

NOTES ON TABLES

NOTES FOR TABLES ON

A. ENUMERATION OF THE WORKFORCE
1. WORKFORCE

GENERAL NOTES

Statistics of workforce from three official sources are presented. The colonial censuses provide data from 1828 to 1901, the Commonwealth censuses after federation provide workforce figures for census years 1911 to 1981, and the population survey commenced regularly in 1964 gives workforce figures from that date. The colonial census data are presented by colony and by sex. The commonwealth census data are by state and sex. The survey data are aggregate Australia, but are divided into full-time and part-time workers. The unemployed component is included in the workforce by definition, but is also separately enumerated in the succeeding section of data. Major reworking of these official data, their integration in various ways and estimation of missing data are represented in a number of secondary source series also presented.

(A) COLONIAL CENSUS WORKFORCE, 1828 TO 1901

(i) 1828 - 1851

All estimates up to and including the Censuses of 1851 in New South Wales, South Australia and Tasmania are compiled on a population basis. Participation rates for the male and female adult population aged 15 years and over and male juveniles aged between 10 and 15 years, are obtained from the comprehensive and detailed report on the Census of Victoria in April 1854. Age distribution data is obtained for each Census to 1851 and the 1854 Victorian workforce participation rates of 99% for male adults; 31% for female adults and 10% for male juveniles are applied retrospectively to the known age structures.

Calculations of male participation rates for Victoria in 1854 were made possible by the Registrar General's comment that 792 males under 15 years of age were employed. The female participation rate was calculated using total female employment as a percentage of females aged 15 years and over. Thus females in the workforce were underestimated but this should be offset by a likely overestimation of elderly females. No account was taken of possible variations in sex specific participation rates over the period 1828 - 1851.

Up to 1851 the population of each colony was carefully enumerated but censuses did not include detailed breakdowns of the occupational status of the population. Convicts were included in the estimates given that most were described in occupation abstracts as 'on bond and engaged on public works'; 'working on road gangs'; or 'in private assignment to colonists'. Those described as 'employed on Colonial vessels' but not included in age distribution data were added to workforce aggregates where relevant, and were assumed to be adults. Where a portion of the population was listed as 'age unspecified' this was distributed among the age groups according to ratios calculated for the bulk of the population. Aborigines were included since many

were said to be 'in the employment of colonists'.

(ii) 1854 - 1870

From 1854 most Colonial Censuses provide detailed occupational classifications that enable more accurate workforce estimation. Occupations were assigned to all persons according to their usual activity, including, for instance 'occupations' for children under the rubric of 'Scholar' or 'Domestic Duties'. A number of groups were excluded from the workforce. For example, in the 1854 Census of Victoria totals of 'scholars'; 'persons maintained at public cost by the community' (including 'vagrants' in some other Colonies); of 'annuitants and independent means', 'prisoners', 'patients in hospitals and asylums' and unpaid persons 'engaged in domestic duties (including children), were excluded from the workforce. The group of 'persons whose pursuits have not been specified or were unemployed' were broken into males and females and distributed to the workforce/non-workforce according to sex specific workforce ratios found in the rest of the population. On the other hand the corresponding New South Wales category for 1856 and 1861 headed 'occupation not stated' was not distributed to the workforce/non-workforce according to ratios pertaining to the rest of the population. Commentaries in NSW Census reports for 1856 and 1861 stated that this category was "made up primarily of women and children" or was "almost entirely children under educable age."

The South Australia Censuses of 1851 and 1855; Western Australia 1859, and Tasmania 1857, 1861 and 1870 do not supply sufficiently disaggregated occupational data to allow accurate workforce estimation on the same basis as N.S.W. and Victoria. Accordingly, estimates for the former Colonies on those specific dates are compiled on a population basis using participation rates from the Censuses of Victoria (the most populous Colony from 1855) nearest to the time of each of the other Colonial Censuses.

Aborigines and Chinese are included in the estimates for those Colonies

where enumerated. In Victoria, Aborigines were counted from 1854, but only "a very few ... employed on stations" were returned. Otherwise, from 1861, all estimates are inclusive of Chinese and Aborigines in Victoria, Western Australia and South Australia even though many (especially Aborigines) were not enumerated. It is likely that Chinese and Aborigines with some form of employment were enumerated in New South Wales but no indication was given. In Queensland occupational data explicitly excluded Aborigines.

