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## APPENDIX

### SOURCES AND NOTES TO TABLES

#### *Main Sources*

THE main source of information on the total government work force and the total working population in the period 1891 to 1931 is the decennial Census of Population for Britain and Wales and Scotland. These Censuses were taken on April 5, 1891; March 31, 1901; April 2, 1911; June 19, 1921; and April 26, 1931. All Census data cited below refer to these dates.

The five Censuses are not completely comparable because methods of taking and reporting the Census have changed. Before 1891 the Census questionnaires asked only for a person's occupation. In 1891 a question as to status—employer or employee—was added. The 1911 Census contained for the first time a question as to "the nature of the employer's business." This furnished the basis for a more accurate industrial classification, and made possible the identification of industrial workers employed in government-owned establishments. For example, while in earlier Census reports a carpenter working in a government-owned shipbuilding plant was listed only under his occupational group, the 1911 Census reported for the first time—in addition to the non-industrial civil service—the number of industrial government workers.

The 1891 and 1901 Censuses also listed large groups of persons employed by local authorities—school teachers, workers in municipally owned utilities, sanitation, road maintenance, etc.—under only their respective occupational groups and not under the heading "Local Government." Only the 1911, 1921, and 1931 Censuses included a complete count of central and local government workers. For the earlier years the Census figures had to be raised to take account of the omitted categories. The adjustments made in computing our tables are described below.

The Census data on government workers include the unemployed, except in 1931, when a special count of the unemployed was made. They also include as full units part-time workers whose main occupation was in government service.

Since the 1941 Census was omitted because of the war and the 1951 Census does not distinguish between private and public employment, we have to rely on other sources of information on

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government workers for the period after 1931. These sources are also important in providing detail not furnished by the Census for years both before and after 1931. Data on the armed forces are available from the reports of the service departments. Data on civilian central government employees by department are published at frequent intervals by the Treasury Department. In 1914 the Treasury began to publish the number of all persons—established as well as unestablished—in the non-industrial civil service. From the 1930's on the Treasury returns also list the numbers of industrial workers employed by the central government. These payroll data have certain advantages over Census data: they exclude the unemployed and—though only for the non-industrial civil service—distinguish between full-time and part-time employment.

Comprehensive payroll data, however, are available only for the central government, not for local authorities. For the period after 1931, information on local government employment is incomplete. For certain categories—such as police, or teachers in schools run by local authorities—data are available from the Home Office or the Ministry of Education for England and Wales and the Home Department or the Education Department for Scotland. For other types of local government employment we must rely on estimates. The procedures followed in deriving these estimates are described below.

### TABLE 1

#### ARMED FORCES

Census years—armed forces at home: Data are from Census of England and Wales and Census of Scotland. 1891 and 1901: *Occupation Tables*. 1911: *Occupation and Industry Tables*. 1921 and 1931: *Industry Tables*.

Figures as given in source were adjusted as follows: The 1921 and 1931 *Industry Tables* include under the headings Army, Navy, and Air Force the civilian employees of the War Office, the Admiralty, and the Air Ministry. The staffs of these service departments—reported in the Treasury returns "Staffs Employed in Government Departments," Cmd. 1290, 1921, and Cmd. 3898, 1931—were shifted from Armed Forces to Civil Central Government.

Census years—armed forces abroad: Figures refer to persons born in England, Wales, and Scotland. Data are from War Office, Admiralty, and Air Ministry returns, reported in the Census of England and Wales. 1891: *General Report with Summary Tables and Appendices*. 1901, 1921, and 1931: *General Report with Appendices*.

The Census of England and Wales for 1911, *Volume 10, Part I*, gives the numbers of the armed forces of the United Kingdom at home and abroad, but no information as to the birthplaces of the forces serving overseas. The

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number of English, Welsh, and Scottish members of the armed forces abroad was estimated at 70 per cent of the difference between the number of the armed forces in Great Britain and the total number of the United Kingdom forces at home and abroad.

1938 and 1950—armed forces at home and abroad: Data are from Ministry of Labour and National Service, "Distribution of Total Manpower, Great Britain," cited in Central Statistical Office, *Annual Abstract of Statistics*, No. 89, H.M.S.O., London, 1952. Figures refer to June of each year.

### CIVIL CENTRAL GOVERNMENT

Census years: See sources for armed forces at home.

Adjustments: Figures given in the *Occupation Tables* of the 1891 and 1901 Censuses were raised by 15,000-25,000 for 1891 and 20,000-40,000 for 1901 to take account of industrial government workers not included in the Census data.

1921 and 1931: Civilian employees of the service departments were added to Civil Central Government (see above note on adjustment of data on armed forces).

1938 and 1950: Data are from Treasury returns "Staffs Employed in Government Departments" (quarterly), cited in *Annual Abstract of Statistics*, No. 85, 1948, and No. 89, 1952. Figures refer to April 1 of each year.

