

Occupational Profiles of Men since 1947*

Elizabeth Webster

**Melbourne Institute of Applied Economic and Social Research
The University of Melbourne**

Melbourne Institute Working Paper No. 23/99

ISSN 1328-4991

ISBN 0 7340 1477 5

October 1999

* I would like to thank Stephen Knights and Woei Tan Liew for their assistance in assembling the data for this project, John Freebairn, John Creedy, David Johnson, Pete Summers, Joanne Loundes, Mark Harris, Tom Crossley, Bruce Chapman and Matthew Gray for useful comments. All errors remain my responsibility. This project has been funded by a University of Melbourne, Faculty of Economics and Commerce Research Grant.

Melbourne Institute of Applied Economic and Social Research

The University of Melbourne

Parkville, Victoria 3052 Australia

Telephone (03) 9344 5330

Fax (03) 9344 5630

Email melb.inst@iaesr.unimelb.edu.au

WWW Address <http://www.ecom.unimelb.edu.au/iaesrwww/home.html>

Abstract

The discordance between the rising demand for skilled workers and the high numbers of men with limited schooling raises concern that sections of the male labour market will become increasingly at risk economic marginalisation over coming decades. This paper is an attempt to provide more information on the male labour market by documenting the occupational career paths of several cohorts of men since the Second World War.

Occupations have been divided into 10 major groupings and an attempt has been made as far as possible to keep major occupational definitions consistent over time. The dominant trend is that more recent cohorts of men are more likely to leave the labour market as they age and be unemployed or be employed in a higher skilled job rather than be employed in a middle skilled job. Relative employment in low skilled labouring jobs was relatively stable. These patterns are found among all major educational attainment groups.

Introduction

Men are different from the rest of the population. They dominate the pool of ‘problem’ students,¹ they are more likely to leave school early,² they are relatively concentrated in the declining blue collar occupations, and they are less likely to be employed in the fast growing part-time labour markets and burgeoning service sectors of the economy.³ While several masculine markets such as the managerial, professional, para-professional and technical occupations are fast growing, these require sophisticated analytical skills and are unlikely to offer career paths for men with low educational attainment.

This discordance between the rising demand for skilled workers and the high number of men with limited schooling raises concern that sections of the male labour market will become increasingly at risk of becoming economically disadvantaged over coming decades. Women with poor educational attainment may be more shielded from these adverse conditions as they have experienced a greater ability to take advantage of the expanding low skill (and low pay) service sector.⁴ While there has been considerable research into the factors contributing to low male educational attainment (see Dwyer and the Youth Research Centre 1996), there is comparatively little published work on the subsequent labour market experience of these men.

This paper primarily aims to provide more information on the male labour market by documenting the occupational career paths of several cohorts of men since the Second World War. One aim has been to establish longer occupational profiles of men than has hitherto been published. However, this temporal dimension however comes at the expense

of detail. To achieve a relatively consistent set of occupational groups, a compromise has been made on the level of aggregation of these occupations.

Synthetic cohort profiles have been constructed from a series of cross sectional data from the population censuses because long longitudinal data sources do not exist in Australia. These synthetic career paths give sequences of occupations for the same cohort of men over time. While they reveal the level of net mobility between occupations, they cannot show gross mobility or individuals' movement between major occupational groups over time. The profiles are descriptive and cannot provide causal relationships.

The first part of this paper provides an overview of relevant trends in the labour market and discusses possible implications for men with low educational attainment. The second part presents synthetic careers paths of several cohorts of men. A break down of these cohorts by educational attainment has been possible since 1971. Details of the method used to derive consistent intertemporal major occupation groups are given in the appendix.

The changing male labour market

Two emerging developments within the labour market are broadly accepted by labour market analysts.

First, the process of technological and organisational change within firms and structural change across markets has placed a premium on an adaptable workforce with broadly based skills and well developed cognitive abilities.⁵ In a review of empirical studies on skill change, Spenner (1995: 123) argued that while there is little to suggest that education makes workers doing the same job more productive, more highly educated labour is better

able to cope with technical change in both current and prospective jobs. Education improves intellectual flexibility and problem solving capacities and enables the transfer of skills from one job or situation to another. There is clear empirical evidence that on-going training and learning is important for many jobs in Australia. According to the 1997 ABS Education and Training Experience Survey, 45 per cent of employed people attended at least one form of training course in the year before 1997.⁶ In addition, finishing secondary schooling is related to the likelihood that an individual will undertake further study later in their careers. During May 1998, school completers aged 25 to 64 and who had not yet acquired formal post-school qualifications, were three times more likely to be undertaking tertiary studies than early school leavers.⁷

Second, there has been a structural shift in labour demand from traditional 'male' dominated jobs in manufacturing, building, construction and government utilities, towards more 'female' dominated jobs in the service sector. Occupations in decline tend to use physical and technical skills more intensively, while the growth occupations require more analytic, client management and service delivery skills.⁸

The presence of a number of school students, predominantly males, who fail to master basic educational skills and appear not to have acquired the ability to learn, has been well recognised by educationalists.⁹ School problems and lack of motivation account for one third of early school leavers.¹⁰ These pupils respond poorly to discipline, find study irrelevant, face frequent penalties and expulsions at school and ultimately avoid further conflict by leaving school early. Many of these boys desire to gain an apprenticeship but are hindered by lack of achievement at school.¹¹ Even for those who do secure an

apprenticeship, it is not clear that all types of current trade training equip apprentices with the broader skills which education and training experts believe they will need.