(iii) 1871 - 1901

From 1871 all Censuses provide detailed occupational abstracts so that all estimates here are based on these. Identical procedures are used to exclude obvious non-workforce groups from the estimates as in the 1854 - 1870 period. The 'occupation not stated' class was distributed between workforce/non-workforce using ratios of workforce to population by sex in the bulk of the population in each Colony. When separate codes appeared headed 'unemployed' from 1881 in New South Wales and all Colonies from 1891 these were included in the workforce. 'Persons of property or rank not returned under any office or occupation' and 'no occupation' groups were excluded in addition to all the other categories discussed in Section (ii) above.

It is likely that elderly persons were over-coded to occupational status in the Colonial period. This may be partially offset prior to 1871 by exclusion of annuitants, those of independent means, and persons in hospitals, asylums, or receiving public support. From 1871 those persons who were unable to follow their usual occupation by reason of infirmity or accident were also sometimes abstracted by their usual or former occupations. The New South Wales Census of 1871 included a new class of 'persons incapacitated from work not in hospitals or asylums' and these were excluded from the workforce. However, this class disappeared from the New South Wales Census after 1871 and did not feature in other Colonial Censuses. No count of the infirm or injured by usual occupation appeared in the 1881 New South Wales Census, so the 1891 Census

illness/accident results were used to adjust the occupation data. In 1891 2.77 per cent of the recorded male workforce and 1.21 per cent of the recorded female workforce were also recorded as suffering from some illness/accident. These percentages were applied to the 1881 New South Wales Census. In 1881 7247 males and 570 females were excluded from the workforce on account of ill/accident. In 1891 the corresponding figures were 10452 males and 1013 females; and in 1901, 11215 males and 1719 females.

In Victoria (and other Colonies) prior to 1871 the small numbers enumerated as sick, infirm or injured are assumed to have been accounted for in the non-workforce categories. From 1871 the number recorded as sick started to exceed those enumerated in relevant non-workforce categories such as those hospitalised, in asylums or supported by the community. Where the data are available: Victoria, South Australia, and Tasmania from 1871 and Queensland for 1901, those suffering from some infirmity or injured as a result of an accident and who were included in the workforce derived from occupation data, were subsequently deducted from the workforce. In most cases those coded by illness/accident and also included in relevant workforce occupation categories constituted approximately 2 per cent of the recorded workforce before deduction.

Aborigines and Chinese were included in these estimates although in some colonies full-blood Aborigines were not completely enumerated.

(iv) Female Helpers/Assistants on Farms

The recorded figures for unpaid family, and especially female, helpers or assistants on farms are suspect in Colonial Censuses. There are no clear grounds on which males in the helper category should be excluded from the farming workforce. However, some of the female data are more implausible.

It was decided that since some Censuses combined females living on farms

with those actively assisting in the rural workforce, a breakdown of females as a percentage of the farming workforce in each Colony would serve as a criterion for adjustments. Accordingly in New South Wales 4,532 females were added to the recorded workforce in 1856; 5,634 were added in 1871; 7023 were added in 1881; and 12,403 subtracted in 1901. In Victoria, 2053 females were added to the recorded workforce in 1854; 17,996 were subtracted in 1871; 31,757 were subtracted in 1881; and 8600 were subtracted in 1901. In Queensland, 2,874 females were added to the recorded workforce in 1901.

(v) Aggregates for Selected Years

Estimates in these tables are made for selected years when most Colonial Censuses were taken in the same year. Colonial Censuses were taken simultaneously for the first time in all colonies only from 1881. Prior to 1881 straightforward linear interpolation, on the basis of workforce increase (or decrease) by sex, was used to estimate the workforce. The selected years were chosen on the criterion that either, and usually both, New South Wales and Victoria conducted Censuses in those years. When interpolation was used for the less populated Colonies the sex specific workforce participation rates computed for the base year were retained for subsequent years until the next Census was conducted. Prior to 1841 insufficient information was available on population and workforce in Tasmania, Western Australia, South Australia and Northern Territory. Only from 1841 is it possible to estimate workforce for all colonies and Australia and even then with significant "backward interpolation" as indicated for S.A. (first Census 1844) and W.A. (first Census 1848). However more recent simulation estimator of population and workforce have become available and can be consulted. But these too neglect population outside the Eastern Mainland colonies for the early settlement years (Butlin 1985).