Adjustments: One-half of the number of part-time workers in the non-industrial civil service—reported in the Treasury returns—was added to the Treasury totals to obtain the number of full-time and part-time workers. Information about the number of part-time industrial government workers was not available.

### LOCAL GOVERNMENT

Census years: See sources for armed forces at home.

Adjustments: Figures given in the *Occupation Tables* of the 1891 and 1901 Censuses were raised by 80,000-130,000 for 1891 and 250,000-300,000 for 1901 to take account of persons in education, municipally owned public utilities, sanitary services, road maintenance, and miscellaneous labor not included in the Census data (see notes to Table 8).

1938: See notes to Table 8.

1950: Estimate by T. M. Ridley in "Note on the Extent of the Public Sector of the Economy in Recent Years," *Journal of the Royal Statistical Society*, Vol. CXIV, Part II, 1950. Based on returns rendered to the Ministry of Labour and National Service by local authorities.

### TOTAL WORKING POPULATION AND ALL EMPLOYED

Figures in upper panel include the unemployed and persons temporarily separated from their work. Both panels include part-time workers—each being counted as a full unit—armed forces at home and abroad, and merchant seamen and fishermen at sea.

Census years: See sources for armed forces at home.

Adjustments: Census figures were raised by (a) armed forces abroad (see above) and (b) merchant seamen and fishermen employed on registered British vessels at the date of the Census, but not included because they were at sea. Sources for (b): Data furnished by the Registrar General of Shipping and Seamen, cited in Census of England and Wales: 1891 and 1901: *General Report with Appendices*; 1911: *Volume 10, Part I*; 1921 and 1931: *General Tables with Appendices*.

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1938: Data are from Ministry of Labour and National Service, "Distribution of Total Manpower, Great Britain," old series. This series—which reports a total working population of 19,473,000 persons for June 1938—excludes gainfully occupied men over 65 years, women over 60 years, and private indoor domestic servants. The number of persons in these categories was estimated by reference to a study by H. Frankel, "The Industrial Distribution of the Population of Great Britain in July 1939," *Journal of the Royal Statistical Society*, Vol. CVIII, 1945, Parts III-IV, at 3,131,000, and this number was added to the total reported by the Ministry of Labour. To find total employed workers we assumed that the unemployment ratio for the categories added to the old manpower series was the same as for the working population included in this series.

1950: Data are from Ministry of Labour and National Service, "Distribution of Total Manpower, Great Britain," new series. Private indoor domestic servants and gainfully occupied persons over pensionable age who were excluded from the previous series of manpower statistics are included in the new series. Figures refer to June.

TABLE 2

1891-1931: Data are from Census of England and Wales and Census of Scotland. 1891 and 1901: *Occupation Tables*; 1911: *Occupation and Industry Tables*; 1921 and 1931: *Industry Tables*.

Adjustments: Armed forces abroad were added to Census figures for 1891-1931 (see notes to Table 1, above). The estimated numbers of industrial government workers were added to Census figures for 1891 and 1901 (see notes to Table 1).

1951: The final results of the 1951 Census—taken on April 8—were not yet published. The *One Per Cent Sample Tables, Part I* include in the Industry Tables under "Defense" the armed forces at home, the civilian non-industrial employees of the service departments, the military nursing services, and hospitals and similar institutions operated by the armed forces. But these tables do not include a breakdown for armed forces and civilian employees or any information on the armed forces abroad. For these reasons we substituted the figure for the armed forces from "Distribution of Total Manpower, Great Britain," new series, cited in *Annual Abstract of Statistics*, No. 90, 1953.

The Sample Tables report 361,000 persons in civil central government service. This number excludes the non-industrial staff of the service departments (but includes the staff of the Ministry of Supply), the entire Post Office, and all government industrial workers who are reported under their respective Industry Groups. We added the number of Post Office workers from the Census Industry Group "Transportation and Communication." We further added the civilian employees of the service departments (reported in the Treasury return on non-industrial staff in the civil service on April 1, 1951) and the industrial staff in the civil service (as reported by the Treasury Department for April 1, 1951) with the exception of industrial Post Office workers, who are included in the Census data for the Post Office.

Adjustment: The Census figure for total working population was raised by 250,000 to account for armed forces abroad and merchant seamen and fishermen at sea.

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### TABLE 3

1902: Data are from "Return Showing the Total Numbers of Persons in the Established Civil Service of the State," Treasury Chambers, Cmd. 409, 1902.

1911: *Idem*, Cmd. 210, 1911.

1914: *Idem*, Cmd. 390, 1914.

Adjustments: The staffs of specifically named Irish departments were eliminated. But certain departments, notably the Post Office and Revenue Departments, include Irish employees who could not be excluded.

### TABLE 4, Part A

#### ARMED FORCES AT HOME AND ABROAD

Army, 1914 and 1918: Data are from the War Office, *Statistics of the Military Effort of the British Empire during the Great War, 1914-1920*, H.M.S.O., 1922, pp. 29-30.

Includes the Regular British Army, excluding reserves and territorial forces on August 1, 1914; including expeditionary forces, but excluding colonial and native forces in November 1918.

