information on (a) is available in the National Income White Paper [65, Cmd. 7099, 1947, p. 34] and rough estimates of (b) can be made by interpolation between the figures for 1938 and 1946. A rough estimate of the amount to be transferred under (c) from salaries to wages was made and the residual difference in estimation of wages, salaries and Forces' pay can then be identified for 1938 and 1946. The difference is not large and proportional adjustments were made to the intervening years to obtain estimates for 1939–45.

1920–1938

In an earlier volume in this series Agatha Chapman [146] compiled annual estimates of the wage and salary bill for the period 1920–38. These were built up in great detail from estimates for individual industries. The main determinant of the level of employment in each industry was the 1931 Census of Population, extrapolated to other years by reference to the 1921 Census of Population, the Censuses of Production for 1924, 1930 and 1935, and the unemployment insurance statistics published in the *Ministry of Labour Gazette*. Estimates of average wage and salary earnings were derived from a variety of sources including the Censuses of Production, the accounts of public utilities and public authorities, Ministry of Labour earnings enquiries [87(a)] and an earlier study by Marley and Campion.[4]

Chapman's estimates of salary and wage payments,[5]

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1 A. L. Chapman, *Wages and Salaries in the United Kingdom, 1920–1938*, 1952 [146], p. 11.

2 A. L. Bowley and Sir Josiah Stamp, *The National Income, 1924* [131], p. 45 and Bowley [127] p. 9.

3 For further details on numbers employed for all periods from 1855 see Chapter 11.1. The estimates described there (and presented in Tables 57–60) are not, however, precisely the same as those used for the wage and salary estimates in this chapter.

4 Joan G. Marley and H. Campion, 'Changes in Salaries in Great Britain, 1924–1939', *J. R. Statist. Soc.* CIII, 1940 [206].

5 For a comparison with alternative wage and salary estimates for the inter-war years by A. L. Bowley, *Studies in the National Income, 1924–1938*, 1942 [134], and Colin Clark [149], see Chapman [146, pp. 38–44] and also p. 37 below.

directors' fees and employers' contributions to national health and unemployment insurance were adopted for Table 21 with the four following adjustments:

(a) The estimates for wages paid to domestic servants were revised downwards. For her estimate of average annual earnings of persons in private domestic service Chapman made use of a figure derived by Bowley [**134**, p. 69] on the basis of 'a small special investigation' but assumed that Bowley's figure covered only cash earnings [**146**, pp. 217–9]. I believe that this assumption was incorrect. Bowley refers at several points to an allowance for income in kind[1] and it seems most unlikely that the figure used in his final study would have excluded a valuation for board and lodging received by persons in domestic service. The case for reducing the estimate used by Chapman is further supported by her own comparison with the cost (wages and board) of domestic staff employed in hospitals [**146**, p. 219]; by the data quoted for the London area in January 1919 by Mrs Barton;[2] and by the fact that the estimate of average weekly earnings of 37s. implied by Chapman for female domestic servants is 55 % higher than the average for all women and girls,[3] and would make domestic service the best paid female occupation.

The reduction in average annual earnings is of the order of £40 per head and since it affects between 1.2 m. and 1.7 m. workers it reduces the total wage bill by some £60 m. each year.

(b) The estimates for shop assistants and policemen [**146**, pp. 149 and 171] were transferred from salaries to wages.

(c) Employers' contributions to pension funds (or actual payments of pensions) were included by Chapman as part of wages, salaries or Forces' pay. It was first necessary to exclude the amounts so included and this was done either from the amounts actually identified by Chapman in some sectors, or by reference to the source of her estimates. The total of her estimate for pensions in 1938 was £51.9 m. [**146**, p. 45] and it is evident from a comparison with the Blue Book estimate of £72 m. [**75**, 1967, p. 28] that the inter-war series is incomplete. The series for 1920–38 was therefore raised in the proportion 72:52, but the result, given in column (5) of Table 21 is inevitably rather approximate.

(d) A number of minor items are omitted from the Chapman estimates, including earnings from subsidiary jobs, casual work by the unemployed and by juveniles, tips (except in catering), commissions or bonuses on a company's profits paid to a general manager and the earnings of persons working on a fee or commission basis [**146**, pp. 6, 11 and 45]. There is no possibility of making a direct estimate for these missing items and I have made a very arbitrary allowance equal to 2 % of *wages* for each year from 1920 to 1938. As a means of putting this in perspective it may be noted that it is broadly equivalent to assuming that each wage-earner received one extra week's wages (£3) each year.

An analysis of income from employment by industry is given in Table 22. The classification used follows the 1948 *Standard Industrial Classification* [**76**] and is thus not fully comparable with post-war estimates based on the 1958 S.I.C.[4]

1915–1919

No estimates of income from employment have hitherto been available for the years of the First World War, but there seemed to be sufficient information to permit the construction of the necessary series. The results are considerably more uncertain than those for peace-time years but should indicate the broad pattern of the large and important changes which occurred between 1914 and 1920.

Wages

Separate estimates were made for males and females in civil employment. As a first step, estimates of the annual average numbers of males and females at work were made for each year from 1914 to 1920. Bowley's estimates for 1911 [**127**, p. 11] were taken as the starting point and extrapolated to mid-1914 by reference to his own calculations [**132**, p. 76]. The annual averages for 1914–20 were then estimated by extrapolating the mid-1914 figure by means of information on civil employment collected regularly by the Board

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[1] In the paragraph containing the reference to the investigation into the earnings of domestic servants there is the general statement: 'Allowance was made for the value of board, lodging and clothing in the cases where it was relevant' [**134**, p. 69]. Bowley's 1911 estimate for domestic servants is explicitly said to include 'a valuation for board and lodging' [**127**, p. 30, n. 1]; and there is a similar reference in [**132**] at p. 104.

[2] Dorothea M. Barton, 'The Course of Women's Wages', *J. R. Statist. Soc.*, LXXXII, 1919 [**116**], pp. 514–6.

[3] See Bowley [**134**] pp. 70–1.

[4] For an indication of the effect, in terms of numbers of persons, of the change from the 1948 to the 1958 S.I.C. see Table 59 where estimates on both classifications are given for the employed labour force in 1948. See also *Ministry of Labour Gazette*, LXVII, February 1959, [**87**], p. 55; and *Census of England and Wales* [**41** (a)], 1961, *Industry Tables*, Part I, Appendix D, pp. xlciii–li, where the census figures of the employed population in 1951, originally classified according to the 1948 S.I.C., are reclassified on the basis of the 1958 S.I.C., and conversely the 1961 employed population are re-allocated according to the 1948 S.I.C.

of Trade from a sample of employers between July 1914 and November 1920, but never published.[1] The Z.8 Reports do not distinguish between wage-earners and salaried persons and a small number of industries were not covered by these enquiries. In the case of males it was assumed that changes in the numbers of all wage-earners in civil employment were the same as those shown by wage and salary-earners in the Z.8 occupations. For females the series used as indicator covered all females in industry and in domestic service[2] but omitted the services, where the majority of females are engaged in salaried rather than wage-earning occupations and where the trend was rather different.

The resulting estimates for 1920 were then checked against the corresponding figures in Chapman (adjusted as on p. 33 and raised by $4\frac{1}{2}\%$ – see [132, p. 74] – to allow for the inclusion of Southern Ireland in the extrapolated series). In the case of male wage-earners no adjustment was required; but for females my 1920 figure was some 5% too high and the estimates for 1915–19 were therefore adjusted to correct for this.[3]

Information on war-time earnings is rather more uncertain. For male wage-earners an index was fabricated from series for six sectors, using employment in Z.8 occupations as weights for each year. For mining, transport (railways and docks), textiles and agriculture information on earnings is given by Bowley and by Rowe.[4] For building earnings were assumed to move in the same way as wage-rates (unweighted average of bricklayers and labourers) as given by Bowley [129, p. 113]. This is broadly confirmed by the estimates for 1913 and 1920 in Rowe [239, p.26]. The most difficult case was metals, engineering and shipbuilding, where the divergence between rates and earnings was particularly great. Data on earnings in engineering in July 1914, September 1918 and February 1923 collected by the Engineering Employers' Federation and quoted by Spicer[5] were used as benchmarks, and rough interpolation between these points was made in the light of changes in wage-rates, the estimates in Rowe [239, pp. 36–8] and Bowley's comments on war-time wage-drift [e.g. 129, pp. 125–6]. The weighted index of earnings for the six sectors covered some 75% of male wage-earners and as a first approximation earnings in other occupations were assumed to move proportionately. The implied estimate for 1920 was then checked against the figure taken to be implied by the adjusted Chapman estimate for 1920, and was found to be some 8% too low.[6] The estimates of earnings for 1915–19 were therefore corrected to allow for this discrepancy.

For female wage-earners the position is a little easier

and an estimate of annual earnings was constructed on the basis of the information given by Bowley [129, pp. 184–94], based in large part on the *Report of the War Cabinet Committee on Women in Industry* [51]. The resulting series was then corrected to bring it into line with the 1920 estimate derived from Chapman.

The final results of the calculation are shown in Table 2.1.

Pay in cash and kind of H.M. Forces

Estimates of pay and cash allowances (including separation allowances) for the Army, Navy and Royal Air Force were obtained from the *Appropriation Accounts* [17], attempting as far as possible to maintain comparability with the procedures used by Chapman [146, pp. 165–9]. Figures for financial years were adjusted to a calendar year basis proportionately to changes in the numbers in the Armed Forces.[7] The value of allowances in kind was taken as equal to the amounts derived by Prest from the *Appropriation Accounts* and included in the series for consumers'

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[1] This information, often referred to as the Z.8 Reports, was used (for July 1914 and for the period immediately following the armistice) in a study edited by Professor Kirkaldy, *British Labour, 1914–21*, 1921 [192], and in a more recent work by Professor Pigou, *Aspects of British Economic History, 1918–1925*, 1947 [229], pp. 9–41 and 215. Both these books contain a useful account of the nature and coverage of the statistics. The 1920 estimates are also discussed by Chapman [146, pp. 35–6]. The Director of Statistics, Ministry of Labour, kindly made available to me the unpublished Reports for the war years. For the main industries estimates are available for at least four dates in each year.

[2] For this latter category the estimates were based on information for July 1914, July 1918 and 1921 from Barton [116, p. 534], Pigou [229, pp. 18–19] and Chapman [146, p. 218].

[3] Here, as generally elsewhere in this study, the interpolation procedure used is as follows. Let $y_0, y_1, \ldots, y_n$ be the values of a series Y, known for each period; and x_0 and x_n the values of a series X, known only for the first and last year. We find the ratio of x_0 to y_0 (in the present case this $= 1$) and of x_n to y_n and interpolate linearly for intermediate values of the ratio. The known values of Y are then multiplied by the corresponding ratios of X to Y.

