

What it's worth: Establishing the value of vocational qualifications to employers

Mark Cully

National Centre for Vocational
Education Research



Need more information on vocational education and training?

Visit NCVER's website <<http://www.ncver.edu.au>>

- ✓ Access the latest research and statistics
- ✓ Download reports in full or in summary
- ✓ Purchase hard copy reports
- ✓ Search VOCED—a free international VET research database
- ✓ Catch the latest news on releases and events
- ✓ Access links to related sites



What it's worth

Establishing the value of vocational qualifications
to employers

Mark Cully

National Centre for Vocational Education Research

© Australian Government, 2005

This work has been produced by the National Centre for Vocational Education Research (NCVER) on behalf of the Australian Government, and state and territory governments, with funding provided through the Department of Education, Science and Training. Apart from any use permitted under the *Copyright Act 1968*, no part of this publication may be reproduced by any process without written permission. Requests should be made to NCVER.

The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of the Australian Government, state and territory governments or NCVER.

The author/project team were funded to undertake this research via a grant under the National Vocational Education and Training Research and Evaluation (NVETRE) Program. These grants are awarded to organisations through a competitive process, in which NCVER does not participate.*

The NVETRE program is coordinated and managed by NCVER, on behalf of the Australian Government and state and territory governments, with funding provided through the Department of Education, Science and Training. This program is based upon priorities approved by ministers with the responsibility for vocational education and training (VET). This research aims to improve policy and practice in the VET sector. For further information about the program go to the NCVER website <<http://www.ncver.edu.au>>.

ISBN 1 920896 65 1 print edition
1 920896 66 X web edition

TD/TNC 83.05

Published by NCVER
ABN 87 007 967 311

Level 11, 33 King William Street, Adelaide SA 5000
PO Box 8288 Station Arcade, Adelaide SA 5000, Australia
ph +61 8 8230 8400, fax +61 8 8212 3436
email ncver@ncver.edu.au
<<http://www.ncver.edu.au>>

* Author Mark Cully was employed by the National Institute of Labour Studies at the time he was awarded funding to undertake this research.

Revised 20 October 2005

Contents

| | |
|---|----|
| Tables and figures | 4 |
| Acknowledgements | 6 |
| Key messages | 7 |
| Executive summary | 8 |
| 1 What are qualifications and who has them? | 11 |
| Conceptualising qualifications and value | 11 |
| Who has qualifications? | 15 |
| 2 Importance of qualifications in recruitment | 19 |
| Advertised job vacancies | 20 |
| Interviews with recruitment specialists | 26 |
| Conclusion | 29 |
| 3 Qualifications and employment | 30 |
| Qualifications and the employment-to-population ratio | 31 |
| Qualifications and unemployment | 33 |
| Full-time and part-time employment | 34 |
| Employment by occupation and qualifications segregation | 36 |
| Conclusion | 41 |
| 4 Qualifications and wages | 44 |
| Estimating procedure | 45 |
| Findings and discussion | 46 |
| Conclusion | 49 |
| 5 Conclusion | 50 |
| Higher education qualifications | 50 |
| Higher-level vocational qualifications | 51 |
| Lower-level vocational qualifications | 52 |
| Conclusion | 52 |
| References | 54 |
| Annex A: Interview prompt sheet | 55 |
| Annex B: Wage equations | 56 |

Tables and figures

Tables

| | | |
|-------|---|----|
| 1 | Highest educational attainment, May 2001, people aged 15 to 64 | 16 |
| 2 | Highest non-school qualification by age, May 2001 (%) | 17 |
| 3 | Highest non-school qualification by sex and household status, May 2001 (%) | 18 |
| 4 | Number of job vacancies listed on internet sites, August 2002 | 21 |
| 5 | Sampled in-scope job vacancy advertisements | 22 |
| 6 | Qualifications stipulated in advertisement, by location and website (% of vacancies) | 24 |
| 7 | Qualifications stipulated in advertisement, by occupation (% of vacancies) | 25 |
| 8 | Requirements stipulated in advertisement, by occupation (% of vacancies) | 26 |
| 9 | Occupation by highest non-school qualification, May 2001 (%) | 37 |
| 10 | Occupations where highest non-school qualification over-represented relative to average, May 2001 | 42 |
| 11 | Wage premium of qualification holders relative to non-school completers | 46 |
| 12 | Wage premium of qualification holders relative to those without | 47 |
| 13 | Wage premium of qualification holders relative to non-school completers, controlling for level of schooling completed | 48 |
| B1 | Variables and mean values | 56 |
| B2(a) | Earnings regression results, males | 58 |
| B2(b) | Earnings regression results, females | 60 |

Figures

| | | |
|------|---|----|
| 1 | Highest non-school qualification, May 2001 | 16 |
| 2 | Highest non-school qualification, by sex, May 2001 (%) | 18 |
| 3 | Vacancies specifying essential or desirable characteristics (%) | 23 |
| 4 | Type of qualifications essential or desirable for job | 24 |
| 5(a) | Employment-to-population ratio, by highest non-school qualification and age, May 2001 (%) (men) | 32 |
| 5(b) | Employment-to-population ratio, by highest non-school qualification and age, May 2001 (%) (women) | 32 |

| | | |
|------|---|----|
| 6(a) | Unemployment rate, by highest non-school qualification and age, May 2001 (%) (men) | 34 |
| 6(b) | Unemployment rate, by highest non-school qualification and age, May 2001 (%) (women) | 34 |
| 7(a) | Full-time employment, by highest non-school qualification and age, May 2001 (% of employed) (men) | 35 |
| 7(b) | Full-time employment, by highest non-school qualification and age, May 2001 (% of employed) (women) | 36 |
| 8(a) | Qualifications held, by occupation and age, May 2001 (managers) | 38 |
| 8(b) | Qualifications held, by occupation and age, May 2001 (professionals) | 39 |
| 8(c) | Qualifications held, by occupation and age, May 2001 (associate professionals) | 39 |
| 8(d) | Qualifications held, by occupation and age, May 2001 (tradespersons) | 39 |
| 8(e) | Qualifications held, by occupation and age, May 2001 (advanced clerical, sales and service workers) | 40 |
| 8(f) | Qualifications held, by occupation and age, May 2001 (intermediate clerical, sales and service workers) | 40 |
| 8(g) | Qualifications held, by occupation and age, May 2001 (intermediate production and transport workers) | 40 |
| 8(h) | Qualifications held, by occupation and age, May 2001 (elementary clerical, sales and service workers) | 41 |
| 8(i) | Qualifications held, by occupation and age, May 2001 (labourers and related workers) | 41 |

Acknowledgements

This project benefited from a meeting convened by the National Centre for Vocational Education Research (NCVER) of researchers working in the field and government officials with an interest in the issues. Jennifer Gibb managed the project on NCVER's behalf, and usefully directed me towards complementary material.

James Ashburner and John Sant of the Australian Bureau of Statistics helpfully provided data and advice relating to recent collections which are drawn upon in this report.

Managers of SkilHire, eRecruit and JobPlace (pseudonyms for a labour hire company, a recruitment specialist and a Job Network agency) who wish to remain anonymous all kindly gave freely of their time to take part in interviews on the topic of recruitment.

This project was largely completed while I was working for the National Institute of Labour Studies at Flinders University. Research assistance was provided here by Josh Healy, Diana Ilsley, Lauren Miller-Lewis, Diane Ovens and Skye Jacobi.

I thank Michael Long of the Centre for the Economics of Education and Training, Monash University, for helpful comments on an earlier draft.

Key messages

This research starts from the premise that the value of qualifications to employers is what they are prepared to pay for them in the labour market.

- ✧ There are clear differences in the way employers value the importance of qualifications for different categories of worker. Employers consider formal qualifications as important or essential for management, professional and trades/technical operations, less so in the clerical, sales and service, and plant and machine operator occupations, and virtually non-existent in labour and related occupations.
- ✧ While employers may use qualifications in the selection process as a signal of competence, direct industry experience and evidence of personal qualities are often rated higher and more valuable.
- ✧ Although qualifications are a less important element in the recruitment process than other factors, it is clear that those with higher-level qualifications have superior labour market outcomes.
- ✧ Those with non-school qualifications (those issued by registered training providers and higher education providers) are more likely to be employed on a full-time basis, although much is dependent on the level of qualification—indicated by individuals with degrees or higher having the best employment outcomes.
- ✧ In terms of earnings, there are considerable gains for degree and diploma holders, as well as those who have completed an Australian Qualifications Framework (AQF) certificate level III/IV qualification. High school Year 12 levels appear to matter more than lower-level (certificate I and II) vocational qualifications.

Executive summary

Thousands of qualifications are issued each year by universities, by technical and further education (TAFE) institutes, and by private providers. In 2002, 6.2 million people aged 15 to 64 years held some kind of non-school qualification¹ and 1.6 million were part way towards completing one. Individuals undertake further education for a whole host of reasons, undoubtedly one of which is that it enhances their prospects of attaining a job in a field of interest to them. In doing so, they evidently believe that employers place a value on the learning acquired in the course of completing the qualification, as shown by rising levels of participation and educational attainment over the course of the 1980s and 1990s (despite the introduction of student fees in the late 1980s).

This report relies on a simple premise: the value of qualifications to employers is what they are prepared to pay for them in the labour market. The intrinsic (or use) value of qualifications to employers is inherently subjective, although the economic or exchange value can be observed. It can be observed at three points—in recruitment, in (un)employment, and in earnings.

The interest in this report lies primarily in vocational qualifications, although in assessing value, this report is also interested in the relative value (or *added value*) of these qualifications when compared with years of schooling and higher education qualifications.

Who has qualifications?

The focus of this report is on people aged 15 to 64 years who have left secondary school. Almost half of these people (49%) had obtained qualifications since leaving school. It was most common for them to have a university degree or a higher degree (18%), followed by holders of certificates at Australian Qualifications Framework (AQF) level III/IV (15%), diplomas (7%), certificate level I/II (7%) and certificate holders of some indeterminate level (2%).

Men were more likely to have qualifications than women, a difference of six percentage points, which is wholly explained by men being much more likely to have a certificate level III/IV (23% compared with 9%). For all other levels of educational attainment, the proportion of women was higher than that for men.

Other than for the youngest group (15 to 24-year-olds), many of whom are only recent school leavers, educational attainment is inversely associated with age. Among 25 to 34-year-olds, 58% have non-school qualifications, a proportion which falls with each successive age group, to 41% for 55 to 64-year-olds.

Q Do employers want people with qualifications when recruiting?

A Yes, for some jobs, but experience is more valuable.

A survey was conducted of over 800 advertised job vacancies—posted on the internet—in three distinct labour markets (regional New South Wales, Brisbane, Northern Territory) to identify the importance of qualifications in the recruitment process. The survey identified that qualifications

¹ Non-school qualifications are awards for educational attainment issued by registered training providers, and higher education providers. They range from certificates level 1 through to postgraduate degrees. In some instances, non-school qualifications may be attained concurrently with school qualifications (for example, VET in Schools).

were specified in advertisements in one-third of cases. They were much less likely to be specified than experience, which was mentioned in 73% of cases, but qualifications were mentioned more often than specific skill sets (26%) and licences (6%).

Overall, 18% of advertisements specified that a degree was required, compared with 9% specifying a certificate level III/IV, 2% a diploma and 4% could not be classified. Among all of the advertisements perused for this exercise, there was not one which specified a certificate level I/II qualification. Where advertisements did specify that qualifications were sought, it was mostly deemed to be an essential rather than a desirable requirement.

By far the strongest association with whether qualifications were desired was the occupation of the job being filled. Where the vacancy was for managers or professionals, just over half of the advertisements specified that a qualification was sought—typically a degree—while for associate professionals and tradespersons, the proportion was just under half. For tradesperson vacancies, the qualification sought was, in nine out of ten cases, a certificate level III/IV. For vacancies in the intermediate clerical, sales and service occupations, qualifications were specified in around one in five cases. The remaining four occupational groups all had proportions below one in ten, and it was effectively zero for vacancies for elementary clerical, sales and service workers, and labourers and related workers.

When combining the qualifications results with other potential selection criteria, it becomes apparent that occupations can be broken up into three broad groups. The first constitutes managers, professionals, associate professionals and tradespersons. Qualifications are relatively important for securing jobs in these occupations, but rank well below experience. The second group constitutes advanced clerical and service workers, intermediate clerical, sales and service workers, and production and transport workers. In this group, experience is also the most important attribute and qualifications are relatively unimportant, but specific skills and/or licences which are narrowly defined according to occupation; for example, ability to use accounting software such as MYOB, or having a forklift licence, can be important. The third group is made up of elementary clerical, sales and service workers, and labourers and related workers for whom, by and large, only experience is relevant.

These findings were verified and given added nuance in interviews with three organisations involved in recruitment—a recruitment agency, a labour hire company and a job placement organisation (a member of the Job Network). Where qualifications are specified, they are used only as a threshold-screening device. Except for low-skilled jobs where the recruitment process is largely concerned with basic employability skills and the wage to be paid, recruiters have highly job-specific selection criteria. The most important of these is demonstrated competence to do the job. This is captured in people's work history and other, often intangible, factors which indicate a 'fit' between the employer's requirements and the applicant's characteristics.

Q Are employers more likely to employ people with qualifications?

A Yes, but much depends on the level of qualification (and age and sex).

Although qualifications are a less important element in the recruitment process than other factors, it is clear that those with qualifications have superior labour market outcomes. On average, those with qualifications are more likely to be 'sorted' into employment according to what qualification they completed, are less likely to find themselves unemployed, and are more likely, where they are working, to be in a full-time job. The analysis is based on unpublished data from the Australian Bureau of Statistics' May 2001 Survey of Education and Work.

People with no non-school qualifications had the lowest employment-to-population ratio; this finding holds for men and for women in each broad age group. Among qualification holders, a degree confers the largest advantage, with an overall employment rate (relative to the total) nine-percentage points higher for men and 17 percentage points for women. Taking account of sex and age, those with vocational qualifications also generally experience positive outcomes. Employment rates are higher for

those with certificate level III/IV qualifications, but men and women with certificate level I/II qualifications do not have any higher rate than the all men and all women figures.

This pattern of relative advantage to qualification holders also generally prevailed when examining the unemployment rate. Those with degrees had very low unemployment rates, less than half the 'all persons' rate of 6.5%. Men and women with certificate level III/IV qualifications had relatively low unemployment rates, except among those aged 55 to 64 years, where it rose sharply to be the highest among all categories (which is partly explained by those without qualifications in this age group exiting altogether from the labour force). Those with certificate level I/II qualifications have a higher unemployment rate than the average and, in the case of women, higher than those without post-school qualifications.

Most men—at least nine out of ten of those in the prime-age groups—worked full-time irrespective of qualifications, but for women, the proportion working full-time was strongly associated with qualifications. Among those with degrees, 69% were working full-time compared with 55% for both certificate level III/IV and certificate level I/II holders.

Q Do employers pay more for people with qualifications?

A Yes, but again it depends on the qualification, and schooling matters more than low-level qualifications.

The unit record file of the Australian Bureau of Statistics' 2001 Survey of Education and Training Experience was used to analyse the determinants of earnings for almost 12 000 employees. Consistent with the many hundreds of studies that have been conducted on the association between education and earnings, a strong positive association is found.

People with a degree-level qualification or better earned over two-fifths more than an otherwise identical person who had not completed Year 12, and this was the case for both men and women.

Men with higher-level vocational qualifications earned, on average, between 11.2 and 29.8% more per week than otherwise comparable men with no non-school qualifications. For women with higher-level vocational qualifications, there was still a wage premium, although it was less substantial at between 4.1 and 22.6%.

For those leaving school before completing Year 12 and then going on to complete a lower-level vocational certificate, there was no discernible wage difference compared with an otherwise identical person who had not done the certificate. Those who did complete Year 12 were better off in terms of earnings, irrespective of whether they had also undertaken a certificate I/II qualification or not.

1 What are qualifications and who has them?

Thousands of qualifications are issued each year by universities, by technical and further education (TAFE) institutes, and by private providers. In 2002, 6.2 million people aged 15 to 64 held some kind of non-school qualification and 1.6 million were part way towards completing one. This project is concerned with how employers value these qualifications.

To an economist, measuring value is a redundant metaphysical exercise. Air and water are valuable, we cannot lead life without them, yet by our actions we do not appear to value them greatly. This was the dilemma faced by the classical economists *cum* philosophers, such as Jeremy Bentham and John Stuart Mill. They developed a way forward by distinguishing *exchange* value from *intrinsic* (or use) value. The first is readily observable—as prices—while the second is not. Within this framework the exchange value of qualifications to employers is captured by the wage premium paid to qualification holders. This allows us to objectively infer value by direct observation of behaviour in the labour market, rather than posing subjective questions about (intrinsic) value to employers.²

Our chief interest is in *vocational* qualifications, specifically those accredited under the Australian Qualifications Framework (AQF), although an assessment of value necessarily involves an examination of relative or *added value*. This requires a comparison of the value of vocational qualifications to employers against the value of higher education qualifications, and also against the value of schooling.

In this chapter, what we mean by qualifications and value is explored in more detail before findings on the range and characteristics of qualification holders in Australia are presented. This is then followed by three empirical chapters which each pose a separate question about value:

- ✧ Do employers want people with (vocational) qualifications when recruiting?
- ✧ Are employers more likely to employ people with (vocational) qualifications?
- ✧ Do employers pay more for people with (vocational) qualifications?

The findings are brought together, with a particular focus on the value of vocational qualifications, in the concluding chapter.

Conceptualising qualifications and value

It is useful to begin with a functionalist perspective on the issue of qualifications before recognising its limitations. On one side there is a sphere of education, which ‘produces’ qualifications. These can be ranked hierarchically by level, and categorically by field. Education and training which leads to formal qualifications takes place in accredited institutions. On the other side there is a sphere of production. Employers require people of varying degrees of competence and skill to carry on production within some specified organisation of work.

The qualification becomes a commodity, where supposed higher levels of aptitude (as certified by the qualification) are exchanged for a higher wage. This raises the question of what is, in fact, being exchanged. Labour relations scholars, and a number of economists, have long emphasised the open-

² Besides this project, there were three other concurrent projects commissioned by NCVET on the topic of the value of qualifications, and some of these focus squarely on intrinsic value.

ended nature of the employment contract, in particular, that what is exchanged is the *capacity* for labour (or 'labour power' as Marx called it), not a set quantum of labour services.

This capacity must be judged *ex ante* (that is, at the time of hiring), but it is also a capacity that can be developed through training and, if need be, the employer retains the power in most circumstances to determine that demonstrated capacity is insufficient and to terminate the employment contract. Employers have a range of 'strategies' they can adopt towards hiring labour, the formation and deployment of skills, and the organisation of work.

In doing so, they must be mindful of which type of approach is likely to induce 'consummate cooperation' rather than 'perfunctory performance'. It is this question which underlies the voluminous literatures on internal labour markets, payment systems, and the structure of the firm. Marsden (1999) provides a thorough overview. He distinguishes between occupational labour markets, internal labour markets and secondary labour markets. The first is a skilled labour market, with some means of validating those who are endowed with skills, that is, a system of accredited qualifications. An internal labour market may also be skilled, the difference being that workers are hired at entry level and the skills are developed internal to the organisation, typically through on-the-job training. Higher-level vacancies within the organisation are filled by promoting existing employees. Skills developed in internal labour markets may be less portable—although recent initiatives in Australia to promote recognition of prior learning can redress this problem (from the employee's perspective).³ Secondary labour markets mostly consist of unskilled jobs, and are characterised by casual employment contracts.

It should be clear from the foregoing discussion that employers and workers both have vested interests in a transparent system of skill recognition and certification. In Australia, that is mostly provided by the Australian Qualifications Framework. The system hinges on what are known as 'articulation arrangements', by which it is meant that there are linkages through all parts of the system to provide flexibility in occupational pathways. Whether attained through study at TAFE or university, a registered private training provider, a New Apprenticeship or through recognition of prior learning, the certified qualification is intended to act as a signal of competence for prospective employers.

The Australian Qualifications Framework provides a clear structure to vocational qualifications. These are mostly covered through certificates ranging in levels from I (the lowest) through to IV (the highest). Diplomas and advanced diplomas may also be awarded within the vocational education and training (VET) sector (that is, as well as in higher education institutions). As the Australian Qualifications Framework is of relatively recent standing, it is appropriate to investigate how the different levels of qualifications awarded under it are valued by employers.