SOURCES:

Colonial Censuses 1828 - 1901

REFERENCES:

Butlin, N.G. 'White Human Capital in Australia, 1788-1850', Working Paper in Economic History, No. 32, A.N.U. April 1985.

Endres A. 'Colonial Workforce Aggregates : Estimates From Colonial Censuses 1828 - 1901', Source pap. in ec. hist. No. 3, A.N.U. June 1984.

(B) CENSUS WORKFORCE, 1891 TO 1981

From 1891, the labour force was counted in terms of employers, persons engaged on their own account, wage earners, unemployed and others ('not stated'; 'unspecified' or 'undefined'). There was no distinction between full- and part-time labour force activity (except 1933). In 1947 retired persons were explicitly discouraged from stating employment status. It is possible that the female workforce recorded in the 1947 Census may have been understated because of the possible effect of an instruction which accompanied the occupational status question. This instruction read 'Persons working regularly but for considerably less than normal working hours should answer only part (1) [which referred to 'those not engaged in an industry, business, trade or service'] unless they look to their earnings from such work for their main livelihood'. It is possible that a housewife with a part-time job would regard her husband's earnings, rather than her own, as her main source of livelihood, and thus not have been recorded in the workforce in the 1947 Census.

From the 1954 Census such persons were not excluded. The 1961 Census questionnaire used the phrase 'usually engaged' to denote those persons who were in the labour force. From 1966 part-time workers, some working for only a few hours per week, were explicitly permitted to answer labour force questions in this Census. The net effect of the new counting rule was to include approximately 108,000 additional persons in the workforce in 1969, i.e. a proportionate increase in the workforce of about 2.3% (Statistician's Report 1966 Census, Part 9, I). 'Helpers' not receiving wages or salary who worked for less than 15 hours per week were explicitly excluded from the workforce in the 1966 Census. This threshold was relaxed in later Censuses.

The 1966, 1971 and 1976 Census labour force included persons who had 'a job or business of any kind' in the week prior to the Census as well as those

unemployed (see commentary on Census unemployment figures for the counting definition). The 1981 Census labour force included persons who did 'any work at all' in the week prior to the Census as well as those who had 'a job of any kind, business, profession or farm' and those unemployed (see commentary on Census unemployment figures for the 1981 counting definition).

Prior to 1947, Census labour force figures did not include 'helpers'. The figures in the above table are adjusted to include 'helpers' for all Censuses. The number recorded in the labour force may not be strictly comparable for a number of reasons, including:

1. Different responses to the same question in a different social atmosphere;
2. Differences in the form, wording and layout of questions asked to determine number in the workforce. These differences may have substantial but indeterminate effects; and
3. Differences in the attitudes of the census takers both in designing questions and coding doubtful cases. [Brown 1959, p.96]

Finally, it should be noted that Aboriginals were not counted in the labour force in Censuses from 1911-1966. They were included in the Censuses of 1891, 1901 and from 1971.

SOURCES:

The primary sources are census questionnaires and Statistician's Reports

REFERENCES:

- Brown, H.P., 'The Australian Male Work Force', Ec. rec., 35, 1959, pp.88-104.
- Keating, M.S., The Australian Workforce 1910-11 and 1960-61, ANU, Canberra 1973, pp.43-50.

(C) POPULATION SURVEY WORKFORCE, 1964 TO 1984

The ABS survey was conducted on a quarterly basis - February, May, August and November - from November 1964 to November 1977. Since February 1978 it has been conducted monthly. The survey included all persons 14 years of age and over. This was lifted to 15 years of age and over from February 1965. The survey was based on a multi-stage area sample of dwellings and covered about 1% of the population up until 1972. In 1972 a new sample, based on the 1971 Census, was introduced covering two-thirds of 1% of the population. In 1975, and again in 1978, sample sizes were altered. Changes to sample size can affect the reliability of the series in that the standard error changes. This error varies with the level of the estimate so that the larger the estimate the larger the error. Reduction in sample size in 1972 and 1975 would have increased the standard error.

Data were obtained by trained interviewers and covered employment status the week before the interview. Unemployed persons, for the purposes of the Survey, comprised all those who, during the specified week, did no work at all, did not have a job or business, and were actively looking for work. The category also included persons absent from work for the whole of the specified week without pay because of lack of demand for their services (i.e., those laid off without pay for the whole of the specified week). In May 1976 the definition was changed to include persons who had actively looked for full-time or part-time work in the four weeks up to and including the survey week. This change had the effect of increasing the estimates of unemployment between approximately 5,000 and 20,000 (depending on the month).