Navy, 1914 and 1918: Data are from H. Newbolt, *History of the Great War Based on Official Documents*, London, 1931, Vol. V, p. 433. Includes H.M. Navy and Royal Marines, excluding reserves on August 15, 1914; including reserves on November 15, 1918.

Air Force, 1914: Royal Flying Corps and Royal Navy Air Force—strength 2,073—are included in Army and Navy. 1918 data are from H. A. Jones, *The War in the Air*, Official History of the War, 1937, Appendix XXXV.

Army, 1928: *The General Annual Report of the British Army for the Year Ending 30th September 1928*, H.M.S.O., Table 1.

Army, 1933: *Idem*, for the year ending 30th September 1933.

Army, 1936: *Idem*, for the year ending 30th September 1936.

The figures for 1928, 1933, and 1936 represent the regimental strength of British troops on the British and Indian establishments, plus headquarters and other staffs of the Regular Army, plus permanent staffs of the Territorial Army and of other reserve formations, less Colonial Corps and Indian Troops borrowed. Figures refer to October 1 of each year.

Navy, 1928, 1933, and 1936: Data are from *Statistical Abstract for the United Kingdom*, No. 82, H.M.S.O., Table 141. Reserve formations are excluded from the totals. Figures refer to March 31 of each year.

Air Force, 1928, 1933, and 1936: *Statistical Abstract for the United Kingdom*, No. 82, H.M.S.O., Table 145. Reserve formations are excluded from the totals. Figures refer to March 31 of each year.

Army, Navy, and Air Force, 1939: Great Britain, Central Statistical Office, *Statistical Digest of the War*, H.M.S.O., 1951, Table 9. Figures refer to June.

Army, Navy, and Air Force, 1945 and 1950: Data are from "Distribution of Total Manpower, Great Britain," cited in *Annual Abstract of Statistics*, No. 88, 1952. Figures refer to June of each year.

#### NON-INDUSTRIAL STAFFS

1914 and 1918: Data are from "Statement Showing the Staffs of Government Departments on August 1, 1914, November 11, 1918, and March 31, 1919," Treasury Chambers, Cmd. 276, 1919.

The Admiralty figures do not include foreign yards. The Air Ministry figures do not include Depots, etc. The War Office figures do not include Regimental Record Offices, Pay Offices, etc.

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Personnel in specifically Irish departments were excluded. Irish personnel in other departments were included; except Post Office, from the staff of which subtractions were made as follows: 1914—staff numbering 21,089 who were in Ireland on March 31, 1914, as given in "Report of the Postmaster General on the Post Office," 1913-1914, Cmd. 7573, 1914. 1918—staff numbering 19,083, which represents the average of the 1914 staff in Ireland and of the staff transferred to the Irish Free State in 1922. The latter figure is given in "Statement Showing the Staff Employed in Government Departments," April 1, 1922, Treasury, Cmd. 1658, 1922.

Figures represent the total of full- and part-time workers; except for the non-industrial staff of the Post Office, for which the sources state the proportion of part-time employees. These were counted one-half.

1928 and 1933: Data are from "Staffs Employed in Government Departments," Treasury, Cmd. 3106, 1928, and Cmd. 4351, 1933.

Adjustments. Staffs of certain outlying branches of the War Office and staffs of Unit and Command Offices, etc., of the Air Ministry were added to the totals for War Office and Air Ministry.

Staffs in all departments were adjusted for part-time workers on the basis of the numbers of part-time workers given in "Statement Relating to the Employment of Ex-Service Men in Government Offices," Treasury, Cmd. 3114, 1928, and Cmd. 4352, 1933.

Total non-industrial staffs were raised to include the staffs engaged on reserved or agency services in Northern Ireland, which numbered 5,004 persons in 1928 and 4,983 in 1933.

1936, 1939, 1945, and 1950: Data are from the Treasury returns "Staffs Employed in Government Departments," on April 1 of each year, cited in *Annual Abstract of Statistics*, No. 84, 1948, and No. 89, 1952.

Staffs of reserved and agency services in Northern Ireland are distributed among the various departments in 1939, 1945, and 1950, but in 1936 appear only in total non-industrial staffs.

Post Office non-industrial staff, 1939, 1945, and 1950, excludes sub-postmasters and sub-postmistresses who numbered approximately 8,000 in each year.

### INDUSTRIAL STAFFS

1914 and 1918: Data are from Ministry of Reconstruction, *Fifth Interim Report of the Civil War Workers Committee*, Cmd. 9192, 1918. Shows the estimated number of persons employed in government-owned establishments in July 1914 and January 1918. The figures include workers in Ireland, but exclude government workers in Forestry and industrial workers in the Post Office.

The industrial staff as shown in the above source was divided between Defense and Miscellaneous Industrial Staffs by reference to Census figures for England and Wales in 1911. These showed some 35,000 industrial industrial government workers employed in establishments of a military character and some 6,000 others. It was assumed that defense workers would have increased more rapidly than non-defense workers between 1911 and 1914 and that the latter remained constant during the war.