In May 1998, 20 per cent of 15 to 24 year olds had no post-school qualifications and had not completed secondary school.¹² Retention rates to the final year of secondary school are considerably lower for males than for females.¹³ Although the proportion of early school leavers is slowly decreasing over time, improvements at the margin will take many years to affect the average. If it is assumed that retention rates increase by 5 percentage points each decade, that there is no mature age return to schooling, and that the age structure remains at the 1998 rates, then the overall early school leaving rate will fall from 34 percent in 1998 to 21 per cent in 2018. This still leaves a significant fraction of people with low educational attainment.

Unlike their (fewer) female counterparts who leave school before completing year 12, these early school leaving males face declining prospects in the labour markets which have traditionally offered them life time employment. Without basic numerical and literacy skills and more particularly, an attitude and developed habits favourable to study, it is not clear how easily they will be able to acquire either analytically demanding or service orientated jobs.

Information on how these early school leavers have fared over their careers to date can be useful in indicating secular changes in the labour market which may impinge on this groups. Accordingly, the remaining sections of this paper present occupational profiles of men since the Second World War.

Occupational profiles

Synthetic occupational career paths track the same group of people through time. In this paper, census data are presented on the major occupational groups and labour force status categories of the same set of males since 1947. Since 1971, it has been possible to exclude immigrants, and so exit and entry of new men into each cohort after this date can only arise from emigration, death or a failure to complete the questionnaire.

Occupational profile data are initially presented for the whole 5 year cohort of men. However, as the earliest censuses were not undertaken at regular 5 year intervals, the cohorts are not perfectly aligned before 1961. Profiles are also disaggregated by educational attainment after 1971. Four main qualification levels are presented. Men who left school with only year 9 or before 16 years of age; men without any post-school qualifications; men with trade certificates and men with degrees and above. These education specific profiles are only available from 1971. While presenting a logical way to separate the labour market, disaggregating by educational attainment introduces a further form of exit from and entry into the profiles as qualifications are upgraded.

Occupations have been divided into nine major groupings: Manager and administrators; professionals; paraprofessionals and technicians; tradespeople and related workers; clerks, sales and personal service workers; transport, plant and machine workers; labourers and related workers; farmers and graziers and the armed forces. In addition, a 'not working' category has been included. The 10 groups have been chosen to maximise the level of intertemporal consistency. The most detailed occupational classification available in each year has been used and recoded into these 10 major groups.¹⁴ Achieving a consistent series

over time will never be precise. The work content of jobs with the same name is not invariant and new occupations often emerge from heterogeneous or inappropriate titles. As such, the data should be treated as indicative rather than exact. Details on the method used to classify occupations are included in the appendix.

Common trends in the data have allowed a further level of aggregation as it was found that certain occupational groups were correlated over time or over a life cycle. These groups include 'high skill' occupations (manager and administrators; professionals; paraprofessionals and technicians), 'middle skill' occupations (tradespeople and related workers; clerks, sales and personal service workers; transport, plant and machine workers) and 'low skill' occupations (labourers and related workers). Farmers and graziers are treated separately and members of the armed forces have been excluded due to their very low numbers.

Data on labour force status have also been examined. Five groups are presented: employers, self employed, employees, unemployed and not in the labour force. With the exception of 1996, most of these definitions have remained consistent over time. In 1996, the ABS introduced some re-wording of the questions relating to labour force status in order to make census results more consistent with the Labour Force Survey (see Carew, Woods and Brady 1999). However, these modifications also made them inconsistent with previous census results. Specifically, it understated unemployment, employers and self employed at the expense of employees and the number not in the labour force relative to the 1991 census. Adjustments to these 1996 magnitudes have been made in order to preserve continuity of

the series, however it is possible that the data presented below still understates the level of employers during 1996.

The analysis of employment data as an indicator of labour market performance, while common, is not the optimal strategy. It does not allow a clear separation between demand and supply trends and thus cannot determine whether shifts are due to endogenous changes in wages, labour quality, labour substitution, final demand or endogenous technical change or exogenous changes arising from wages, labour supply or technology. These profiles should be interpreted as follows: given what we know about changes to different types of labour supply, technology and wages, what have been the influences on the occupation destinations of different cohorts of men?

A typical life cycle pattern: The 1931-35 cohort

Since the life cycle patterns are similar with respect to age (not shown here), only a summary of a single cohort will be presented. Data for a complete career profile is available for the cohort born 1931-35. This group was aged 16 to 20 for the 1947 Census and finished formally in 1991 aged 60 to 65. Examination of their labour force status and occupational profiles (Figures 1 and 2) indicates that:

1. Figure 1 shows that the male participation rate peaked at the ages of 30 to 39 and has steadily declined thereafter. This pattern has been found among all cohorts. The deterioration of the labour market since the 1970s did not create this pattern but merely exacerbated it.
2. Most of the fall in participation rates from the age of 40 appeared to entail a net mobility from wage and salary earners. The proportion of employers and self employed workers remained fairly stable even through until age 65 (Figure 1).