The four week stipulation was used as a means of distinguishing temporary from indefinite stand downs. Those stood down without pay for four weeks or more and not in a job were classified as unemployed or as not in the labour force, depending on whether or not they had actively looked for work in the 4

weeks before the interview and were available to start work in the survey week. In February 1978 the four week stipulation was reduced to two weeks. The survey periods for February 1971, 1972, 1974 and 1976 were later than other surveys at the same time of the year by approximately one week. As a result, those who had returned to school or university etc were probably greater, according to the ABS, by between 5000 and 10,000.

From November 1977, on commencement of a new sequence of questions on unemployment, persons were asked a separate question on part-time unemployment. The ABS noted, as a result, that this led to a 'considerable increase in the estimated number of unemployed persons seeking part-time work', Unemployment, cat.6201.0 1978). The ABS conceived of the unemployed as those who did no work, since any labour of an hour or more constituted employment.

The definition of those employed and in the labour force included all who worked for one hour or more for pay or profit; unpaid helpers who worked for 15 hours or more; employees with a job but on paid leave; on leave without pay for less than 2 weeks up to the end of the survey week; stood down without pay because of bad weather or plant breakdown at their place of employment for less than 2 weeks; on strike or locked out; on workers' compensation and expected to be returning to their jobs or receiving wages or salary while undertaking full-time study.

From 1966 inclusive estimates are different in a number of ways. All series have been revised to take into account the effects of under-enumeration in recent censuses and the revision to the definition of population (net migration from overseas of less than 12 months' duration) was excluded. Estimates are consistent with the samples and revised questionnaire, that were introduced in February 1978. Finally, estimates from 1966 inclusive exclude trainee teachers and include full-blood Aborigines.

From 1978 inclusive the sample and questionnaire of the population survey were revised and the interview period of the survey was reduced from four weeks to two weeks. The change in timing may have affected the level of the series. Further, for estimates of those seeking full-time and part-time work the method of adjusting the data for the revised sample and questionnaire may not have eliminated the break in these series before 1978.

SOURCES:

ABS, Questionnaires Used in the Labour Force Survey, Information Paper, Canberra 1978.

Labour Statistics Nos.1-5 1977-81, Canberra.

The Labour Force 6203.0 and 6204.0, Canberra (various).

(D) ANU ESTIMATES OF WORKFORCE AND UNEMPLOYMENT, .

Aggregate workforce estimates in this table for 1910-11 to 1961 are based on the Keating estimates, using 1961 concepts, discussed in respect to Keating's unadjusted unemployment rates. The Keating estimates were adjusted by Butlin and Dowie. Important adjustments concerned firstly, correction of the 1921 Census unemployment figures consistent with the 1911 Census unemployment concept and second, a reversal of Keating's sizeable downward adjustment for 'helpers' in agriculture in the 1911 Census. For the period 1900-01 to 1909-10 new estimates of the workforce were made following Butlin and Dowie and checked by an alternative workforce estimate based on population estimates by age and sex and Census participation rates. The most significant adjustment of 1901 Census workforce figures was a downward revision of the rural female workforce. The adjustment was based on an examination of workforce distributions by state/colony, relying closely on 1911 and 1921 counts of females. The net effect was to approximately halve the female workforce in 1901. The estimates include Chinese and, as far as possible, exclude full-blood Aborigines.

From 1963-64, the 1966 Australian Bureau of Statistics' definition of the workforce was adopted in these estimates. Keating's estimate for 1961 has been re-estimated in 1966 concepts. The Statistician did not estimate the workforce before 1963-64. Figures for 1961-62 and 1962-63 were obtained by interpolating between 1960-61 and 1963-64 on the basis of movements in the six capital cities' workforce plus agricultural wage-earners and self-employed. Unemployment estimates are Keating's 'adjusted series'. Keating made a number of adjustments to his original unemployment series mainly because of suspected understatements of unemployment during the depression. Prior to the depression, Keating observed a rise in the numbers of males at work in 1924-25. The industries with the biggest rises in male employment were rural industries, building and road construction. The Australian Workers' Union,