[4] A. L. Bowley, *Prices and Wages in the United Kingdom, 1914–1920*, 1921 [129]; and J. W. F. Rowe, *Wages in Practice and Theory*, 1928 [239].

[5] R. S. Spicer, *British Engineering Wages*, 1928 [245], pp. 25–7.

[6] It seems that the greater part of this discrepancy reflects the difference between the Bowley and Chapman estimates of average earnings after the war. See p. 37 below.

[7] Obtained from *General Annual Report on the British Army (1913–19)*, Cmd. 1193, 1921, [57], *Statistical Abstract* [35, No. 69, pp. 254–7], the *Appropriation Accounts*, and detailed demobilisation returns contained in Pigou [229, pp. 216–17].

TABLE 2.1   CIVIL EMPLOYMENT, EARNINGS AND WAGES, 1914–20[a]

| | Females | | | Males | | | Total wages |
	Employment 000s (1)	Earnings £ (2)	Wages £ m. (3)	Employment 000s (4)	Earnings £ (5)	Wages £ m. (6)	£ m.[b] (7)
1914	4,560	36	163	9,965	67	668	830
1915	4,620	46	215	9,080	77	697	910
1916	4,850	56	270	8,570	90	767	1,040
1917	5,000	73	366	8,180	115	942	1,310
1918	5,210	98	510	7,960	142	1,127	1,640
1919	4,320	107	462	9,350	162	1,510	1,970
1920	4,240	112	475	10,380	193	2,000	2,475

SOURCE: See text, pp. 33–4.   [a] Including Southern Ireland.   [b] Rounded to nearest £10 m.

expenditure [232, p. 168]. This covers food and clothing but not accommodation or fuel. The results are shown in Table 2.2.[1]

TABLE 2.2 PAY AND ALLOWANCES OF H.M. FORCES, AND NUMBERS EMPLOYED, 1914–19

	Numbers employed 000s (1)	Pay and cash allowances (2)	Allowances in kind £ m. (3)	Total pay and allowances[a] (4)
1914	810	50	57	110
1915	2,490	173	132	310
1916	3,500	250	165	420
1917	4,250	337	246	580
1918	4,430	412	299	710
1919	2,130	315	98	410

SOURCE: See text, p. 34.   [a] Rounded to nearest £10 m.

Salaries

As explained below (pp. 36–7) the pre-1914 estimates of salaries are derived from data on incomes assessed to tax under Schedules E and D ('employments') and from estimates for salaries below the exemption limit. For the first two components it is possible to continue the series through the war years and to derive calendar year estimates of actual income. Estimates of the income of shop assistants with incomes liable to tax and of officers' pay[2] were then deducted as these items are included in wages and Forces' pay respectively.

The difference between the resulting estimate of other salaries liable to tax and our estimates of total salaries in 1914 and 1920 (the latter adjusted upward by 2.5% to allow for Southern Ireland) is equal to salaries below the exemption limit. These salaries

below the exemption limit amounted to about 70% of salaries above the limit in 1914 and had fallen to 53% in 1920, as a larger number of individual salaries were raised above the exemption limit of £130. The value of the total in the intervening years was estimated by interpolating between these percentages and applying the result to the tax series. The interpolation was not strictly linear since it was assumed that the decline in the ratio of intermediate to taxed salaries was strongest in 1918–20, when earnings were rising most rapidly.

Employers' contributions

Contributions to national health insurance and to unemployment insurance began in July 1912. Total contributions for employers and employees are given in the *Statistical Abstracts* [35, No. 69, p. 218] and the *Abstract of Labour Statistics* [1, e.g. 19th p, 197]. Until late in 1920 employers and employees paid the same weekly contributions and so the former's contribution can be taken as 50% of the total. Army and Navy pensions paid were derived from the *Appropriation Accounts*. No information was found for private employers' contributions to superannuation and other pension funds. As a token approximation an estimate was made as follows: in 1920 non-military pension contributions were about £27 m. (this is a very rough estimate, see above, p. 33) which is some 3.2% of total

1 The estimates of average pay implicit in columns (1) and (2) of Table 2.2 imply a large increase in rates of pay in 1919 and a new pay code was in fact introduced in that year. See *Third Report from the Select Committee on Estimates (Army Estimates)*, 1923 [91] for details.
2 The estimates of Officers' pay were based on data on the number of officers each year taken from the *General Annual Report on the British Army (1913–19)* [57], and average pay as given in [91].

salaries; it was assumed that the proportion was stable at 2.5% from 1915 to 1919 and this proportion was applied to the estimate of total salaries. The result, together with the military pensions, gives the series shown in Table 21.

1855–1914

Wages and Forces' pay

For 1880–1914 the estimates of the wages bill (including shop assistants) as given in Table 21, are taken from Bowley [132, p. 76] and for 1860–79 from earlier estimates calculated by Bowley in 1904.[1] The only adjustment made was the deduction, from 1900 onwards, of the amount shown separately for Forces' pay in column (3) of Table 21. This series was obtained from the Army and Navy *Appropriation Accounts*. The amount deducted in 1914 did not include the war-time allowances in kind since Bowley's estimate relates to peace-time conditions.

The point of departure for Bowley's series is an estimate of total wages in 1911, obtained from estimates of average annual earnings and numbers employed, compiled separately for males and for females. The basis for the estimate of earnings is the Board of Trade *Enquiry into Earnings and Hours of Labour of Work-people in the United Kingdom in 1906* [48], extended to include occupations (such as coal mining, agriculture and railways) not dealt with in the enquiry. The average weekly earnings (including income in kind) in 1911 of men and boys, and of women and girls, were then reduced to allow for old and for casual workers and converted to an annual figure allowing for holidays, sickness and unemployment.

The total number of male and female wage-earners in 1911 was estimated from the Census of Population and applied to the figures of average earnings to obtain the total wage-bill of £802 m.[2]

Bowley then extrapolated this 1911 benchmark forward to 1914 and backward to 1860 by means of three series:

(a) His index of the changes in average earnings for a normal week for all wage-earners in the United Kingdom, taking account of changes in the relative numbers in different occupations and industries.

(b) His estimates of the annual number of wage-earners, obtained by interpolation between benchmarks derived from the decennial Censuses of Population.

(c) The proportion of the labour force unemployed, as indicated by the trade union returns of the percentage of their members claiming unemployment benefits.

The resulting estimates were then checked against other data, particularly the first Wage Census of 1886 and the 1907 Census of Production.

For the few years before 1860 I have used Wood's index of money wages[3] and a rough estimate of changes in the occupied population to extrapolate Bowley's series back to 1855.

Salaries

The annual estimates for salaries paid in this period are very rough, and were obtained partly from income tax data, partly from estimates for three years of numbers employed and average earnings.

Prior to 1914 salaries above the limit of exemption from tax were assessed either under Schedule D or under Schedule E. (The latter covered salaried employees of the government, of public bodies and of limited companies.) Salaries assessed under Schedule E are shown in column (5) of Table 7.16 in Appendix 7.2, where the whole question of income subject to tax is comprehensively discussed. Salaries assessed under Schedule D (as 'employment') were not shown separately in the Inland Revenue reports until 1898/9, but an unpublished Inland Revenue document gives estimates for 1890/91 and 1895/6. These show a slight fall between 1890 and 1898, presumably reflecting the 'drain' from Schedule D to Schedule E as a consequence of the incorporation of private businesses.[4] The series for salaries assessed under Schedule D was extrapolated back to 1855 on the assumption that the decline had begun in the mid-eighties, when the Schedule E salaries begin to grow more rapidly, and that prior to this the rate of growth was the same as that for Schedule E. It was further assumed that for each year of the period 1860 to 1914 the gross assessment under Schedule D would be reduced to a net basis (i.e. adjusted for expenses incurred in the performance of the employees' duties – the amount involved is very small) by the ratio of the net to the gross assessments under Schedule E for the same year.

The remaining component of salaries is part of what Bowley and other national income statisticians have called 'intermediate income', i.e. income which is neither subject to tax (because it falls below the limit of exemption from taxation – in the present calculations taken as £160 over the whole period 1856–1914) nor received by persons in occupations classified as wage-earning. Estimates for salaries and other incomes

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[1] A.L. Bowley, Tests of National Progress, *Economic Journal*, XIV, 1904 [126], p. 459.

[2] This includes £20 m. for soldiers and sailors abroad.

[3] G. H. Wood, 'Real Wages and the Standard of Comfort since 1850', *J. R. Statist. Soc.* LXXII, 1909 [260], p. 102. This index allows for changes in the numbers in different occupations and for unemployment.

[4] See Stamp [247], pp. 214–15.

below the exemption limit are considered in detail in Appendix 7.3.

Appendix 7.3 also contains an adjustment for salaries of less than £160 but not exempt from tax (because of the receipt of income from other sources) and so duplicated in the Schedule E component; and for the small amount of wages assessed to tax under Schedule E.

The estimate of total salaries is given in Table 21. The three components of this total are shown in Table 2.3 for selected years.

TABLE 2.3 SALARIES, SELECTED YEARS
1860–1914 (£M.)

	Assessed to tax		Below £160	Total
	Schedule E (1)	Schedule D (2)	(3)	(4)
1860	15	10	25	50
1870	22	14	30	66
1880	30	20	40	90
1890	44	23	50	117
1900	72	21	80	173
1911	121	26	102	249
1914	145	35	116	296

SOURCE: (1) Table 7.16. (2) See text.
(3) See Appendix 7.3.

It is not possible to make a reliable or detailed classification of income from employment by industry for the years before 1914. A very broad and approximate classification for census years is given for Great Britain in Deane and Cole [**156**, p. 152], and by Bowley, for 1911 only, for the United Kingdom [**127**, p. 25].

Employers' contributions

Contributions to health and unemployment insurance are included in the present estimates from their inception in July 1912 (see p. 35 above) and they differ in this respect from the series which I published in 1961 [**160**, p. 384]. Military pensions were derived from the *Appropriation Accounts* for 1900–14 and non-military pension contributions were arbitrarily assumed to have increased from 2 % of total salaries in 1900 to 2.5 % in 1915 (see p. 36 above). This gives a total of £10 m. in 1900 and this was tapered down to zero in 1889.

CONSISTENCY AND RELIABILITY

Consistency

There are essentially three separate links in our chain of estimates of income from employment: Bow-

ley's wage-series together with the present estimates of salaries for 1860–1920, the present series based on Chapman's wage and salary estimates for 1920–38 and the Blue Book estimates for 1938–64. It is possible to check the consistency of the main series where they overlap in 1938 and also to make a comparison of Bowley's and Chapman's estimates for 1924.

For 1938 the present estimates agree fairly closely with those currently given in the Blue Book and the two series may be regarded as in all essential respects consistent in definition and coverage. They compare as follows:

WAGES AND SALARIES IN 1938 (£M.)