There are other kinds of certified skills which exist *outside* the Australian Qualifications Framework, and whose value is dependent on recognition. These vary in formality. The least formal are skills acquired through experience (and which have not been formally recognised), but which a past or current employer can vouch for (for example, through a reference). Many of these are often tacit skills, such as judgement or problem-solving ability. Other kinds of certified skills are more formalised, typically involving the completion of a short training course for which the person obtains a certificate, but one that is *not recognised* within the Australian Qualifications Framework. Given that, in 2001, almost half those employed completed a short training course not leading to a qualification, the extent of skill formation outside the Australian Qualifications Framework is clearly significant. A final kind of certified skill are licences issued by government authorities. These typically involve some mandatory training and assessment of competence before the licence is awarded; a driving licence is a trivial example, but most heavy equipment requires the operator to

³ From the perspective of the internal labour market employer, recognition of prior learning can give rise to problems such as higher levels of labour turnover and having to counter higher pay offers.

have a licence.⁴ In some occupations, regulations make it unlawful to work without a licence (for example, electricians working on their own account, although not electricians working as employees).

For economists studying the labour market and attempting to grapple with this level of institutional detail and complexity, the problem is one of what can be observed. Ideally, we would want to be able to measure skill (and its association with skill), but it is generally not possible to do this in an unproblematic way. Formal qualifications, on the other hand, are readily observed, and show broadly consistent associations with labour market success (that is, high employment rates, wage premiums) across countries and over time in hundreds of studies.

In this study when we use the term ‘qualification’ it means a qualification that has been awarded through the Australian Qualifications Framework. It does not include skills acquired through on-the-job training or through completing short training courses, unless the person has taken the route of having those skills formally accredited through a recognition of prior learning process.

Over and above this, however, are more general questions about the purpose served by qualifications in the labour market. Do they demonstrate competence or do they signal other attributes? To what extent are they associated with productivity on the job? Is the rising level of education and training in the Australian workforce an instance of ‘credential creep’, or a reflection of more complex work requiring higher levels of qualifications? Answering these questions depends critically on what we mean by ‘value’.

More on exchange and intrinsic value

In the opening part of this chapter, the reason for this study’s focus on exchange value was explained. It is, nonetheless, worth retaining the distinction between exchange value and intrinsic value, not least for illuminating points where the two values may be unequal.

By intrinsic value we mean the extent to which the skills acquired in attaining the qualification are deployed in work. This needs to be set in the context of how employers organise work, how firm-specific skills are transmitted, and the relative importance of firm-specific versus general skills.

In a setting of perfect competition the demand for labour of a particular kind and the wage paid for it are simultaneously determined. This makes ‘identification’ or observation straightforward. It is more appropriate, however, to imagine the labour market as being in a process of continual flux, with both earnings and employment adjusting to changes in, among other things, relative demand and supply. This makes identification more difficult.⁵

The demand for labour is both latent and realised. In observing employment levels, we may not necessarily observe the total level of demand as there may be a skill shortage. This suggests that we also need to capture some measure of the total demand, by identifying areas where there are unfilled vacancies. To measure the exchange value of qualifications from a demand perspective we therefore require information on the extent to which they figure in the recruitment process and then in observed employment levels. That is the subject of chapters 2 and 3, respectively.

If those who hold qualifications are more productive than others, then this should be reflected in the form of higher earnings. That is the subject of chapter 4. We can identify this through what are now standard econometric techniques for estimating the wage premium paid to the holders of given qualifications. A particular focus of that chapter will be attempting to identify the premium, if any, that accrues to holders of vocational qualifications over and above years of schooling.

⁴ This situation can be distinguished from statutory registration (for example, registered nurses) which requires completion of a qualification within the Australian Qualifications Framework before it can be granted.

⁵ It also means that we should be aware that the results we obtain may differ over time.

Having set the scene, it should be clarified that the findings obtained in relation to exchange value are open to interpretation as to whether they are capturing underlying intrinsic value (at least in relative terms) or are reflecting what are, in effect, mismatches in the market for qualifications and the market for labour.

Thurow (1975) was among the first to point out that a qualification's main purpose might be to serve as a screening device in recruitment. Attaining the qualification may be insufficient to guarantee competence to do a particular kind of work, but it may 'signal' to a would-be employer that its holder has a demonstrated aptitude for, say, effort and perseverance. The value to the employer in this case is that he/she may lower recruitment costs by not having to measure competence per se, or by observing competence on the job, but by using the qualification as a *proxy* for productivity on the job. Thurow showed that, if many employers adopted this as a recruitment strategy, it could lead to the qualification requirements for given jobs ratcheting up over time, while the actual skill content of the job may remain constant. In these circumstances, the *intrinsic* or use value of the qualification would be lower than the exchange value.

What this discussion serves to illustrate is that, while it may be reasonable to assume a strong correlation between attainment of a qualification and competence to do a job, there is no *necessary* nor exact relation—in other words, the exchange value of the qualification may not be equal to the intrinsic value of the qualification. Generalising further, we can state that there are two factors which militate against a perfect correlation.

- ✧ Someone less qualified may be equally competent in the job—this is the problem of *over qualification*.
- ✧ The work requires a degree of *firm-specific knowledge* which can only be acquired through on-the-job experience.

Over-qualification is commonly used to describe situations where an individual has an education in excess of that required to do his or her job. An example is a person with a PhD driving a cab, because there is a lack of demand for PhD holders in that person's speciality. It may also arise in circumstances where the selection criteria for a job call for education or training in excess of that required to do it competently. An example would be where a university lecturer's job specifies that a person must have a PhD: three years of full-time training and research is, on any reasonable assessment, more than is needed to acquire the skills of presenting and imparting information to undergraduate students.

The issue of firm-specific knowledge is altogether different. It is common in the literature to divide skills into those that are generic (that is, invariant across employers) and those that are firm-specific. This simply recognises a fundamental truism that a new employee will go through a 'learning curve' as they adapt to the requirements of the job. The amount of elapsed time before a new employee achieves full productivity will mostly depend on the ratio of firm-specific to generic skills. The higher this is, the lower the intrinsic value of qualifications to employers. However, qualifications may also signal to an employer that the qualification holder is more likely than a person without the qualification to have certain desirable qualities, such as an ability for learning. Used in this sense, the intrinsic value of a qualification is not so much indicative of an individual's ability to do a particular job, as their likely *capacity* to do so.

The nature of the analysis we undertake in this project provides no means for definitively ruling in or out any of these interpretations. All we can do is impute value by what employers are willing to pay for. Evidently, individuals must believe that employers value qualifications as shown by rising levels of participation and attainment over the course of the 1980s and 1990s. We now turn to the issue of educational attainment levels.

Who has qualifications?

In chapter 3 of this report the association between the attainment of qualifications and employment status is investigated through the 2001 Survey of Education and Work conducted by the Australian Bureau of Statistics (ABS).⁶ This was conducted as a supplement to the Labour Force Survey in May of that year. The same source is used to give an account of the pattern of qualifications held.

As a preamble we need to clarify how the introduction of the Australian Standard Classification of Education (ASCED) has affected the presentation of the survey findings, as it strikes at the heart of the issues being considered in this project. Prior to 2001, in measuring educational attainment, the ABS had sub-divided the population into those with and without post-school qualifications. Those two groups were then further divided (for example, for those without post-school qualifications, whether or not they had completed the highest level of schooling).

With the introduction of the Australian Standard Classification of Education, the ABS has broached the issue of equivalence of vocational qualifications with schooling.⁷ No longer are the two sub-populations treated as mutually exclusive. In arriving at an ordinal classification of educational attainment, difficulties arise when applied 'to the reality of educational provision in Australia' (ABS 2001), specifically in the status of lower-level vocational certificates. Accordingly, a 'decision matrix' is used 'solely for the purpose of obtaining a single value for ... highest educational attainment' (Australian Standard Classification of Education). A number of key decision rules arise from this matrix.

- ✧ A Year 10 education is higher than a certificate I.
- ✧ A certificate II qualification is higher than completion of Year 10.
- ✧ A Year 11 education is higher than a certificate II.
- ✧ A certificate III qualification is higher than completion of Year 11 and of Year 12.

To compare the effects of the application of these rules, table 1 compares the differences on the basis of the 'new' and 'old' rules (which, implicitly, treated all non-school qualifications as 'higher' than any schooling level). The difference between the two sets of results is that 930 200 people (7.3% of the population) switch from a schooling level in the first set (where the Australian Standard Classification of Education decision matrix is applied) to a certificate I or II or of an indeterminate level in the second set. To take an example, there were 396 300 people who had completed Year 12 *and* who had also attained a certificate I or II or a certificate of an indeterminate level. In the first set of results they are placed into Year 12; in the second set they are re-assigned into the relevant vocational qualification.⁸

There is no *right* answer as to where to place vocational qualifications relative to years of schooling. In this study, as we are interested in the value of vocational qualifications, we follow the 'old' rules.⁹

The summary of educational attainment on this revised basis is shown in figure 1.¹⁰ Just over half of the population (51%) had no non-school qualification (or, for a small fraction, their educational attainment was not able to be determined). Among the balance of 49%, holders of university degrees were the most common (18%), followed closely by those with a certificate level III/IV qualification (15%), and no other group accounting for more than 7%.

⁶ Cat. no.6227.0; formerly known as Transition from Education to Work.

⁷ Some of the nomenclature has also changed. People no longer have 'post-school' qualifications, they are now referred to as 'non-school' qualifications.

⁸ There are also 508 100 people who had completed Year 12 and attained a certificate III or IV. They are assigned to the vocational qualification in both sets of results.

⁹ In chapter 4 where the wage premiums that accrue to qualification holders are analysed, we explore the interaction between schooling level and post-school qualifications.

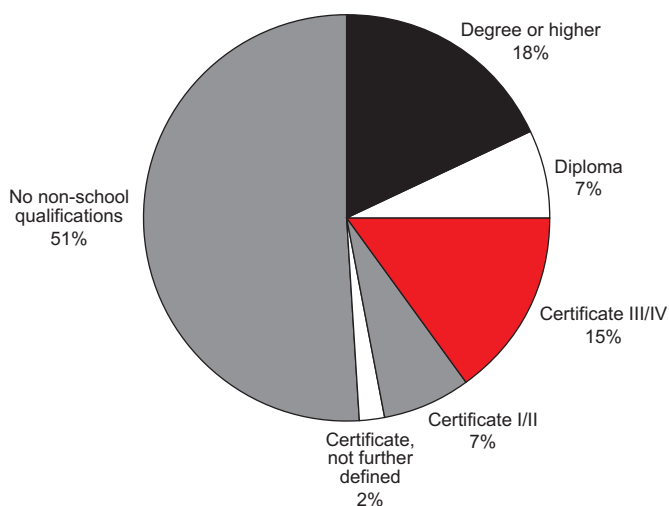
¹⁰ People who were still in school at the time of the survey are excluded from the scope of this project.

Table 1: Highest educational attainment, May 2001, people aged 15 to 64

| Attainment | ASCED decision rule | | Post-school quals 'higher' | |
|----------------------------------|---------------------|--------------|----------------------------|--------------|
| | People ('000s) | Per cent | People ('000s) | Per cent |
| Postgraduate degree | 283.9 | 2.2 | 283.9 | 2.2 |
| Graduate diploma/certificate | 300.3 | 2.3 | 300.3 | 2.4 |
| Bachelor degree | 1 595.5 | 12.5 | 1 595.5 | 12.5 |
| Advanced diploma/diploma | 854.6 | 6.7 | 854.6 | 6.7 |
| Certificate III or IV | 1 798.6 | 14.1 | 1 798.6 | 14.1 |
| Certificate I or II | 121.8 | 1.0 | 873.6 | 6.9 |
| Certificate, not further defined | 13.7 | 0.1 | 192.1 | 1.5 |
| Year 12 | 2 521.7 | 19.7 | 2 125.4 | 16.7 |
| Year 11 | 1 097.1 | 8.6 | 935.3 | 7.3 |
| Year 10 or below | 4 011.1 | 31.4 | 3 686.3 | 28.6 |
| Level not determined | 142.7 | 1.1 | 142.7 | 1.1 |
| Total | 12 741.0 | 100.0 | 12 741.0 | 100.0 |

Notes: Totals may not sum to 100 due to rounding; ASCED = Australian Standard Classification of Education.

Source: Derived from ABS (2001)

Figure 1: Highest non-school qualification, May 2001

Note: Population is people aged 15–64 years, excluding those still at school.

Source: ABS Survey of Education and Work (unpublished data)

In examining educational attainment, the most important control is that of age, where there are two confounding effects. The older a person is, the greater has been their lifetime chances of acquiring a non-school qualification. Counter to this has been the trend for younger people to stay longer in the formal education system—as witnessed by rising Year 12 retention rates in the 1980s and first part of the 1990s (but which have since eased off). Table 2 shows educational attainment by age. The two confounding effects are best seen in the proportion of people without a non-school qualification which is U-shaped by age—lowest among 25 to 34-year-olds, but highest among 15 to 24-year-olds (who have had less opportunity to acquire them) and 55 to 64-year-olds (who have had less need for them).

There are 192 100 people holding a vocational certificate who don't know the level it was awarded at. It must be of some concern that this is concentrated among the youngest age group, given that they cannot have held the qualification for very long. This age group accounts for more than two in five of those holding certificates of an indeterminate level. Also, among all certificate holders, the unknown certificates account for 21% of the 15 to 24-year-olds, but no more than 6% of any other

age group. One source of this may be the rapid rise in people undertaking apprenticeships and traineeships since 1995, with the implication that many people may be unaware of precisely what level qualification they have attained.

Table 2: Highest non-school qualification by age, May 2001 (%)

| | 15–24 | 25–34 | 35–44 | 45–54 | 55–64 | All |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Degree or higher | 9.5 | 24.1 | 19.8 | 19.2 | 13.3 | 18.0 |
| Diploma | 4.6 | 7.8 | 7.7 | 7.8 | 6.5 | 7.1 |
| Certificate III/IV | 9.3 | 16.2 | 17.4 | 15.1 | 14.5 | 14.9 |
| Certificate I/II | 4.7 | 8.1 | 8.1 | 7.6 | 6.6 | 7.2 |
| Certificate, not further defined | 3.8 | 1.5 | 1.2 | 1.0 | 0.2 | 1.5 |
| No non-school qualifications | 68.1 | 42.3 | 45.8 | 49.1 | 59.0 | 51.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Notes: Totals may not sum to 100 due to rounding.
Population is persons aged 15–64 years, excluding those still at school.

Source: ABS Survey of Education and Work (unpublished data)

There are other variables which are independently associated with both educational attainment and labour market status, and we should also be mindful of them as the analysis proceeds. Figure 2 compares the educational attainment of men and women. Further detail on differences by sex, controlling for household status, are shown in table 3. Overall, men are slightly more likely than women to have a non-school qualification, 52% to 46%. The composition of those qualifications shows that men are much more likely to have a certificate III or IV vocational qualification (23% compared with 9% for women), probably reflecting the high concentration of men in traditional apprenticeships. In all other categories of non-school qualifications, it is women who proportionally out-number men.

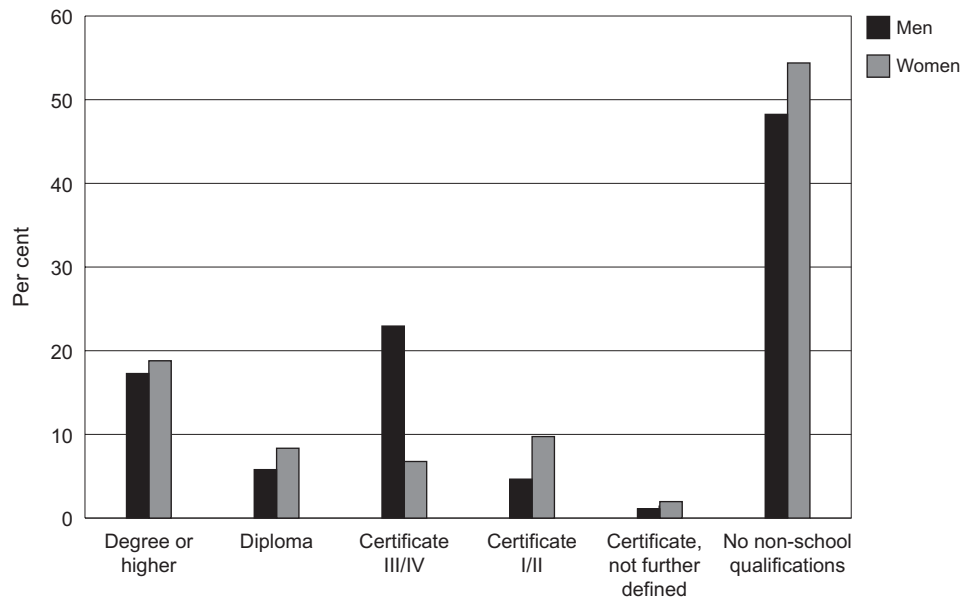
When we take account of current household status¹¹, we observe that single men are much more likely not to have qualifications relative to other men than are single women to other women. Most of the difference for men is at the certificate level III/IV qualification, where there is broadly a ten-percentage point gap between single men and men living as a couple (with or without dependents).

This is mostly an age cohort effect which captures the relative shift away from vocational qualifications towards higher education qualifications in the past generation. That is, even though the numbers completing vocational qualifications have been rising, they have been outstripped by the numbers completing degrees and higher degrees. For example, among 25 to 34-year-olds, degree holders make up 42% of those with non-school qualifications, compared with 37% among the 35 to 44-year-olds.

Having now described the pattern of educational attainment, we are now in a position to ascribe the value of those qualifications to employers.

¹¹ The measure is current at the time of the survey. Couples whose children were no longer dependent upon them are in the 'no dependents' category, although having raised children may well be an important factor, especially for women, in explaining their educational attainment.

Figure 2: Highest non-school qualification, by sex, May 2001 (%)



Note: Population is persons aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

Table 3: Highest non-school qualification by sex and household status, May 2001 (%)

| | Men | | | Women | | |
|----------------------------------|-------------------------|-----------------------|----------------|-------------------------|-----------------------|----------------|
| | Couple, with dependents | Couple, no dependents | Single & other | Couple, with dependents | Couple, no dependents | Single & other |
| Degree or higher | 20.1 | 16.5 | 15.1 | 18.8 | 17.3 | 20.4 |
| Diploma | 6.4 | 6.7 | 4.5 | 9.0 | 7.9 | 7.9 |
| Certificate III/IV | 26.4 | 26.8 | 16.9 | 7.1 | 6.4 | 6.7 |
| Certificate I/II | 5.1 | 4.4 | 4.4 | 11.6 | 9.4 | 7.4 |
| Certificate, not further defined | 0.8 | 0.7 | 1.6 | 1.8 | 1.1 | 3.2 |
| No non-school qualifications | 41.1 | 44.8 | 57.5 | 51.7 | 58.0 | 54.4 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Note: Population is persons aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

2 Importance of qualifications in recruitment

In this chapter we draw on two sources of evidence to examine the importance of qualifications in the recruitment process. The first is a survey of advertised job vacancies, the second a series of interviews with those involved in the recruitment business. The purpose of this twin-pronged approach is to gain a rounded perspective on the importance of qualifications. Before turning to the empirical evidence, we first briefly review what other studies have found when examining the importance of qualifications in recruitment.

Why might we expect qualifications to be important in the recruitment process? First, in what Marsden (1999) calls occupational labour markets, the qualification is a necessary condition of appointment. These occupations are regulated, usually formally (that is, by statute), although many are quasi-regulated through professional associations (for example, accountancy).

A second reason is that qualifications may be used as a proxy indicator of likely productivity on the job. Nowak (1988) introduces some of the insights of the economics of information into recruitment by treating qualifications as a datum. The main information that an employer wants to establish in recruitment is the productivity of a potential worker, which varies across workers, and is more variable the higher the skill level of the job. Productivity is a short-hand term which refers to a set of characteristics, such as effort, loyalty, likely tenure and pattern of absence. It is not possible to know in advance what someone's productivity will be, so employers must attempt to predict who is likely to be the most productive among a set of candidates. These predictions will be made on the basis of information acquired, which in doing so incurs costs. The dilemma for the employer is choosing the optimum level of information to acquire about candidates. The more information obtained, the higher will be the chances of selecting the most productive candidate, but the greater the cost. Obtaining information on qualifications is cheap (as long as there is a supporting accreditation framework), which may account for why they may be preferred to other kinds of information, such as aptitude tests.