Post Office industrial staff was added as follows: 1914—difference between total Post Office staff as given in "Report of the Postmaster General on the Post Office," 1913-1914, Cmd. 7573, 1914 (see also adjusted figures which exclude certain indirectly employed workers in *Statistical Abstract for the United Kingdom*, No. 82), and non-industrial staff as reported in Treasury return Cmd. 276, 1919. 1918—a figure derived from the average

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of the ratios of industrial to non-industrial staffs in 1914 and in 1920 as given in *Statistical Abstract for the United Kingdom*, No. 68.

Post Office, 1928: Data are from *Statistical Abstract for the United Kingdom*, No. 82. Other departments—numbers of industrial workers on April 1, 1929, as given in *Royal Commission on Civil Service*, 1929, Appendix I, "Introductory Memoranda Relating to the Civil Service," Treasury, H.M.S.O., 1930. These figures were referred to 1928.

1933: Letter from Treasury of January 29, 1954, to Mr. Alan T. Peacock, London School of Economics and Political Science.

1936, 1939, 1945, and 1950: See sources for non-industrial staffs in these years.

### TABLE 4, Parts B and C

Based on Part A. In addition, in Part C:

#### TOTAL WORKING POPULATION

Figures shown in the table are ratios, the denominators of which are estimates of the working population. The estimates, except for 1939-1950, were obtained by straight-line interpolation between benchmark data derived from the Census and adjusted as indicated in notes to Table 1, above.

1914: Extrapolated from adjusted Census data for 1901 and 1911.

1918: Interpolated between adjusted Census data for 1911 and 1921; raised by 500,000 to take account of the wartime increase in the labor force that exceeded the war losses.

1928: Interpolated between adjusted Census data for 1921 and 1931.

1933: Extrapolated from adjusted Census data for 1921 and 1931.

1936: Interpolated between adjusted Census data for 1931 and the adjusted total for 1938 (see notes to Table 1, Total Working Population).

1939: Data are from H. Frankel, *op. cit.*

1945: Estimated by reference to "Distribution of Total Manpower, Great Britain," old series for June 1945 and old and new series for June 1948.

1950: Data are from "Distribution of Total Manpower, Great Britain," new series, for June 1950.

The absolute figures on which the percentages given in Table 4, Part C, are based are as follows:

1914	19,080,000	1936	22,219,000
1918	19,775,000	1939	22,916,000
1928	20,760,000	1945	24,237,000
1933	21,586,000	1950	23,068,000

### TABLE 5

Based on Table 4, Part A.

### TABLE 6

Based on Table 4, Part A. Data for 1955 are from Treasury Returns, "Staffs Employed in Government Departments," cited in *Annual Abstract of Statistics*, No. 92, 1955. The figure for the Armed Forces is from Ministry of Labour and National Service, "Distribution of Total Manpower, Great Britain," and refers to June 1954.

### TABLE 7

Based on Table 4, Part A.

### TABLE 8

#### CENSUS YEARS 1891-1931

Data are from Census of England and Wales and Census of Scotland.



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1891 and 1901: *Occupation Tables*; 1911: *Occupation and Industry Tables*; 1921 and 1931: *Industry Tables*.

ADJUSTMENTS FOR 1891 AND 1901

Figures as given in source were raised by the estimated numbers of persons in the following services:

*Utilities, 1891 and 1901:* Figures shown in table are estimates arrived at as follows: The numbers of persons in gas, water, electricity, and tramway service—as reported in the *Occupation Tables* of the 1891 and 1901 Censuses—were raised by the ratio of the numbers in these industries, given in the *Occupation and Industry Tables* of the 1911 Census, to the corresponding numbers reported in the *Occupation Tables* of the 1911 Census. Then the ratios of local government workers to all workers attached to these industries were computed from the 1911 Census. The latter ratios were applied to the adjusted 1891 and 1901 Census data. The resulting figures were taken to represent the upper limit for local government workers in utilities.

*Education, 1891:* Figures shown in table are rough estimates, representing the number of teachers in Board Schools in England and Wales only. The estimate is based on the number of teachers in Board Schools in 1897, reported in C. A. Birchenough, *A History of Elementary Education in England and Wales from 1800 to the Present Day*, 1938, p. 334. In 1897 there were 59,760 teachers employed and paid by Local School Boards. Their number appears to have been considerably smaller at the beginning of the decade.

*Education, 1901:* The number of teachers in grant-aided schools in England and Wales as given in *The Report of the Ministry of Education for 1950*, "Education 1900-1950," p. 247, was 119,000. This figure was raised by the estimated number of teachers in grant-aided schools in Scotland and the estimated non-instructional staff in Great Britain. These estimates were derived by assuming that the ratio of persons in these two categories to the number of teachers in England and Wales, as given in the 1911 Census, was the same in 1901.

The figure shown in the table refers to the situation after the passing of the Balfour Education Act of 1902.

