

Skills in Use

Labour Market and Workplace Trends in Skills Usage in Australia



Contents

Skills in Use: Labour Market and Workplace Trends in Skills Usage in Australia

Foreword	vii
Key findings	ix
Preface	xi
1. The labour market: matching supply and demand	1
1.1 Overqualified workers: the conventional approach	1
1.2 Skills shortages: the reality	4
2. The workplace	10
2.1 The use of skills in the workplace	10
2.1.1 Skills usage	10
2.1.2 Changes over time	17
2.1.3 Skills enhancement	19
2.1.4 Job autonomy and complexity	22
2.2 Workplace training	24
2.2.1 Participation in training: employee perspectives	24
2.2.2 Training needs: employer perspectives	25
2.2.3 Contingent work and training	26
3. Conclusion	28
3.1 Overview	28
3.2 The industry dimension	28
Appendices	32
A. Regression results	32
A.1 Skills usage and skills enhancement	33
A.2 Participation in training	33
B. Tables	36
C. References	68

List of figures

1.1	Students employed at lower skill level in terms of training undertaken, NSW 2005	4
1.2	Employers reporting a lot of difficulty in recruiting staff, by industry	6
1.3	Employers reporting industry skill shortages, by industry	7
1.4	Skilled vacancies index: trend	7
1.5	Employers reporting employees had skill levels below that required by the organisation	8
1.6	Employers reporting employees had skill levels above that required by the organisation	9

2.1	Under-utilisation of skills, by occupation	11
2.2	Under-utilisation of skills, by industry	12
2.3	Factors influencing the usage of skills in jobs	16
2.4	Change in skills usage by frequency of training	18
2.5	Limited opportunities for skills enhancement, by industry	19
2.6	Limited opportunities for skills enhancement, by occupation	19
2.7	Factors influencing opportunities for skills enhancement	21
2.8	Employees undertaking work-related training, by occupation	24
2.9	Employees undertaking work-related training, by industry	24
2.10	Employer use of performance management, skills appraisal etc to determine training needs	26
2.11	Employer use of informal methods to determine training needs	26

List of tables

1.1	Allocation of workers to jobs by education attainment, combined sample	1
1.2	Incidence of overeducation across population subgroups, as proportion of all persons in population subgroup	2
1.3	Level of highest non-school qualifications by occupation, 2006 ('000s)	3
1.4	Level of highest non-school qualifications by occupation, 2006 (percentages)	3
2.1	Employees not using skills and abilities by occupation, comparison of data sources	11
2.2	Employees not using skills and abilities by industry, comparison of data sources	13
2.3	Employees not using skills and abilities by occupation, hours and employment status	14
2.4	Changes in skill usage over time: 2003–2005	17
2.5	Limited opportunities to enhance skills, by occupation, hours and employment status	20
2.6	Correlations between skills and job complexity and autonomy	22
3.1	Growth in casualisation by industry, 1985–2006	30
A.1	Regression results for skills usage	32
A.2	Regression results for skills enhancement	33
A.3	Regression results for casuals receiving training .	34
A.4	Regression results for permanents receiving training	35
B.1	Difficulties in recruiting staff in past 12 months (all organisations)	36
B.2	Difficulties in recruiting staff in past 12 months (all organisations), by occupational group	37
B.3	Difficulties in recruiting staff in past 12 months (among those recruiting)	38
B.4	Difficulties in recruiting staff in past 12 months (among those recruiting), by occupational groups	39
B.5	Reasons for recruitment difficulties (row percentages)	40