It is notable that empirical studies of employer hiring behaviour find qualifications to be relatively *unimportant* in the decision-making process. Harding and Wooden (1997) report on a nationwide telephone survey of 1448 employers. The survey asked employers (who had recruited in the previous year) to nominate the selection criteria used and then to choose the single one which was the most important. Education was ranked well below skills, experience and attitude/motivation for all classes of vacancies (that is, skilled/unskilled by white/blue-collar), and only 2% of employers rated education as the most important criterion. It is possible, however, that post-school qualifications may not have been seen by respondents as part of 'education', but have fallen more under the 'skills' rubric.

Bills (1988) undertook a study on the importance of 'schooling' (which encompasses tertiary education) in recruitment decisions. He studied the most recent appointees to 12 occupations in six organisations. While employers recognised a link between schooling and skill and productive potential, 'very few relied on educational credentials as signals of skills to the exclusion of other indicators', and they discounted the strength of the signal where 'more proximate indicators of productive capacity' were available; this was especially the case where vacancies were filled internally by promotion.

Coverdill and Finlay (1998) explored how employment agencies selected among applicants for a range of white-collar jobs, from administrative to executive level. They divide recruitment into a two-stage process: the first is to identify a pool of candidates, the second is to select from that pool. In the first stage, candidates need to meet a certain number of specified conditions, often quite general, relating to experience and education and training. In the second, it is the ability of a candidate to hit the recruiter's 'hot buttons', the markers of an ability to do the particular job being filled (as perceived by those doing the hiring), not just an ability to do a job of that general kind. These markers are highly specific and are not generally known to the candidate. Critically, those who get through the first stage 'are relatively homogeneous with respect to general skills and experiences' (p. 107). The Coverdill and Finlay (1998) study largely endorses the screening theory that the use of qualifications (alongside other general factors such as years of experience) in the first stage provides an objective and straightforward criterion to narrow the pool of candidates.

Wolf (1997) cites evidence from a British study in the early 1990s which found that, among newspaper job advertisements which stipulated a degree as a prerequisite for obtaining the job, half did not say anything at all about the field, source or level of the degree.

Advertised job vacancies

It was the original intention of this project to compile a database of information gleaned from newspaper advertisements, with a focus on the extent to which qualifications were detailed as one of the requirements for applicants. Upon reflection, it was decided that this approach raised a number of problems. First, many vacancies are never listed in newspaper advertisements. The survey conducted by Harding and Wooden (1997) found that, while newspaper advertisements were the most common method for external recruitment, placing notices with the then Commonwealth Employment Service was also very common, as was working through contacts/networks. Second, constructing a protocol for randomly selecting advertisements was not straightforward. Third, a cursory examination of the advertisements showed that qualifications were only mentioned in the advertisements in a fraction of cases—somewhere between a quarter and a third. However, this understates the importance of qualifications in the recruitment process, as many advertisements directed people to a source of additional information and, in some fraction of cases, this will have specified a qualification requirement. The issue here is that the function of the advertisement is to bring the vacancy to people's attention, and some of the detail can be sacrificed if the advertisement will be too cluttered or the cost prohibitive.

Our solution was to settle on internet job sites as being a superior source for data compilation. These have quickly grown in prominence over the past few years. According to the ANZ Bank, an institution which has been monitoring job vacancies for many years, vacancies posted on the internet numbered around 70 000 in July 2002, more than three times the number advertised in newspapers. Most importantly, they largely resolve the problems listed above.

As indicated by the number of vacancies, the coverage of internet job sites is wider than that of newspaper advertisements. All vacancies listed at Centrelink offices through the Job Network are included at <www.jobsearch.gov.au>, while few appear in the newspaper. Recruitment specialists and labour hire companies rely much more heavily on the internet than they do on newspapers for soliciting applications, presumably because the advertising costs are cheaper. Most post their vacancies on one or both of two sites, <www.seek.com.au> and <www.monster.com.au>, and usually only the higher-paying or more specialised vacancies also appear in the newspaper. Finally, the newspapers themselves also include their advertisements on websites; <www.careerone.com.au>, for example, includes advertisements from all News Ltd. papers, which cover all state capital cities.

It is easier to randomly select advertisements on internet job sites, as searching produces a list which can be sampled by adopting a constant sampling fraction to ensure randomness. Finally, because there are fewer 'space' constraints, advertisements posted on internet job sites are better able to specify the requirements. Thus we can take it as a given that, if qualifications are not mentioned, they are less likely to be relevant in the selection process.

A mix of areas with different labour market conditions was selected, in the expectation that qualifications would vary depending upon whether the job market was tight (requiring employers to be less choosy) or loose (where employers can be more selective). We also wanted to ensure that there was a good mix of jobs being filled, so that the results were not specific to any one area.

The three areas we selected were:¹²

- ✧ Non-metropolitan New South Wales (*stagnant or in decline*)
 - ◆ This area encompasses all of New South Wales, excluding greater Sydney, but including Wollongong and Newcastle.
 - ◆ Employment fell by 1.8% to the year ending June 2002; unemployment rose by 0.8 percentage points to 7.8%, well above the national average of 6.3%.
 - ◆ The participation rate fell to 58.4%, well below the national average of 63.6%.
- ✧ Brisbane (growing, but unemployment persistently high)
 - ◆ This area excludes the Gold Coast.
 - ◆ Employment grew by 4.4% to the year ending June 2002, and the unemployment rate fell from 8.3 to 7.1% but remained well above the national average.
 - ◆ The participation rate of 66.5% is high.
- ✧ Northern Territory (growing, and labour market conditions very tight)
 - ◆ Employment grew by 4.5% to the year ending June 2002, and the unemployment rate fell to 5.0% (from 6.7% one year previously).
 - ◆ The participation rate was extremely high at 74.4% (partly reflecting a younger population mix).

Table 4 reports the number of vacancies posted on each of these websites in the week beginning 19 August 2002. In total, there were around 18 000 vacancies at this time, with most of these posted on the JobSearch site. The aim was to randomly select 100 or so advertisements in each location from each site. This was done by using a constant sampling fraction; for example, for Brisbane every fiftieth advertisement posted on the JobSearch site, every thirtieth advertisement on the Seek site and every tenth advertisement on the Career One site.

Table 4: Number of job vacancies listed on internet sites, August 2002

| | JobSearch | Seek | Career One | Total |
|--------------------|------------------|--------------|-------------------|---------------|
| Brisbane | 5 293 | 3 032 | 1 213 | 9 538 |
| Non-metro NSW | 6 220 | 758 | 262 | 7 240 |
| Northern Territory | 579 | 297 | 441 | 1 317 |
| Total | 12 092 | 4 087 | 1 916 | 18 095 |

Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

¹² The employment statistics cited come from the Department of Employment and Workplace Relations' quarterly publication *Australian regional labour markets* for June 2002, available on the internet from <www.workplace.gov.au>. Figures are taken from the ABS Labour Force Survey and report the three month average, not seasonally adjusted.

Table 5: Sampled in-scope job vacancy advertisements

| | JobSearch | Seek | Career One | Total |
|--------------------|------------|------------|------------|------------|
| Brisbane | 105 | 101 | 121 | 327 |
| Non-metro NSW | 103 | 106 | 48 | 257 |
| Northern Territory | 115 | 116 | 7 | 238 |
| Total | 323 | 323 | 176 | 822 |

Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

An advertisement was defined as being ‘in-scope’ as long as it was specific to the location in which it was included, and was for a single job vacancy (or multiple *identical* jobs). The first of these proved to be very important as it is not possible with some of the sites to exclude vacancies that are *not* location-specific from a job search. Most common here were Defence Force jobs, which are advertised Australia-wide and do not specify where the job is based. These accounted for the bulk of the vacancies listed on the Career One site for non-metropolitan New South Wales and the Northern Territory, such that in-scope advertisements numbered well below our target of 100 (that is, the total is *all* in-scope vacancies). The resultant dataset had 822 vacancies distributed as shown in table 5.

For each vacancy, the following information was recorded:

- ✧ occupation (to 2-digit Australian Standard Classification of Occupations)
- ✧ working hours, that is, full- or part-time
- ✧ employment status, that is, permanent, fixed-term or casual
- ✧ required characteristics of applicant specified in advertisement, including whether essential or desirable
 - ◆ qualifications, including type of qualification
 - ◆ experience
 - ◆ specific skill set (for example, Oracle programming)
 - ◆ licence (for example, forklift operator).

Findings¹³

Perhaps the most remarkable finding of this exercise is the lack of concrete information contained within job advertisements. In particular, there is very little information on putative employment conditions. More than a third of all advertisements (37%) did not specify working hours, while an astonishing 70% did not disclose in the advertisement whether the job was permanent, or for a fixed-term, or casual. It is not as if the problem is a shortage of space. Typical was an advertisement for a production operator, which in the course of over 200 words specifies precisely the job requirements (‘a Forklift licence, capacity 2.5 tonne with a minimum of three years experience. Familiarity with our SAP computer system or windows based system would be an advantage’), with blandishments about employment conditions (‘enjoy the excellent remuneration, benefits and career opportunities’).

There appears to be a deliberate strategy on the part of recruiters to disclose as little as possible about the proposed employment conditions, rather perhaps as the opening gambit in negotiations with the successful applicant. Interesting in this respect was the JobSearch site—the portal for all listed Job Network vacancies—where hours of work (and pay) are ‘fields’ that appear in each advertisement (although they may be left blank). As a consequence, proportionally more vacancies sampled on this site specified hours of work, 72%, compared with 63% on the Seek site and just 44% on the Career One site. In figure 3 the overall findings on the characteristics required of would-be applicants if they are to be successful in obtaining the job are reported. In around three-

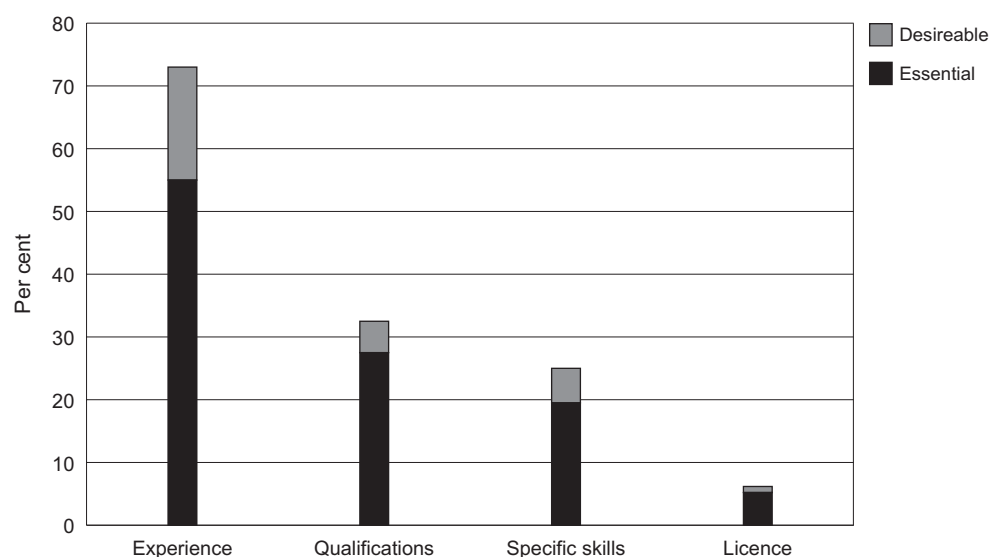
¹³ We have chosen not to weight the data, as this would unnecessarily complicate what is a fairly straightforward data-gathering exercise.

quarters of cases, experience in the line of work or industry was stipulated. Qualifications ranked second in characteristics sought, at 34%, but well below half the proportion of advertisements where experience was sought. In only 8% of cases were qualifications specified in the advertisement, but experience was not; the converse situation was 48%.

Qualifications did rank above specific skill sets, which were mentioned in 26% of sampled advertisements, and licences, which were mentioned in just 6% of cases.

We are able to distinguish cases where a particular characteristic was desirable rather than essential. If the characteristic was mentioned in the advertisement, the default used for coding purposes was 'desirable', except where it was explicitly stated that it was 'essential' (or words to that effect). As can be seen from the figure, in most cases where a characteristic was mentioned in an advertisement, it was defined as essential rather than desirable. Discounting those cases where the characteristic was just desirable does not alter any of the conclusions drawn.

Figure 3: Vacancies specifying essential or desirable characteristics (%)



Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

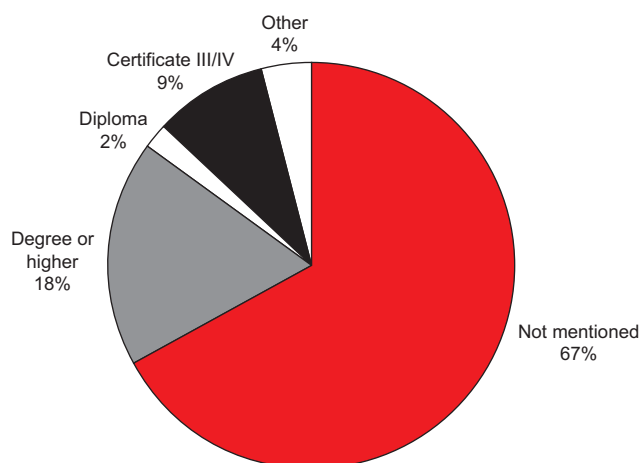
Figure 4 shows which types of qualifications featured as either essential or desirable to employers. As already noted, in two-thirds of cases, the advertisement did not mention qualifications as a selection criterion. In the one-third of cases where qualifications were mentioned, it was most common for a degree or higher-level qualification to be mentioned (18%), followed by 9% where a certificate III/IV level qualification or equivalent (for example, apprenticeship) was mentioned. Diplomas were mentioned in just 2% of advertisements, while 4% specified some other post-school qualification (or the advertisement contained insufficient detail to identify the type of qualification required). Not a single advertisement of the 822 we sampled mentioned a certificate I/II level qualification.

The principal results—the lack of concrete detail in advertisements and the comparatively rare inclusion of qualifications as an explicit selection criterion—are so pronounced, that taking account of our 'control' variables is unlikely to do more than round out the picture.

Table 6 shows how the proportion of advertisements which mentioned qualifications varied by both location and website. Vacancies posted on the JobSearch site mentioned qualifications less frequently than did those on Seek and Career One. This is almost certainly an outcome of the different labour market 'segments' that the sites are serving. JobSearch deals largely with vacancies for those who are presently unemployed, whereas Seek and Career One cater to all. As a consequence, vacancies on JobSearch are predominantly at the lower end of the pay and skill

distributions. For example, advertisements for managers and professionals made up just 4% of vacancies on JobSearch, compared with 45% on Seek and 56% on Career One. After controlling for major occupational group, there were no statistically significant differences between the respective sites except for professionals on the JobSearch site (although, given the low numbers, no great credit should be set by it).^{14,15}

Figure 4: Type of qualifications essential or desirable for job



Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

Table 6: Qualifications stipulated in advertisement, by location and website (% of vacancies)

| | JobSearch | Seek | Career One | Total |
|--------------------|-----------|-----------|------------|-----------|
| Brisbane | 16 | 33 | 31 | 27 |
| Non-metro NSW | 32 | 49 | 29 | 39 |
| Northern Territory | 23 | 50 | 71 | 38 |
| Total | 24 | 44 | 32 | 34 |

Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

Across locations, there were proportionally fewer vacancies requiring qualifications in Brisbane than in the other two locations. We were interested to know whether this, also, was an artefact of the occupational composition of the vacancies. The analysis revealed that, by comparison with non-metropolitan New South Wales and the Northern Territory, qualifications were significantly *less* likely to be mentioned in Brisbane advertisements for managers, professionals and associate professionals (but not for other occupations).¹⁶ Similarly, advertised vacancies for managers and professionals in the Northern Territory were significantly *more* likely to mention qualifications than in the other locations.¹⁷ These findings do not wholly concur with the expectation that employers are likely to be less selective in tight labour markets.

As might be expected from the above analyses, by far the *strongest* association with whether qualifications were mentioned was occupation. Vacancies for more highly skilled positions were far more likely to stipulate qualifications than for less skilled positions, as is clearly evident in table 7. More than half of advertised vacancies for managers and professionals mention qualifications,

¹⁴ Of the 11 sampled vacancies for professionals on the JobSearch site, 3 mentioned qualifications, compared with 106 of the 188 on the Seek and Career One sites. This difference was statistically significant at the 10% level ($\chi^2=3.55$, $p=0.069$).

¹⁵ Note that an implication of this finding is that if job vacancies are truly distributed across the population as they are on the three sampled sites (see table 4), then weighting the data would *lower* the proportion of advertised vacancies which mention qualifications, that is, the 'true' proportion would lie somewhere between the JobSearch proportion of 24% and the total of 34% across the three sites.

¹⁶ Significance levels were 0.033, 0.000 and 0.019 respectively.

¹⁷ Significance levels were 0.003 and 0.001 respectively.

compared with (effectively) none for elementary clerical, sales and service workers and labourers and related workers. However, even for professionals, where there are often statutory licensing arrangements (or de facto arrangements through membership of professional associations) which require qualifications, a surprisingly high proportion of advertisements, 45%, made no mention at all of qualifications. A similar conclusion can be made in relation to tradespersons, where 54% of sampled advertisements made no mention of having completed a qualification, whether trade-related or not.

It is also apparent that the *type* of qualification required is closely related to the occupation, degrees (or higher) being the norm for managers and professionals and a certificate level III or IV for tradespersons. Finally, in table 8, the importance of qualifications in the selection process relative to the other attributes we obtained information on is examined—experience, specific skill sets and licences—across occupational groups. For each occupation, experience was the attribute most commonly sought. The most narrow difference was for tradespersons, where 62% of advertisements mentioned experience and 46% mentioned qualifications. The most substantial difference was for advanced clerical and service workers, where only 4% of advertisements mentioned qualifications, while 82% sought experience in the field. Interestingly, this was also the occupation where employers were most likely (57%) to specify a particular set of skills they required—typically experience with a particular piece of software (for example, MYOB)—suggesting that short targeted training courses may be of more value in attaining jobs in this occupational group than undertaking studies leading to formal qualifications. Specific skill sets were also relatively more important than qualifications for intermediate clerical, sales and service workers and production and transport workers. Licences were most commonly required for production and transport workers—typically a licence to operate a particular piece of equipment, usually to meet occupational health and safety regulations. These licences might also be regarded as equivalent to a specific skill.

Broadly, then, occupations can be broken up into three main groups. The first constitutes managers, professionals, associate professionals and tradespersons. Qualifications are relatively important for securing jobs in these occupations, but still rank below experience. The second group constitutes advanced clerical and service workers, intermediate clerical, sales and service workers and production and transport workers. In this group, experience is also the most important attribute and qualifications are relatively unimportant, but specific skills and/or licences (which are narrowly defined according to occupation) can be important. The third group is made up of elementary clerical, sales and service workers and labourers and related workers for whom, by and large, only experience is relevant.