which was excluded from the trade union unemployment data, would most likely have derived greater benefit from this rise in employment. Hence the trade union unemployment percentage may have overstated unemployment in that year. Keating adjusted his original male estimate downwards by 30,000 from 134,000 to 104,000 for 1924-25. For the 1928-29 to 1932-33 period the growth in the discrepancy between Series A and Series B workforce series was attributed to (i) insufficient allowance for the decline in male workforce participation in 1929 and 1930 and (ii) understatement of the rise in unemployment during this period. Trade unions did not fully report unemployment during the depression which resulted from the cut-back in government loan work in Queensland. The Queensland statistician found that because of a fall in trade union membership during the depression, with a high proportion of unfinancial members becoming unemployed, union unemployment rates understated the growth in unemployment. Also, trade union data did not cover partial unemployment due to work rationing.

Using the estimates of the Queensland Statistician as an indicator, Keating adjusted his original series for Australia upwards by 32,000 for 1928-29; 47,000 for 1929-30; 60,000 for 1930-31 and 55,000 for 1931-32.

For the second half of the 1930s it is possible, on comparison of Series A and Series B workforce movements, that female unemployment was depicted as falling too rapidly. The trade union percentage was a very imperfect indicator of female unemployment. Post-depression public works schemes paid little attention to unemployed females. It is therefore likely that female unemployment fell less rapidly than male unemployment during these years. Keating revised female unemployment upward by 10,000 for each year 1933-34 and 1934-35.

It is also likely that in 1935-36 and 1936-67 with the curtailment of expenditure on unemployment relief projects and the fall in numbers employed

in road, bridges and drainage construction, that trade union data understated unemployment. During this period it is possible that the fall in male unemployment was depicted as too rapid in the original series. For the four years 1935-36 to 1938-39 Keating revised his total (males plus females) unemployment estimates upward by 25,000; 36,000 and 15,000 persons respectively.

REFERENCES:

- Barnard A., N. Butlin and J. Pincus 'Public and Private Sector Employment in Australia, 1901 to 1974' Australian Economic Review 1st Quarter 1977.
- N. Butlin and J. Dowie 'Estimates of Australian Workforce and Employment 1861 - 1961', Aust. Econ. Hist. Rev. 9(2) 1969, 130-55.
- M Keating, The Australian Workforce 1910-11 to 1960-61, 1973 363-78.

(E) M.W. BUTLINS' WORKFORCE AND UNEMPLOYMENT ESTIMATES 1901 TO 1974

Butlin's main sources were Keating for 1901-11 to 1960-61 and the ABS Labour Force Survey from 1964-65. Remaining gaps are filled by interpolation. Annual financial year averages are used in all cases.

Estimates for the year 1900-01 to 1909-10 were obtained wherever possible from direct estimates of employment in every industrial group, then scaling these figures up or down depending on their size in 1910-11 compared with the Keating figures, and by using straight line interpolation for the first years for which no direct estimates existed. Approximately 80 per cent of employed workers were covered in this way. Sources included statistical registers, CBCS Production Bulletins and N.G. Butlin, Australian Domestic Product 1861-1938/39 Cambridge 1962.

These figures were then used to interpolate adjusted estimates of Butlin and Dowie to give a series for total employment for 1900-01 to 1909-10. To this was added estimates of employment based on unemployment rates calculated by P.G. McCarthy for 1891-1910/11 in an ANU seminar paper to the Department of Economic History, 1965. McCarthy took the unemployment rates as recorded in the census of 1891, 1901 & 1911 for New South Wales and Victoria, and adjusted these using trade union unemployment percentages and unemployment data in the CBCS Labour Bulletins from 1906 to 1912. Figures for 1892-1900, and 1902-1905 were interpolated using an unemployment index from the Amalgamated Society of Engineers as reported in Butlin.

SOURCES:

Figures for 1961-62 to 1963-64 are interpolated from the 1960-61 and 1964-65 figures given by Keating and the ABS Labour Force Survey. Otherwise, all other unemployment data were from Keating.