*Others, 1891 and 1901:* This category includes local administration (including Poor Law), sanitation, road maintenance, and miscellaneous services. The number of local government officials was given in the *Occupation Tables* of the Census—27,000 in 1891; 39,000 in 1901. The numbers in sanitary services and road maintenance were estimated by reference to the *Occupation Tables* of the 1891 and 1901 Censuses and the *Occupation and Industry Tables* of the 1911 Census (see above note on Utilities). The residual "Others" represents a rough estimate based on the ratio of local government officials—given in the *Occupation Tables* of the Census of England and Wales for 1911—to the number of non-specified local government workers reported in the *Industry Tables* of the same Census.

Figures shown in table under the heading "Others" are broken down as follows:

Municipal, parish, union, district officers, and other local and county officials	1891	1901	1911
Poor Law	{ 27,000	{ 39,000	48,700
Sanitary services	5,000- 7,000	15,000-20,000	29,300
Road maintenance	10,000-15,000	20,000-35,000	37,300
Miscellaneous	15,000-25,000	30,000-45,000	99,300
Total	57,000-74,000	104,000-139,000	248,200

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1938, 1945, AND 1948

*Total local government employment* (excluding fire service and civil defence) was estimated by reference to the following data:

a. The total number of persons in central and local government service, as shown in the source named below. This includes all non-industrial civil servants and those industrial central government workers who are not classified to a particular industry and all employees of local authorities (including teachers) other than those employed in trading services and, for, 1945 and 1948, in the police force. Source: Ministry of Labour and National Service, "Distribution of Total Manpower," old series, cited in *Annual Abstract of Statistics*, No. 85, 1948.

b. The number of persons in the non-industrial civil service. Source: Treasury returns, cited in *Annual Abstract of Statistics*, No. 85, 1948 and No. 86, 1949.

c. The number of persons in the police force. Source: Home Office and Scottish Home Department, cited in *Annual Abstract of Statistics*, No. 85, 1948.

d. The number of persons in the trading services. Local government workers in this group were estimated by reference to data on total employment in gas, water, electricity tramway, and bus service, as reported in the *Ministry of Labour Gazette*; and by reference to the ratio of total employment to local government employment in these industries as given in the *Industry Tables* of the 1931 Census.

The figures shown in table were computed as follows:

	1938	1945	1948
Total number of persons in:			
Central and local government	1,386,000	1,903,000	2,128,000
Less: non-industrial civil service	363,000	705,000	693,000
Plus: police force	incl. in total	71,000	67,000
Plus: utilities	250,000	225,000	270,000
	1,237,000	1,494,000	1,772,000

(These estimates will be too high if a considerable number of industrial central government workers were not classified under a particular industry; they will be too low if industrial workers employed by local authorities—other than in public utilities—were classified under a particular industry and thus excluded from the totals for central and local government.)

1950

Data for total local government employment are from T. M. Ridley, *op.cit.*

EDUCATION, 1938, 1945, 1948, AND 1950

Data on numbers of teachers are from Ministry of Education for England and Wales and Education Department for Scotland, cited in *Annual Abstract of Statistics*, No. 88, 1952, and No. 90, 1953.

Adjustments: Figures for teachers as given in source were raised by 25 per cent to allow for non-instructional staffs whose number, as given in the Censuses rose from 11 per cent of the number of teachers in 1911 to 23 per cent in 1931. In view of the tendency of non-instructional staffs to rise relative to teachers, the allowance of 25 per cent may be insufficient, particularly in the more recent years. The 1946 data were referred to 1945.

1938 and 1945: Figures refer to full-time teachers and non-instructional staffs in grant-aided primary and secondary schools, including nursery, but excluding special, schools. The number of teachers in Scotland in 1945 was estimated on the basis of the ratio of teachers in England and Wales to teachers in Scotland in 1938 and 1948.

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1950: Figure refers to full-time teachers and non-instructional staffs in all grant-aided schools, including special schools and establishments for further education. The number of teachers in Scotland, other than in primary and secondary schools, was estimated on the basis of the ratio of teachers in primary and secondary schools to teachers in special schools and establishments for further education in England and Wales.

POLICE, 1938, 1945, 1948 AND 1950:

Data are from Home Office and Scottish Home Department, cited in *Annual Abstract of Statistics*, No. 89, 1952.

Figures represent actual strength of the regular police force plus full-time auxiliaries; except for 1938, when data on full-time auxiliaries were not available.

TABLE 9

Coal mining: Data are from National Coal Board, *Reports and Accounts for 1950*. Figures represent annual average for industrial workers and refer to the end of 1949 for non-industrial employees.

Transportation: British Transport Commission, *Reports and Accounts for 1950*. Figures refer to the end of 1950.

Electricity supply: British Electricity Authority, *Reports and Accounts for March 1950-March 1951* and North of Scotland Hydro-Electric Board, *Reports and Accounts 1 January 1950-31 December 1951*. Figures refer to March 31, 1950.