	Wages	Salaries	Forces' pay	Total
1. Present estimates	1888	911	64	2,863
2. Blue Book, 1967	1920	910	66	2,896

The next comparison is best made in 1924 rather than 1920 and must be confined to wages and Forces' pay (excluding officers). For 1924 Bowley has made two estimates: one obtained by working forward from 1911 [**131**, pp. 28–38] and the other by working backward from 1931 [**134**, pp. 54–74]. The two are shown, together with the present estimate, in the following table:

WAGES (INCLUDING SHOP ASSISTANTS) PLUS FORCES' PAY IN 1924

	Bowley[a]		Present estimate
	1st estimate	2nd estimate	
1. Numbers employed (000s)	14,190	14,170	13,065
2. Average earnings p. a. (£s)	112.8	112.4	123.0
3. Wage-bill (£ m.)	1,600	1,592	1,607

[a] The deduction for retired persons and casual work [**127**, pp. 28–9, and **134**, pp. 69–70] has been made from numbers employed and not, as in Bowley's original estimates, from average earnings.

The three estimates of the total wage-bill in 1924 agree very closely. There is, however, a certain discrepancy in the underlying components, with the adjusted Chapman series having a lower employment and a higher average earnings estimate than either of the Bowley estimates. Some of the reasons for this were discussed by Chapman [**146**, pp. 38–9 and 41–3]. So

far as employment is concerned it would seem that the main factor is inadequate allowance by Bowley for unemployment.[1] This would not be a significant problem with the pre-1914 data and Bowley's estimates of numbers employed before 1914 can be taken as reasonably consistent with the Chapman inter-war series.

For the estimates of average earnings Chapman's discussion showed that the discrepancies were largest in transport and in domestic and other services. The major item was domestic service where a downward revision has now been made to Chapman's series for average earnings (p. 33 above). The large discrepancies which remain in other sectors are on the whole differences in 'guesstimates' of very uncertain items. The overall discrepancy in the two estimates of average earnings is within the margin of error of the estimates and I have simply let it get caught up in the hazardous process of bridging the war years (pp. 33-5 above).

Reliability

The main authors of the component series have given their subjective estimates of the margins of error attaching to their series and these can be summarised, together with my impressions of the remaining series, as follows:[2]

	Wages and Forces' pay	Salaries
1855-79	C	D
1880-1914[a]	B	C
1915-19	C	C
1920-23[b]	B	B
1924-38[b]	A	A
1939-45	B	B
1946-65[c]	A	A

[a] For wages and Forces' pay see Bowley [132], p. 74.
[b] See Chapman [146], pp. 230-6, for further details.
[c] See C.S.O. [73], p. 141, for further details.

2.2 INCOME FROM SELF-EMPLOYMENT, 1855–1965

DEFINITION OF THE SERIES

Income from self-employment is the term used to describe the income of persons from unincorporated business. It covers three categories:

(*a*) Farmers. Income of farmers with holdings of one acre or more.[3]

(*b*) Professional persons. Income of professional workers from practice on their own account or in partnerships.

(*c*) Other sole traders and partnerships. Trading profits of all other non-corporate enterprises.

The series are all measured before providing for depreciation and stock appreciation. The income of all unincorporated enterprises represents the return on both the labour and the capital employed in the enterprise. There is no direct way in which these two elements can be distinguished, but an arbitrary division can be made for some purposes.[4]

Income from the ownership of farm land and buildings (including the rental income imputed to owner-occupiers of farms) is treated as part of rent (see Chapter 8) and not as income from farming. For other non-corporate enterprises, as for all companies, the imputed income of businesses owning the land and buildings which they occupy is included in trading profits and not under the heading rent.

The estimates of farmers' incomes are derived from agricultural statistics which do not distinguish between different types of enterprise and the profits of the few

companies engaged in agriculture are also included in the present series.

Professional incomes are all those derived from the practice on own account of professions 'where the profits made depend wholly or mainly on personal qualifications' [73, p. 144]. This includes the earnings of doctors and dentists under the National Health Service (but not of those who are whole-time hospital employees). It excludes the profits of brokers and estate agents.

Other sole traders and partnerships includes all other non-corporate enterprises, e.g. small shopkeepers, builders, dressmakers. It includes agents working on commission unless there is a contract of service with a single employer.

Farmers' incomes are estimated separately from 1855

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[1] For the first (1911 based) estimate the inadequacy arises in Bowley's use of a figure of 8.3 as the reduction to be made in 1924 for unemployment [131, p. 29]. This is the percentage among members of certain trade unions and is some 2% lower than the percentage shown by the unemployment insurance figures. For the discrepancy in the second (1931 based) estimate see Chapman [146], pp. 38-90.

[2] See Chapter 1.4 above for further discussion, and for a description of the reliability grades.

[3] Incomes from smaller holdings are included with those of other sole traders and partnerships. Before 1954 the Northern Ireland figures are for holdings of a quarter of an acre or more.

[4] See, for example, the estimates given in Feinstein [163] pp. 124-6.

and shown (together with farm wages) in Table 23. Non-farm income from self-employment can only be separated from company and local authority trading profits from 1889 onwards; the estimate for 1889–1913 and for 1920–38 is contained in Table 29. For 1920–38 it is also possible to make a rough allocation of non-farm income from self-employment between the two categories: professional persons and other sole traders and partnerships (see p. 42 for further discussion of this series). Total income from self-employment is given for 1889–1965 in Table 1, column (2); for earlier years it is included in that table together with gross profits of companies and other trading enterprises. It was not possible to make an annual classification of inter-war non-farm income from self-employment but a detailed breakdown is given for the two years 1927 and 1937 in Table 30.

SOURCES AND METHODS OF ESTIMATION

Farmers, 1855–1965

Over the whole period profits from farming are measured as a residual. The method used from 1867 is to estimate first the value of the gross receipts from agriculture, building up the total from detailed information on output and price of each product; this includes the value, at average farm-gate prices, of produce consumed in the farm household. The following items of cost are then deducted from the gross revenue: wages of all employees (including family labour other than farmers' wives); rent or imputed rental value of land and of buildings other than dwellings; purchases of goods and services – such as feeding stuffs, repairs to vehicles and imported livestock – from other industries or from abroad; and rates and taxes on land.

Subsidies which are paid as part of the price of the farmers' product or given as a direct grant are included in the gross revenue. Other subsidies reduce the deduction for the expenditure on purchases from outside the agricultural industry, e.g. those on fertilisers.

The very rough procedure used for the period before 1867 is outlined on pp. 41–2. The actual sources and methods for the later periods are as follows:

1946–1965

Post-war estimates are given by the Central Statistical Office in the Blue Book [75, 1968, Table 22] and are based on very detailed data on farm output and expenditure collected by the Ministry of Agriculture.

1923–1945

The starting-point for the series for this period was a benchmark of £69 m. for 1938 built up as shown in Table 2.4.

TABLE 2.4 FARMERS' INCOME IN 1938

(£M.)

Revenue		
1. Value of output (including farmhouse consumption)		293.8
2. Grants, subsidies and sundry receipts		5.0
3. Value of increase in farm stocks and work in progress		2.1
4. Total		301.0
Expenses		
5. Labour		66.0
6. Rent of land and buildings		35.2
7. Machinery (fuel, repairs, contract services, etc.)		15.5
8. Feeding stuffs		72.4
9. Fertilisers		8.8
10 (a) Seeds	4.8	
(b) Imported livestock	15.0	
(c) Miscellaneous expenses	14.3	34.1
11. Total		232.0
12. Net income (before provision for depreciation)		69.0

SOURCE: Estimates for 1937/8 and 1938/9 are given in K. A. H. Murray, *Agriculture*, 1955 [217], p. 379. These were adjusted in the light of revised estimates for 1937/8 in the *Annual Abstract of Statistics* [9, No. 98, p. 174] and converted to a calendar year basis by taking five-twelfths of the crop-year 1937/8 and seven-twelfths of the crop-year 1938/9. In both these sources rent is shown together with interest on short-term debt. The deduction of £7.5 m. to exclude this interest was based on M. G. Kendall, 'The Financing of British Agriculture', *J. R. Statist. Soc.* CIV, 1941 [186], p. 135.

For 1939–45 the estimates were based on interpolation between this benchmark and a similar calculation for 1948. The interpolation was based on the corresponding estimates given by J. R. Bellerby,[1] with appropriate modifications for certain items. In particular, Bellerby's series for machinery expenses includes depreciation and this was excluded by reference to the benchmark estimates for 1938 and 1948 together with his series for the value of the stock of machinery and implements [120, p. 340].

For 1923–37 the extrapolation of the 1938 estimates was again based on Bellerby's series. For rows 4, 5, 8, 9 and 10 of Table 2.4 the indicator used was the corresponding estimate by Bellerby [120, p. 342]. For rent (row 6) the indicator used was Bellerby's estimate of

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[1] J. R. Bellerby, 'Agricultural Income', *J. R. Statist. Soc.* 118, 1955 [120], p. 337.

gross farm rents;[1] and for machinery (row 7) the allowance for depreciation was first excluded from Bellerby's series.[2]

It is mainly because of conceptual differences that the results (as given in Table 23) differ from those given by Bellerby. Bellerby's purpose was to estimate the incentive income of farmers and this treatment diverges from that required for national income measurement at several points, including (a) the valuation of farmhouse consumption at retail rather than farm-gate prices; (b) exclusion from wages of the imputed cost of family labour; and (c) inclusion in expenses of depreciation of machinery and buildings. There are also a number of discrepancies in the actual estimates for 1938. The present estimates are also some 20 % lower than those shown by Hart [**174**, p. 60]. His series is equal to Bellerby's adjusted only for depreciation (item (c) above) and not for items (a) and (b).

1915–1922

No previous estimates were available for these years and an attempt was made to build up detailed series for each of the components of output and input. To start with the estimates given by Ojala for 1911–13 and 1920–2 were used as benchmarks, and as far as possible the procedures described by him were used to obtain annual estimates for each calendar year from 1911 to 1922 consistent with the two benchmarks.[3]

For the estimates of gross farm revenue the basic data on production and prices were taken from *Agricultural Statistics*,[4] for the main crops; from the *Report of the Royal Commission on Food Prices*[5] for meat; and from the estimates of consumers' expenditure by Prest [**232**] and Stone and Rowe [**249**, 1] for milk, eggs, poultry, fruit and vegetables.

For feeding stuffs and other inputs the data available for the war years is less adequate, but rough series were constructed on the basis of information in *Agricultural Statistics*, the statistics of overseas trade, the study by Middleton[6] and the *Customs and Excise Reports*.