Figure 1. Percentage distribution of labour force status by age, Australian males born 1931 to 1935

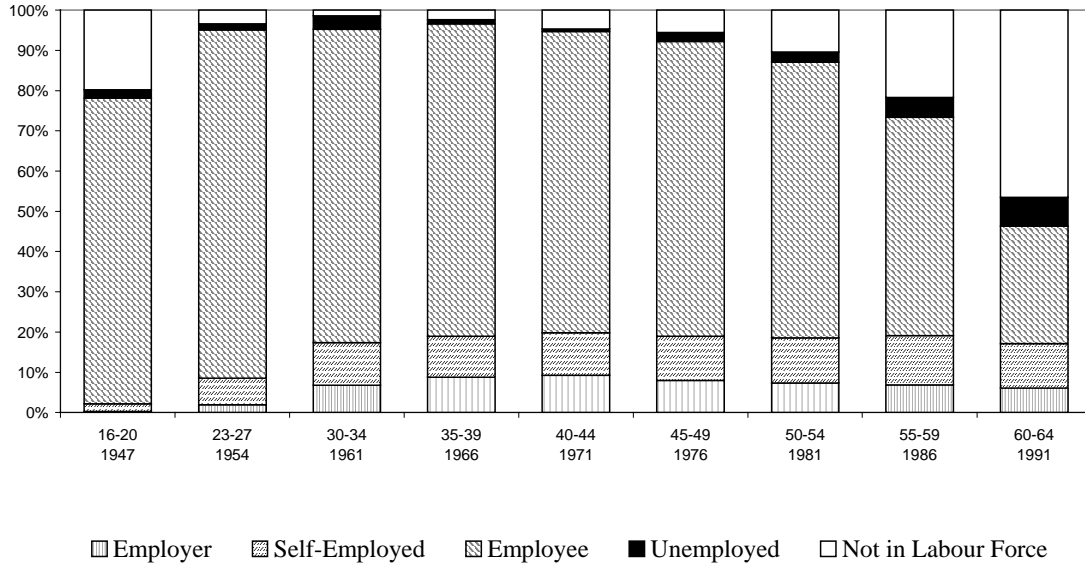
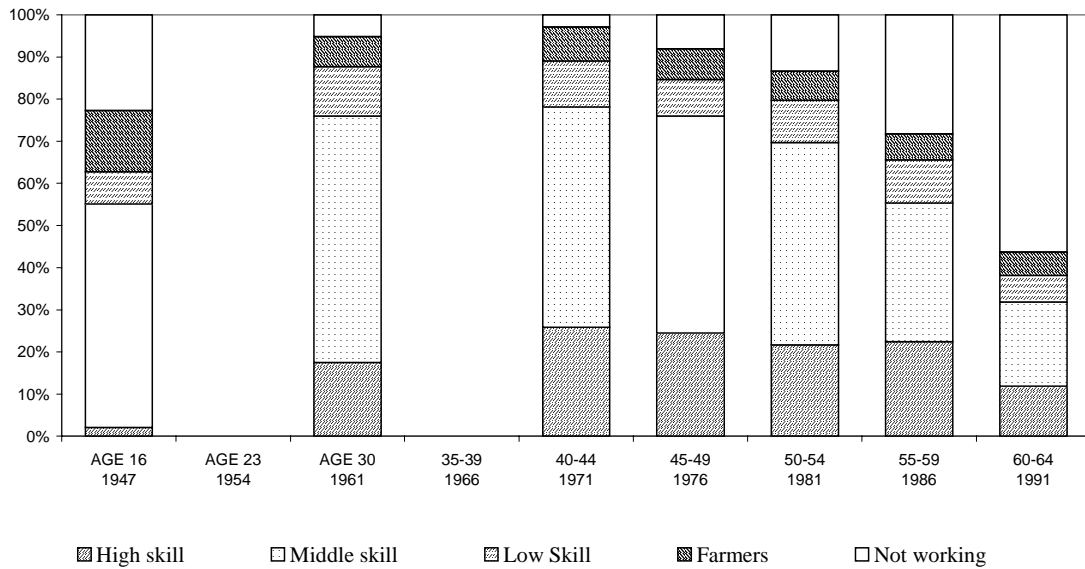


Figure 2. Percentage distribution of occupation by age, Australian civilian males born 1931 to 1935



3. According to Figure 2, the growth in the proportion not working seemed to come from middle skilled jobs. For example, the percentage in tradesmen's jobs fell from 22 per cent at ages 30 to 34 to 9 per cent at ages 55 to 59. The respective percentages for clerks, sales and personal service workers was 15 to 10 and for transport, plant and machine workers 17 to 13 (these details are not shown). Up to age 60, there is some net mobility into high skilled occupations.
4. However, there appears to be little diminution of low skilled workers and farmers and graziers. Low skilled workers remained steady at about 10 to 11 per cent.
5. Farmers and graziers remained steady at 7 per cent of the population.
6. After the age of 60 all occupational groups fell proportionately as the overall per cent working fell to under 40.

Comparative cohorts at the same age: 1911-15, 1931-35, 1946-50 and 1961-65

This section compares four cohorts: men born 1911-15, 1931-35, 1946-50 and 1961-65 at the same age (35 to 39 years).¹⁵ The presentation is limited to these 4 cohorts only for ease of exposition; data are available for most in between cohorts. Comparisons are made first between the four cohorts and secondly between the each of the last three cohorts disaggregated by educational attainment. Not all educational groups are included. Given the approximate nature of the data, it is not possible to account for cyclical variations and most of the comments relate to secular or age related differences.