Gas Supply: Gas Council, *Reports and Accounts for July 1948-March 1950*. Figures refer to March 31, 1950.

Civil aviation: British Overseas Airways Corporation, *Reports and Accounts for 1949-1950*. Figures refer to March 31, 1950. British European Airways Corporation, *Reports and Accounts for 1949-1950*. Figures refer to the beginning of the year.

British Broadcasting Corporation: *Annual Reports and Accounts of the British Broadcasting Corporation*, September 1950. Figures refer to March 31, 1950. Two part-time workers are counted as one full unit.

Regional board and teaching hospitals: *Report of the Ministry of Health for England and Wales for the Year Ending March 31, 1950* and *Reports of Department of Health for Scotland and the Scottish Health Service Council, 1953*, Cmd. 9107, H.M.S.O., Edinburgh. Figures for England and Wales refer to 1950, figures for Scotland refer to 1953. Two and one-half part-time workers are counted as one full unit.

Raw Cotton Commission: *Annual Report and Statement of Accounts for the Year Ending 31 July, 1950*.

TABLE 10

### COMPARABILITY OF BRITISH AND UNITED STATES DATA

Most of the British data, especially those for the earlier period, are based on the Census. Most of the United States data (see Solomon Fabricant, *The Trend of Government Activity in the United States since 1900*, National Bureau of Economic Research, 1952) are drawn from the payrolls of federal government departments and local authorities. In this respect the American figures are probably more reliable than the British data, for payroll records are probably better than the reports of workers or their relatives. On the other hand, it was necessary for Fabricant to extrapolate the United States local government figures to years earlier than 1929 on the basis of a shrinking

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sample of state and city government payrolls, while even sample data for counties and minor civil divisions were utterly lacking. Fabricant was, however, able to confirm the broad character of his figures by comparison with data drawn from the early Censuses. What general inaccuracies stem from the unreliability of the sources, and what general biases are introduced into our comparison because of the difference in the character of our sources, we do not know; but some specific difficulties could be identified, and, to some extent, overcome.

The United States figures exclude unemployed workers throughout. The British figures do so from 1931 on, but not before. Unemployment in British government service, however, was very small before the Great Depression.

Our treatment of part-time workers was imposed upon us by the available data. The only figures available for Great Britain from 1900 to 1931 which cover all government were Census data. Except for errors these include all persons whose principal occupation was in a government job. (We might have used figures for central government from departmental sources in 1921 and 1931, but this change would have been of importance only for Civil Central Government, and local government employment would still have had to be based on Census information.) The figures, therefore, include those part-time workers the major portion of whose working time was in government but who nevertheless did not work full-time. These would presumably be few. After 1931 our British figures are derived from the payroll data of central government departments and from Ministry of Labour estimates based on incomplete payroll data of local authorities. We might have made allowances for part-time workers in central government in these years (as we do in Table 4, Parts A, B, and C, above), but it seemed better to carry the series through on a consistent basis since part-time work is not important in the late 1930's and 1940's.

Since the United States figures are based on payroll data, the original data include all part-time workers. Whether to allow for them or not, for purposes of the present comparison, is debatable. We should recall that the British Census data do make some allowance, for they exclude part-timers insofar as their government employment is minor and some other occupation is major, but they do not make full allowance. Our treatment of the United States figures is a compromise. We include the total number of government workers, both full- and part-time, in all categories but one, the Post Office, for reasons stated below.

We further justify our failure to allow for part-time work in the United States, outside the Post Office, by the following arguments: (1) There are no part-timers in the armed forces. (2) For the several departments of the federal government, other than the Post Office, Fabricant makes no allowance for part-time work and presumably part-timers were unimportant. (3) At the state and local level, part-timers were of some significance but they were not of major importance. In the public schools the full-time equivalent number of employees, as estimated by Fabricant, was 95 per cent of the total number in 1949 and 96 per cent in 1940. This latter percentage is constant in the figures since it was extrapolated from 1940 to 1900 by a sample of the total number. In non-school employment Fabricant estimates that the full-time equivalent number of workers was 85 per cent of the total in 1949 and 80 per cent in 1940. The latter figure again was extrapolated to earlier years. The use of Fabricant's figures without allowance for part-timers therefore does almost nothing to disturb the trend of his data in these categories. It serves to raise the level of state and local government employment about 15 per cent, and that of aggregate government

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employment about 10 per cent, above the level that would result from reducing part-time work to its full-time equivalent. Reduction to the full-time equivalent number, however, would be too great for comparison with the British data, for, as already shown, the latter do include some part-timers. (4) We do, however, use Fabricant's full-time equivalent figures for the United States Post Office. The reason is that in this department part-time work was of dominant importance in the early decades of the century but declined markedly with the passage of years. Thus the full-time equivalent number was only 42 per cent of the total number of workers in 1900, but 90 per cent of the total in 1950. In view of the importance of the Post Office, the use of the total number would have greatly raised the level of the United States figures in the early years. It would have made federal employment 50 per cent larger than it now appears to have been in our table, and it would have underestimated its rate of growth. A clear picture of United States government employment, therefore, demands the use of full-time equivalent numbers in the Post Office. In this category, full-time equivalent numbers are also fairly comparable with the British data. For in the years 1911 to 1931 (1901 is an estimate) British Census data exclude most part-timers, and in 1938 and 1950, when our data include all part-timers (with the exception of sub-postmasters and sub-postmistresses in 1950), they are of minor significance. The full-time equivalent number was over 96 per cent of the total.