Table 7: Qualifications stipulated in advertisement, by occupation (% of vacancies)

| | Not mentioned | Degree or higher | Cert III/IV or equivalent | Diploma or other |
|------------------------------|---------------|------------------|---------------------------|------------------|
| Managers | 43 | 45 | 2 | 10 |
| Professionals | 45 | 47 | 2 | 6 |
| Associate professionals | 54 | 25 | 7 | 14 |
| Tradespersons | 54 | 0 | 41 | 5 |
| Advanced clerical/service | 96 | 0 | 0 | 4 |
| Inter clerical/sales/service | 82 | 3 | 2 | 12 |
| Production & transport | 92 | 2 | 4 | 2 |
| Elem clerical/sales/service | 100 | 0 | 0 | 0 |
| Labourers & related | 98 | 0 | 0 | 2 |
| Total | 66 | 18 | 9 | 7 |

Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

Table 8: Requirements stipulated in advertisement, by occupation (% of vacancies)

| | Experience | Qualifications | Specific skill set | Licence |
|------------------------------|------------|----------------|--------------------|----------|
| Managers | 90 | 57 | 35 | 0 |
| Professionals | 81 | 55 | 34 | 2 |
| Associate professionals | 82 | 46 | 29 | 4 |
| Tradespersons | 62 | 46 | 17 | 9 |
| Advanced clerical/service | 82 | 4 | 57 | 0 |
| Inter clerical/sales/service | 70 | 18 | 28 | 3 |
| Production & transport | 79 | 9 | 36 | 43 |
| Elem clerical/sales/service | 60 | 0 | 9 | 4 |
| Labourers & related | 57 | 2 | 7 | 4 |
| Total | 73 | 34 | 26 | 6 |

Source: National Institute of Labour Studies internet survey of job advertisements, August 2002

Interviews with recruitment specialists

To supplement the survey of advertisements, face-to-face interviews were conducted with several people professionally engaged in the recruitment business. Interviews were conducted with senior people in three different organisations¹⁸, all based in Adelaide:

- ✧ *eRecruit*: a multi-national company with a diverse set of activities covering marketing, public relations, and, for our purposes, specialist recruitment activity. In South Australia, the focus is on executive recruitment, accountancy, information technology, and the defence and automotive industries.
- ✧ *SkilHire*: a national labour hire company that provides staff on assignment to factories around Adelaide and environs, mostly semi-skilled blue-collar workers, tradespersons and engineers. At any point in time, the Adelaide office has between 700 and 1000 people on its books seeking work assignments. These assignments can range from one day to one year, but most are short-term. Many of those on the books are workers with an itinerant work history and/or in receipt of unemployment benefit.
- ✧ *JobPlace*: a Job Network agency which places long-term unemployed people into vacancies notified by employers, mostly unskilled and semi-skilled blue-collar workers. Centrelink refers (or assigns) people to JobPlace who are then obliged to attempt to place them into work. Successful placements generate 'outcome fees' (paid by the Department of Employment and Workplace Relations) and help to determine 'star ratings', which themselves determine success in the awarding of future contracts.

As can be seen, each of the organisations occupies a particular segment of the labour market, and each plays a slightly different function as a labour market 'intermediary', although each is engaged in the business of forming judgements on individuals as to their employability. The purpose of the interviews was to gain some insights into how those judgements were formed.

The interview schedule (or 'prompt sheet'), which provided a semi-structured guide to the conduct of the interviews, can be found in annex A. Interviews took around 45 minutes to cover the issues. A note recording the main points raised in the interview was sent to each participant, and a draft of this report was also provided so that errors of fact could be corrected and matters of interpretation commented upon.

¹⁸ Pseudonyms are used.

Findings

At *eRecruit* there are well-established processes for sifting and selecting potential employees. A 'contextual selection' process is used, which simply means that the exact process varies according to the client's requirements and the type of job being filled. In general, the object is to identify candidates who have the 'right fit', which involves assessing the culture of the employing organisation and its prevailing mores and making a judgement about how well candidates are likely to match. The two most important qualities commonly sought are 'business acumen' and 'personal savvy'. More concretely, to measure these attributes, applicants are commonly asked to undertake one or more psychological tests.

Qualifications, including schooling, are important for entry-level jobs only—if, for nothing else, as an indicator of diligence. After one to three years of workforce experience, it is what has been done while in work that matters more. People with vocational qualifications acquired through completing apprenticeships or traineeships are considered to be more 'job-ready' than those whose qualifications had been acquired (whether at TAFE or university) through full-time study.

For someone with more than three years experience, the possession of a qualification (or not) is largely immaterial—the key thing is demonstrating the competence'. This was captured through the interviewing process. Applicants are interviewed first by telephone and then, if they remain in the selection pool, face-to-face, using event-type interviewing techniques (for example, 'tell me how you handled such a situation in the past'). The client may specify that a qualification is required for the job, in which case it will be used only at the screening stage. The use of qualifications as a screening criteria is relaxed in tight labour markets.

SkilHire also has well-established selection processes. From the perspective of someone seeking work with *SkilHire*, they must first go through a vetting process to be placed on the books. If successful, their performance when on assignment is constantly monitored, which determines their position in the 'queue' when new work assignments are allocated. Qualifications or, more precisely, certified skills come into play in the first phase.

In the first phase, a person's work (and education/training) history are thoroughly probed. The résumé is 'the Bible'. Besides a work history, it establishes whether someone has the relevant 'tickets' or licences, how long it has been since these have been deployed in a work situation, and referees who will vouch for the accuracy of the information. Information is also sought on any past injuries and workers compensation claims. People are more likely to get through this phase if they do hold qualifications/licences, have a continuous work history, reliable referees, and no record of accidents. Face-to-face interviews are conducted with each prospective worker, with a focus on verifying the information provided in the résumé, in particular, 'quizzing' people about their experience and qualifications in order to identify those who are cheating or exaggerating their level of competence. No psychological tests are used.

In the second phase, *SkilHire* obtains feedback from employers about how well a candidate has performed. This assessment will largely determine whether they are offered further work. Consistently good feedback will see the worker rise to the top of *SkilHire*'s books, the 'on call list'. A high proportion, around 70% of those on the list, have a post-school qualification or licence, although a qualification is no guarantee that a worker will be a good performer.

Qualifications/licences are important because, in most cases, the client employer demands people with a certified skill, and also because *SkilHire* considers that attaining a qualification signals that the person has desirable attributes, such as motivation and 'a keenness to move up'. Account is taken of where the qualification was completed, with TAFE particularly well regarded. In times of labour shortage, it is more likely that pay rates will rise rather than qualification requirements be loosened or withdrawn.

As outlined above, *JobPlace* has no choice about the people who are on its books. It deals with relatively few people with post-school qualifications—around 10 to 20%. Those with higher-level

qualifications, such as people with trades certificates or degrees, usually have complex reasons for their unemployment which extend beyond the labour market into personal and financial circumstances (for example, family breakdown, health problems). These present a considerable barrier to normal workforce participation.

From an employer's perspective, the service provided by JobPlace is free. Many of the employers using the service are community-minded, wanting to give long-term unemployed people a fresh opportunity, albeit at relatively low financial risk to themselves.

The service is frequently used by employers seeking entry-level employees. As such, JobPlace does not generally place people into jobs where qualifications are sought by the employer. Indeed, the whole strategy is *not* to focus on the attributes of the job or the person seeking work, but on the price. Almost all people are placed into minimum wage jobs, on top of which JobPlace offers employers a wage subsidy. This is paid for through a partial rebate on the placement fee received from the Department of Employment and Workplace Relations. There is still a degree of 'fit' with the employer, but based on the knowledge that if a candidate does not work out, there is scope to 'try and see' with another person.

Training is provided to improve people's basic work skills, and to boost self-esteem of job seekers through 'personal effectiveness' courses. It has also been used to 'park' those considered unemployable, although the incentive to do this—a 'secondary outcome' fee—has now been withdrawn. The training is typically short-term and elementary, such as helping people to prepare résumés, but can extend to bridging courses leading to a certificate level II qualification in areas like retail, clerical work and aged care.

Summary

What we learn about the importance of qualifications from these three organisations is wholly consistent with the material gathered in the job advertisements survey. Qualifications are a threshold screening requirement for most jobs with SkilHire, some jobs with eRecruit, and minimally for JobPlace. Where they are a requirement, the qualification is usually precisely specified, and especially with SkilHire, it is often a licence rather than an Australian Qualifications Framework-accredited qualification. Once the screening requirement has been met, qualifications are considerably less important to both SkilHire and eRecruit than demonstrated competence. Qualifications indicate diligence to eRecruit and a positive work ethic to SkilHire. They are also, for SkilHire, positively associated with competence, but provide no guarantee of it. Competence is acquired by experience, and is demonstrated through a work history and by responding correctly to questions in interviews about how to deal with certain work-based scenarios.

More generally, our findings are consistent with other qualitative research (for example, Bills 1988; Coverdill & Findlay 1998) in pointing to the importance of highly job-specific and often intangible factors in getting the right 'fit' between the employer's requirements and the candidate pool. Both eRecruit and SkilHire have very well-established processes for doing this.¹⁹ They are more elaborate in the case of eRecruit—extending to psychological tests to predict 'fit'—than they are in the case of SkilHire. However, SkilHire is able to monitor candidates beyond the initial offer of work and can impose the ultimate penalty by withdrawing future work assignments. For low-skilled positions, which is the niche occupied by JobPlace, beyond a threshold of basic employability skills, the transaction is entirely price-based, and qualifications and other intangible factors do not enter the mix. Where a placement does not work out, the employer has ready access to a pool of other candidates who can be substituted.

¹⁹ The size and growth of labour market intermediaries such as eRecruit and SkilHire suggest they are very good at satisfying employers' requirements.

Conclusion

This chapter has shown that qualifications are important in the recruitment process, but only for some skilled jobs. Where qualifications are deemed 'essential', they typically serve to narrow the pool of applicants, beyond which a more nuanced selection process which focuses on competence to do the particular vacancy that is being filled takes place. In this phase, qualifications are relatively unimportant, save at junior levels where the candidates have little experience to fall back on.

The only occupational group where vocational qualifications were relatively important was tradespersons. In the internet survey of job advertisements, 41% of vacancies in this group required a certificate level III/IV. Overall, 9% of job advertisements required a certificate at this level, and 7% required a diploma. Of the 822 advertisements surveyed, there was not one which specified a certificate level I/II qualification.

An important finding arising from the survey was that, for the occupational groups of advanced clerical and service workers, intermediate clerical, sales and service workers and production and transport workers, qualifications are relatively unimportant, ranking well below specific skill sets and/or licences. These are narrowly defined according to occupation, and often require the completion of unaccredited training courses of far shorter duration than is needed for formal vocational qualifications.

This is not to say that vocational qualifications are not well regarded by employers (or those recruiting on their behalf). One of our interviewees thought those who completed apprenticeships and traineeships were more 'job ready' than those whose qualifications were obtained in full-time study, and another considered qualifications completed at TAFE institutes highly.

Although it may be the case that qualifications figure less in the selection process than do other factors, this does not imply any *necessary* association between qualifications and employment outcomes. In other words, it might still be the case that those with qualifications measure up better against the other factors than those without. This is the topic of the next chapter.

3 Qualifications and employment

Having set the scene, we are now in a position to examine the association between educational attainment and employment status. Two standard measures of employment outcomes are examined:

- ✧ employment-to-population ratio, that is, the percentage of people in work
- ✧ unemployment rate, that is, the percentage of people actively looking for work of *all* those in the labour force.

There is a raft of studies which demonstrate that educational attainment is positively associated with superior employment outcomes. The point of this chapter is not simply to replicate that finding—which *is* what is uncovered—but to measure the *scale* of the positive association, and in particular to quantify this for different classes of qualifications. We use the grouping outlined in the first chapter to compare outcomes across different levels of educational attainment, using our preferred measure of placing non-school qualifications at a ‘higher’ level than those obtained at school.²⁰

It is important to recognise that educational attainment and employment status are interdependent in complex ways. On the supply side, most people would undertake studies or training leading to a formal qualification for instrumental reasons—at a minimum, that it enhances their employment prospects in a given field or vocation. On the demand side, the way in which work is organised, and how that makes use of existing technologies, gives rise to the need for a workforce composed of some balance between skilled and unskilled labour.

While the labour market is the arena in which qualifications (or skills) are exchanged for a wage, it is important to recognise that qualifications are ‘produced’ in an entirely separate ‘market’. Changes in relative wages is one of the mechanisms by which these two markets adjust to one another, but the adjustment lags are considerable. This means the value of qualifications is not fixed in time, nor are the qualifications necessarily reflective of intrinsic value at any particular point in time. Consider the situation where the growth in people completing qualifications exceeds the growth in jobs requiring qualifications or skills of this kind. In the short-term, the adjustment will arise by people taking jobs for which they may be over-qualified. In the longer run, some people will be discouraged from undertaking further study because they judge the likely return to be poor.

In any cross-sectional study such as this one, it is the short-term which is observed rather than the long run. Recent cross-sectional studies from several countries have identified rising or high levels of over-qualification. Pryor and Schaffer (1999) provide compelling evidence for the United States that, between 1970 and 1996, the supply of college-educated workers outstripped growth in jobs requiring an education of this level, leading to a bumping-down effect with less-educated workers bearing the brunt of the displacement. In Britain, Felstead, Gallie and Green (2002, p.48) show that the proportion of employees who are over-qualified for their job grew from 30% in 1986 to 37% in 2001. Long (1999) uses the 1993 Survey of Education and Training to estimate the extent of over-qualification in Australia. He finds that 48% of all employees have some post-school qualification, and that 57% of these, giving 27% overall, reported that they did not need their highest educational qualification to obtain their job. This was made up of 11% who said a

²⁰ See page 15 for a discussion of this point.

qualification other than (that is, at a lower level) their highest was required, and 46% who said that *no* post-schooling qualification was required. People whose highest qualification was vocational were more likely to be over-qualified.²¹

In ascribing or estimating the value of qualifications to employers, we must therefore be mindful of two important caveats. First, the results apply to May 2001, since which time the value of qualifications may have risen or fallen. Second, we are capturing only the exchange value, not the intrinsic value of qualifications to employers. If the present situation is one where there is an excess supply of people with qualifications, that may well see them displacing people without qualifications from employment.

Qualifications and the employment-to-population ratio

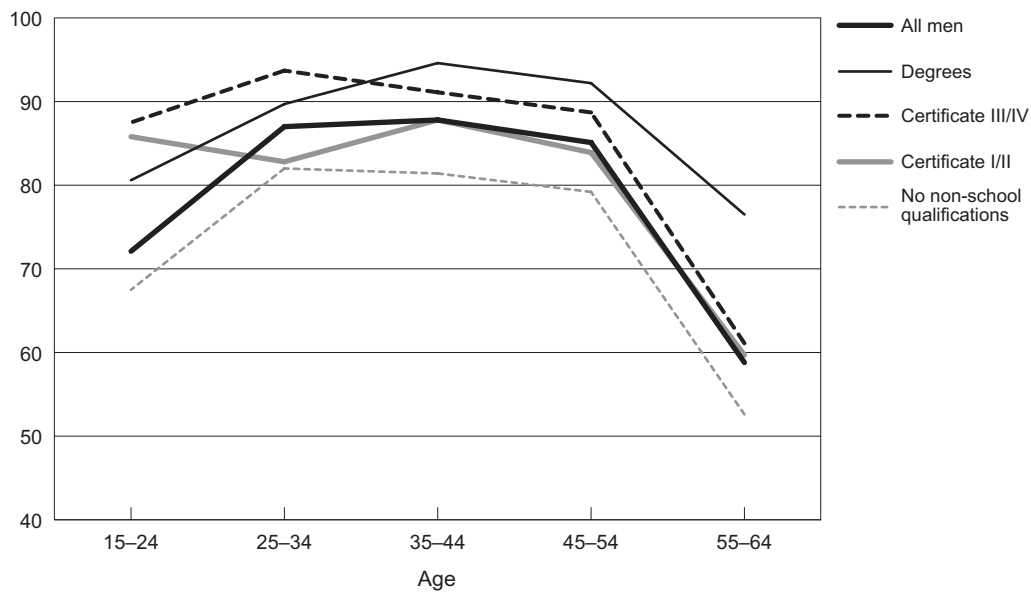
The employment-to-population ratio, sometimes known as the employment rate, measures the proportion of people in a given population who are in paid employment. It is a useful summary measure, but not without limitations. The chief limitation is that many people have no desire to be in paid work; for instance, full-time students, parents caring for young children, and early retirees, which negates the underlying presumption that a high employment rate is a superior outcome. Therefore, there may be confounding effects in examining the two-way association between the ratio and educational attainment, if other factors, such as age and sex, are not taken into account. A further limitation is that all jobs are weighted equally, whether the person worked one or fifty-one hours in the survey reference week. This is addressed a little later in the chapter by examining full-time employment.

Across all persons aged 15 to 64 (and excluding persons who were still in school) there were 72% in work. Figures 5(a) and (b) show the differences in this ratio according to educational attainment, controlling for age and sex. Before focusing on the association with qualifications, we can observe that for every age group, men have a higher employment rate than do women. For women, the rate is between 67 and 70% for each age group, except for the oldest workers, where it drops to 37%. For men, the employment rate of 15 to 24-year-olds is close to that of women, at 72%, but it then rises to above 85%, before also falling off dramatically to 59% for the 55 to 64-year-olds.

Holders of non-school qualifications are more likely to be employed than those without qualifications. This is true for both men and women, and for each age group. A degree confers the largest advantage, with an overall employment rate nine percentage points higher than the total for men and 17 percentage points higher for women. There are also, in most cases, net positive advantages (relative to the total) for those with vocational qualifications. Men with a certificate III or IV have an employment rate five percentage points higher than the total for all men, while there is a small one percentage point positive difference for those with a certificate I or II. For women, those with a certificate III or IV have an employment rate eight percentage points higher. The one exception to this picture of general relative advantage is women with a certificate I or II, whose average employment rate is one percentage point below the all-women total, although it is, nonetheless, eight percentage points higher than for women without non-school qualifications.

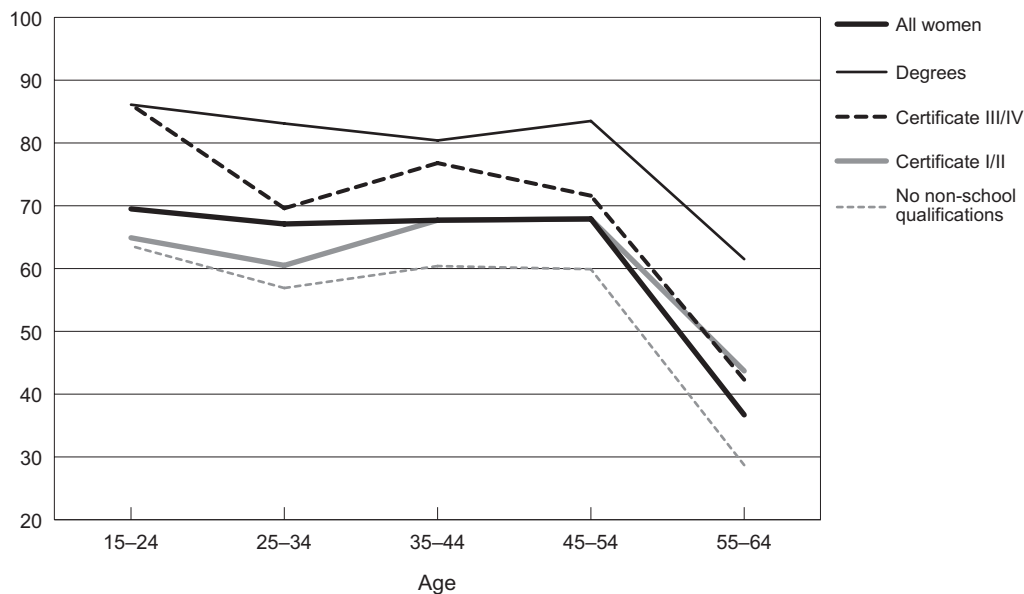
²¹ Some caution is warranted in interpreting these findings because of the nature of the question which focuses on qualifications as a prerequisite for obtaining a job, rather than the extent to which they may be needed to perform competently on the job.

Figure 5(a): Employment-to-population ratio, by highest non-school qualification and age, May 2001 (%) (men)



Note: Population is persons aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

Figure 5(b): Employment-to-population ratio, by highest non-school qualification and age, May 2001 (%) (women)



Note: Population is persons aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

Broadly, we can observe from the graphs that variations in the employment rate across age groups are consistent for all levels of educational attainment, that is, relatively flat for women up to age 54, and an inverted U shape for men. There are, however, a couple of age variations worth highlighting. For men, the employment rates of those with a certificate III or IV are higher than for degree holders up to age 35, and for older workers lies narrowly below, except for those aged 55 to 64, where the difference rises to 15 percentage points.

Qualifications and unemployment

The unemployment rate in May 2001 was 6.5%. The rate is based on the conventional measure of unemployment (that is, all persons who were actively looking for work over the past four weeks and worked no hours in the reference week), which is known to not fully capture labour under-utilisation (Mitchell & Carlson 2002). It is an open question as to whether broader measures would show the same association with educational attainment, as is shown in figures 6 (a) and (b).