As discussed above, the nature of occupational change has allowed nine of the ten major occupations to be grouped in to a high skill group (managers and administrators; professionals; paraprofessionals and technicians), middle skill group (tradesmen and related

**Figure 3. Percentage of 35 to 39 year old men by labour force status, 4 cohorts, Australia
All levels of educational attainment**



**Figure 4. Percentage of 35 to 39 year old men working in each occupational sector, 4 cohorts, Australia
All levels of educational attainment**



workers; clerical, sales and personal service workers; transport, plant and machine workers) and a low skill group (labourers and related workers).

All levels of educational attainment (at ages 35 to 39)

With respect to labour force status, several patterns are evident from Figure 3.

1. Since 1947, there has been a small but monotonic decline the percentage of men (aged 35 to 39) working as an employer.
2. The proportion of self employed men rose between 1947 and 1966 but has been steady between each census period since then.
3. The proportion of middle aged men working as employees has fallen continuously since 1966.
4. There has been a slight growth in the unemployed portion between 1947 and 1992 but a significant rise from 1991 to 1996.
5. There has been a gradual rise in the portion not-in-the-labour force during each period.

Figure 4 reveals that the pattern for the occupational profiles is more clear-cut.

1. There has been a consistent rise in the portion of men aged 35 to 39 working in high skill jobs over the whole 1947 to 1996 period.
2. There has been a consistent fall in the proportion working in middle skilled jobs. This fall has accelerated over time.
3. The proportion working in a low skilled job has been more stable. There has nevertheless been some net decline over the whole period.
4. The portion working as a farmer or grazier has fallen significantly over the period.
5. There has been an increase and acceleration in the proportion not working.

Figure 5. Percentage of 35 to 39 year old men working in each occupational sector, 3 cohorts, Australia
Educational attainment: up to year 9 (under 16 years)

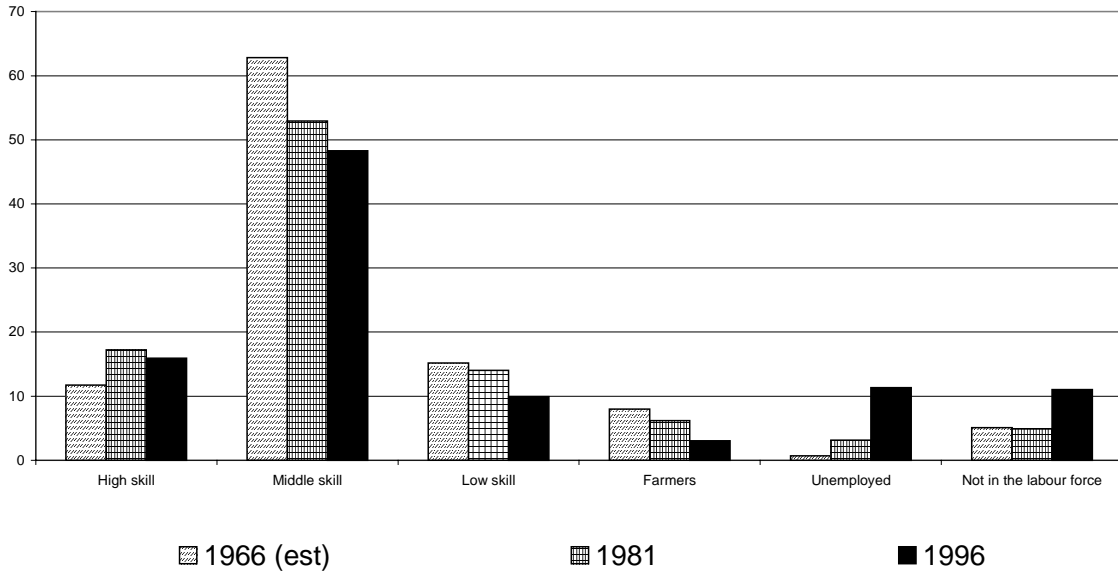
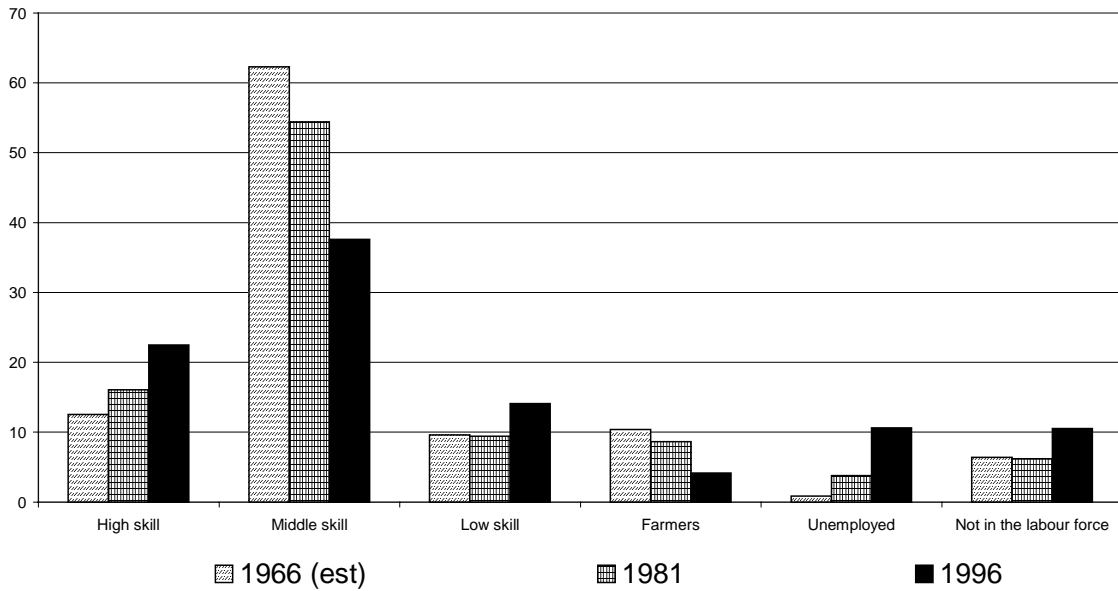