In the interval since our tables were prepared, the Department of Commerce has issued revised figures for public employment in education in the United States for years since 1940. The revisions reflect the incorporation of payroll and employment data collected by the Governments Division of the Census Bureau which the Department believes to be a more comprehensive count of employees than was previously issued by the Office of Education. This is stated to be especially true of non-teaching staffs, which include many part-time workers. The revised figures raise the estimated number of persons in public education by only a few thousand for 1940, but from 1,488,000 to 1,718,000 full- and part-time workers for 1950. The revised number of full-time equivalent workers in 1950 is estimated at 1,536,000.

We have not changed our tables to reflect these revisions because the new 1950 figure appears very large compared with the Census count for 1950, which was 1,539,000 including part-time workers whose main occupation was in public education. It should also be noted that if one accepts the revised figure for 1950, the ratio of teachers to total full- and part-time employees in public education falls to the implausibly low level of 0.594.

In considering the comparability of British and American figures for public education, it is necessary to remember that the size of the non-teaching staffs had to be estimated indirectly for Great Britain before 1911 and for the United States before 1929. For the years since 1931, the number of non-teaching employees in Great Britain has been estimated by reference to the ratio of non-teaching staffs as shown by the 1931 Census. A small allowance was made for the tendency of non-teaching staffs to grow in relative importance, but it is not clear whether we have made sufficient allowance.

### SOURCES OF BRITISH DATA

#### *National Defense*

Armed forces: See Table 1.

Other defense: Figures represent non-industrial staffs of the service and

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supply Departments as reported in the Treasury returns (see notes to Tables 3 and 4-A) plus industrial workers in government-owned establishments of a military character. The latter figures derived as follows:

1901: The estimated total number of industrial government workers was divided between defense and miscellaneous staffs by reference to Census figures for England and Wales for 1911. These showed some 85 per cent employed in establishments of a military character and some 15 per cent in others.

1911: Estimate based on the industrial classification of government workers as reported in the 1911 Census of England and Wales, *Occupation Tables*.

1921: Estimate based on the industrial classification of government workers as reported in the 1921 Census of England and Wales, *Industry Tables*. The total number of industrial workers in Scotland—reported in the 1921 Census of Scotland—was divided into defense and miscellaneous by reference to the corresponding proportions given in the 1931 Census of Scotland.

1931: Estimate based on the industrial classification of government workers as reported in the 1931 Census of England and Wales and Census of Scotland, *Industry Tables*.

1938 and 1950: Data are from Treasury returns "Industrial Staffs in the Civil Service," cited in *Annual Abstract of Statistics*, No. 85, 1948, and No. 89, 1952. Figures refer to workers employed by the Admiralty, the War Office, the Air Ministry, and in 1950, the Ministry of Supply.

### *Non-defense*

Post Office, 1901: An estimate based on the Report of the Postmaster General of March 31, 1911, which lists 94,000 persons in the establishment of the Post Office, including sub-postmasters; and on "Return Showing the Total Number of Persons in the Established Civil Service of the State," Treasury Chambers, Cmd. 409, 1902, which reports 77,000 persons in the Post Office.

1911, 1921, and 1931: Census data.

1938 and 1950: Treasury returns "Staffs Employed in Government Departments."

Other, 1901: Census data plus government industrial workers (see notes to Table 1), less civilians engaged in National Defense, less Post Office.

1911, 1921, and 1931: Census data less civilians in National Defense, less Post Office.

1938 and 1950: Treasury data on non-industrial and industrial civil service staffs, less civilians engaged in National Defense, less Post Office.

### *State and Local Government*

Data are from Table 8.

## SOURCES OF UNITED STATES DATA

Figures shown in table are based on Solomon Fabricant, *The Trend of Government Activity in the United States since 1900*, National Bureau of Economic Research, 1952, Appendix B, Table B-14. This table covers the period 1900-1949. Data for 1950 were furnished by Robert E. Lipsey.

### *National Defense*

Figures include armed forces, and employees in the War Department, Navy Department, and World War II agencies. See Fabricant, *op. cit.*, Appendix B, Table B-7.

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Post Office

Figures represents full-time staffs. *Ibid.*, Appendix B, Table B-4.

Total Employment

1900-1940: *Ibid.*, Appendix B, Table B-1.

The 1950 figure is from *Census Release*, Series P-50, No 31, Annual Report on the Labor Force 1950; raised by 150,000 for omitted armed forces (see *Census Release* P-50, No. 2).