For both men and women, the figures show the unemployment rate to be highest among young people, then lower across other age groups, rising slightly for men in the oldest age group, but not, on average, for women.²²

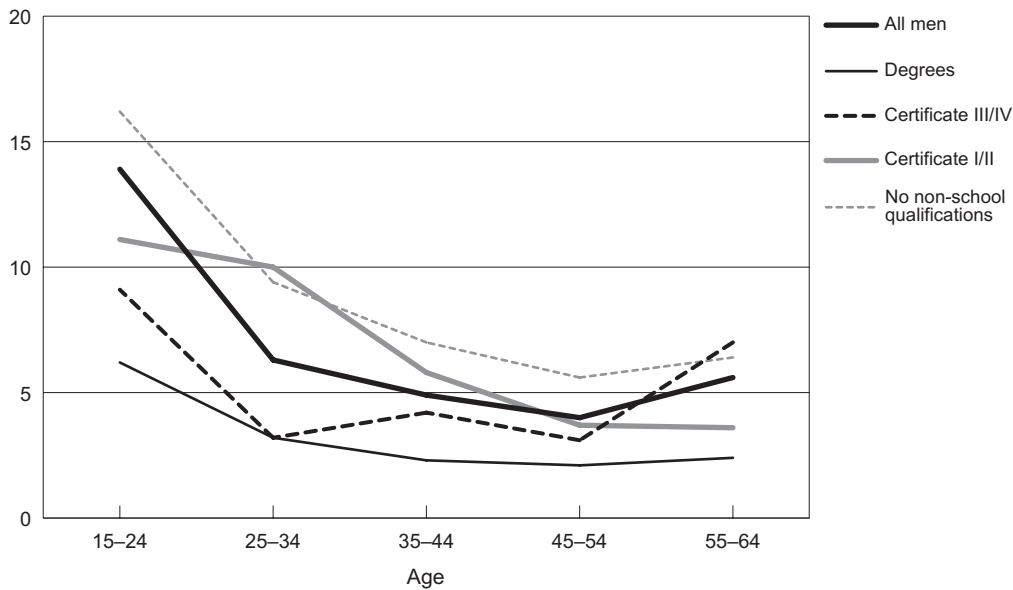
The association between educational attainment and the unemployment rate is strong but not as unambiguous as it is for employment rates, at least not for those whose highest qualification is a vocational one. With the sole exception of women aged 55 to 64, the unemployment rate for people without any non-school qualifications is higher than for those with qualifications. However, this hides some significant variations according to the level of qualification. In particular, people with degrees or higher have a much lower unemployment rate than people with vocational qualifications, and this holds across all sex and age groups. The unemployment rate for all degree holders, irrespective of age and sex, was 2.8%, well under half the all persons rate of 6.5%.

For both men and women, those who hold a certificate III or IV qualification have an unemployment rate below the respective all men and all women average, and at all age groups except for those aged 55 to 64 years, where the rate rises sharply. Across all age groups, these certificates confer a significant labour market advantage, with an unemployment rate 2.2 percentage points lower for men, and 1.3 percentage points lower for women.

In contrast, holders of a certificate I or II qualification generally have an inferior unemployment rate. Across women of all ages, those with a certificate I or II qualification have the highest unemployment rate, 8.6%, compared with an all-women average of 6.4%, and 8.0% for women without any non-school qualifications. Young women with a certificate I or II qualification have an extremely high unemployment rate of 24%, double the all-women average for that age group. For women in other age groups, there is little difference in the unemployment rates of those holding a certificate I or II qualification and those without qualifications. Men with these qualifications have a lower unemployment rate than those without any non-school qualifications (with the sole exception of those aged 25 to 34 where they are near identical), but in the prime age years of 25 to 44 have a higher unemployment rate than the prevailing rate for all men of that age. Across men of all ages, this results in a small aggregate difference of a 6.9% unemployment rate for certificate I and II holders compared with an all-men rate of 6.6%.

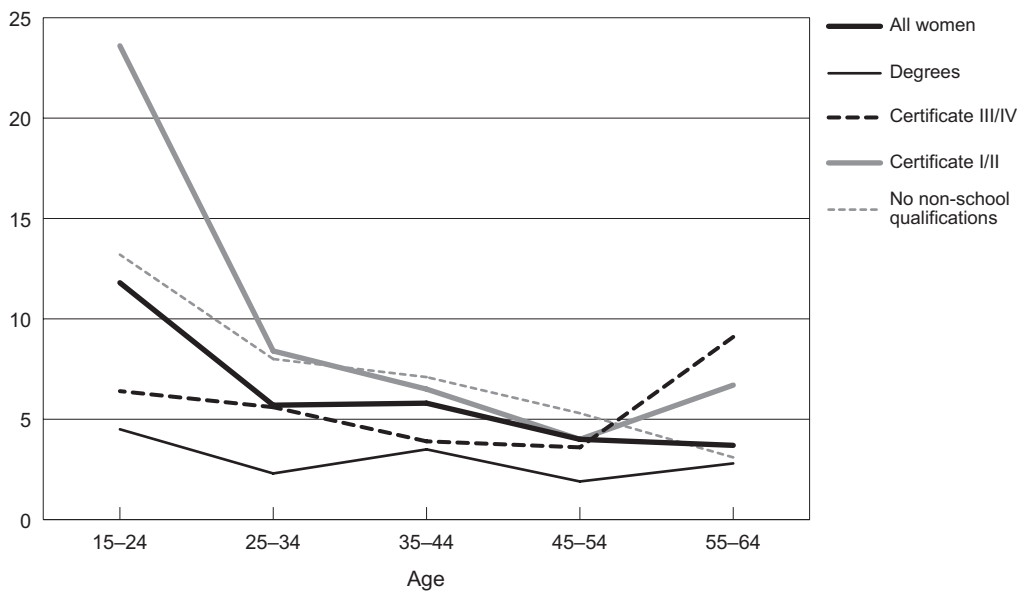
²² The reason different patterns in employment rates and unemployment rates by age are observed is that many older persons withdraw from the labour force—sometimes voluntarily, sometimes a ‘discouraged worker’ effect—and thus do not figure in the derivation of the unemployment rate.

Figure 6(a): Unemployment rate, by highest non-school qualification and age, May 2001 (%) (men)



Note: Population is persons in the labour force aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

Figure 6(b): Unemployment rate, by highest non-school qualification and age, May 2001 (%) (women)



Note: Population is persons in the labour force aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

Full-time and part-time employment

The final indicator examined in relation to employment outcomes is employment status, specifically the division between full- and part-time employment. Once again, the ABS convention is followed, where 35 hours or more per week is usually worked and was worked in the reference week to define full-time employment, with all others categorised as part-time workers.²³

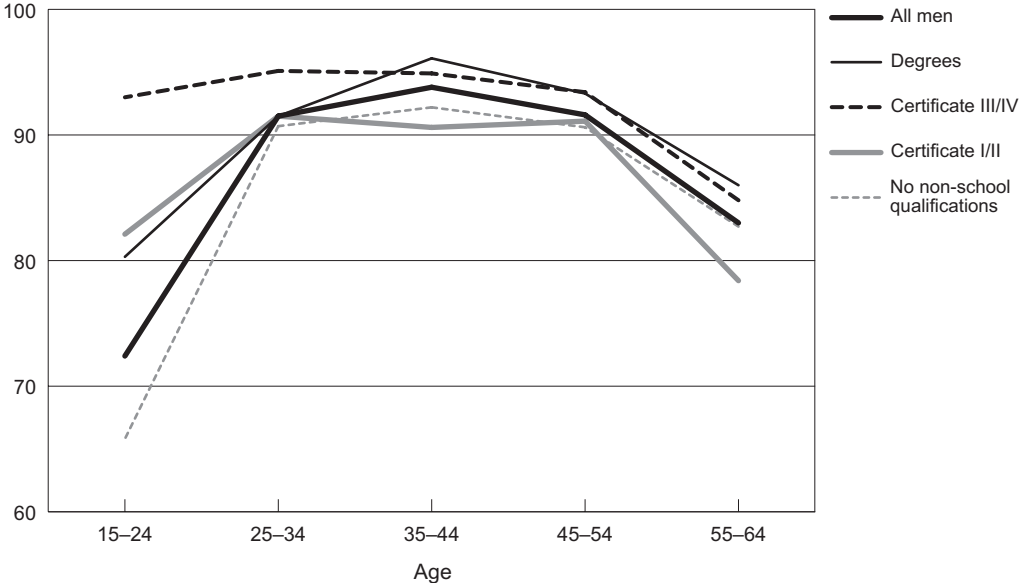
²³ Note that the measure is based on the hours worked by individuals, not by jobs; that is, a person would be categorised as a full-time worker if they had two part-time jobs which, in total, entailed working 35 hours or more per week.

Part-time employment has grown substantially in Australia over several decades. During the 1990s, for example, it grew by 42.5%, compared with 7.7% for full-time employment. There is an unresolved debate about the extent to which part-time employment reflects the preferences of employees as well as employers, but what is undeniable is that very many part-time workers would prefer to work more hours than they do, a phenomenon referred to as ‘under-employment’. Cully and Ngo (2002) report that, during 2001, the number of under-employed surpassed for the first time the number of unemployed. For our purposes, we can begin from the general position that full-time employment represents a superior employment outcome to part-time employment.

In May 2001, 89% of employed men aged 15 to 64 were working full-time, as were 58% of women.²⁴ The variance in this rate by educational attainment, controlling again for sex and age, is shown in figures 7(a) and (b). For men, the very high rate of full-time working is concentrated among those aged 25 to 54 years, with more part-time working evident at both extremes of the age distribution. There is very little association with educational qualifications, save for a higher rate of full-time working among young men with vocational qualifications.

Among women, there is much more variation by educational attainment, with degree holders having a much higher rate of full-time employment than others. Across all age groups, 69% of employed women with degrees worked full-time, compared with 55% for both certificate III or IV holders and certificate I or II holders. This difference was largely consistent across all age groups.

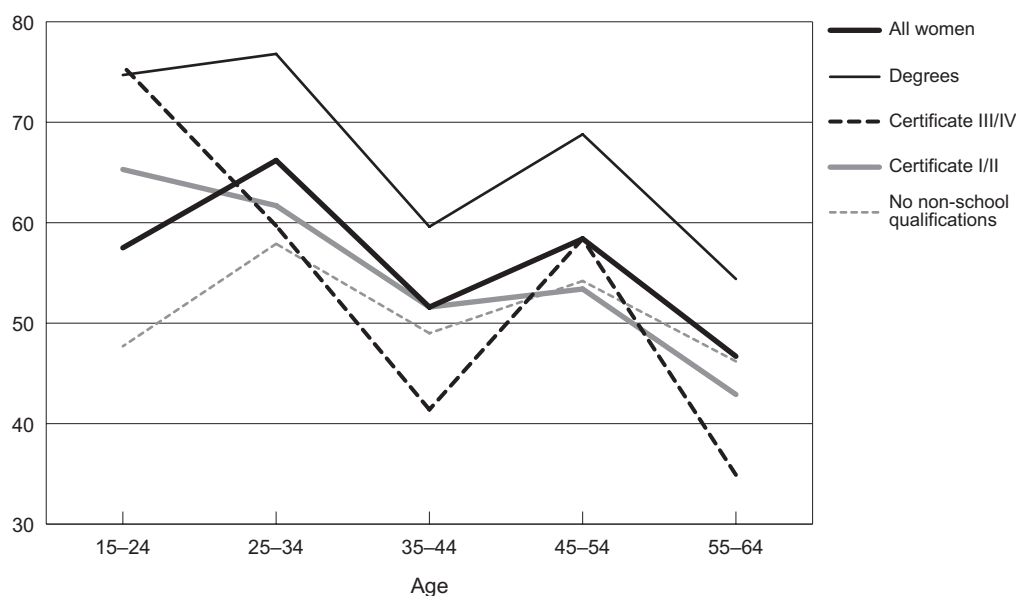
Figure 7(a): Full-time employment, by highest non-school qualification and age, May 2001 (% of employed) (men)



Note: Population is employed persons aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

²⁴ These rates would be lower if those still at school were included.

Figure 7(b): Full-time employment, by highest non-school qualification and age, May 2001 (% of employed) (women)



Note: Population is employed persons aged 15–64 years, excluding those still at school.
 Source: ABS Survey of Education and Work (unpublished data)

Employment by occupation and qualifications segregation

Thus far, we have approached the issue of qualifications and employment from the perspective of individual attributes, and the extent to which the qualification enhances labour market success. We have mentioned the complex interdependence between education and training systems and the labour market.

As discussed in chapter 1, there are *de jure* and *de facto* qualification standards for many occupations. This section examines the extent to which qualifications are used to segregate the workforce. Because of sample size restrictions, it is generally necessary to work at the highest level of occupational aggregation (the ‘major group’ level).

Table 9 shows how, among those employed, qualification holders are distributed across the major occupational groups. Taking the first column as an example, it is possible to see that 10% of degree holders are employed as managers, 61% as professionals and so on. By comparing these distributions with those for all employees, we can see whether certain qualification holders are relatively over- or under-represented in different occupational groups.

Around two in five employees with a certificate III or IV qualification work as tradespersons, more than three times the proportion of tradespersons among all employees. Besides the very high concentration in this group, holders of a certificate III or IV are found in good numbers across the occupational spectrum. They are most under-represented in the professionals group (6% compared with 19%), and are consistently under-represented in the range of clerical, sales and service occupations.

Table 9: Occupation by highest non-school qualification, May 2001 (%)

| | Degree or higher | Certificate III/IV | Certificate I/II | No non-school quals | All employees |
|------------------------------------|------------------|--------------------|------------------|---------------------|---------------|
| Managers | 10.0 | 6.4 | 7.3 | 6.7 | 7.5 |
| Professionals | 61.2 | 5.5 | 6.1 | 5.2 | 19.3 |
| Associate professionals | 10.7 | 11.5 | 14.7 | 10.8 | 11.8 |
| Tradespersons | 1.9 | 42.2 | 8.5 | 9.8 | 13.2 |
| Advanced clerical & service | 2.6 | 2.1 | 10.2 | 5.8 | 4.8 |
| Intermed clerical, sales & service | 8.6 | 11.8 | 27.9 | 21.1 | 17.3 |
| Intermed production & transport | 1.2 | 9.6 | 6.7 | 13.3 | 8.7 |
| Element clerical, sales & service | 2.3 | 4.4 | 10.2 | 13.2 | 8.5 |
| Labourers & related | 1.5 | 6.4 | 8.3 | 14.2 | 8.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Notes: Totals may not sum to 100 due to rounding.
Population is persons aged 15–64 years, excluding those still at school.

Source: ABS Survey of Education and Work (unpublished data)

Employees whose highest non-school qualification is a certificate I or II are more evenly distributed across occupations than those with a certificate III or IV. They are most commonly employed in intermediate clerical, sales and service occupations (28%) and in associate professional occupations (14%). They are relatively under-represented in professional and tradesperson occupations, and are over-represented in the full range of clerical, sales and service occupations. This group forms some interesting contrasts with those who have no non-school qualifications. They are also most commonly found in intermediate clerical, sales and service occupations (21%) and are likewise relatively under-represented in professional and tradesperson occupations. Unlike holders of certificate I or II qualifications, those without any non-school qualifications are slightly under-represented in associate professional occupations, and are consistently over-represented in the occupations which constitute the lower end of the skill spectrum. We can conclude from this that a certificate I or II qualification provides a surer route through to associate professional occupations and higher-level clerical and service occupations.

We know that educational attainment in the population is a function of age, and that there is also a positive cohort effect, in the sense that younger people are more highly educated at the same age than was the previous generation at the same age. Figure 8 takes account of this by examining the proportion of employees in each occupational group who hold non-school qualifications, controlling for age. Using associate professionals as an example, there were 19% who had a degree or higher, 39% who had other non-school qualifications (that is, a diploma, associate diploma or an Australian Qualifications Framework certificate of any kind) and 41% with no post-school qualifications. These proportions differ markedly by age. Among 25 to 34-year-olds, the proportion with a degree or higher was 26%, compared with 15% among 55 to 64-year-olds. Those with 'other' qualifications ranged between 33% for 15 to 24-year-olds and 44% for 35 to 44-year-olds. It was 15 to 24-year-olds who had the highest proportion without non-school qualifications: 52%, closely followed by those aged 55 to 64 (46%) and lowest of all for 25 to 34-year-olds (36%).

In general a consistent pattern for each occupational group is observed whereby non-school qualifications are most commonly held by those aged 25 to 34 and the proportion falls with each successive age group.²⁵ This is a clear indication that, *within* broad occupational groups, the educational attainment of those working has risen over time. This is evidence that the rise is

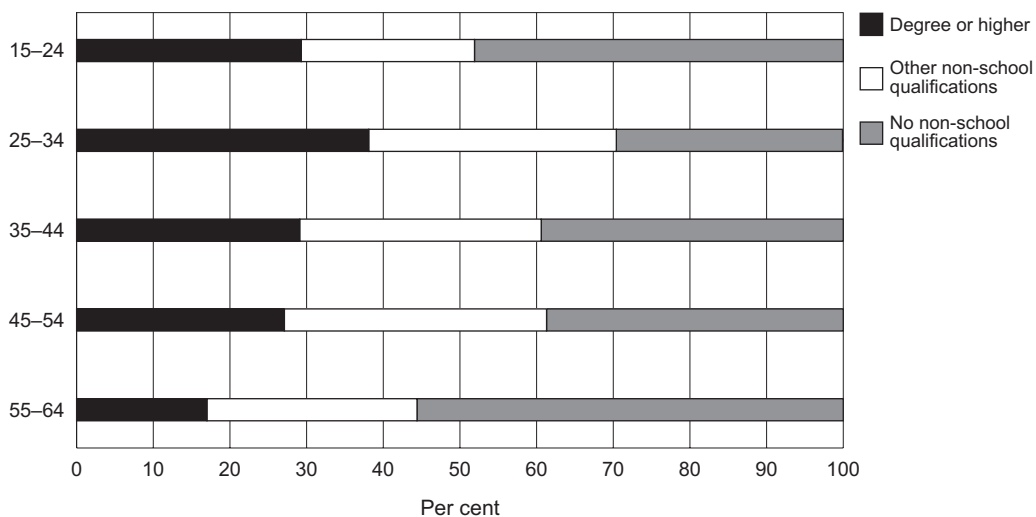
²⁵ Those aged 15–24 years don't fit this general explanation, in large part because they have not had sufficient elapsed time to acquire non-school qualifications. If the trend implicit in these figures is maintained, we would expect that by 2011, the proportion of those aged 25–34 years with non-school qualifications would exceed the proportion in 2001.

independent of any broad increase in demand for higher-level skills which may have occurred due to ongoing structural changes in the economy, which in turn have altered the occupational composition of employment. The drift towards non-school qualifications is most marked among managers, associate professionals and advanced clerical and service workers. Among professionals, the shift has been towards degree-level qualifications and away from other non-school qualifications.

In table 10 the information presented in table 9 is extended to enable an examination of which sub-major occupational groups are relatively over-represented for each separate class of qualification.²⁶ For example, we know (from figure 1) that 18% of employees have a degree or postgraduate qualification. There are ten sub-major occupational groups where the proportion employed with a qualification at this level exceeds 18%, ranging from 75% among education professionals through to 22% among science and engineering associate professionals.

What is clear from the table is that, at least at this level of aggregation, relatively few occupations have high concentrations of particular classes of qualifications. Only in the five professional sub-major groups and four of the six tradesperson groups does the density exceed half. A further point is that non-schooling qualifications are widely diffused across all occupations. Even among factory labourers and cleaners, around a quarter have some kind of post-school qualification.

Figure 8(a): Qualifications held, by occupation and age, May 2001 (managers)



²⁶ There are 35 sub-major occupational groups. Sample size restrictions prevent disaggregating the data to any finer level.