Adjustments were then made to bring the resulting estimates of net farm income into line with the final estimates for years before 1914 and after 1922, and a deduction of 23 % was made to exclude Southern Ireland from the estimates for 1920–2.[7]

Gross rent (excluding dwellings) was estimated by interpolation between the estimates for 1914 and 1923 in Bellerby [**119**, p. 357]; and a very approximate estimate of farm wages was based on interpolation between Chapman's estimates for 1920 [**146**, p. 58], and the estimate described below for 1911–14, by means of the Z.8 Reports (see p. 34 above) and Bowley's wage data [**129**, pp. 168–76]. These two items were deducted

from net farm income to obtain the required estimate of farmers' income before provision for depreciation. The result is included in Table 23 and shows a very large increase in farm profits during the war years. This is consistent with contemporary comment and also with the fact that it was found necessary to change the method used to tax farm incomes: for years up to 1914/15 profits under Schedule B were deemed to be equal to one-third of the annual value of the lands occupied; for the years 1915/16 to 1917/18 and 1922/23 onwards equal to such annual value; and for 1918/19 to 1921/22 they were taken to be equal to twice the annual value.

1867–1914

For this period the estimates again depend mainly on the work done by Bellerby and his colleagues at the Oxford Agricultural Economics Research Institute. The basic estimates have only been published in the form of annual averages for groups of years,[8] and Mr

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1 J. R. Bellerby, 'Gross and Net Farm Rent in the United Kingdom, 1867–1938', *Journal of Proceedings of the Agricultural Economics Society*, x, March, 1954 [**119**], p. 357–8. Gross rent represents the actual payment made to the landowner by the farmer. It exceeds the estimate required for the present purpose because it includes, *inter alia*, the rent paid for farm dwellings. This estimate is, in turn, higher than Bellerby's measure of net rent, which excludes not only the rent of farm dwellings but also expenses met by the landowner such as rates, land-tax, tithes, and expenditure on maintenance of farm buildings, roads, fences, etc.

2 The amount included by Bellerby for depreciation of machinery was supplied by him to P. E. Hart and can be calculated from the series given by Hart, *Studies in Profit, Business Saving and Investment in the United Kingdom, 1920–1962*, 1965, [**174**], p. 60.

3 E. M. Ojala, *Agriculture and Economic Progress*, 1952 [**222**]. See p. 61 and the Appendix, pp. 191–217, especially Tables XVI and XIX.

4 Ministry of Agriculture and Fisheries, *Agricultural Statistics*, [**8**]. See particularly 1920, LV, Part II, Table 32, 86–7, and 1924, LIX, Part III, Table 36, pp. 138–9.

5 *First Report of the Royal Commission on Food Prices*, Cmd. 2390, 1925 [**59**], vol. I, annex IV, p. 162.

6 T. H. Middleton, *Food Production in War*, 1923 [**211**].

7 This adjustment was based on the census data for net output in 1925. See Ministry of Agriculture and Fisheries, *The Agricultural Output and the Food Supplies of Great Britain*, 1929 [**85**], *The Agricultural Output of Northern Ireland, 1925* (N.I.), Cmd. 87, 1928 [**39**(c)], and *The Agricultural Output of Saorstát Éireann*, Dublin, 1930 [**99**].

8 J. R. Bellerby, *Agriculture and Industry: Relative Incomes*, 1956 [**121**] p. 56. The most detailed description of the sources and methods used is given in Ojala]**222**], but the final series given by Bellerby differs in some respects from the Ojala series. See J. R. Bellerby, 'Distribution of Farm

Bellerby has kindly provided the annual series. For our purpose three adjustments are required to the Oxford series obtained by deducting wages and net rent from total factor income (measured net of landowners' payments for rates, taxes, maintenance, etc.).

(*a*) The amount included by Bellerby as an allowance for the revaluation at retail prices of farmers' self-supplies has to be deducted.

(*b*) The series for wages has to be raised to include the imputed or actual payment to farmers' relatives.[1]

(*c*) The amount allowed for depreciation of machinery and buildings has to be added back.

The final estimates for farm wages and farmers' incomes are given in Table 23. It will be seen that the estimate for 1911 is £51 m., which is substantially less than the estimate of £78 m. suggested by Bowley [**127**, p. 14]. It seems, however, that Bowley misinterpreted the definition of output used in the 1908 agricultural census, and consequently made insufficient deduction for non-farm inputs. Since this 1908 estimate is the cornerstone of the pre-1914 series it may be helpful to give a detailed breakdown of the present estimate. This is done in Table 2.5.

The sources used in Table 2.5 would not have been available to Bowley when he made his estimate of £176 m. for the net output of agriculture in 1911 [**127**, p. 25]. This estimate was almost certainly based on the summary comment on agricultural output given in the *Final Report* on the 1907 Census of Production [**42** (*a*), pp. 234], and the associated data in the census on *Agricultural Output of Great Britain, 1908* [**39** (*a*), pp. 25–30.] The *Report* refers to £7 m. for imported store animals and £28.8 m. for manufactured animal foods and manures used in agriculture; but since it was only concerned with the extent of duplication between industry and agriculture it omits any reference to (*a*) imported feeding-stuffs, fertilisers, seeds, etc., (*b*) the margin required to cover transport and distribution of home-produced non-farm imports, and (*c*) repairs to machinery and other expenses. The difference between the present estimate of £55 m. for all non-farm inputs in 1908 and Bowley's probable estimate of £36 m. would account for most of the apparent discrepancy between an estimate based on incomes (wages and tax data) and one derived from output statistics. For 1911 the two estimates, expressed in terms of factor incomes, are compared in Table 2.6.

1855–1866

The first adequate official *Agricultural Returns* were collected in 1867, and it is not possible to make direct or accurate estimates of agricultural output for earlier years. It was, therefore, assumed as a first step that the

TABLE 2.5 FARMERS' INCOME IN 1908
(£M)

1.	Gross receipts	200
2.	*Less* Feeding-stuffs, fertilisers, imported store animals, etc.	52
3.	Tenants' expenses for repairs etc.	3
4.	Total factor income	145
5.	*Less* Gross rent (excluding farm dwellings)	43
6(*a*).	Wages: Hired labour	44
(*b*).	Relatives	12
7.	Farmers' income[a]	46

[a] Before providing for depreciation and stock appreciation and with farmers' self-supplies valued at farm-gate prices.

SOURCE: 1 and 2. For Great Britain an estimate of £154 m. for gross output and £45 m. for feeding stuffs, etc. is given for 1908 in the report: *The Agricultural Output and Food Supplies of Great Britain* [**85**], pp. 5 and 14. For Ireland the figure of £46 m. for gross output was given in *The Agricultural Output of Ireland 1908* [**39** (*b*)], p. 5. In the absence of direct information for Ireland in 1908, off-farm purchases of materials were assumed to represent a slightly lower proportion of gross output than for Northern Ireland in 1925; see *The Agricultural Output of Northern Ireland, 1925* [**39** (*c*)], pp. 37–40.

3. Estimated on the basis of a letter to the author from Mr Bellerby (dated 1 December 1959).

5. Bellerby [**119**], p. 357, less 16.7 % to cover the rent of farm dwellings (see [**119**], p. 356). From this rent the landowner had to cover some £8 m. of rates, land-tax and tithes and approximately £10 m. for insurance, repairs and other costs of maintaining the estate leaving him with a net rent of some £25 m.

6(*a*). See Bellerby [**121**], p. 56. The corresponding annual figures were provided by Mr Bellerby.

6(*b*). See text.

Income in the U.K., 1867–1938', *Journal of Proceedings of the Agricultural Economics Society*, X, February 1953 [**118**], p. 136, for a brief explanation of the discrepancy. This article has recently been reprinted in *Essays in Agrarian History*, vol. II, edited by W. E. Minchinton, and Bellerby has added an additional section (pp. 275–9) which includes annual series for various definitions of farm output and income, 1867–1914. The series described as 'net income' is the one used, with the adjustments indicated above, for the present estimates.

[1] Estimates of the number of relatives in each census year are given by F. W. D. Taylor, 'Numbers in Agriculture', *The Farm Economist*, VIII, 1955 [**252**], p. 36. These figures were converted to man-units and it was assumed that the average wage received was the same as that for all other man-units. See Bellerby [**121**], p. 351.

trend of profits was indicated by the trend of rents, and an index of rents received[1] was used to extrapolate the adjusted Bellerby estimate of agricultural profits. The second step was to devise some method of estimating the annual fluctuations of profits about their assumed trend level. Since profits are essentially a residual, the

TABLE 2.6 COMPARISON WITH BOW-LEY'S ESTIMATE OF AGRICULTURAL INCOME IN 1911   (£M.)

	Bowley (1)	Present estimate (2)
Wages and salaries	64	58
Rent	34	43
Profits and income from self-employment[a]	52	51
	150	152
Adjustment	26	—
Total factor income	176	152

[a] Including incomes below £160.

SOURCE: (1) Bowley [127], pp. 14 and 25.
(2) Table 23.

relative stability of wages and rents means that the fluctuations in profits are very largely those of the value of output. The approach was, therefore, to correlate the estimated profits with two of the variables which explain a large proportion of the fluctuations in the value of farm output: agricultural prices[2] and wheat yields.[3] By calculating the partial regression equation[4] of the deviations from trend of profits on these two variables over the forty years 1871–1910, and applying this to the two independent variables for 1855–66, a very rough approximation to the fluctuations in profits was obtained.

Non-farm income from self-employment, 1889–1965

The point of departure for these estimates is the Inland Revenue data on earnings of non-corporate enterprises assessed to income tax under Schedule D. Several adjustments are required, including substantial additions for income evading taxation and for income not subject to taxation.

1938–1965

For 1938 and 1946–65 estimates are available in the Blue Book [75, 1968, Table 22]. For 1939–45 the old C.S.O. estimates in the *Statistical Digest of the War* [77, p. 200] and the 1950 *National Income White Paper*

[65, Cmd. 7933, p. 9] were used, after certain adjustments,[5] to interpolate between the latest Blue Book estimates for 1938 and 1946. This calculation was carried out separately for the income of professional persons and of other sole traders and partnerships.

1889–1938

The estimates for 1920–38 are described in Chapter 7.1, pp. 129–47, and those for 1889–1920 in Chapter 7.2, pp. 152–7. The separate series for the inter-war income of professional persons emerges from the allocation of profits to trade groups undertaken in Chapter 7.1, pp. 133–5. As is evident from Table 7.1 this includes some £2 m.–£3 m. of corporate income, and although the exact amount is not known for each year it would, for most purposes, be reasonable to make a deduction of this magnitude from the series in Table 26 and to treat the result as the non-corporate income of professional persons. The income of other sole traders and partnerships could then be obtained as the difference between this series and total non-farm income from self-employment.