Figure 6. Percentage of 35 to 39 year old men in each occupational sector, 3 cohorts, Australia
Educational attainment: No qualifications



Early school leavers (at ages 35 to 39)

It was not possible to get educationally disaggregated data for 1947 and in Figures 5 to 8 only 3 cohort profiles are presented. Considering first the group who left school before 16 years of age (or before year 10 at school):

1. There was a rise in the proportion working in a high skill job between 1966 and 1981, but a modest fall over the subsequent 15 year interval.
2. There has been a continuous fall in the proportion working in middle skill jobs.
3. There have been smaller absolute falls in the percentage working in low skill jobs and working as a farmer.
4. There has been a secular rise since 1966 in the proportion who are unemployed.
5. By contrast, the percentage not-in-the-labour force was constant between 1966 and 1981 but rose significantly after 1981.

Unqualified men (at ages 35 to 39)

The unqualified group includes men who have not completed any type of post-school qualification. It will include both early school leavers and men who had completed the final year of secondary school as well as men who had begun but had not completed a tertiary qualification. Figure 6 indicates that their occupational profiles follow a similar pattern to the early school leaver group. However, a few differences are apparent:

1. Unlike early school leaver group, there has been a monotonic rise in the percentage working in high skill occupations. This suggests that additional years of schooling are important for gaining access to the well paid high skill sector.

2. The fall in the percentage working in middle skilled jobs has been more marked. These greater losses to middle skill jobs have been compensated by higher levels of employment in high and low skilled jobs.
3. There was a rise in the percentage holding a low skill job unlike the early school leaver group who lost their share of low skill employment.

Trades qualified men (at ages 35 to 39)

Trades qualified men consist of men with a recognised vocational qualification. Most but not all, would have left school before the final year of secondary school, especially the earlier cohorts. Figure 7 shows that compared with the unqualified group, their occupational profiles have been steadier over time. In particular:

1. While the relative employment in high skilled positions has increased over time (mostly during the 1966 to 1981 period), the rate of increase has been lower. This suggests that general education is more important than vocational qualifications for getting a high skill job.
2. There have been similar percentage point declines in employment in the middle skill jobs.
3. Working in a low skilled job, as a farmer, being unemployed or not-in-the-labour force are comparatively less important for trades qualified men. Most of the change in relative frequency in this group has been during the 1981 to 1996 period.

Degree (and above) qualified men (at ages 35 to 39)

According to Figure 8, the pattern for degree holders is the most dissimilar to the other categories. The relative frequencies in low skill, farming, unemployment and not-in-the-labour force categories are especially small. There are two noteworthy trends.

1. Despite the overall growth in high skill jobs in the economy over the 1966 to 1996 period, degree holders' share of these jobs has fallen. This may be because the supply of degree holders has outstripped demand. Many new high skill jobs could require worker attributes other than those offered by many degree holders (hence the growth in the portion of men with trade and no qualifications taking a high skill job).
2. This loss of dominance over the high skill sector has been compensated by marginally higher numbers working in all the other activities. The largest rise has been the growth in the percentage unemployed between 1981 and 1996.

Movement out of middle skill jobs

Since one of the reoccurring trends has been a decline in the proportion of men holding a middle skill job a logical further step is to gain some idea of men's gross mobility between occupational sectors.¹⁶ Data on all educational groups has found that the middle skill, farmer and to a less extent low skill occupational sectors have lost ground in favour of the high skill, unemployed and not-in-the-labour force sectors (Figures 2 and 4). However, it is not possible to tell from these summary net mobility measures whether the middle skill group has fallen in favour of high skilled jobs, low skill jobs or one of the not working categories.

To do this requires occupational job mobility or work history data. Both types of data are scarce in Australia but a limited set of work history data from a survey of 1200 men was collected during 1997 as part of the Melbourne Institute omnibus survey. While this data can give some indication of the nature of the gross mobility of men between different occupational sectors over their life cycles, trends should be regarded indicative given the small sample size and the likely re-call errors associated with retrospective data.¹⁷

Figure 7. Percentage of 35 to 39 year old men in each occupational sector, 3 cohorts, Australia
Educational attainment: Trade certificate