Figure 8(b): Qualifications held, by occupation and age, May 2001 (professionals)

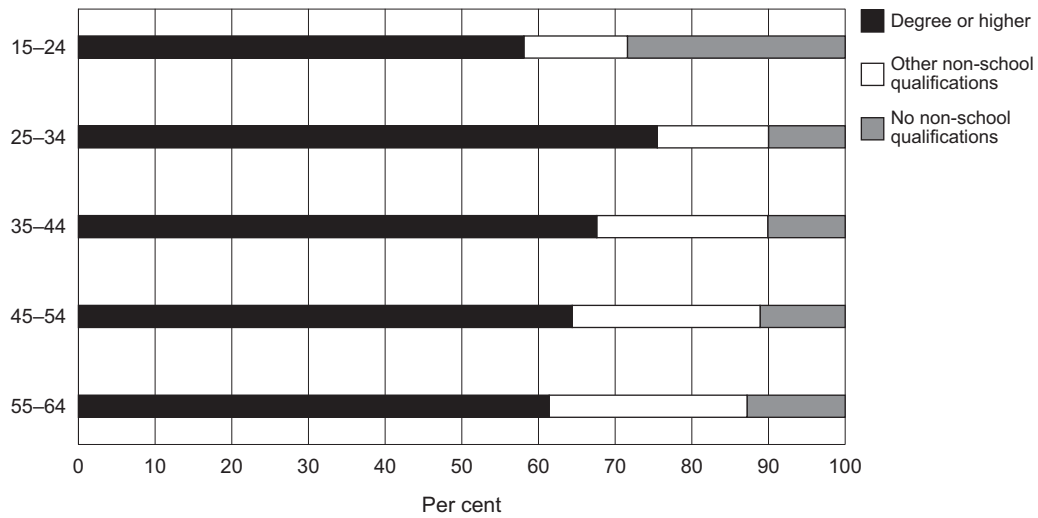


Figure 8(c): Qualifications held, by occupation and age, May 2001 (associate professionals)

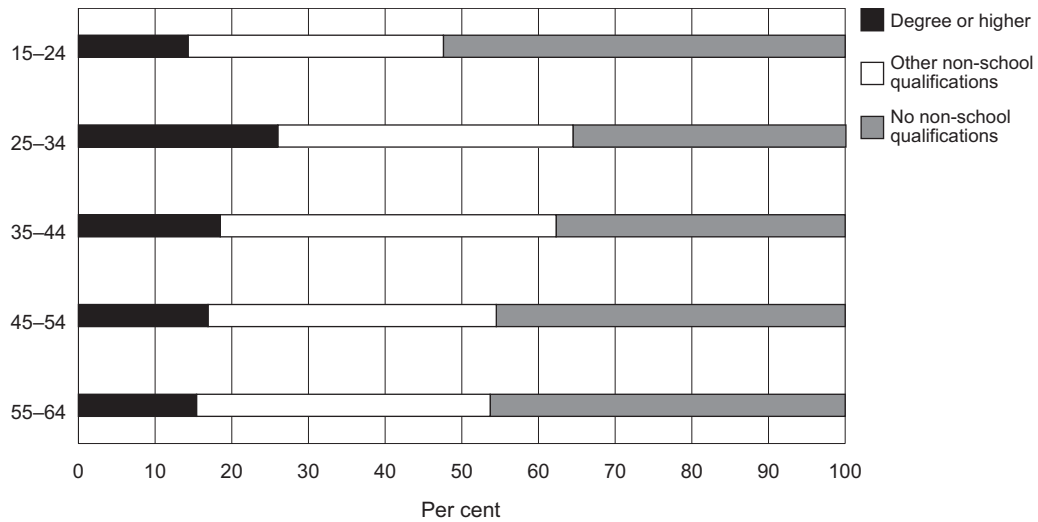


Figure 8(d): Qualifications held, by occupation and age, May 2001 (tradespersons)

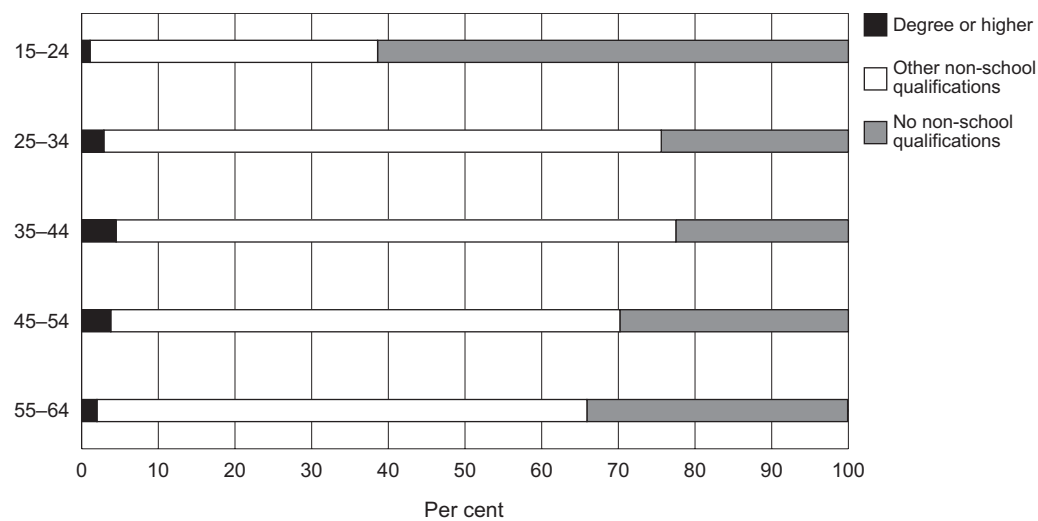


Figure 8(e): Qualifications held, by occupation and age, May 2001 (advanced clerical, sales and service workers)

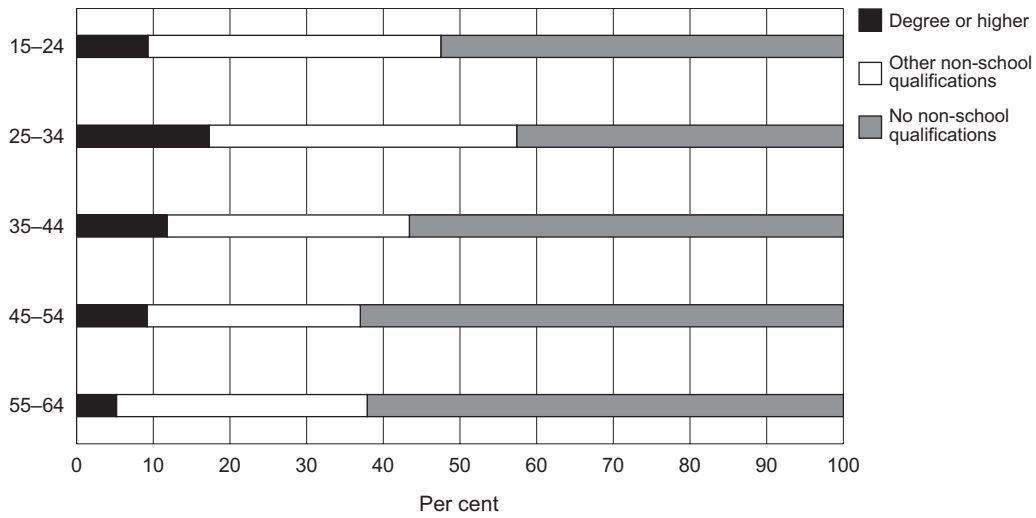


Figure 8(f): Qualifications held, by occupation and age, May 2001 (intermediate clerical, sales and service workers)

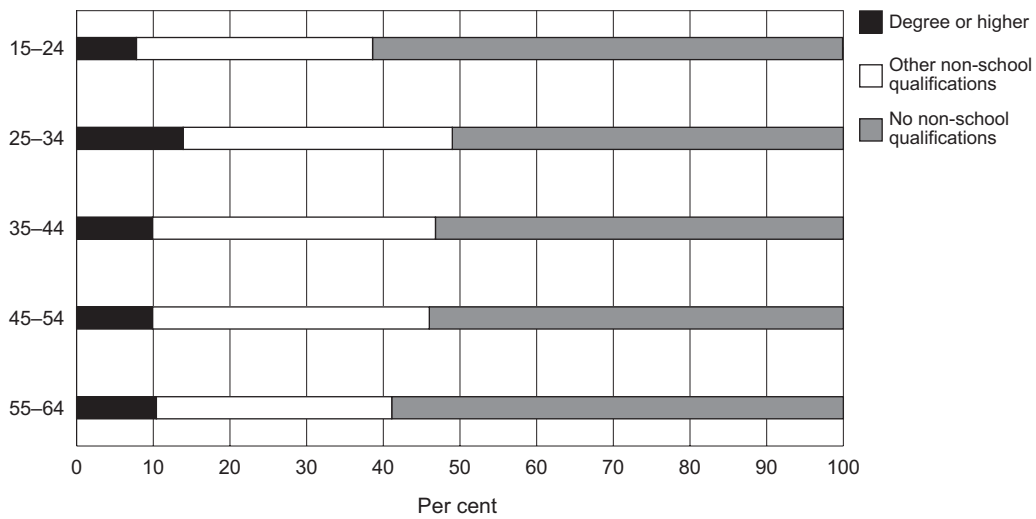


Figure 8(g): Qualifications held, by occupation and age, May 2001 (intermediate production and transport workers)

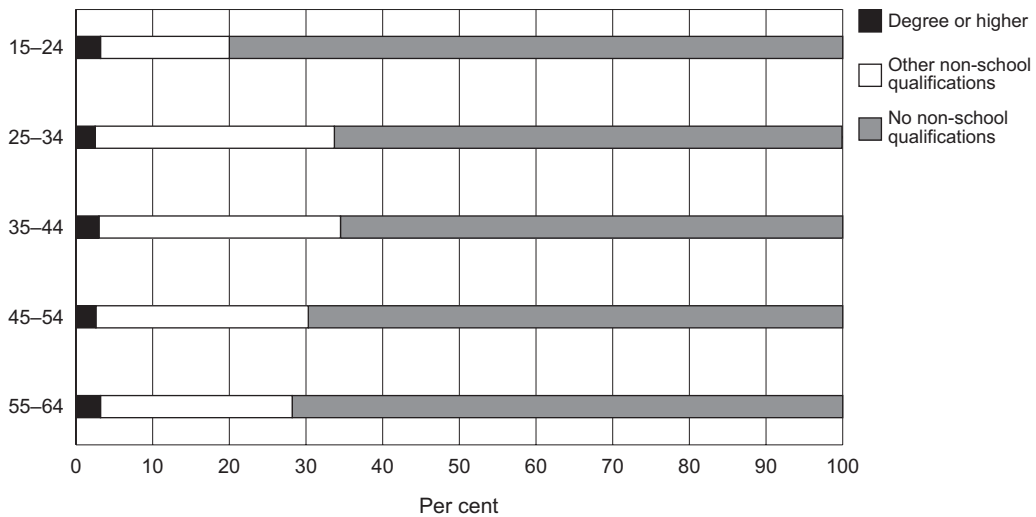


Figure 8(h): Qualifications held, by occupation and age, May 2001 (elementary clerical, sales and service workers)

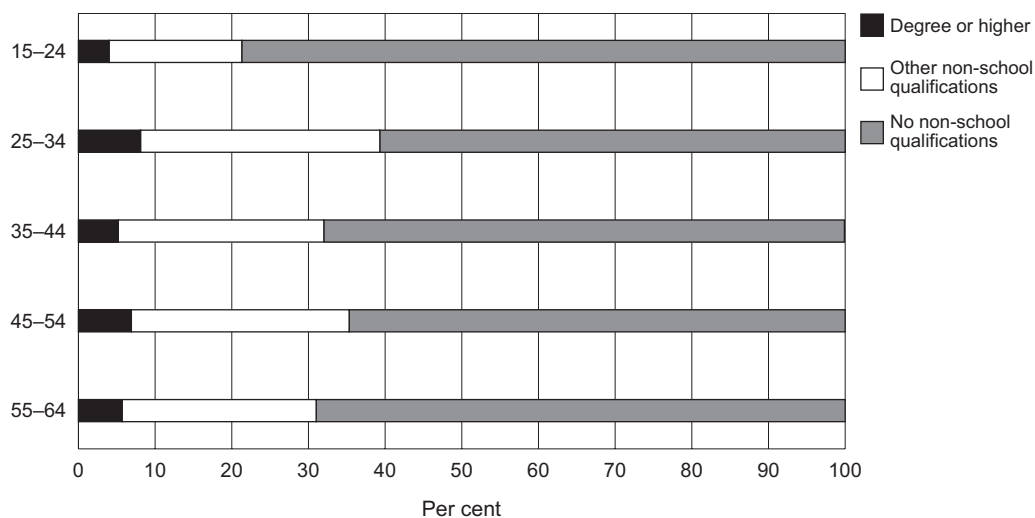
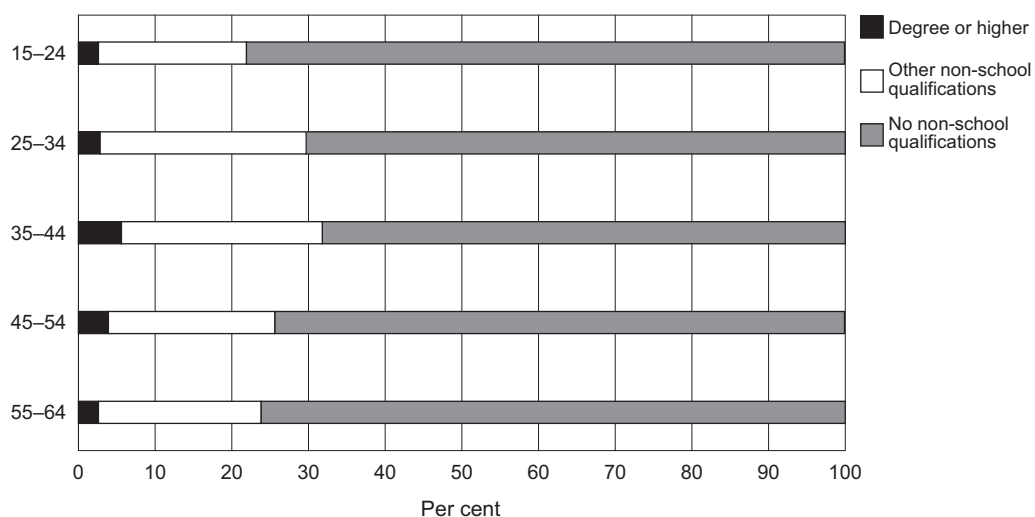


Figure 8(i): Qualifications held, by occupation and age, May 2001 (labourers and related workers)



Conclusion

This chapter has clearly shown that those with non-school qualifications enjoy superior employment outcomes to those without qualifications—they are more likely to be employed, less likely to be unemployed, and more likely, where they are working, to be doing so on a full-time basis. These findings are robust after controlling for sex and for age.

Much, however, depends on the level of qualification. Those with degrees or higher had by far the best outcomes followed by those with a certificate level III/IV qualification. Those with a certificate level I/II qualification did better on the whole than those with no non-school qualifications, but the differences were small.

Qualification holders were spread across the occupational spectrum, although with significant pockets of concentration. Three in five of those with a degree or better were employed as professionals, while two in five of those with a certificate level III/IV were working as tradespersons. People without non-school qualifications were over-represented in the lower skill groups.

Table 10: Occupations where highest non-school qualification over-represented relative to average, May 2001

| Occupation (sub-major groups) | Employees with qualification (%) |
|--|---|
| <i>Degree or higher</i> | |
| Education professionals | 79.2 |
| Health professionals | 77.0 |
| Science, building and engineering professionals | 75.3 |
| Business and information professionals | 57.2 |
| Social, arts and miscellaneous professionals | 54.8 |
| Specialist managers | 41.3 |
| Business and administration associate professionals | 27.6 |
| Generalist managers | 25.4 |
| Health and welfare associate professionals | 23.2 |
| Science, engineering and related associate professionals | 22.4 |
| <i>Advanced diploma or diploma</i> | |
| Health and welfare associate professionals | 24.1 |
| Science, engineering and related associate professionals | 18.1 |
| Other associate professionals | 16.8 |
| Health professionals | 15.3 |
| Education professionals | 14.1 |
| Business and administration associate professionals | 12.3 |
| Social, arts and miscellaneous professionals | 12.1 |
| Intermediate service workers | 11.8 |
| Business and information professionals | 10.9 |
| Generalist managers | 10.9 |
| Specialist managers | 10.3 |
| Science, building and engineering professionals | 9.4 |
| Elementary service workers | 9.3 |
| Secretaries and personal assistants | 9.3 |
| Other advanced clerical and service workers | 9.3 |
| Skilled agricultural and horticultural workers | 8.0 |
| <i>Certificate III or IV</i> | |
| Automotive tradespersons | 67.5 |
| Mechanical and fabrication engineering tradespersons | 66.4 |
| Electrical and electronics tradespersons | 58.6 |
| Construction tradespersons | 58.3 |
| Other tradespersons and related workers | 47.3 |
| Food tradespersons | 30.0 |
| Skilled agricultural and horticultural workers | 27.7 |
| Science, engineering and related associate professionals | 26.8 |
| Health and welfare associate professionals | 26.7 |
| Generalist managers | 24.8 |
| Road and rail transport drivers | 20.2 |
| Intermediate plant operators | 19.6 |
| Intermediate sales and related workers | 18.9 |
| Managing supervisors (sales and service) | 17.9 |
| Other intermediate production and transport workers | 17.8 |

Table 10: Occupations where highest non-school qualification over-represented relative to average, May 2001 (continued)

| Occupation (sub-major groups) | Employees with qualification (%) |
|--|----------------------------------|
| <i>Certificate I or II</i> | |
| Secretaries and personal assistants | 19.4 |
| Health and welfare associate professionals | 12.8 |
| Intermediate clerical workers | 12.1 |
| Intermediate service workers | 10.3 |
| Other advanced clerical and service workers | 10.1 |
| Elementary service workers | 9.6 |
| Elementary clerks | 9.2 |
| Managing supervisors (sales and service) | 8.6 |
| Farmers and farm managers | 8.5 |
| Science, engineering and related associate professionals | 8.3 |
| Business and administration associate professionals | 8.0 |
| Elementary sales workers | 7.9 |
| Other associate professionals | 7.8 |
| Food tradespersons | 7.8 |
| Intermediate sales and related workers | 7.5 |
| Other labourers and related workers | 7.2 |
| <i>No non-school qualification</i> | |
| Factory labourers | 76.6 |
| Cleaners | 73.7 |
| Elementary sales workers | 72.4 |
| Intermediate machine operators | 70.0 |
| Road and rail transport drivers | 69.9 |
| Other labourers and related workers | 69.9 |
| Intermediate plant operators | 69.1 |
| Other intermediate production and transport workers | 68.0 |
| Farmers and farm managers | 65.3 |
| Elementary clerks | 64.2 |
| Elementary service workers | 61.1 |
| Intermediate sales and related workers | 59.2 |
| Intermediate clerical workers | 57.7 |
| Other advanced clerical and service workers | 56.5 |
| Food tradespersons | 56.4 |
| Managing supervisors (sales and service) | 53.0 |
| Secretaries and personal assistants | 52.7 |
| Skilled agricultural and horticultural workers | 50.1 |
| Intermediate service workers | 49.0 |

Note: Population is persons aged 15–64 years, excluding those still at school.

Source: ABS Survey of Education and Work (unpublished data)

4 Qualifications and wages

The best indicator of value in an economic sense is whether the holder of a qualification obtains higher earnings than someone without the qualification, after taking all other possible factors into account. To do this in a meaningful way requires the estimation of a ‘human capital’ wage equation. From this we can measure the wage premium which accrues to the qualification in its own right (that is, after taking all possible other factors which might affect wages into account). A positive number would imply that the skills embedded in the qualification are held in regard by employers, while a negative number would suggest the opposite.

For this exercise to be regarded with credibility a reliable data source must be used. It must have good detail on the main variables of interest (that is, earnings and qualifications) and sufficient detail on other potential explanatory variables. It must also use the Australian Standard Classification of Occupations schema for classifying occupations, and enable researchers to explore interactions between levels of schooling and non-school qualifications. The only publicly available dataset of this kind is the 2001 Survey of Education and Training Experience.

Our interest is in the wage premium only, not in individual ‘rates of return’ to different qualifications. The estimation procedure is identical to that used in the first stage of estimating individual returns, but we have no concern with the foregone income and other costs incurred by the individual in acquiring the qualification. This is because our focus is on the value of qualifications to *employers*, not to the individuals who attain them. Put simply, how much more is an employer willing to pay for the services of a person with a given qualification after taking other factors into account?