CONSISTENCY AND RELIABILITY

The definition and measurement of farmers' income may be regarded as consistent over the whole period from 1855. There are, however, certain breaks in the continuity of the estimate for other income from self-employment. The most important of these occurs between 1938 and 1939 and arises from the discrepancy between the present estimate of £546 m. for 1938 and

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[1] R. J. Thompson, 'An Enquiry into the Rent of Agricultural Land in England and Wales during the Nineteenth Century', *J. R. Statist. Soc.* LXX, 1907 [253].

[2] A weighted index of the Sauerbeck price indices, for 1850–1914, for ten products. The weights were based on the relative contribution of the products to output in 1867–9 as shown by Ojala [222].

[3] For 1852–83: J. B. Lawes and J. H. Gilbert, 'Home Production, Imports, Consumption and Price of Wheat over Forty Harvest Years 1852/3–1891/2', *Journal of the Royal Agricultural Society of England*, IV, 1893, [194]. For 1884–1913: *Statistical Abstracts*.

[4] The trends were represented by nine-year moving averages. The partial regression equation of profits (x_1) on prices (x_2) and wheat yields (x_3) was:

$$x_1 = 0.873x_2 + 0.569x_3 - 0.324.$$

The multiple correlation coefficient was +0.711.

[5] The adjustments, for depreciation and rent of owner-occupied property, are made on the same basis as in the corresponding estimate for gross trading profits of companies. See Chapter 3.1 for details of sources and methods.

the corresponding Blue Book estimate of £578 m. This is primarily due to the different allowances for the necessarily approximate items of evasion and small incomes not assessed for taxation (see Chapter 7.1). Since the Blue Book estimates for 1938 and 1946 were used as benchmarks in interpolating for the war-time series, the increase from 1938 to 1939 of £81 m. shown in Table 1 somewhat overstates the actual increase.

There will also be a slight break, due to a change of definition, between 1919 and 1920, since the estimates up to 1919 do not include the rent of owner-occupied trading property, while those from 1920 onwards include this item. The amount allowed for this in 1920 was of the order of £20 m. (with an off-setting change in the estimates for rent), but since it is not possible to give separate estimates for corporate and non-corporate profits for the years 1914–19 the effect of this break in continuity is swallowed up in the large war-time changes. For further discussion, covering both company profits and income from self-employment see Chapter 7.2, p. 157.

The following reliability grades are allocated to the estimates.[1]

	Farmers' income	Other income from self-employment[a]
1855–1866	D	—
1867–1889	C	—
1890–1914	C	C
1915–1919	D	—
1920–1926	C	C
1927–1938	B	B
1939–1945	B	C
1946–1965	B	B

[a] Estimates including non-farm income from self-employment are graded in Chapter 7.2 for the periods 1855–89 and 1915–19 for which it cannot be estimated separately.

2.3 RENT, INTEREST AND DIVIDENDS, 1920–38 AND 1946–65

DEFINITION OF THE SERIES

This item represents total receipts by the personal sector of rent and dividends, together with receipts less payments of interest. Each of these terms calls for some elaboration.

Rent includes the imputed net rents from owner-occupied houses and farms, based on Schedule A gross values less actual expenditures on maintenance, repairs and insurance. Dividends and interest represent the actual amounts received from companies, public corporations, public authorities and from abroad in the calendar year. In the case of companies this differs from the amount payable out of the current year's earnings (cf. Chapter 3.3, p. 57), because of the intervals before these are declared and paid. The total also includes dividends paid by co-operative societies, interest on shares and deposits in building societies and interest on bank deposits. All receipts, including those from property income from abroad, are measured before deduction of United Kingdom or foreign taxes.[2] It follows from the definition of this sector (Chapter 2.0) that property income received by life assurance companies, superannuation funds, charities etc. is included in the total.

Interest paid by the personal sector to other sectors includes mortgage interest paid to local authorities, building societies and insurance companies, interest on bank advances, and hire purchase charges paid to finance companies (but not those paid to household goods shops). Interest paid to life assurance companies is ignored since it is a transaction within the personal sector.

As explained below it is not possible to identify the separate components of this total (e.g. personal receipts of company dividends or national debt interest), and the method of estimation leads to a single estimate of rent, dividends and net interest received. The series appears as column (3) of Table 10. Estimates are not available for 1939–45 or for years before 1920.

SOURCES AND METHODS OF ESTIMATION

1946–1964

Estimates for these years are given by the C.S.O. in the Blue Book [75, 1968, Table 2]. The method of estimation is the same as that described below for 1920–38. The Blue Book also includes a division of the total receipts between life assurance and superannuation funds and other; and a series covering the main categories of interest payments which can be identified [75, 1968, Tables 22 and 25].

1920–1938

The estimate of rent, dividends and net interest receipts is derived by the procedure used for the post-war years by the C.S.O. [73, pp. 103–4]. Essentially, this involves the estimation of (a) payments of each category of

[1] See Chapter 1.4 for further description of the reliability grades.

[2] The estimates of property income from abroad thus differ from those given in the C.S.O. balance of payments statistics which are after deduction of foreign taxes; cf. Chapter 6.3 and Table 38.

TABLE 2.7   RENT, DIVIDENDS AND NET INTEREST RECEIVED BY
THE PERSONAL SECTOR IN 1938

(£M.)

	Present estimate	Source
A. *Total payments by all sectors*[a]		
Rent	460	Table 1, col. 6
Interest and dividend payments;[b]		
By companies and public corporations	618	Table 32, col. 10
By Central Government	232	Table 12, col. 12
By local authorities	68	Table 13, col. 9
Company profits due abroad and taxes paid abroad	33	Table 32, col. 12
Property income (including taxes) paid by non-residents	253	Table 15, cols. 3 and 4
Total	1,664	
B. *Receipts by all sectors except the personal sector*		
Companies and public corporations[b]	338	Table 32, cols. 2 and 3
Central Government[b]	34	Table 12, col. 2
Local authorities	74	Table 13, col. 2
Property income (including taxes) paid to non-residents	61	Table 15, cols. 11 and 12
Total	507	
C. Net receipts by personal sector	1,157	A–B

[a] But excluding interest paid by the personal sector.
[b] Excluding in each case estimated payments to, or receipts from, other units within the same sector, e.g. company dividends paid to other companies.

property income other than interest paid by the personal sector; and of (*b*) receipts of property income by each sector other than the personal one. Net receipts by persons are then obtained as the residual.

The procedure is illustrated in the specimen calculation for 1938 set out in Table 2.7.

CONSISTENCY AND RELIABILITY

The definition of the item is consistent in both the post-war and inter-war periods; and although it is obtained as a residual the reliability of the series is fair and it may be assessed as Grade B (see Chapter 1.4).

2.4 CONSUMERS' EXPENDITURE AT CURRENT AND CONSTANT PRICES, 1870–1965

DEFINITION OF THE SERIES

This covers all expenditure on the purchase of goods and services for personal use by persons and non-profit-making bodies. It covers all durable goods except land and dwellings; the imputed value (at farm prices) of produce withdrawn by farm households for their own consumption and the purchases by consumers of second-hand goods. Where such goods are purchased from other sectors the whole of the cost is included, but where the transaction is within the personal sector it is only an allowance for costs incurred in the transfer (e.g. dealers' margins and reconditioning charges in connection with the sale of second-hand cars) which is included in the estimate of consumers' expenditure.

The total retail value of the goods is included at the time of acquisition even though part of the payment may be made subsequently, as with instalment credit agreements. The interest and administrative charges on hire purchase transactions in motor vehicles, and any other goods the acquisition of which is financed by hire purchase finance companies, are not included in consumers' expenditure but are treated as transfer payments. Hire purchase interest and charges paid to household goods shops are, however, included in consumers' expenditure [**73**, p. 106].

Expenditure on consumer goods by businesses and public authorities is, so far as possible, excluded; and the cost of education, health and other services provided free of charge for consumers by public authorities is not included in the present chapter. For the individual components of consumers' expenditure it is only possible to measure expenditure in the United Kingdom including amounts purchased by non-residents. The aggregate

expenditure is, however, adjusted to include spending abroad by travellers, troops stationed overseas and other United Kingdom residents, and exclude expenditure inside the United Kingdom by foreign tourists and other non-residents.

The definitions are essentially the same in the earlier periods, though there are certain minor adjustments which have not been made in the pre-1938 estimates. There are also certain differences in the classification of expenditure. For example, the Blue Book allowance for the imputed rent of owner-occupied dwellings was based on the *net* Schedule A value[1] and so excludes repairs and there is, therefore, a separate estimate for expenditure by occupiers on maintenance, repairs and improvements. In the present estimates for 1900–38 the imputed rent payment by owner-occupiers is based on the Schedule A *gross* annual value and there is no estimate for occupiers' maintenance costs.[2] Other differences in the classification of expenditure are noted in the relevant tables.

The estimates are given in detail for 1900–65 at current and constant market prices in Tables 24 and 25, and the total is shown for 1870–1965 in Tables 2 and 5. The taxes on expenditure and subsidies included in the estimates at market prices are not shown separately for the pre-1938 period[3] but the principal elements can be readily identified in the tables for selected years in Chapters 4 and 5.

SOURCES AND METHODS OF ESTIMATION

(i) At current market prices

1946–1965

Estimates for these years are given in the Blue Book [75, 1964, Table 18, and 1968, Table 27]. They are now based primarily on information regarding actual expenditure as shown by statistics of sales by retail shops and other outlets, e.g. caterers, laundries and garages, and by special expenditure surveys. These include the National Food Survey of the Ministry of Agriculture and the Family Expenditure Survey of the Ministry of Labour, both of which are annual surveys taken continuously throughout the year. It is also necessary to make some use of statistics of output, imports and exports.

1939–1945

Estimates for 1938–46 were given in *Statistical Digest of the War* [77, p. 203] and the 1950 National Income White Paper [65, Cmd 7933, p. 28]. These series were used to interpolate between the latest Blue Book estimates for 1938 and 1946, and a very rough addition

was made for an item not then included in consumers' expenditure: expenditure by occupiers on maintenance, repairs and improvements to dwellings. The interpolations were made separately for each item but because of changes in classification it is not possible to show the estimates for the war years in Tables 24 and 25 in the same detail as for the surrounding periods. The classification was also adjusted to deal with the change in treatment of expenditure on food and rent by hotels, restaurants, etc. described below (p. 47).

1900–1938

Estimates for this period have been presented in great detail in two of the previous volumes in this series: Prest and Adams [232] and Stone and Rowe [249, I and II]. These studies should be consulted for a full account of the various estimation procedures. Briefly, it can be said that very little information on actual expenditure or retail sales is available, and that in the case of goods the estimates rely far more on statistics of agricultural or industrial output adjusted to exclude exports and include retained imports; and in the case of services on estimates of the numbers engaged and their average annual net earnings. There are, however, a few sectors, e.g. public travel, where some direct data on expenditure (or receipts) can be used.