(F) EMPLOYMENT BY INDUSTRY, 1891 TO 1981

These employment estimates for eight broad industry divisions are an updating of the Butlin and Dowie series for the period 1891 to 1961. Butlin and Dowie in turn relied heavily upon Keating's previous work and, with the exception of deduction of road and construction workers on relief in the 1930s, the series is effectively a direct quotation from Keating for the period 1933 to 1961. Keating's approach has been discussed above. Butlin and Dowie further adjust Keating for the period 1911 to 1932 and provide their own original estimates for 1891 to 1910. In each case the intention was to adhere to concepts and classificatory systems akin to those used in the 1961 census enumeration. Using this coding system, census benchmarks were derived by summation according to the 1961 coding. The major adjustments made by Butlin and Dowie to the Keating approach were re-estimation and recoding of dress and clothing workers as between manufacturing and commerce, a reversal of Keating's downwards adjustment for "helpers" in agriculture in the 1911 census and a reallocation of a considerable number of professional and administrative staff to public administration.

Updating by a consistent industry classification to 1966 was possible by using the estimates provided by Keating and Gascoigne (1970), which was a direct update of Keating's earlier work. Post 1966 employment series were derived by using the indexes of total persons employed, by industry, as given in the Australian Bureau of Statistics, Australian National Accounts: Gross Product by Industry (various). This labour input series is defined on a compatible basis with Keating and Gascoigne except for presentation in index number form. Nevertheless overlap for the 1965-66 year permitted conversion of the ABS indexes to absolute equivalence by using the 1965-66 Keating and Gascoigne absolute employment estimates. The ABS warns that it presents index numbers only because these series are not necessarily the most accurate estimates of the level of industry and total employment. Nevertheless these

are the only estimates available and Scherer (1978) claims that the real reason for withholding the absolute series is that it was ABS policy for the pay-roll tax derived employee series to be the "official" series and that to use an "alternative" series derived from several sources would confuse the public when they diverge (p.15) However the payroll tax based series did not include employees in agriculture or domestic service and it did not cover employers and the self-employed. The Butlin and Dowie, Keating and Keating and Gascoine series do include these categories so that it was necessary to maintain consistency and to use the indexes and convert them to absolute form.

The series of employment by industry reported here thus comprises all labour engaged in the production of market goods and services and includes not only civilian wage and salary earners but also employers, self-employed persons, persons working several days or more without pay in a family business or on a farm, and defence personnel. The annual figures are simple averages based on the available observations of employment levels during the financial year.

A detailed disaggregation of manufacturing employment for manufacturing industry sub-division, by sex and state, will be given in the manufacturing chapter of the Australian Historical Statistics volume, for the period 1907 to 1982, with some figures also for 1901 to 1907.

An alternative series of labour force by industry group, census data, 1901 to 1981 is given in Department of Employment and Industrial Relations (1984). It is based on the Keating data augmented for 1901 and 1966, 1971, 1976 and 1981 but otherwise unchanged. Twelve industry divisions are presented as opposed to the eight used here. This source also gives estimators of GDP and employment for four sectors (rural, mining, manufacturing and services) for selected years 1901 to 1983.

Some earlier data using broad industrial classifications inconsistent with those adopted here are given by Butlin (1964) for the colonies of NSW, Victoria, SA and Queensland for the Censuses of 1861, 1871, 1881 and 1891. Unfortunately commerce, manufacturing, transport and construction are one category with domestic service and government and professional service seperately enumerated.

REFERENCES:

N.G. Butlin and J.A. Dowie 'Estimates of Australian Workforce and Employment, 1861 to 1961' Australian Economic Review, IX, (2), 1969.

Department of Employment and Industrial Relations, Submission to the Committee of Review into Australian Industrial Relations Law and Systems, May 1984.

M. Keating, The Australian Workforce 1910-11 to 1960-61, Canberra; ANU, 1973

M. Keating and D. Gascoigne 'Average Earnings per Employee and Product per Worker in Australia, 1959-60 to 1965-66', Economic Record, 46(114), June 1970

P. Scherer, A Critical Guide to Australian Labour Statistics (supplement to Australian Bulletin of Labour, June 1978)

(G) OCCUPATIONAL DISTRIBUTION OF THE AUSTRALIAN WORKFORCE

SELECTED YEARS 1911 TO 1981

There are problems in attempting to assess long-term change in Australian occupational structure. Amongst these are:

1. failure to distinguish occupation from industry until the 1933 census.
2. failure to distinguish economically active and inactive population until the 1933 census.
3. failure to publish the occupational data collected for the 1954 census.
4. changing detail in the census occupational classification ranging from 1000 groups of job titles in 1933 to 210 groups in 1947.
5. changed definition of the workforce in 1966, to include previously excluded persons (notably female part-time farm workers)
6. changing nature of occupational tasks.