List of tables

B.6	Reasons for recruitment difficulties, by occupational groups (row percentages)	41
B.7	Employers reporting industry skill shortages, by industry	42
B.8	Overall rating of skill levels of employees	43
B.9	Overall rating of skill levels of employees, by occupational groups	44
B.10	Employee use of skills and abilities (%)	45
B.10	Employee use of skills and abilities (cont'd) (%)	46
B.11	Employees not using skills and abilities (%)	47
B.12	Employees learning skills in the job (%)	48
B.12	Employees learning skills in the job (cont'd) (%)	49
B.13	Attitude towards job, by highest qualification held (mean scores)	50
B.14	Low assessments, by occupation and highest qualification held	51
B.15	Low assessments, by industry and highest qualification held	52
B.15	Low assessments (cont'd)	53
B.16	Change in skill usage, by training and highest qualification held	54
B.17	Change in skill usage, by training and highest qualification held –alternative definition of change	55
B.18	Change in skill usage, by training and selected occupation	56
B.19	Employees not learning skills in the job (%)	57
B.20	Changes in skill levels between 2002 and 2004 (%)	58
B.20	Changes in skill levels between 2002 and 2004 (cont'd) (%)	59
B.21	How increased skills were learned, 2002–2004 (%)	60
B.21	How increased skills were learned, 2002–2004 (cont'd) (%)	61
B.22	Work-related training or education, by occupation and highest qualification held	62
B.23	Work-related training or education, by industry and highest qualification held	63
B.23	Work-related training or education (cont'd)	64
B.24	How organisations determine their training needs (row percentages)	65
B.25	How organisations determine their training needs, occupational groups (row percentages)	66
B.25	How organisations determine their training needs, (cont'd)	67

Foreword

Skills in Use, Labour Market and Workplace Trends in Skills Usage in Australia, is the fourth in the series of reports commissioned under the national Skill Ecosystem program. It explores some of the key questions facing industry and training bodies in Australia:

- To what extent are people's skills being used at the workplace?
- How effectively does the labour market translate the skills that people develop in training programs to workplaces and industries?

These questions lie at the heart of workforce development systems, and are especially relevant to the skill ecosystem approach which is a holistic version of workforce development based on strong engagement between industry groups and training organisations.

The Skill Ecosystem National Advisory Committee felt that in making the case for going beyond a supply-based approach to skill development in Australia, it was important to see what existing data can tell us about skill use and its drivers in Australian workplaces.

Skills in Use does not seek to be a comprehensive review of these issues. It does, however, offer a new analysis of a range of unpublished data and thereby makes a useful and stimulating contribution to the policy debate.

In examining the labour market, it questions the notion of an across-the-board skills crisis in Australia and notes that skills shortages are felt unevenly across different industries. Overall about 14 per cent of employers report recruitment difficulties that are attributable to skills shortages, although in some industries the problem is far larger. Conversely, over a third of employers report that their employees have skill levels above what they require, and five per cent report that employees have skills levels below what is required.

Skills in Use then moves to the workplace. It examines unpublished national data sets and concludes that the skills of a sizeable number of employees – between 10 and 15 per cent of the workforce – feel that their skills are not being used at work. The data on the dimensions of this issue can help us locate where there is potential for employers to use the skills of their employees more fully than at present. For example, data on people's perception of how much autonomy they have at work speaks to the design of jobs and the way work is organised.

An important new emphasis in *Skills in Use* is its examination of the links between casual and part-time employment, skills use and skill enhancement. The report found that both part-time and casual jobs are much less likely to entail high skills usage than permanent jobs. They are also less likely to offer opportunities for workplace training.

The findings of *Skills in Use* reinforce the need to align training and workforce development resources more closely with the directions in which our economy and industries are heading. Do we need to focus public funds on industries which have the capacity to make use of the skills that people acquire through training? Alternatively, should business development strategies focus more on producing high-skill jobs. Or is it the efficiency of the labour market that needs to be improved?

Understanding these links and answering these questions more fully requires further investigation and discussion. I commend the author of *Skills in Use*, Dr Ian Watson, for this timely report that will help us make our policy discussions well informed.

Patten Bridge

Chair of the Skill Ecosystem National Advisory Committee

Key Findings

The labour market

This report finds that widespread skills shortages are not as prevalent as previously thought. While there are certain sectors of the economy where skill shortages are acute, the evidence in this report suggests this is not widespread. Only about 15 per cent of employers report a lot of difficulty in recruiting staff and attribute this to a shortage of skills in their industry.

- On the other hand, 37 per cent of employers report that their employees have skill levels above what they require. Only 5 per cent report employees with skill levels below that required.
- Other research also emphasises the problem of over-education: some 30 per cent of employees are overeducated for their jobs and are under-utilising their skills.