For the most part the series in Table 24 are taken directly from the published studies but it has been necessary to make the following adjustments, mainly to obtain continuity of definition:[4]

(*a*) *Producers' own consumption from gardens, allotments, etc., 1900–38.* The estimates for expenditure on food given in [249] and [232] include the imputed value of consumption by small producers, e.g. of backyard

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[1] C.S.O. [74], p. 334. Since 1957 the estimates are based on rateable values [73, p. 162] but the effect is the same.

[2] This procedure omits maintenance expenditure undertaken by tenants, but this was probably very small since maintenance was almost invariably the responsibility of the landlord.

[3] For later years see, e.g. the Blue Book [75, 1968], Table 29.

[4] The adjustments are made to the main body of estimates as originally published in the three volumes. In their final chapter, Stone and Rowe [249, II.] provide a set of estimates for 1900–55 in which certain adjustments are made to the original series. These cover only the first and last (paragraphs (*a*) and (*f*)) of the adjustments listed above and the first two of the four changes in the classification of expenditure. It should also be noted that the estimates given in Stone and Rowe (and also in B. R. Mitchell and Phyllis Deane, *Abstract of British Historical Statistics*, 1962 [213], p. 370–2) differ from the present measure of consumers' expenditure by the exclusion of income in kind and of the expenditure by residents abroad net of non-residents' expenditure in the United Kingdom.

poultry or of fruit and vegetables from gardens and allotments. Such small-scale production and self-consumption is not regarded by the C.S.O. as commercial activity [73, p. 156] and nothing is included in the Blue Book estimates for the food produced on these small areas. D. A. Rowe has kindly provided the estimates necessary to make comparable deductions from the published figures. The value is £8.6 m. in 1900, £25.1 m. in 1924 and £20.5 m. in 1938.

(b) *Purchases of food by public authorities, 1900–38.* In the estimates for 1900–38 no deduction has been made for purchases of food by public authorities (for institutions such as schools and hospitals). This expenditure may be roughly estimated at £10 m. in 1938 [74, pp. 105–6] and the same proportionate deduction was made in all years back to 1900.[1]

(c) *Running expenses of carriages, 1920–38.* This item was covered by Prest [232] but omitted by Stone and Rowe [249, II, p. 121]. The estimate amounted to £25 m. in 1919 and since it seemed desirable to allow something for later years the 1919 figure was extrapolated by reference to the total number of private carriages and an index of the price of oats. The resulting series drops rapidly to £7 m. in 1924 and £1 m. in 1932.

(d) *Domestic service, 1920–38.* The Stone and Rowe estimates [249, II, pp. 29 and 35] were taken from the corresponding wage and salary figures in Chapman [146]. As indicated in Chapter 2.1 above it was thought necessary to revise that estimate downwards and a corresponding adjustment must be made to the expenditure figures. It may be noted that the adjustment produces a much better fit for this item both in 1920 when it meets the Prest series and in 1938 where there is the alternative Blue Book estimate.

(e) *Expenditure of British troops abroad.* Prest assumes that 80% of the pay and allowances (other than messing allowances) accruing to British troops abroad was spent in foreign countries [232, p. 169]. This seems an unduly high proportion and I have reduced it to 20%.[2]

(f) *Remittances abroad, 1900–19.* An allowance for this item was included by Prest but in accordance with current Blue Book practice remittances abroad are treated in the present estimates as a transfer (see Chapter 6.4), not a component of expenditure.

In addition to the above, five changes have been made in the classification of expenditure. The first three are quite straightforward: table waters are included with *Food*, not *Alcoholic drink*; motor vehicle insurance (for 1920–38) is included in *Vehicle running costs* and not in *Insurance*; and expenditure on the hire of gas and electrical equipment is transferred from *Fuel and light* to *Other services*.

The two other adjustments involve some estimation, although this does not affect the total. The fourth transfer was made in order to obtain a consistent series for consumer durables. Stone and Rowe [249, II, p. 26] give estimates for two categories: *Furniture and furnishings* and *Hardware and hollow-ware*. The former covers mainly durable goods but also includes expenditure on soft furnishings (curtains, cushions, etc.); the latter covers mainly non-durables but also includes domestic machinery (lawn mowers, refrigerators, sewing machines, etc.), perambulators and electrical appliances (e.g. vacuum cleaners and cookers). The value of expenditure on these components of the two groups is given separately only for three census years [249, II, pp. 17 and 21]:

	1924	1930	1935
	£ m.	£ m.	£ m.
Soft furnishings and lace curtains	16.8	18.5	17.8
Domestic machinery, appliances, etc.	11.3	11.5	19.1

In order to obtain a series which corresponds as closely as possible with the present Blue Book category of *Furniture, floor coverings, radios, electrical and other durable goods* (row 8) it is necessary to exclude the soft furnishings and include the domestic appliances; and the opposite adjustment must be made to the category of *Household textiles, soft furnishings and hardware* (part of row 9). A fairly rough approximation to the required adjustment was made by calculating the ratio of the above items to their respective group totals in census years,[3] interpolating between these ratios and applying the result to the annual group totals. The difference between the two series derived in this way was then subtracted from *Furniture*, and added to *Household textiles*.

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[1] A deduction should also be made for business purchases of alcoholic drinks but the amount involved is small (probably less than 5% of personal expenditure on drink) and this has been ignored. See Prest [232], p. 77. For business purchases of food see below, p. 47.

[2] This may be rather low – if so it will help to offset a further possible overstatement in the 1914–19 estimates for which no correction has been made. Prest's estimate for *Income in kind* [232, p. 168] includes the value of food supplied to British troops stationed abroad. It is assumed that this is not duplicated in the estimates for *Food* because of the deduction of exports from the quantities available for home consumption. However, the restricted coverage of the overseas trade statistics during the war years (see Chapter 6.1, p. 116) may mean that this was incorrect and that there was an element of double-counting in respect of food supplied from the United Kingdom to British troops abroad.

[3] For the domestic appliances Rowe also made available the unpublished figures he had derived for 1933, 1934 and 1937 from the Import Duties Act inquiries.

The final transfer arises from the different ways in which the composite item of expenditure on *Hotels, restaurants, boarding and lodging houses* has been treated. The C.S.O. followed one practice until 1967, when the Blue Book for that year introduced a major change, and neither of these is the same as the treatment in the pre-1938 estimates. All parties are agreed that expenditure on alcoholic drink in hotels and other catering establishments should be classified as *Alcoholic drink* but differ on the classification and valuation of other items, particularly food. In the estimates by Stone and Rowe and by Prest food purchased by hotels, etc. is included with household purchases under the heading *Food*, and is valued at retail prices; and the estimate for *Hotels, restaurants, etc.* is adjusted so as to exclude both (a) the estimated margin of profit made by catering establishments on food purchased at wholesale and (b) the whole of the estimated expenditure on food chargeable as a business expense [**249**, II, p. 83, and, less precisely, **232**, p. 161]. Similarly, expenditure by hotels, etc. on crockery, cutlery and furnishings, on rent and on fuel and other items are included with household purchases under the relevant headings and not as part of the expenditure on *Hotels, restaurants, etc.*

The practice followed by the C.S.O. until 1967 was to include an item 'other personal expenditure' under the heading *Food* to cover purchases for consumption in catering establishments, but to value this at the estimated prices actually paid by the caterer [**74**, p. 106]. The profit on food purchased at wholesale prices (or at retail prices less a discount) was treated as part of expenditure on *Hotel and restaurant services*; and the deduction for business expenditure on meals was made partly from the estimate for *Food* and partly from the estimate for *Hotel and restaurant services* [**74**, p. 134]. Since the 1967 Blue Book the C.S.O. has transferred the cost of the food purchased by catering establishments from *Food* to a new item *Catering (meals and accommodation)* so that this now covers both the cost of the food and the associated profit margin [**73**, pp. 156 and 179]. Both before and after 1967, expenditure on furnishings, rent, fuel, etc. has been treated as part of consumers' expenditure on *Catering*.

In their final chapter Stone and Rowe give estimates for 1900–55 in which the then current Blue Book estimates for expenditure on food were adjusted to the basis used for the pre-1938 estimates [**249**, II, p. 142], but for the present volume the estimates for 1900–38 have been revised in accordance with the treatment introduced in the 1967 Blue Book. For this purpose it was assumed that the cost of food represented 60% of the 'other costs' (i.e. excluding wages and salaries) of hotels, etc. but provided 80% of the profits obtained

by the establishments from the purchase of food, fuel, etc. at wholesale prices. On this basis it was possible to rework the estimates given by Stone and Rowe for 1920–38 to obtain a series for expenditure on *Catering (meals and accommodation)* including both the cost of food to the caterer and the estimated profit on the food. A corresponding deduction was then made from the estimate for *Food*.

The one other item for which it was possible to make an adjustment is rent, etc. The estimates given by Stone and Rowe [**249**, I, p. 221] include a separate series for rent, rates and water charges for 'other buildings' i.e. for hotels, lodging-houses and hospitals, schools, etc. Although this coverage is not precisely what is required for the present purpose it does represent a reasonable approximation and the series was accordingly transferred from *Housing* to *Catering*.[1] This still leaves expenditure on crockery, furnishings, fuel, etc. classified under their respective headings but the individual amounts involved are small and since there is no data of any sort available on the detailed composition of this expenditure no adjustment has been made and the estimate for *Hotels, restaurants, etc.* is to this extent understated by comparison with the post-1938 estimates.

For 1900–19 the corrections are very much more approximate. To allow for the revised treatment of food the original estimates were raised in the same proportion as the adjustment for 1920–38, and the amount thus added to *Catering* was deducted from *Food*. The Prest and Adams estimates for *Hotels, etc.* already includes half the cost of rents and rates [**232**, pp. 92 and 161] and an adjustment was made to transfer the remaining half.

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[1] The method used to construct the present estimates can be illustrated by the calculation for 1938. The ratios used are those suggested by Stone and Rowe [**249**, II, pp. 82–3] together with the two further assumptions mentioned in the text.

		£ m.
1.	Wages and salaries	54.7
2.	Profits (including profit on food, fuel, etc.)	66.9
3.	Cost of food	109.4
4.	Rent, rates and water charges	33.3
5.	*Less* Double-counting of profit on fuel, etc.	6.1
6.	*Less* Business expenditure	15.2
7.	*Equals* Consumers' expenditure on *Catering*	243.0

SOURCE: 1. Chapman [**146**, pp. 210–11] excluding 15% of wages for barmen and barmaids.
   2. Ratio to earnings = 55:45.
   3. Ratio of total 'other costs' to earnings plus profits = 1.5:1; food = 60% of 'other costs'.
   4. Stone and Rowe [**249**, I, p. 221].
   5. 20% of 25% of earnings plus profits.
   6. One-eighth of earnings plus profits.