The procedure for estimating the wage premium is thoroughly reviewed by Card (1999). As he puts it ‘Hundreds of studies in many different countries and time periods have confirmed that better-educated individuals earn higher wages ... than their less-educated counterparts’ (p.1802). His paper is chiefly concerned with establishing whether education *causes* earnings to rise or whether some other explanation (for example, people with higher abilities choose more education, and the higher earnings reflect ability rather than education) accounts for the association. He provides evidence from several innovative studies (for example, of twins with differing levels of education and assumed equal abilities) that do demonstrate a causal effect. For the purposes of this study, identifying a robust association is sufficient.

Estimating individual wage equations has most commonly been used in studies of returns accruing to higher education and has rarely been adopted for looking at vocational qualifications. Recent exceptions to this are Dearden et al. (2002) for Britain and Ryan (2002) for Australia. Both of these contain findings salient to this study.

Most studies typically estimate the premium arising from an individual’s *highest* qualification, rather than all of the qualifications held. As many qualifications ordinarily require a prerequisite (for example, completion of some level of schooling), the wage premium for the highest qualification means that the contribution of earlier education and training is not taken into account. This is especially problematic when there are multiple pathways into qualifications, as there are with VET, and when trying to disentangle the separate effects of secondary school and VET. In the latter case, as we have seen in chapter 1 when discussing different ways of deriving highest educational

attainment, it is not always clear how to rank one qualification above another. Dearden et al. (2002) resolve these problems by estimating the wage premium arising to *each* qualification held.

The study by Ryan uses the previous survey in this series, that is, the 1997 Survey of Education and Training Experience. He finds that people with VET qualifications, on average and holding other explanatory factors constant, do earn a wage premium. This is higher for men than it is for women, and is also higher for people with associate diplomas than it is for people with other VET qualifications. His report extends into territory not covered in this chapter, such as individual rates of return, how these returns vary according to the field of study, and whether the value of qualifications depreciates over time.

While there is no intention of examining the issue in as much detail as Ryan, this chapter builds on his work in two ways. First, the use of 2001 data obviously updates his estimates, but more importantly brings the classification of qualifications directly into line with the Australian Qualifications Framework. Second, we try to tease out the separate effects of schooling and vocational education and training.

Estimating procedure

Following Dearden et al. (2002) and Ryan (2002), the basis for estimating the wage premium is to use a human capital earnings function. Earnings are deemed to be a (linear) function of education and training, and experience (proxied here by age).²⁷ The effects of the two are assumed to be separable and additive. In theory and in the basic functional form, education and experience are measured in years (Card 1999). In practice, most studies depart from the basic functional form in important ways.

We do so by including as our key variable of interest, educational *attainment*, rather than years of education. In addition, in common with all other studies, a range of ‘control’ variables are included, which are known to be associated with earnings, but which have no theoretical basis in human capital theory. These include sex, residence, employment status, occupation, industry, tenure, sector of employment and organisation size.

Earnings are measured in the survey through a question asking about usual weekly earnings in the current job. This is grouped in bands of \$40 up to \$1160, beyond which it is in a single group of \$1160 and over. As it is not a continuous variable, the mid-point of each band is taken, and for those in the top band, earnings are set equal to 1.33 times \$1160.²⁸

The truncation of the earnings measure at \$1160 and over has a considerable impact—of all those currently employed at the time of the survey, 10.4% earned above this amount. As earnings distributions have an extended right tail, the suppression of variance in these data will lower the explanatory power of the estimated wages equation.

As earnings have a highly skewed distribution, we follow convention by transforming it into a log distribution which closely approximates the normal distribution. This then allows the use of ordinary least squares for the regressions, which has the desirable property that the coefficients can be readily transformed to derive the wage premium.

²⁷ Ryan (2002) derives a measure of experience based on age and years of schooling. As age is grouped in five-year bands and years of schooling have to be imputed, we consider this prone to a high level of error. For this reason, we use age as a proxy.

²⁸ Ryan is followed, who in turn follows Borland et al. (2000) on this. Ryan uses an alternative of 1.5 times the top band, and also an alternative Tobit specification, and finds that neither of these ‘generated results for the VET qualification effects that differ substantively from those of the base case’ (p.27).

For reasons that are unexplained, Ryan restricts his population to wage and salary earners working full-time. As part-time employment is such an important, and growing, component of the workforce, it would seem remiss not to include them.²⁹

The equation we estimate is identical to that used in Ryan’s ‘base case’, except for the following differences.

- ✧ Age is used instead of potential experience.
- ✧ Part-time workers are included.
- ✧ Personal characteristics, other than sex (and age), are not included.
- ✧ Qualifications are treated differently (that is, use of ASCED).

Findings and discussion

The detailed results from the regression analysis are presented in annex B. This includes the descriptive statistics on the variables included in the analysis (table B1), and the coefficients and standard errors—reported separately for males and females (tables B2a and b).

Table 11 first reports the estimated wage premiums for men and women based on their *highest* educational attainment, where the ranking is the same as used throughout this report (that is, non-school qualifications are ‘higher’). The wage premium is shown as the amount by which earnings are higher than a male (female) who has not completed Year 12 but is otherwise identical across all the variables included in the equation.

The results show, as expected, a strong association between qualifications and earnings. A positive (and statistically significant) wage premium is captured by all people with post-school qualifications, except for (the very small group of) men with a vocational certificate of an unknown level. In this case, the coefficient is positive, but not statistically significant. For example, men who have completed a degree (or a higher qualification) earn, on average, a premium of 43.2% compared with otherwise identical men who have not completed Year 12, while for women the same wage premium is 41.2%.

Table 11: Wage premium of qualification holders relative to non-school completers

| Highest qualification | Men | Women |
|---------------------------------|---------|---------|
| Degree or higher | 43.2*** | 41.2*** |
| Diploma | 28.3*** | 20.4*** |
| Certificate III/IV | 13.1*** | 7.6*** |
| Certificate I/II | 7.5*** | 4.8*** |
| Certificate not further defined | 5.1 | 10.0*** |
| Year 12 | 13.8*** | 8.9*** |

Notes: See annex B for details.

***, ** and * indicate probability of a zero wage premium less than 1%, less than 5% and less than 10% respectively.

Source: 2001 Survey of Education and Training

In general, the results show wage premiums for VET qualifications to be broadly similar—allowing for differences in how qualifications are reported, as well as the differences in the estimating procedure—to those reported by Ryan using the same data source for 1997. For example, he shows a gain for men with an associate diploma of 25.9% and 13.8% for those with a skilled vocational

²⁹ Two alternative specifications were tested, the first using the log of hourly earnings as the dependent variable, the second restricting the population to full-time workers. The estimated qualification parameters were not sensitive to these changes in the first of these, and for the second, had the effect for women (but not for men) of slightly raising the estimated coefficients.

qualification relative to those not completing Year 12 (Ryan 2002, table 3). These do not exactly match on to the diploma qualification (28.3%) and certificate level III/IV (13.1%) used in table 3, but there is enough correspondence to show that the estimated wage premiums in 1997 were similar.

In the case of non-VET qualifications, Ryan's base case regressions (2002, table A.1) show that wage premiums of 54.0 and 45.2% accrue to men and women, respectively, with an undergraduate degree, and higher than this for those with higher degrees. This is somewhat higher than the returns shown in table 11 to *all* degree holders, which might suggest that the returns to education for degree holders have lowered in recent years. If that is so, it would be a most important finding. Before it could be accepted, Ryan's work would need to be replicated exactly and other studies using different data sources would need to corroborate it.

Consistent with Ryan, the wage premiums earned by men are greater than they are for women. This applies across all qualifications except for the relatively small group of people with vocational certificates of an unknown level. For degree holders, the difference is slight, but for those with diplomas and certificate level III/IV, the difference is much more substantial.

The wage premium for lower-level vocational qualifications (that is, certificate level I/II) is modest, at 3.9% for men and 2.6% for women. For both, it is well below the premium earned by those who complete Year 12 but who have not gone on to do any post-school qualifications. As the table reports only on the highest educational attainment, we cannot say on the basis of these results how much of the wage premium can be attributed to the vocational qualification and how much to schooling. As a proportion of those with lower-level vocational qualifications will *also* have done Year 12—40% of men and 33% of women—it may be that part of the wage premium shown in table 11 is capturing an effect attributable to completion of Year 12 rather than to the vocational qualification.

Table 12 corrects that deficiency by reporting the results for *all* qualifications held, as per Dearden et al. (2002). The figures reported here have a different interpretation from those in table 11. The reference group in table 12 comprises people without the qualification mentioned (but who may have *other* qualifications). For example, the 6.0% wage premium for men with a certificate level III/IV is relative to comparable men without that *particular* qualification (but who may have degrees or not completed Year 12).

Table 12: Wage premium of qualification holders relative to those without

| Qualification held | Men | Women |
|---------------------------------|---------|---------|
| Degree or higher | 24.7*** | 28.2*** |
| Diploma | 10.8*** | 10.5*** |
| Certificate III/IV | 6.0*** | 2.0 |
| Certificate I/II | -0.3 | 0.7 |
| Certificate not further defined | -3.1 | 2.6 |
| Year 12 | 10.6*** | 7.5*** |

Notes: See annex B for details.

***, ** and * indicate probability of a zero wage premium less than 1%, less than 5% and less than 10% respectively.

Source: 2001 Survey of Education and Training

These results can be treated additively. For example, a male who completes Year 12 and then goes on to complete a certificate level III/IV will have a wage premium of 16.6% over men without these qualifications, whereas a male who completes the vocational qualification without having completed school will earn just 6.0% more than men without the qualification.

Taking tables 11 and 12 together, what they suggest is that the completion of lower-level vocational qualifications has no discernible impact on people's earnings. The coefficients (in table 12) for both men and women are small and not statistically significantly different from zero. In contrast,

completion of a certificate level III/IV definitely enhances men's earnings, while for women the coefficient is positive although not significant.

While the results presented in table 12 extend our understanding of the impact of qualifications on earnings, the nature of the comparison is not ideal, as the group without the relevant qualification may (or may not) hold other qualifications.

Table 13 presents the final and preferred set of results, which overcome the problems with both earlier tables. In this regression the level of secondary school completed with the highest non-school qualification are related. The reference group is men (women) who did not complete Year 12 *and* who hold no non-school qualifications. Using men with a certificate level III/IV as an example, those who did not go on to Year 12 earn a wage premium over otherwise identical men of 9.3%, which rises to 13.9% if they both completed Year 12 and the vocational qualification. In general, and as would be expected, the final year of schooling adds to the size of the total wage premium. This holds for both men and women and across the range of qualifications.

This table builds on the earlier finding that lower-level vocational qualifications do not add to earnings. What it shows is that someone completing Year 12 and who does no further education and training earns more than someone who has not done Year 12; not only that, they also earn more than someone who has done Year 12 *and* who has then gone on to complete a lower-level vocational qualification. This holds for both men and women. For example, a male who has completed Year 12 and no non-school qualifications earns 14.0% more than an otherwise identical male who has not completed Year 12 nor any non-school qualifications. For men who have completed both Year 12 and a certificate I/II level qualification, their earnings are 10.4% higher (not statistically significant) than comparable men who have completed neither. In other words, the addition of the vocational qualification on top of the schooling has an implied *negative* effect on earnings. If this finding is robust, as it would appear to be, it is an important finding, and suggests a need for further research which might get to the cause of the association. The interpretation here is that the difference probably reflects job sorting post-schooling, rather than the qualification itself being seen as indicative of lower productive potential.³⁰

Table 13: Wage premium of qualification holders relative to non-school completers, controlling for level of schooling completed

| Highest non-school qualification | Men | | Women | |
|----------------------------------|---------|------------------|---------|------------------|
| | Year 12 | Year 11 or lower | Year 12 | Year 11 or lower |
| Diploma | 29.8*** | 25.6*** | 22.6*** | 16.9*** |
| Certificate III/IV | 18.5*** | 11.2*** | 12.7*** | 4.1** |
| Certificate I/II | 10.4 | 5.6 | 7.0*** | 4.0** |
| Certificate nfd | 4.8 | 5.7 | 13.2*** | 7.2** |
| No non-school qualification | 14.0*** | na | 9.3*** | na |

Notes: See annex B for details.

***, ** and * indicate probability of a zero wage premium less than 1%, less than 5% and less than 10% respectively.

Source: 2001 Survey of Education and Training

The same finding is not true of higher-level vocational qualifications. For these, the wage premiums for completion of Year 12 and the vocational qualification exceed those which accrue to those who do just Year 12.

³⁰ That is, those who do well at Year 12 and who go into full-time work are sorted into higher-paying jobs compared with those who do less well who find themselves in lower-paid jobs or unemployed. Some of the latter group then go on to undertake a certificate level I/II qualification, but this has no effect on their earnings.

Conclusion

This chapter has used the 2001 Survey of Education and Training Experience to estimate how much employers value qualifications by how much more they are willing to pay for the labour of someone holding a qualification relative to a comparable person without that qualification.

This question is one that has been tackled hundreds of times by economists, and this study is no exception in showing that, in general, those who complete a non-school qualification earn more than those who don't.

The size of the wage premium is highest for degree holders, where it adds more than two-fifths to the earnings of men and women. There are also considerable gains for diploma holders and those who have completed a certificate level III/IV qualification. The more nuanced examination of the data showed that completion of the vocational qualification had a separate positive effect on earnings, over and above the level of schooling that had been completed. For men this was 11.2% and for women it was 4.1%. If Year 12 had also been completed, both men and women with these higher-level vocational qualifications earned an extra 7.3% and 8.6% more, respectively.

In contrast, the results show that lower-level vocational qualifications have no discernible effect on earnings for men, and a modest pay-off for women; moreover, they also show that someone is worse off if, having completed Year 12, they then go on to complete a certificate level I/II. This finding is one that warrants closer investigation.

So too does the more general result that wage premiums for degree holders appear to be lower in 2001 than they were in 1997, a period during which the number of people with degrees rose rapidly. Economic theory would predict that if growth in the number of people with qualifications outpaces growth in jobs requiring qualifications, then that will eventually be reflected in lower relative earnings for qualification holders. Like any currency, qualifications can be devalued, and the findings here raise the question of whether that has occurred.

5 Conclusion

We are now in a position to tie together the various strands in this report, and look at the broad question of the value of qualifications to employers, with a particular focus on vocational qualifications.

As was made clear in the introduction, this study takes a narrow approach to the question of value, by focusing on the *actual* behaviour of employers in the labour market. The opinions of employers (and, for that matter, education and training providers and students) on the merits of qualifications, and their importance relative to factors such as experience, is left to others to examine. It is apparent then that our focus is on exchange value rather than intrinsic value and, for reasons to do with labour markets being in a continual process of flux and change, there is no reason why the two should equate to one another.

In the introduction three questions were posed which were, in succession, the focus of attention in the following three chapters. They were:

- ✧ Do employers want people with (vocational) qualifications when recruiting?
- ✧ Are employers more likely to hire people with (vocational) qualifications?
- ✧ Do employers pay more for people with (vocational) qualifications?

The data sources for answering these questions were two recent ABS collections—the 2001 Survey of Education and Work and the 2001 Survey of Education and Training Experience—as well as a one-off survey of internet job advertisements and interviews with professional recruiters. The findings are consistent and, for the most part, unambiguous. The answers are presented by grouping people according to different grades of qualification.

Higher education qualifications

This covers people with undergraduate degrees, postgraduate diplomas and higher-level degrees. In May 2001, 18% of the adult working-age population had a qualification at this level.

Our survey of internet job advertisements found that, in just one-third of cases, a qualification was deemed to be either essential or desirable. Where that was so, it was a degree-level qualification that was specified in over half of all cases. Almost half of the advertised vacancies for managers and professionals specified a degree-level qualification, falling to a quarter for associate professional vacancies. For all other occupations, the proportion specifying that a qualification was a prerequisite was effectively zero. These were also the occupations in which degree holders were most commonly employed, with more than four out of five (of those employed) in those three occupations. They were most strongly represented among health professionals, education professionals and science, building and engineering professionals, where at least three-quarters of employees had a degree.

In our interviews with recruitment specialists, only one of the three organisations (eRecruit) recruited graduates. Their modus operandi was to use degree-level qualifications only where the client demanded it (and then only as a prerequisite for the first round of screening), except for entry-level positions where the applicant pool would be mostly people relatively fresh out of university. Here more regard was paid to the field of study and the marks obtained. More generally,

they used highly developed selection techniques (for example, psychometric tests) to attempt to match applicants with the 'right fit' to the client employer. Once people had three years of labour force experience, it was demonstrated competence, not formal qualifications, that mattered.

Whether or not professional recruiters, and employers more broadly, explicitly take qualifications into account, it is abundantly clear that degree holders enjoy, by some considerable margin, more labour market success than all other members of the labour force. They are more likely to be in employment, less likely to be unemployed, more likely to be working full-time, and they enjoy a wage premium of more than two-fifths when compared against an otherwise identical person who has not completed Year 12. These findings apply to both men and women, and the employment outcomes are consistent across age groups.

Higher-level vocational qualifications

This group consists of people with certificates level III or IV and diplomas issued in the VET system. Fifteen per cent of the adult working-age population in May 2001 had a certificate level III/IV (as their highest non-school qualification) and a further 7% had an advanced diploma or diploma, some of which would have been issued by VET institutions and others by higher education institutions.

In general, this group was also valued by employers in the sense that they enjoyed superior labour market outcomes, although not to the same degree as those with higher education qualifications.

The survey of internet job advertisements found that, in 9% of cases, the vacancy specified a certificate level III/IV qualification and in 2% of cases, a diploma. In general, it was only for tradesperson vacancies that a certificate level III/IV qualification was specified—this was the case for 41% of vacancies with no other occupation rating above 7%. In our interview with SkilHire (a labour hire company which specialised in assigning skilled and semi-skilled workers to manufacturers) it was clear that tradesperson qualifications were rated extremely highly. For skilled assignments they were typically mandatory. The company also considered that completion of a vocational qualification was indicative of a good work ethic. Taking these two factors into consideration, it was no surprise that people with qualifications made up 70% of SkilHire's on-call list. The qualification did not, of itself, guarantee competence and SkilHire always retains the power not to offer future work if an assignment works out badly.

People with higher-level vocational qualifications had above-average employment rates and below-average unemployment rates. This finding was broadly consistent for men and women of all ages, although there were nuances. Younger men and women with these qualifications were more likely to be employed (probably because many other young people were busy studying towards degrees), while those aged 55 to 64 had relatively low employment rates and the highest unemployment rates of all groups. Men with higher-level vocational qualifications earned, on average, between 11.2 and 29.8% more per week than otherwise comparable men who had no post-school qualifications. For women with higher-level vocational qualifications, there was still a wage premium, although it was more modest at between 4.1 and 22.6%.

Two out of five people with a certificate level III/IV were employed as tradespersons, and they were relatively under-represented in all other occupations except for intermediate production and transport workers. Amongst automotive tradespersons, mechanical and fabrication engineering tradespersons, electrical and electronics tradespersons and construction tradespersons, more than half the workforce had a certificate level III/IV. The heaviest concentration of diploma holders was among health and welfare associate professionals, where they made up almost a quarter of the those employed.

Lower-level vocational qualifications

This group consists of people with a certificate level I or II qualification. In May 2001, there were 873 600 people with a qualification of this kind, representing 6.8% of the adult working-age population. In reporting highest educational attainment, however, the ABS places secondary schooling higher than the vocational qualification for 752 200 of them. In this report, because we are principally interested in the value of vocational qualifications, they are treated as a discrete group in their own right.

Our findings are highly consistent in showing that lower-level vocational qualifications are not especially valued by employers.

The survey conducted of internet job advertisements covered 822 vacancies across three large and distinct labour markets in different parts of the country. In not one of these 822 advertisements was a qualification at certificate level I/II specified. More generally, in the types of occupations with which one might ordinarily associate these qualifications (that is, advanced and intermediate clerical, sales and service workers, intermediate production and transport workers), many advertisements requested *highly specific* skill sets or licences (for example, knowledge of MYOB, a forklift operator's licence). Many of these skills or licences could be acquired through relatively short training courses rather than completion of a formal VET qualification. These findings were validated in the interviews with professional recruiters.

Those with certificate level I/II qualifications did have higher employment rates than people without any non-school qualifications. This was the case for both men and women, and is also true across all age groups. However, the magnitude of the difference is not large and may well be accounted for by the choice of many of those without qualifications not to be in the labour force (for example, to raise children). This helps to explain the finding that the unemployment rate for women with a certificate level I/II qualification is higher than it is for women without any post-school qualifications. For men, however, those with a certificate level I/II qualification did have a slightly lower unemployment rate than for those with no non-school qualifications.