The workplace

- Between 10 and 15 per cent of employees report that their skills are under-utilised in the workplace. Among the less skilled occupations—such as labourers and elementary clerical, sales and service workers—this figure reaches over 30 per cent. Retail and hospitality are the

two industries with the highest proportion of workers reporting under-utilisation of their skills.

- There is an important link between casual employment and skills usage. After controlling for the effects of occupation, casual jobs are much less likely to entail high skills usage than are permanent jobs.
- Most workers experienced little change in the usage of their skills between 2003 and 2005. About 12 per cent experienced a decrease and 13 per cent experienced an increase.
- About 14 per cent of employees experienced limited opportunities to enhance their skills in the workplace. Again, this figure was much higher among the less skilled occupations. The industries with the highest figures were again retail trade and hospitality, with wholesale trade and manufacturing also prominent.
- The link with contingent work is also evident when it comes to skills enhancement. Part-time jobs and jobs with high proportions of under-employed workers were much less likely to be jobs offering opportunities for skills

enhancement. On the other hand, jobs with high proportions of VET graduates were more likely to be jobs with higher levels of skills enhancement.

- About 41 per cent of employees undertook work-related training or education in the twelve months prior to being surveyed. The largest proportions undertaking training were professionals and associate professionals; the lowest proportions were labourers and elementary clerical, sales and service workers.
- Industries with high levels of work-related training were government, education, utilities and mining. The lowest levels were found in retail trade and hospitality.
- Casual workers were much less likely to undertake training than permanents. However, among those casuals who did undertake training the key factors associated with this were: working full-time; working in a larger workplace; being in a trade union; having VET qualifications; and working in mining or health and community services. Having a VET qualification was more advantageous to casual workers than to permanents.

Preface

For some time now critics of the 'just supply skills' perspective have argued persuasively that workforce development issues should be of central concern. From this perspective, how skills are utilised within workplaces is crucial to achieving good economic and social outcomes. To simply focus on whether VET (and other educational sectors) are producing enough graduates in certain fields is to miss the point. As Keep and Mayhew (1999, p. 12) argue with respect to VET policies in the UK:

... skills are often a third-order issue. Unless and until first-order questions, such as choice of product market and competitive strategy, and consequent second-order decisions about work organization and job design, are confronted, the underlying causes of [the] ... skills problem will continue to be ignored. The danger of policies ... which concentrate on boosting the supply of qualifications and formalized skills and knowledge is that they appear to offer a relatively swift and simple short cut to a wide-ranging set of desired outcomes ... without having to confront complex and difficult choices about how businesses choose to compete.

Looking at both the workplace and the labour market are essential for understanding skills formation. From a labour market perspective, we confront issues of over-qualification, and mismatches between the supply and demand for skills. Recent research suggests that 30 per cent of the workforce have educational qualifications which exceed what is needed in their jobs (Linsley, 2005, p. 121). It is also important to recognise that the Australian labour market is strongly characterised by contingent work: high levels of casualisation, strong growth in part-time work and—despite record low levels of unemployment—a continuing problem of under-employment.¹

All of these impact on workplaces, the sites where skills are utilised. In looking at both skills utilisation and participation in work-related training, the analysis in this report brings together these two domains: the labour market and the workplace. This report will suggest that the overarching issue of skills development needs to be seen in the context of how employers engage labour: how they utilise skills in their workplace and whether they provide training relates to other aspects of their workplace operations.

¹ Shifting terminology is a feature of this area of labour market analysis. The term 'contingent employment' is used extensively overseas to indicate a temporary or arms-length connection between employer and employee. Another term, 'precarious employment', is also used when the emphasis is on the insecurity which employees face with this kind of work. 'Casual' employment, while a term with everyday familiarity, is in fact a very precise artifact of Australia's award system. While many casual employees are hired on a temporary basis, the oxymoron 'permanent casual' also reflects an underlying reality that many of these jobs last for years. In this report the term 'contingent' has been used to cover the wide spectrum of non-standard forms of employment, but it also encompasses problems such as under-employment. The terms 'casual' and 'part-timer' are also used to emphasise the mode of engagement, and the working hours arrangements, respectively. Finally, under-employment, unless coupled with the word skills, refers to insufficient hours of work.

There are issues of recruitment practices, work organisation, job design, the provision of career paths and the terms of engagement which they offer their workforce.