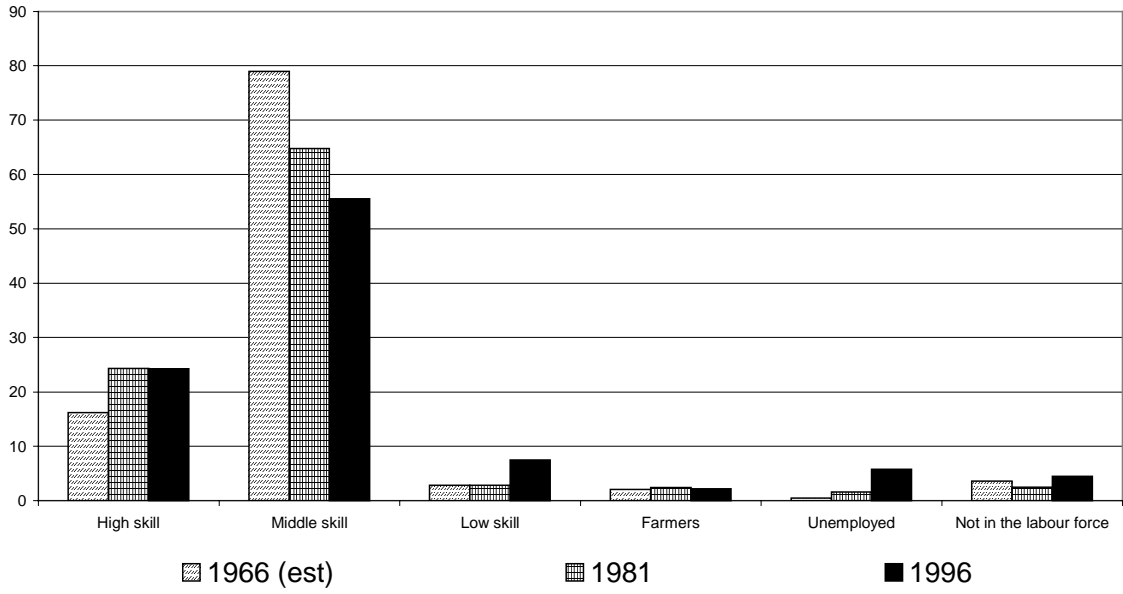


Figure 8. Percentage of 35 to 39 year old men in each occupational sector, 3 cohorts, Australia
Educational attainment: Degree and above

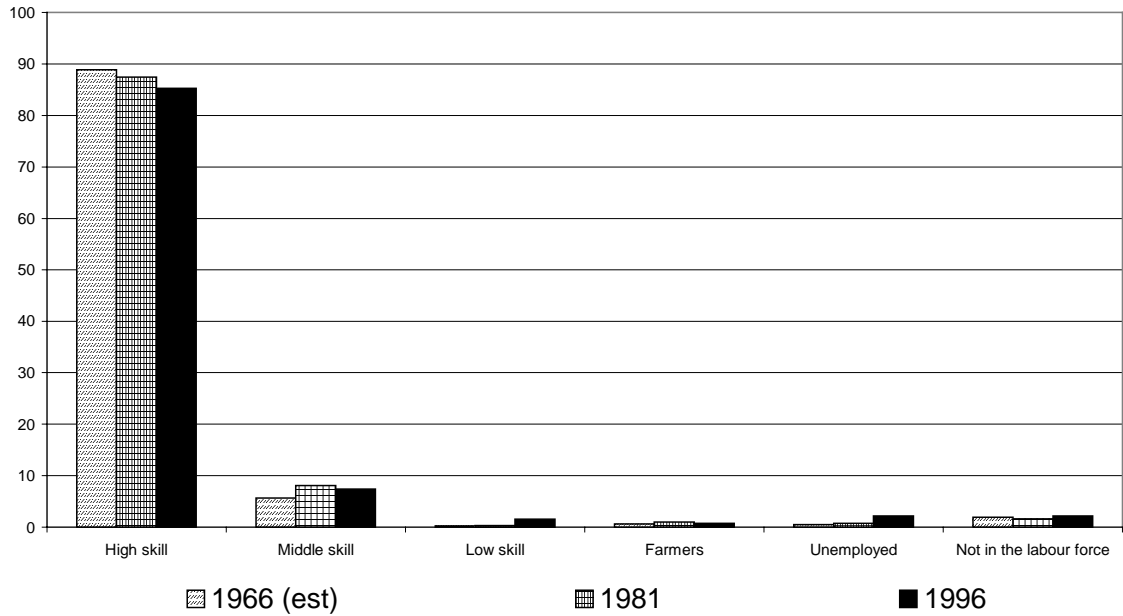


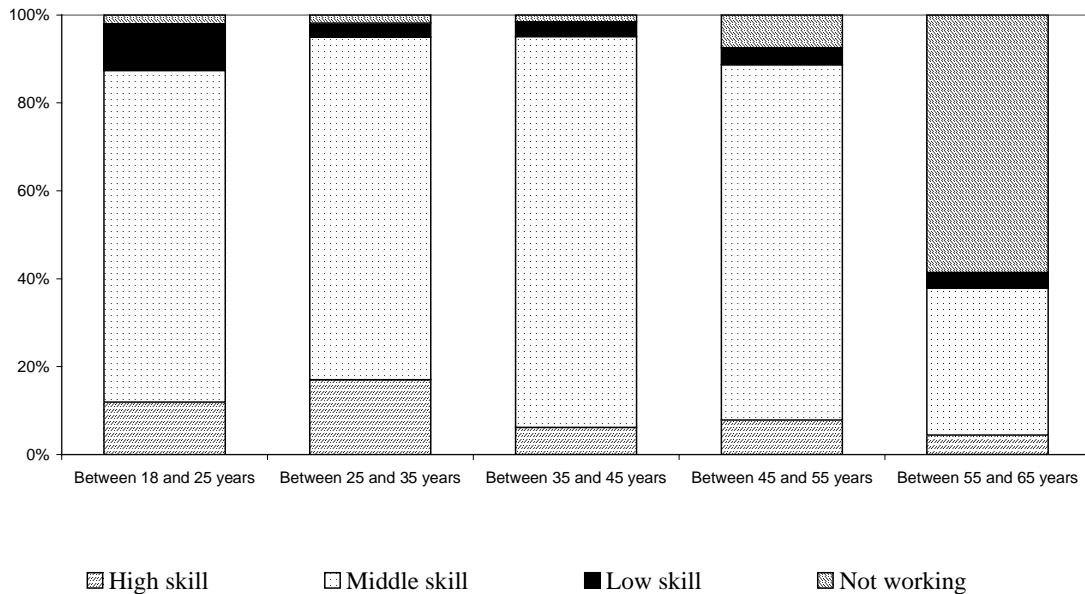
Figure 9 presents the occupation of men who were employed in a middle skill job 10 years previously (7 years in the case of 18 year olds). The small sample size has precluded any separation by birth cohort or educational group and the interpretation is accordingly limited to the nature of changes over a man's life cycle.¹⁸ Nevertheless, the data indicates that men are most mobile up to the age of 35. Between 18 and 25 years of age there is an equal movement into low skill and high skill jobs. In the decade after the age of 25, there is a fairly high rate of movement into high skill jobs. Between 35 and 45 years, there is comparatively little movement out of the middle skill sector, but after the age of 45, there are increased levels of movement out of middle skilled jobs again. However, this time the major movement is into low skill jobs and not working states.