Row and category in Table 24	Category and chapter	
	in Stone and Rowe[a]	in Prest
8. Furniture, electrical and other durable goods	Furniture and furnishings[b] (II) Bicycles (V)	Furniture, soft furnishings and floor coverings (XVII)
9. Textiles, hardware and other household goods	Household textiles, china and pottery, glassware, hardware and hollow-ware[b] (II) Matches, soap and other cleaning materials (III)	Bicycles (XX) Pottery and glassware, hardware and hollow-ware, heating and lighting appliances (XVII) Matches, soap, cleaning materials (XVII)
11. Books and miscellaneous recreational goods	Reading matter, toys, travel goods and sports equipment, licences, pets and pet foods (VIII)	Reading matter (XIX) Sports and travel goods (XXIII) Licences (XXV)
12. Chemists' and other goods	Drugs and other medical supplies (IV) Other personal effects (I)	Drugs and appliances (XXII) Other goods (XXIV)
16. Catering (meals and accommodation)	Hotels, restaurants, etc[b] (VIII)	Hotels and restaurants[b]
17. Other services	Gas and electricity rentals (vol. I, XVI) Laundry, cleaning and dyeing services and other household services (III) Hairdressing, medical services (IV) Repairs to bicycles (V) Entertainments, betting (VIII) Miscellaneous services[b] (IX)	Gas and electricity rentals (XVI) Laundry (XVII) Funeral expenses, life assurance, medical expenses (XXXII) Betting, entertainments (XXIII) Other services[b] except hotels and restaurants and licences (XXV)

[a] References are to the chapters of vol. II.   [b] After adjustments, see pp. 46–7.

The grouping of items in Tables 24 and 25 follows the current Blue Book classification and for most columns the relationship to the classification in Prest or Stone and Rowe (amended as above) will be self-evident. However, for a number of columns a certain regrouping was necessary and the notes set out above may be helpful.

The notes to Table 24 amplify the composition of the items in the Blue Book classification and indicate any significant differences in coverage in the earlier periods. The effect of these differences on the continuity of the estimates is considered below, p. 51. Food is given as a total only, but a detailed breakdown of food consumed (included meals in hotels, restaurants, etc.) is given for 1900–55 by Stone and Rowe [249, II, pp. 129–31 and 145–6].

1870–1899

Estimates for these years are given by Jefferys and Walters [184, p. 27] and are in effect an extrapolation of the Prest estimates, though with a much broader classification of expenditure. The main sources used were the (unpublished) Oxford estimates of agriculture output, indices of manufacturing output from Hoffmann's data on industrial production [179], overseas

trade statistics of retained imports and exports, and Census of Population data on numbers employed in the main services. There are only a small number of items for which reasonably direct information on consumers' expenditure is available; these include alcoholic drinks, tea, coffee and tobacco,[1] rates, railway passenger receipts, tramway and post office receipts. For the rest the methods are rather indirect and could perhaps be improved by a more detailed attack on individual items. A number of detailed criticisms are considered in Chapter 1.4, p. 15. In the absence of a revised series the Jefferys and Walters estimates have been adopted with only one adjustment. This is designed to allow for the fact that over the period 1900–7 the Prest estimates for the components *not* incorporated directly in the Jefferys and Walters estimates (i.e. all items other than services and drink, tobacco, coal, etc.) averaged roughly 5.5 % more than the corresponding estimates by Jefferys and Walters. There is no reason to assume that precisely the same discrepancy would have appeared in the years before 1900, but it would also be inappropriate to take no account of the difference in

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[1] For these four items the estimates for 1870–99 are presented and described in Prest [232].

movement of the two series and an addition was accordingly made to the relevant components, beginning at 3 % in 1894 and rising to 5 % in 1899.[1]

(ii) At constant market prices

Following the principles discussed in Chapter 1.1 detailed estimates are given in Table 25 on the following price bases: 1946–65 at 1958 market prices, 1938 and 1948 at 1948 market prices, 1900–48 at 1938 market prices and 1900–13 at 1900 market prices. In addition the total for 1870–99 is given in Table 5 at 1900 market prices.

For consumers' expenditure it is possible to undertake a revaluation at constant prices in considerable detail – not just for broad categories but, in many cases, commodity by commodity within each category. For a large part of this expenditure estimates of the actual physical quantities purchased (lbs of meat, number of motor vehicles, passenger miles of rail transport and so on) are available and can be revalued at the prices ruling for these items in the specified base years. For other items such quantity data are not available and the estimate of the value of consumers' expenditure is divided by an appropriate price index, e.g. an index of the retail prices of the relevant items.

An index of the change in the volume of consumers' expenditure over the whole period 1870–1965 is shown in Table 7. It is calculated by linking the four separate segments[2] at overlapping years and is shown with 1913 = 100, though that is, of course, not the base year. The corresponding quantity index for consumption per head of the population is given in Table 17.

The sources used for the estimates at constant prices are as follows:

1946–65 at 1958 prices

Estimates at 1958 prices are given in the Blue Books [74], 1964, Table 19, and 1968, Table 28. Certain additional details required for the early post-war years for Table 25 were kindly supplied by the C.S.O.

1938 and 1948 at 1948 prices

The required estimates for 1948 are reproduced from Table 24. For 1938 the 1958 Blue Book [75, Table 28] has the latest available estimates at 1948 prices and these were adjusted in the proportions required to agree the corresponding 1958 Blue Book estimates for 1938 at current prices with those given in Table 24.

1938–48 at 1938 prices

Estimates at 1938 prices were given for 1938–45 in *Statistical Digest of the War* [77, p. 203] and the separate

series for each year were multiplied by the ratios used for the corresponding estimates at current prices (see p. 45 above). For 1946–8 estimates at 1938 prices were given in the 1949 *National Income White Paper* [65, Cmd. 7649, p. 28]. For a few items (food, private motoring, and other services) the price index for 1948 (1938 = 100) was later revised in the 1951 *National Income White Paper*, [65, Cmd. 8203, p. 29]. Adjustments to allow for this were made to these items in each of the years 1946–8; and then all the items were adjusted in each year to take account of the subsequent revision (in the 1964 and 1967 Blue Books) of the underlying estimates at current prices. Because of problems regarding the price indices available for deflation to 1938 prices the revision is somewhat more approximate for items 8 to 12 of Table 25.

1900–38 at 1938 prices

In the final chapter of their study of consumers' expenditure Stone and Rowe [249, II, p. 144] give estimates at 1938 prices based on their own study and on the quantity series estimated for 1900–19 by Prest and Adams [232]. This provided the basis for the series shown in Table 25 but a number of additions and adjustments, mostly corresponding to those made for the current price series, were necessary to conform to the present definitions and estimates (see pp. 45–7 above).

1900–13 at 1900 prices

The quantity indices given for major categories of expenditure in Prest and Adams [232, e.g. p. 74] have 1900 = 100 but are in fact derived from Fisher cross-weight indices for every pair of years chained together between successive years [232, p. 4]. New estimates at actual 1900 market prices were, therefore, compiled from the detailed 1900 price data and annual quantity series given by Prest and Adams [232, e.g. p. 16]. As noted in Chapter 1.1. they show a more rapid rate of

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[1] The actual benchmark year for the Jefferys and Walters series is 1907, and for this year the two estimates agree almost exactly. There is, however, a discrepancy in all other years from 1900–1913 – the period for which the two series overlap – with the Prest estimates higher in all years. The decision to limit the correction to the period from 1894 is very arbitrary, but is loosely indicated by the fluctuations in the series.

[2] The series used for 1938–48 is the geometric mean of the indices with 1938 and 1948 weights, with annual figures interpolated by means of the series with 1938 weights; for 1900–13 it is the 1900 price series which is used.

growth than the corresponding estimates at 1938 prices (see p. 5 above).

1870–1900 at 1900 prices

The Jefferys and Walters study related to current prices only, and it was necessary to work through their estimates in detail to obtain series at constant (1900) prices. The following notes give a brief description of the methods used. The categories follow those in Jefferys and Walters [**184**, p. 27]:

(a) *Home-manufactured consumer goods*. This estimate was originally made at constant prices and then multiplied by a price index of home manufactured (and home-consumed) finished consumer goods, given by Jefferys and Walters [**184**, p. 39]. It was therefore possible to divide through by this index to get back to the estimate at constant (1907) prices. The same index was then used to move to an estimate at 1900 prices.

(b) *Home-produced finished agricultural consumer goods*. A weighted average of the Sauerbeck index numbers of wholesale prices for potatoes, meat, milk and milk products, and import average value indices for fruit and eggs was used to deflate the current expenditure series – the weights were based on the output of the relevant items in 1904–10.[1]

(c) *Imports of finished consumer goods*. For imports of food the quantities imported were revalued commodity by commodity at the import average values of 1900;[2] and the total was then raised by 26.5% – the mark-up used in the current price estimates – to allow for distributive margins. For non-food items the value of imports at current prices was deflated by an index derived for 1880–1900 from Bowley's index of the retail price of clothing [**132**, p. 121] and for 1870–80 from Imlah's series for the average value of exports of cotton manufactures [**181**, p. 210].

(d) *Tobacco, alcohol, tea and coffee*. Quantity series for these items are given in Prest [**232**] and were revalued individually at 1900 prices.

(e) *Fish and coal*. For fish the expenditure at current prices was deflated by a price index obtained from the *Report on Wholesale Prices* [**69**, p. 156], for 1888–1900 and from import average values for 1870–87. For coal the original quantity series was reconstructed [**184**, p. 30] and revalued at 1900 prices.

(f) *Services*. The 1900 estimates were extrapolated by the volume series underlying the current value series. These relate to number of houses (for rents) persons employed (for domestic and medical services, education, entertainment, catering, electricity, gas and water, road and sea travel, etc.) and numbers of passengers (for railways and tramways).

The implicit current-weight (Paasche) average value index for total consumers' expenditure is given in column (1) of Table 61 and corresponding indices for nine broad categories of expenditure are given in Table 62. The retail price index is given for comparison in Table 65.

ADJUSTMENT TO FACTOR COST

In table 5 the expenditure estimates are given at constant market prices in columns (1) to (10). In order to get estimates at constant factor cost it is necessary to make the adjustment shown in column (11) of Table 5. This represents the deduction of the taxes on expenditure net of subsidies valued at base year rates: 1958 rates for 1948–65, 1948 rates for 1938 and 1948, 1938 rates for 1913–48 and 1900 rates for 1870–1913. By far the greater part of the adjustment relates to consumers' expenditure items (principally drink, tobacco and housing), and so it is convenient to note in this chapter the procedure adopted in making the adjustment.

For 1948–65 the necessary calculation is made in the Blue Book [**75**, 1968, Table 14]. To construct the series for 1913–48 at 1938 factor cost it was necessary to make a detailed allocation of the taxes on expenditure net of subsidies to the appropriate items of expenditure (see Tables 4.2 and 4.3). The corresponding 1938 rates, i.e. taxes net of subsidies as a percentage of the expenditure items, were then applied to the annual estimates at 1938 prices for each of the taxed or subsidised items of expenditure; and the resulting estimates at 1938 rates were aggregated to obtain the required overall adjustment to factor cost. Similar calculations were made for 1870–1913 at 1900 rates, and 1938 and 1948 at 1948 rates.