The absolute figures on which the percentages given in the table are based are as follows:

1900	26,984,000	1930	45,042,000
1910	35,649,000	1940	48,052,000
1920	40,212,000	1950	61,630,000

TABLE 11

POPULATION

Great Britain (including armed forces abroad), 1901, 1911, 1921, 1931: Census of England and Wales and Census and Scotland plus armed forces abroad (see notes to Table 1). 1939 and 1950: Registrars General mid-year estimates, cited in *Annual Abstract of Statistics*, No. 88.

United States, 1900-1950: Bureau of the Census population estimates for July 1 of each year, including armed forces abroad in 1930-1950, cited in *Statistical Abstract of the United States*, 1954.

GOVERNMENT EMPLOYEES

Ratios based on figures in Table 10.

TABLE 12

Based on Table 10.

TABLE 13

Data on total employment and Post Office employment in Great Britain and the United States are from Table 10.

American Telephone and Telegraph Workers: *Statistical Abstract of the United States*, 1930, pp. 359 and 364; 1943, pp. 412 and 419; 1954, pp. 525-526.

Figures for 1900, 1910, and 1920 actually refer to 1902, 1912, and 1922 respectively, dates when Census data on the communications industry were available. 1902 and 1930-1950 include ocean cable service. 1900 and 1910 cover telephone carriers with income over \$5,000. 1930-1950 cover telephone carriers with income over \$100,000.

TABLE 14

LINE

1. Figures are from Table 10.

2. Great Britain 1901: *Statistical Abstract of the United Kingdom*, No. 59, Tables 127, 143, and 145.

England and Wales 1950: Elementary and secondary schools from the *Report of the Ministry of Education for the Year 1950*, Cmd. 8244, 1951, Table 6. Includes 30,222 teachers in infant schools, of whom 2,010 taught classes of children entirely under five. Most others in infant schools taught classes "under 8, except entirely under 5."

Scotland 1950: Elementary and secondary schools from *Annual Abstract of Statistics*, No. 88, Table 96. Includes teachers in nursery, but not in special, schools.

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Great Britain 1950, colleges and universities: Assumed to be the same as for all universities. From *Annual Abstract of Statistics*, No. 88, Table 121.

United States 1900 and 1950: Department of Health, Education, and Welfare, *Biennial Survey of Education*, 1948-1950, Chap. 1, Tables 7 and 13, and Chap. 4, Table 2. Of the total number of teachers in higher education in 1950, 22,900 were employed in teachers colleges, junior colleges, and normal schools not included in the British figures. Teachers in privately controlled universities and colleges in 1950 numbered 103,900, of whom 6,800 were in teachers colleges, etc.

3. Great Britain: Figures are from Table 1. The 1901 figure was reduced by the estimated number of unemployed. See Table 14, footnote c.

United States: Figures are from notes to Table 10.

4. Line 1 divided by line 3.

5. Line 2 divided by line 3.

6. Line 2 divided by line 1.

7. Great Britain: *Annual Abstract of Statistics*, No. 88, Tables 8 and 9. Age group 15-18 estimated at 80 per cent of age group 15-19. Age group 19-22 estimated at 20 per cent of age group 15-19 plus 60 per cent of age group 20-24.

United States: *Census of Population*, 1900, Vol. I, Part 2, and *Census of Population*, 1950, Vol. II, Part 1.

8. England and Wales, 1950: Age group 5-18 from Cmd. 8244, 1951, Table 2.

Scotland 1950: From *Annual Abstract of Statistics*, No. 88, Table 106. Includes grant-aided schools only.

Great Britain 1950: College and university students from *Annual Abstract of Statistics*, No. 88, Table 120. Includes universities only, enrollment of full- and part-time students for academic year 1949-1950.

United States: *Biennial Survey of Education*, 1948-1950. Age group 5-18 from Chap. 1, Tables 15 and 16. Age group 5-14 includes all children in kindergarten through 8th grade without regard to age. Age group 15-18 includes all children in grades 9-12 and high school postgraduates. College and university: *Ibid.*, Chap. 4, Table 1. Includes four-year colleges, junior colleges, technical and professional institutions offering work of college grade, universities, and institutions for education of teachers.

9. Great Britain 1901: *Statistical Abstract of the United Kingdom*, No. 59, Tables 127, 141, and 145. Age group 5-14 includes all students 5 years old and over enrolled in elementary and higher elementary schools. There were no regular government-maintained secondary schools in England in 1901. Information on secondary schools in England and Wales is not available until 1905, when there were 94,698 pupils.

Great Britain 1950: See sources for line 8.

United States: *Biennial Survey of Education*, 1948-1950. Age group 5-18 from Chap. 1, Table 13. College and university from Chap. 4, Table 2.

10. Line 7 divided by line 3.

11. Line 9 divided by line 8.

12. Line 9 divided by line 7.

13. Line 2 divided by line 9.

14. Line 3 divided by total population (see Table 11).

15. Line 3 divided by total population minus population 18 and under (see sources for line 7).

### TABLE 15

Based on Table 10.