Just over a quarter of those with a lower-level vocational qualification were employed in an intermediate clerical, sales or service occupation, and they were also over-represented among associate professionals, advanced clerical and service workers and elementary clerical, sales and service workers. One in five secretaries had a certificate at this level.

As highlighted by the ABS, a very high proportion of those with a certificate level I/II have either completed Year 11 or 12 at secondary school. In the analysis of wage differences attributable to qualifications we attempted to tease out that which was due to the effects of schooling and that which was due to further education and training. When the conventional approach of estimating returns to the highest level of educational attainment (and ranking non-school qualifications as higher) was adopted, we found that there was a positive wage premium associated with completing a certificate level I/II of 7.5% for men and 4.8% for women. However, once we took account of the interactions with schooling, an opposite picture arose. For those leaving school before completing Year 12 and then going on to complete a lower-level vocational certificate, there was no discernible wage difference for men compared with an otherwise identical person who had not done the certificate, and a modest one for women (4.0%). For those who had completed Year 12, the subsequent completion of a certificate level I/II eroded part of the wage gain that went to those who completed Year 12 and went no further; that is, completion of the certificate made people worse off in terms of earnings.

Conclusion

What do the findings of this report mean for the Australian Qualifications Framework, an initiative on the part of regulators to provide an overarching framework within which all qualification-issuing

bodies can have a qualification accredited and ranked? This framework was superimposed over existing institutional arrangements, such as the requirement, as part of an occupational licensing regime, for job holders to have specified qualifications (for example, nurses).

Young (2003), who followed the introduction of a national qualifications framework in the United Kingdom, points to the need for a high degree of congruence between any new framework and the underlying 'institutional logic' of the significance served by qualifications. Accrediting a qualification does not, of itself, give it legitimacy. That only comes from employers and other groups with a vested interest recognising the value of the qualification. The findings of this report suggest that certificate I and II qualifications, in general, have not found favour with employers. These qualifications are not sought after in recruiting new staff, and the labour market outcomes of those holding these qualifications are mixed.

One broader finding is worth a closing point. It is well known that educational attainment has been rising over time, and this was especially the case over the 1990s. Among 25 to 34-year-olds, 58% have a non-school qualification compared with 41% of 55 to 64-year-olds. This might well be explained by changes in the occupational composition of employment towards more highly skilled jobs which require more extensive levels of education and training than were needed in the past. However, the findings presented in this report show unequivocally that educational attainment has been rising *within* all broad occupational groups. Younger cohorts of workers are more qualified than their older colleagues across all jobs. In every single broad occupation group, a minimum of 30% of 25 to 34-year-olds has a non-school qualification. Even among cleaners and factory labourers, more than a quarter of those employed have a non-school qualification. In other words, the change towards more qualifications is partly independent of changes to occupational composition.

The two broad explanations for this are, first, that employers are demanding more skilled workers and, second, that competition for higher-paying jobs is seeing people with qualifications steadily displace people without qualifications, leading to a bumping-down phenomenon over the pay distribution. For the second explanation to be consistent, one would also expect to see wage premiums that accrue to qualification holders diminish over time. The analysis in the previous chapter provided some evidence that wage premiums for degree holders may have softened between 1997 and 2001, although not for other non-school qualifications.

References

- ABS (Australian Bureau of Statistics) 2001, *Education and work, Australia*, cat. no.6227.0, ABS, Canberra.
- Bills, D 1988, 'Credentials and capacities: Employers' perceptions of the acquisition of skills', *The Sociological Quarterly*, vol.29, no.3, pp.439–49.
- Borland, J, Dawkins, P, Johnson, D & Williams, R 2000, 'Returns to investment in higher education', *Melbourne Economics of Higher Education*, research report no.1, University of Melbourne.
- Card, D 1999, 'The causal effect of education on earnings', in O Ashenfelter and D Card (eds), *Handbook of labor economics*, vol. 3, Elsevier Science, Netherlands, pp.1801–63.
- Coverdill, J & Finlay, W 1998, 'Fit and skill in employee selection: Insights from a study of headhunters', *Qualitative Sociology*, vol.21, no.2, pp.105–27.
- Cully, M 2002, 'The cleaner, the waiter, the computer operator: Job change, 1986–2001', *Australian Bulletin of Labour*, vol.28, no.3, pp.141–62
- Cully, M & Ngo Phong 2002, 'Year of the flip-flop: The Australian labour market in 2001', *Australian Bulletin of Labour*, vol.28, no.1, pp.1–19.
- Dearden, L, McIntosh, S, Myck, M & Vignoles, A 2002, 'The returns to academic and vocational qualifications in Britain', *Bulletin of Economic Research*, vol.54, no.3, pp.249–74.
- Felstead, A, Gallie, D & Green, F 2002, *Work skills in Britain 1986–2001*, Department for Education and Skills, London.
- Harding, D & Wooden, M 1997, 'Recruitment and selection in Australia: Results from a national survey of employers', in M Wooden and D Harding (eds), *Trends in staff selection and recruitment*, Department of Employment, Education, Training and Youth Affairs, Canberra.
- Long, M 1999, 'The match between educational qualifications and jobs', mimeo, Centre for the Economics of Education and Training, Monash University, Melbourne.
- Marsden, D 1999, *A theory of employment systems*, Oxford University Press, London.
- Mitchell, W & Carlson, E 2002, *Labour underutilisation in Australia and inflation*, working paper no.02-10, Centre of Full Employment and Equity, University of Newcastle, New South Wales.
- Nowak, M 1988, 'Information theory and employer recruitment practices', *Journal of Industrial Relations*, vol.30, no.2, pp.299–93.
- Planas, J, Geret, J, Sala, G & Vincens, J 2001, 'The skills market: Dynamics and regulation', in P Descy and M Tessarand (eds), *Training in Europe: Second report on vocational training research in Europe 2000: Background report*, (CEDEFOP reference series), Luxembourg, pp. 313–82.
- Pryor, F & Schaffer, D 1999, *Who's not working and why*, Cambridge University Press, Cambridge.
- Ryan, C 2002, *Individual returns to vocational education and training qualifications*, NCVER, Adelaide.
- Thurow, L 1975, *Generality inequality: Mechanisms of distribution in the US economy*, Basic Books, New York.
- Wolf, A 1997, 'Growth stocks and lemons: Diplomas in the English market-place 1976–1996', *Assessment in Education*, vol.4, no.1, pp.33–49.
- Young, M 2003, 'Comparing approaches to the role of qualifications in the promotion of lifelong learning', *European Journal of Education*, vol.38, no.2, pp. 199–211.

Annex A: Interview prompt sheet

- 1 Outline activities of recruitment and placement
 - (i) which types of jobs do you recruit for/place people in?
 - (ii) do you keep registers of people on your books?
 - (iii) broadly, what are the processes you follow to fill vacancies?
- 2 Factors used in screening applicants
 - (i) who determines screening factors—you or client?
 - (ii) what factors are most important? (control for occupation)
 - (iii) are qualifications always/sometimes/never used as a threshold screen? i.e. used to rule out applicants *without* qualifications
 - (iv) if they are used as a threshold screen, why is this—a regulatory requirement or something else?
 - (v) if not a threshold screen, how important are qualifications? do they rate more or less highly than (a) experience, (b) sound references, (c) age, (d) consistent employment record, (e) motivation
 - (vi) if you keep registers, do people with qualifications stay on the register longer than people without?
- 3 Qualifications and skill
 - (i) are people with qualifications more job ready than people without?
 - (ii) do qualifications indicate competence? if so, competence to do what—to do a job from scratch, to learn *how* to do a job, to be diligent?
 - (iii) to what extent do you discriminate between different qualification holders—is it important (a) who awarded the qualification, (b) the grades obtained, (c) the sub-specialism of the qualification?
 - (iv) do you conduct aptitude or attitude tests? If so, are there any associations between test performance and qualification holders?
- 4 Vocational qualifications
 - (i) how well regarded are the different grades of vocational qualifications?
 - (ii) would you ever specify a certificate I or II qualification for a job? what about certificate III or IV?
 - (iii) does it matter whether the vocational qualification was obtained from work-based training (e.g. apprenticeship) or from study at TAFE?
 - (iv) are people with a vocational qualification seen as more tied to a particular occupation or industry than people (a) without qualifications (b) with university qualifications
- 5 Change over time
 - (i) are employers more or less interested in people with qualifications now than they were, say, 10 years ago?
 - (ii) is there a trend for would-be employees to be over-qualified for the jobs they are seeking?
 - (iii) are vocational qualifications becoming more or less valuable compared with university qualifications?
 - (iv) do qualifications become more or less important at times of skill shortages?

Annex B: Wage equations

Table B1: Variables and mean values

| Variable | Males | Females |
|---|-----------|-----------|
| Age | | |
| 15–24 | 0.1681 | 0.1880 |
| 25–34 | 0.2651 | 0.2563 |
| 35–44 | 0.2699 | 0.2627 |
| 45–54 | 0.2158 | 0.2240 |
| 55–64 | 0.0812 | 0.0689 |
| Residence | | |
| NSW | 0.2244 | 0.2197 |
| Vic. | 0.2050 | 0.2058 |
| Qld | 0.1739 | 0.1822 |
| SA | 0.1213 | 0.1153 |
| WA | 0.1362 | 0.1417 |
| Other states/territories | 0.1393 | 0.1353 |
| Qualifications held | | |
| Degree | 0.2126 | 0.2499 |
| Diploma | 0.1183 | 0.1535 |
| Certificate III/IV | 0.2708 | 0.1163 |
| Certificate I/II | 0.0991 | 0.1571 |
| Certificate not further defined | 0.0253 | 0.0319 |
| Year 12 | 0.4947 | 0.5458 |
| Year 11 | 0.6295 | 0.6714 |
| Highest educational attainment | | |
| Degree or higher | 0.2119 | 0.2494 |
| Diploma and Year 12 | 0.0548 | 0.0684 |
| Diploma and Year 11 | 0.0314 | 0.0334 |
| Certificate III/IV and Year 12 | 0.0602 | 0.0408 |
| Certificate III/IV and Year 11 | 0.1678 | 0.0531 |
| Certificate I/II and Year 12 | 0.0207 | 0.0358 |
| Certificate I/II and Year 11 | 0.0316 | 0.0721 |
| Certificate nfd and Year 12 | 0.0076 | 0.0112 |
| Certificate nfd and Year 11 | 0.0084 | 0.0100 |
| Year 12 | 0.1537 | 0.1644 |
| Year 11 or lower | 0.2403 | 0.2528 |
| Occupational experience (years) | 9.1935 | 7.9266 |
| Occupational experience (years squared) | 155.4638 | 123.1064 |
| Tenure (years) | 7.2172 | 5.6910 |
| Tenure (years squared) | 109.2111 | 71.0666 |
| Casual | 0.1664 | 0.2822 |
| Usual hours worked per week | 41.6021 | 31.4459 |
| Usual hours (squared) | 1879.2199 | 1163.4017 |

Table B1: Variables and mean values (continued)

| Variable | Males | Females |
|---------------------------------------|--------------|----------------|
| Industry | | |
| Agriculture, forestry and fishing | 0.0301 | 0.0104 |
| Mining | 0.0199 | 0.0040 |
| Manufacturing | 0.0134 | 0.0022 |
| Electricity, gas and water supply | 0.1841 | 0.0633 |
| Construction | 0.0763 | 0.0097 |
| Wholesale trade | 0.0584 | 0.0287 |
| Retail trade | 0.1100 | 0.1613 |
| Accommodation, cafes and restaurants | 0.0405 | 0.0674 |
| Transport and storage | 0.0637 | 0.0242 |
| Communication services | 0.0276 | 0.0150 |
| Finance and insurance | 0.0351 | 0.0510 |
| Property and business services | 0.0980 | 0.1013 |
| Government administration and defence | 0.0806 | 0.0665 |
| Education | 0.0601 | 0.1371 |
| Health and community services | 0.0397 | 0.1906 |
| Cultural and recreational services | 0.0225 | 0.0256 |
| Personal and other services | 0.0400 | 0.0418 |
| Public sector | 0.2172 | 0.2769 |
| Organisation size | | |
| Less than 10 | 0.1645 | 0.1595 |
| 10–19 | 0.0826 | 0.0944 |
| 20–99 | 0.1585 | 0.1651 |
| More than 100 | 0.5945 | 0.5811 |
| Earnings | | |
| Usual weekly earnings | 832.3321 | 556.1519 |
| Log (weekly earnings) | 6.5714 | 6.1168 |
| N | 6044 | 5786 |

Note: Population is wage and salary earners, excluding secondary school students, people not reporting their earnings, level of qualification or organisation size, and people with improbable hourly earnings (less than \$2.00 or greater than \$100).

Table B2(a): Earnings regression results, males

| Variable | Coefficient | Standard error |
|---|--------------------|-----------------------|
| Constant | 4.007 | 0.039 |
| Age | | |
| 25–34 | 0.224 | 0.014 |
| 35–44 | 0.309 | 0.015 |
| 45–54 | 0.318 | 0.017 |
| 55–64 | 0.272 | 0.021 |
| Residence | | |
| Vic. | -0.032 | 0.013 |
| Qld | -0.076 | 0.013 |
| SA | -0.083 | 0.015 |
| WA | -0.036 | 0.015 |
| Other states/territories | -0.014 | 0.015 |
| Highest educational attainment | | |
| Degree or higher | 0.359 | 0.014 |
| Diploma and Year 12 | 0.261 | 0.020 |
| Diploma and Year 11 | 0.228 | 0.026 |
| Certificate III/IV and Year 12 | 0.170 | 0.019 |
| Certificate III/IV and Year 11 | 0.106 | 0.013 |
| Certificate I/II and Year 12 | 0.098 | 0.031 |
| Certificate I/II and Year 11 | 0.054 | 0.025 |
| Certificate nfd and Year 12 | 0.047 | 0.049 |
| Certificate nfd and Year 11 | 0.054 | 0.046 |
| Year 12 | 0.131 | 0.014 |
| Occupational experience (years) | 0.018 | 0.002 |
| Occupational experience (years squared) | -0.001 | 0.000 |
| Tenure (years) | 0.002 | 0.002 |
| Tenure (years squared) | 0.000 | 0.000 |
| Casual | -0.011 | 0.014 |
| Usual hours worked per week | 0.073 | 0.001 |
| Usual hours (squared) | -0.001 | 0.000 |
| Industry | | |
| Agriculture, forestry and fishing | -0.145 | 0.027 |
| Mining | 0.353 | 0.032 |
| Electricity, gas and water supply | 0.076 | 0.039 |
| Construction | 0.121 | 0.019 |
| Wholesale trade | -0.011 | 0.020 |
| Retail trade | -0.130 | 0.017 |
| Accommodation, cafes and restaurants | -0.110 | 0.024 |
| Transport and storage | 0.037 | 0.020 |
| Communication services | 0.049 | 0.028 |
| Finance and insurance | 0.013 | 0.025 |
| Property and business services | 0.085 | 0.017 |
| Government administration and defence | -0.031 | 0.024 |
| Education | -0.096 | 0.024 |
| Health and community services | -0.101 | 0.025 |
| Cultural and recreational services | -0.016 | 0.030 |
| Personal and other services | -0.089 | 0.025 |

Table B2(a): Earnings regression results, males (continued)

| Variable | Coefficient | Standard error |
|--------------------|--------------------|-----------------------|
| Public sector | 0.057 | 0.017 |
| Organisation size | | |
| 10–19 | 0.095 | 0.018 |
| 20–99 | 0.120 | 0.015 |
| More than 100 | 0.217 | 0.013 |
| Adjusted R squared | 0.715 | |
| F-test | 331.282 | |
| N | 6044 | |

Notes: 1 Population is wage and salary earners, excluding secondary school students, people not reporting their earnings, level of qualification or organisation size, and people with improbable hourly earnings (less than \$2.00 or greater than \$100).

2 Dependent variable is log of usual weekly earnings.

3 Control group is persons aged 15 to 24, living in New South Wales, who have not completed Year 12, employed as a labourer or related worker on an ongoing basis, working in manufacturing in a private sector organisation with fewer than 10 employees.

Table B2(b): Earnings regression results, females

| Variable | Coefficient | Standard error |
|---|--------------------|-----------------------|
| Constant | 3.943 | 0.033 |
| Age | | |
| 25–34 | 0.206 | 0.013 |
| 35–44 | 0.228 | 0.014 |
| 45–54 | 0.185 | 0.015 |
| 55–64 | 0.159 | 0.021 |
| Residence | | |
| Vic. | -0.066 | 0.012 |
| Qld | -0.103 | 0.013 |
| SA | -0.082 | 0.015 |
| WA | -0.096 | 0.014 |
| Other states/territories | -0.031 | 0.014 |
| Highest educational attainment | | |
| Degree or higher | 0.347 | 0.013 |
| Diploma and Year 12 | 0.204 | 0.018 |
| Diploma and Year 11 | 0.156 | 0.024 |
| Certificate III/IV and Year 12 | 0.120 | 0.022 |
| Certificate III/IV and Year 11 | 0.040 | 0.020 |
| Certificate I/II and Year 12 | 0.067 | 0.023 |
| Certificate I/II and Year 11 | 0.039 | 0.017 |
| Certificate nfd and Year 12 | 0.124 | 0.040 |
| Certificate nfd and Year 11 | 0.069 | 0.041 |
| Year 12 | 0.089 | 0.014 |
| Occupational experience (years) | 0.099 | 0.002 |
| Occupational experience (years squared) | -0.000 | 0.000 |
| Tenure (years) | 0.010 | 0.002 |
| Tenure (years squared) | -0.000 | 0.000 |
| Casual | -0.024 | 0.012 |
| Usual hours worked per week | 0.082 | 0.001 |
| Usual hours (squared) | -0.001 | 0.000 |
| Industry | | |
| Agriculture, forestry and fishing | -0.049 | 0.043 |
| Mining | 0.228 | 0.067 |
| Electricity, gas and water supply | 0.119 | 0.088 |
| Construction | 0.150 | 0.044 |
| Wholesale trade | 0.077 | 0.029 |
| Retail trade | -0.066 | 0.020 |
| Accommodation, cafes and restaurants | -0.021 | 0.023 |
| Transport and storage | 0.078 | 0.031 |
| Communication services | 0.140 | 0.038 |
| Finance and insurance | 0.121 | 0.024 |
| Property and business services | 0.119 | 0.021 |
| Government administration and defence | 0.073 | 0.026 |
| Education | -0.013 | 0.022 |
| Health and community services | 0.022 | 0.020 |
| Cultural and recreational services | 0.077 | 0.030 |
| Personal and other services | -0.060 | 0.026 |

Table B2(b): Earnings regression results, females (continued)

| Variable | Coefficient | Standard error |
|--------------------|--------------------|-----------------------|
| Public sector | 0.050 | 0.014 |
| Organisation size | | |
| 10–19 | 0.035 | 0.017 |
| 20–99 | 0.069 | 0.015 |
| More than 100 | 0.125 | 0.013 |
| Adjusted R squared | 0.807 | |
| F-test | 525.444 | |
| N | 5786 | |

Notes: 1 Population is wage and salary earners, excluding secondary school students, people not reporting their earnings, level of qualification or organisation size, and people with improbable hourly earnings (less than \$2.00 or greater than \$100).

2 Dependent variable is log of usual weekly earnings.

3 Control group is persons aged 15 to 24, living in New South Wales, who have not completed Year 12, employed as a labourer or related worker on an ongoing basis, working in manufacturing in a private sector organisation with fewer than 10 employees.



The National Vocational Education and Training Research and Evaluation (NVETRE) program is coordinated and managed by the National Centre for Vocational Education Research, on behalf of the Australian Government and state and territory governments, with funding provided through the Department of Education, Science and Training.

This program is based upon priorities approved by ministers with the responsibility for vocational education and training (VET). This research aims to improve policy and practice in the VET sector.

Research funding is awarded to organisations via a competitive grants process.

**National Centre for Vocational
Education Research Ltd**

Level 11, 33 King William Street
Adelaide SA 5000

PO Box 8288 Station Arcade
South Australia 5000

Phone +61 8 8230 8400

Fax +61 8 8212 3436

Email ncver@ncver.edu.au

www.ncver.edu.au