CONSISTENCY AND RELIABILITY

Consistency

The estimates covering the period 1870 to 1965 have been derived from four separate sources but with the adjustments made in the present volume can be

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[1] For prices: A. Sauerbeck, 'Prices of Commodities and the Precious Metals', *J. R. Statist. Soc.* XLIX, 1886 [**242**], and annually thereafter. These are the price indices used in Oxford's current value estimates of agricultural output. The output weights are from Ojala [**222**], p. 208. It should be noted that this procedure is not strictly correct since the use of a fixed weight price index yields a Paasche moving weight quantity series for this component of consumers' expenditure, and not the fixed (1900) weight Laspeyres index which is required.

[2] Both quantities and average values are from the *Statistical Abstracts* [**35**].

regarded as reasonably consistent both conceptually[1] and, at overlapping years, in estimation.

The first break occurs in 1938 where the C.S.O. series meets the Stone and Rowe estimates as amended for this volume. The two are compared in Table 2.8 with the Blue Book estimates adjusted as far as possible to the same scheme of classification as the present estimates. However, for Housing (and Other services) it

TABLE 2.8 COMPARISON WITH THE BLUE BOOK ESTIMATES OF CONSUMERS' EXPENDITURE IN 1938 (£M.)

	Blue Book (1)	Present estimate (2)
Food	1,169[a]	1,157
Alcoholic drink	285	294
Tobacco	177	176
Housing[b]	518	488
Fuel and light	197	188
Clothing	446	438
Private motoring[c]	133	132
Other goods[d]	557	584
Public travel and communication	196	208
Domestic service	121	110
Entertainments	64	65
Other services[e]	523	548
Income in kind and adjustment for travel	8	4
Total	4,394	4,392

SOURCE: (1) 1957 Blue Book [75], p. 14. (2) Table 24.

[a] Adjusted by transfer of 'other personal expenditure' [65, Cmd. 8203, April 1951, p. 24] from Food to Other services.

[b] Including hotels, boarding houses, etc. (see p. 51).

[c] Motor cars, motor cycles and vehicle running costs.

[d] The C.S.O. estimates for 1938 are not available on the basis of the classification currently adopted by the C.S.O. and used in Table 24, and a number of separate categories have, therefore, been combined in the table and in this item 'other goods'. It is, however, possible to give a more detailed breakdown on the basis of the old (pre-1958) C.S.O. classification:

	Blue Book	Present estimate
Furniture and furnishings	152	159
Hardware	82	106
Matches, soap, cleaning materials	54	53
Books, newspapers, etc.	64	64
Chemists' and other goods (including bicycles)	205	202
	557	584

[e] Expenditure on hotels, restaurants, etc. included in this item covers the full cost (including caterers' profits) of food consumed, but not the rent paid by hotels, etc. (see notes a and b).

appears that the original Blue Book estimates for 1938 as given in the 1951 *National Income White Paper* [65, Cmd. 8203, p. 24] were not adjusted to conform to the treatment adopted for the post-1946 estimates in and after the 1954 Blue Book, whereby the rent paid by hotels, boarding houses, etc. was transferred from *Housing* to *Hotel and catering establishments* (included in *Other services*) [75, 1954, p. 83]. The estimates in Table 2.8 have, therefore, been classified on that basis.

The two sets of estimates agree extremely well both in total – where they differ by only £2 m. – and in the results for individual categories. In almost every case the discrepancy is of the order of 5% or less and the only substantial disagreement is in the estimate for the sub-category of 'hardware'.

The second possible break in continuity occurs where the Stone and Rowe estimates for 1920–38 join those by Prest and Adams for 1900–19. As there is no overlapping year it is not possible to make a precise comparison of the two sets of estimates. A detailed statement of the differences in the *classification* of expenditure is given for some categories in Prest [232, pp. 183–5] and for the remainder in Stone and Rowe [249, II, p. 120]. At the broader level of classification used in Tables 24 and 25 only a few relatively minor discrepancies remain.[2] Some of these will partly cancel out within a given category so that even for the component series any breaks in continuity of classification are small. So far as continuity of estimation is concerned no precise judgement is possible, but the two studies were closely co-ordinated and after the adjustments made in the present volume[3] any remaining discrepancies are unlikely to be substantial.

There is, however, the difference in geographical coverage: the series up to 1919 relates to Great Britain and the whole of Ireland, whereas from 1920 onwards Southern Ireland is excluded. To provide a bridge between the two series Tables 24 and 25 provide an alternative estimate for 1920 in which Southern Ireland is included on the very rough assumption that it represented 4–5% of expenditure in Great Britain and Northern Ireland. This proportion is based partly on the rough estimates made for certain items (food, drink and tobacco, housing, fuel and light) by Prest and

[1] There are, inevitably, differences arising from institutional changes: in particular, the changing balance of private and public expenditure on education and on health services.

[2] For details see the notes to Table 24.

[3] This refers particularly to the amended estimate for 1920–38 for domestic service, a change which eliminates the major discrepancy previously observed. Cf. Stone and Rowe [249, II], p. 141, n. 4.

Adams [**232**, pp. 183–5] which suggest a figure of 5 %; and partly on direct estimates of the national income of the Irish Free State, derived from income data, which point to an overall proportion nearer 4½ %.[1] Accepting the estimates for the five items covered by Prest this implies an addition of 4 % for all the remaining items. The difference between the two estimates for 1920 should, of course, not be used as a direct estimate of expenditure in Southern Ireland.

The final link in the chain occurs in 1900 with the transition to the estimates by Jefferys and Walters. A rough adjustment intended to introduce continuity at this point was discussed on pp. 48–9 above.

2.5   TAXES ON INCOME, 1920–38 AND 1946–65

DEFINITION OF THE SERIES

This chapter is devoted to two items: estimates of taxes on income actually paid each year by the personal sector, and the estimated addition to personal tax reserves, i.e. the excess of the accruals of tax over the actual payments. From the inception of 'Pay-as-you-earn' in 1944 the accrual and payment of income tax on wages and salaries is effectively simultaneous[3] and the addition to tax reserves relates solely to incomes from self-employment and to incomes chargeable to sur-tax. The same limitation has been made for the period 1920–38 although there would in fact have been a lag in the payment of income tax on employment incomes assessed under Schedule E.[4] However it did not seem realistic to introduce a 'provision for tax' in the case of wages and salaries, and, as the C.S.O. observes [**73**, p. 108], it may even be somewhat fictitious in the case of the trading income of self-employed persons. For some purposes it may, therefore, be more appropriate to treat the additions to tax reserves as a part of personal saving, rather than as a charge against income before the amount of saving is calculated. This indeed is what is done in the combined capital account, Table 16, since tax (and dividend) reserves are temporarily available as a source of funds for investment. It should also be noted that there is an inconsistency between the treatment of the private sector (personal and corporate) and the Central Government sector, in the sense that the savings of the private sector are shown (in Tables 10 and 11) after charging accruals of taxes whereas the savings of the Central Government (Table 12) take into account only the taxes actually received. This inconsistency in the separate tables is thus eliminated by the treatment of additions to tax reserves as receipts for the purpose of Table 16.

Reliability

Prest and Adams, Stone and Rowe, and the C.S.O. have each given careful consideration to their subjective estimates of the margins of error attaching to their series and for total consumers' expenditure these can be summarised together with a grading for the other series, as follows:[2]

1870–99	C	1939–45	B
1900–19[a]	B	1946–65[a]	A
1920–38[a]	A		

[a] For further details and estimates for the individual categories of expenditure see Prest [**232**, pp. 179–82], Stone and Rowe [**249**, II, pp. 115–19] and C.S.O. [**74**, pp. 140–1, and **68**, pp. 187–9].

No estimates have been made for the war years or for the period before 1920. The estimates for 1920–38 and 1946–65 are given in Table 10.

SOURCES AND METHODS OF ESTIMATION

1946–1965

The Blue Book estimates for this period are made for the C.S.O. by the Board of Inland Revenue.

1920–1938

The estimate of the amount of taxes on income paid by the personal sector is derived as a residual, by de-

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[1] See T. J. Kiernan, 'The National Income of the Irish Free State in 1926', *Economic Journal*, XLIII, 1933 [**190**], p. 86, and also Bowley and Stamp [**131**], p. 44. Kiernan also attempted to make direct estimates of consumers' expenditure in the Irish Free State in 1926 (T. J. Kiernan, 'The National Expenditure of the Irish Free State in 1926', *Journal of the Statistical and Social Inquiry Society of Ireland*, XV, 1932–3 [**189**], pp. 91–2) and his result for that year (some £142 m.) represents less than 4 % of the present estimate for Great Britain and Northern Ireland. However, the overall proportion is markedly reduced by the small amounts allowed for the broad categories of 'household goods, jewellery, books, etc.' and 'entertainment, religion and other services,' and it seems likely that expenditure on these goods and services was understated by Kiernan.

[2] See Chapter 1.4 for further discussion and for a description of the reliability grades.

[3] There are, of course, subsequent minor adjustments to the amounts collected under PAYE, but these are ignored.

[4] Income assessed under Schedule E (other than for weekly wage-earners) would normally have been assessed one year later and the tax would be payable on 1 January of the year of assessment, i.e. income earned in, say, 1936/7 would be assessed in 1937/8 and the tax would be due on 1 January 1938.

ducting from total receipts by the Central Government (Chapter 4.1) the estimates of taxes on income paid by the corporate sector (Chapter 3.3) and by non-residents on portfolio income (Chapter 6.3). The reliability of the series is quite good since the total received by the government is a firm figure and any errors in the estimate for taxes paid by the corporate sector will be small relative to the estimate for the personal sector. In 1938, for example, an error of 20 % in the estimate for the corporate sector would mean an error of less than 5 % in the residual.

The calculation of the addition to tax reserves covers income tax, excess profits duty, national defence contribution and sur-tax. For the first three of these taxes it is made on similar lines to the estimate for companies, described in Chapter 3.3, except that the

standard rate cannot be used in estimating the accrual of income tax on income from self-employment. The appropriate rate is, and must be, an unknown – it would depend on such variable factors as the other sources of income of self-employed traders and the personal allowances, e.g. for children, to which they were entitled. As a very rough and ready approximation a rate equal to 80 % of the standard rate was used.

The accrual of sur-tax (earlier super-tax) is also a little uncertain in that it relies on estimates of the average rate of sur-tax, derived from the actual payments three years later. However, the averages are fairly stable over periods in which there was no change in the nominal rates of sur-tax and any error on this account is unlikely to be large.