Broom and Jones (1976) have provided a reclassification of the census 1911 to 1981 that attempts to overcome many of these problems, though data for 1954 could not be retrieved and the changing content of occupational designation is not pursued. The table given here presents a hierarchical grouping of occupations into sixteen broad categories which serve as a ranking of occupations, distinguishing levels of prestige and industrial sectors. A more detailed classification into 99 occupation sub-groups is available in Broom and Jones for the years 1911 to 1966. The means for updating from 1971 are available from the Social Science Data Archive at ANU, which holds the reclassification routine and census data on tape. Problems of inter-temporal comparability clearly increase as the classification becomes finer. Construction of the scale is described in Broom et al (1968). It represents a modification of the 1961 census classification. The major task in reclassification in order to conform to this common structure was the exclusion of economically inactive persons in the 1911 and 1921 censuses, but

full details of these and other procedures adopted are not provided in the source for these data.

REFERENCES:

L. Broom, F. Jones and J. Zubrzycki 'Social Stratification in Australia' in J.A. Jackson (ed) Social Stratification Cambridge: CUP, 1968, 212-33.

L. Broom and F. Jones, Opportunity and Attainment in Australia, Canberra: ANU Press, 1976.

(H) PRIVATE AND PUBLIC SECTOR EMPLOYMENT, 1901 TO 1974

The basic source for these data is the Barnard Butlin and Pincus series discussed above in relation to aggregate workforce estimates. This source gives detailed employment estimates for the public sector as well as its aggregate workforce estimates. (However, public sector business undertaking employment component was published later in Butlin, Barnard and Pincus, Government and Capitalism, Sydney: Allen and Unwin, 1982. See below for this component of the data separately enumerated). The definition of public sector adopted is not merely 'permanent' public servants subject to a Public Service Act (or similar legislation) but "the full complement of employees for which government authority is required to approve appointments of responsible senior personnel to whom authority is delegated for the appointment of subordinates" (Barnard et.al., p.44). The public sector thus embraces civil servants and employees of statutory authorities including government operated health institutions and factories in which top managerial staff are directly subject to government appointment. This includes organisations such as TAA, Commonwealth Bank and some Queensland sugar mills. It excludes universities and 'public' hospitals. Persons engaged on unemployment relief works were also excluded.

Within these boundaries estimates were made by the authors from a wide range of detailed sources for the years 1901 to 1940 including Public Service Board reports, publication of authorities, institutions, factories and Auditor General's Reports, Statistical Registers, Commissions of Inquiry etc. Particular problems arose with 'day labour' in construction, minor public enterprises (e.g. small mines) and with local government employment. Overall the authors believe that the most accurate and reliable estimates are those for the Commonwealth and Queensland throughout, and NSW after 1920. Less accurate but "acceptable" data are available for South Australia, Western Australia and Tasmania. The least satisfactory estimates are those for

Victoria throughout and NSW before 1920. Nevertheless in comparing data from these sources with official series which commence in 1938-39 and 1939-40, there is a close matching so that not only trend behaviour but levels are quite representative

From 1939-40 the estimates are predominantly the official series available in the Commonwealth Year Book, Monthly Employment Statistics and Wage and Salary Earners in Civilian Employment (as published by the Australian Bureau of Statistics). Some state and local components were estimated by Barnard et.al. for 1943 to 1946 and unpublished revisions for 1954 to 1962 were obtained from the ABS. The major conceptual adjustment to the official series is that Barnard et.al. exclude universities.

The ANU estimates refer to the close of financial years rather than to annual averages. Information was extracted to refer as closely as possible to 30 June.

A series for self-employed has been added to this table for this Source Paper. It is taken directly from M. Butlin (1977). This series is in turn derived from other secondary sources, particularly Keating (1973) and official sources, notably the Labour Force survey. Some arbitrary linking for the gap between Keating and the Survey, 1962 to 1967 was undertaken using straight line interpolation. The series commences in 1911.

REFERENCES:

- A. Barnard, N. Butlin and J. Pincus, Public and Private Sector Employment in Australia 1901 to 1974', Australian Economic Review, 1st Quarter 1977.
- M. W. Butlin, A Preliminary Annual Database, 1900/01 to 1973/74, Research Discussion Paper 7701, Sydney: Reserve Bank, May 1977.
- M. Keating, The Australian Workforce 1910-11 to 1960-61, Canberra: ANU, 1973.