Conclusion

Since 1947, six major trends have become apparent in the working patterns of Australian born men. First, there has been a relative decline in employment in the middle skill occupations (trade and related work, clerical, sales and personal service work and transport, plant and machining work) and a parallel rise in employment in higher skilled work (managing and administration, profession work and paraprofessional and technician work) and not working at all.

Second, the limited evidence on gross mobility between occupational sectors suggests that men who leave a middle skilled job when they are aged 25 to 35 years are more likely to move to a higher skilled jobs and men who leave after they are 45 are more likely to move to a not working state.

Figure 9. Men employed in a middle skill job at age 18, 25, 35, 45, and 55. Occupational group at ages 25, 35, 45, 55, and 65 respectively.*



Third, while the polarisation of occupations has occurred over given cohorts' life cycles, it has also been stronger for later cohorts.

Fourth, polarisation has been present for all educational groups but degree holders.

Surprisingly, early school leavers and men without post school qualifications did share in some of the net mobility into high skilled occupations over their careers, even though they 'began' from a lesser skilled base than qualified men.

Fifth, the early school leaving cohort has been the biggest loser over time and over a life cycle. They have made the smallest inroads into the high skilled sector, and the largest gains to unemployment and not-in-the-labour force at the expense of jobs in the middle skill, low skill and farming sector.

Sixth, the proportion of men working in the lowest skilled occupations (labouring and related workers) has by contrast been steadier over time.

Finally, there has been a low level of net mobility out of the farming and grazier occupations over each cohort's working careers. The main source of fall in these occupations has been through lower numbers entering the occupation after schooling.

Appendix: Occupational classification

Detailed occupations have been classified into 9 major groups, and include the following minor occupations:

- 1. Managers and administrators**, legislators, general managers, specialist managers, supervisors.
- 2. Professionals**, scientists, building, health, social, business, artist and miscellaneous professionals, teachers.
- 3. Paraprofessionals and technicians**, medical, science, engineering and building technicians, transport technical workers, nurses, welfare paraprofessionals, inspectors and police.
- 4. Tradespeople and related workers**, apprenticeable trades workers and a few trades recognised as skilled but not always apprenticeable eg welders.
- 5. Clerks, sales and personal service workers**, typists, data processor operators, clerks, insurance agents, sales persons and representatives, cashiers, hospitality workers, child care workers, non-professional personal service workers.
- 6. Transport, plant and machine workers**, drivers, plant and machine operators, and non-professional communication occupations.
- 7. Labourers and related workers**, non-professional mining workers, trades assistants, factory hands, assemblers, labourers, process workers, manual workers who are not elsewhere classified.
- 8. Farmers and graziers**, farm managers (excludes farm hands).
- 9. Armed forces.**

We aimed to classify individual occupations so they conform to the classification system used for the Australian Standard Classification of Occupations (ASCO) First Edition. Accordingly, if for example nurses were classified as para-professional in ASCO (1st edition), then they will be included in group 3 in each year. The ABS link file, Publication Number 1232.0.55.001, has been used as far as it has been possible to convert 1996 Census data into these categories.

Cross classified tables have been used for the 1947, 1954, 1961 and 1966 Censuses. Matrix tapes have been used for 1971, 1976, and 1981. The one per cent households sample file has been used for 1986, 1991 and 1996. Additional details on 4 digit occupations such as nurses, armed forces etc, were derived from the full enumeration of the 1996 Census.

The full number of occupations available in a useable format for each year is given below.

Census	Total number of occupations	Census	Total number of occupations
1947	202	1976	72 (0*)
1954	0	1981	392 (72*)
1961	384	1986	60
1966	0	1991	60
1971	367	1996	986

* Occupations available for tables giving age left school

References

- Aungles, P. Deardon, L. Karmel T. and Ryan, C. (1993) 'Through a rear-view mirror darkly: Occupational change, 1971-86', *Australian Bulletin of Labour*, 97-113.
- Australian Education Council (1991) *Young people's participation in post-compulsory education and training*. Report of the Australian Education Council Review (Finn Review), Canberra: Australian Government Publishing Service, 1991.
- Carew, J., Woods, R. and Brady, B. (1999) '1996 Census: Labour Force Status', Population and Census Evaluation, April 1999, Australian Bureau of Statistics, Canberra.
- Cully, M. (1999) 'A more of less skilled workforce? Changes in the occupational composition of employment, 1993 to 1999', *Australian Bulletin of Labour*, 98-104.
- Dwyer, P. and the Youth Research Centre (1996) 'Opting out: early school leavers and the degeneration of youth policy', Hobart: National Clearinghouse for Youth Studies.
- Dwyer, P. Wyn, J. Wilson, B. and Stewart, F. (1990) 'Early school leavers', Youth Research Centre, Institute of Education, University of Melbourne,
- Elias P. (1994) 'Occupational change in a working life perspective: Internal and external views', in Penn R., Rose M. and Rubery J. (1994a) (Eds.).
- Gallie D. (1994) 'Patterns of skill change: Upskilling, deskilling or polarisation', in Penn R, Rose M. and Rubery J. (1994a) (Eds.).
- Howell D.R. and Wolff E.N. (1991) 'Trends in the growth and distribution of skills in the US workplace 1960-1985', *Industrial and Labour Relations Review*, **44**, 486-502.
- McCormack, D. (1992) 'An analytical examination of youth labour and education' *Labour Economics and Productivity*,

- Micklewright, J., Pearson M. and Smith S. (1990) 'Unemployment and early school leaving', *Economic Journal*, **100**, 163-169.
- Miller, P. (1987) 'The youth labour market in Australia: A survey of issues and evidence' Discussion paper No. 171, Centre for Economic Policy Research, ANU.
- Miller, P. (1990) 'Training in the youth labour market' *Labour Economics and Productivity*,
- Penn R., Rose M. and Rubery J. (1994a) (Eds.) *Skill and occupational change*, Oxford, Oxford University Press.
- Penn R., Rose M. and Rubery J. (1994b) 'Introduction', in Penn R, Rose M and Rubery J (1994a) (Eds.).
- Spenner K.I. (1995) 'Technical change, skill requirements and education: The case for uncertainty', in Bills D.B. (1995) (Ed) *The new modern time. Factors reshaping the world of work*, Albany, State University of New York Press.
- Stevenson and McKavanagh (1992) 'Skill formation for the workplace' in *Education and Work* (ed) ME Poole, ACER, Hawthorn, Australia.
- Wilson, B. and Wyn, J. (1990) 'Early school leavers' Youth Research Centre, Institute of Education, University of Melbourne.

¹ Dwyer and the Youth Research Centre (1996).

² During 1998 apparent retention rates for secondary school student to year 12 were 68.9 and 79.4 per cent for males and females respectively, ABS cat. 4221.0 *Schools, Australia*, Table 52.

³ See ABS cat. 6203.0 *The Labour Force, Australia*, various issues.

⁴ During 1996, 54.4 per cent of female employees who had left school on or before 15 years of age were employed in clerical or sales position compared with 13.2 per cent of their male counter parts (ABS Census of Population and Housing, One per cent sample file, 1996).

⁵ Direct evidence on the change in the skill structure, based on detailed occupation descriptions from Australia, the USA and the UK finds, on balance, an upgrading of the skills used by employed people especially the most highly skilled (Elias, 1994, Gallie, 1994, Spenner, 1995, Penn, Rose and Rubery, 1994b, Howell and Wolff, 1991).

⁶ More specifically, the survey referred to the 12 month period prior to the survey period March to May 1997.

⁷ Of the unqualified group, 9.1 per cent of secondary school completers people aged 25 to 64 were pursuing further tertiary studies compared with only 3.2 per cent of non-school completers. ABS cat. 6227.0, *Transition from Education to Work*, May 1998, Table 10.

⁸ See for example Cully (1999), Aungles, Deardon, Karmel and Ryan (1993).

⁹ Australian Education Council (Finn Review) 1991, Dwyer, Wyn, Wilson and Stewart (1990), Wilson and Wyn (1990).

¹⁰ See ABS cat. 6278.0 *Education and Training Experience*, 1997, Table 8.1.

¹¹ In 1997, 45.4 per cent of apprentice graduates had completed year 12 (source: www.ncver.edu.au/statistics/aats/ann98/qual.htm).

¹² This excludes people still at school. ABS cat. 6227.0, *Transition from Education to Work*, May 1998, Table 10.

¹³ Micklewright, Perason and Smith (1990) find that males were significantly more likely to leave school earlier than females, after family background and regional labour market factors were held constant.

¹⁴ The only exceptions are 1986 and 1991. Only 2 digit details were necessary for this group as both the 10 groups used for this paper and the classification used for these censuses are based on ASCO 1st edition.

¹⁵ There was no disaggregated occupational data in 1966 and the figure from these years is based on the mid point between 1961 and 1971.

¹⁶ This issue was suggested by Tom Crossley.

¹⁷ Source: Melbourne Institute Omnibus survey, July and August 1997. Sample stratified by age, sex, location, and occupation. The survey was found to overstate the number of people claiming that they are currently working as a manager, administrator, professional or para-professional at the expense of the other occupations. Accordingly, current and retrospective occupational data have been re-weighted to reflect the comparative level of overstatement. A comparison was made between the ABS Labour Force Survey in February 1996 and the omnibus survey for January, February and March 1996. It was not possible to re-weight according to the ABS August 1997 survey as the latter used ASCO (2nd edition) while the omnibus survey uses ASCO (1st edition).

¹⁸ The sample size for each age range is 18 to 25 years (1104), 25 to 35 years (865), 35 to 45 years (578), 45 to 55 years (341), and 55 to 65 years (175).