Many of these issues are beyond the scope of this report which explores three main areas. The first part of the report looks briefly at the labour market issues of over-qualification and recruitment and grapples with the difficult problem of quantifying the current skills shortage.

The analysis presented suggests that much of the rhetoric about a skills 'crisis' is exaggerated, and that the reality is much less dramatic.

The main part of the report shifts the focus to the workplace where the two other areas are explored. There is a detailed examination of how skills are currently utilised in Australian workplaces. The key question which has guided this examination is: what factors shape the utilisation of skills in the workplace? Clearly, a worker's occupation is the most important dimension here; occupations are, after all, classified on the basis of skill. But what else matters?

How does the spread of contingent work throughout the labour market relate to the utilisation of skill? What is the industry context? Finally, the third area—work-related training—is also examined, though in much less detail. Both employee and employer perspectives on training are offered.

For employees the questions concern who gains access to training and for what purposes. For employers, the questions concern the formulation of their training needs.

The novelty of this report lies in the way it draws on a number of different surveys to provide varied perspectives on the same issue. For example, as just noted there are both employer and employee perspectives on training and skills. There are also data which examine different versions of skill usage. In all, the range of data sources makes for a richer, though sometimes complex, account of skills development. Two of these data sources are longitudinal, so there is also scope to explore changes over time. Three of these data sources reflect the employee perspective, and two of these are specific to VET.

The fourth data source is an employer survey. All these surveys have relatively large sample sizes, and all have been produced by reputable organisations (NCVER and the Melbourne Institute). Most of the tables in this report (except where noted) are based on unpublished data from the unit records files of these surveys. The more detailed tables have been placed in Appendix B, and graphs have been used as the main expository device in the body of the text.

Most of the tables indicate the sample size used. This is usually shown as an 'n' column, meaning the number of observations in the sample for that row. Where a column heading shows 'No.' this indicates a population estimate - that is, a population weighted count.

The four main surveys used in this report are:

1.0 The NCVER's 2005 Student Outcome Survey (SOS).

This is a survey of VET graduates, containing information on their training/study and their employment situation both before and after training. The sample is restricted to VET graduates, and is not fully representative of the employed population. The workplace outcomes measured by this survey are for May 2005, a period of about 6 months after students graduated. The dataset contains over 50,000 respondents.

2.0 The NCVER's 2004 Down the Track Survey (DTT).

This is also a survey of VET graduates (from 2002), but it tracks the students two years after graduation (in 2004). Like the SOS, the DTT is restricted to VET graduates, but is further restricted to young people (aged 15 to 24). Its sample size is also much smaller: about 2,500 respondents.

3.0 The Australian Government/Melbourne Institute's Household, Income and Labour Dynamics in Australia Survey (HILDA).

This is an ongoing longitudinal survey of Australian households which began in 2001 and which is representative of the Australian population. As with the DTT, HILDA provides useful insights into changes over time. Its sample size varies (depending on the population) but is considerably larger than the DTT.

4.0 The NCVER's Survey of Employer Use and Views of the VET System (SEUV).

This is a survey of employers conducted in 2005 with a view to gaining information about employer skill needs, and their use of vocational education and training. Its sample size was over 4,600 and was representative of all employers who had at least one employee. This survey was repeated in 2007 and some of the 2007 findings are also used in this report.

Acknowledgements

Thanks go to Caroline Alcorsco for considerable assistance throughout the course of the research. Thanks also go to the NCVER for making the unit records files for these surveys available and to Martin Delaney for his ready assistance in obtaining them. Valuable feedback on this report has been provided by the Skill Ecosystem National Advisory Committee. Di Ballantyne in particular has been very generous in providing proofreading and other assistance. Thanks to Sue Bearfield, Kiri Evans and Ewart Keep for many useful comments. Finally, thanks to Alzbeta Totova for her flair and design skills in producing the report.

1. The labour market: matching supply and demand

1.1 Overqualified workers: the conventional approach

Assessing whether workers are over-qualified or over-educated has been a common approach to assessing the utilisation of skills.¹ For example, Ingrid Linsley draws this connection when summarising her findings: ‘In Australia close to 30 per cent of workers are overeducated and are underutilising their skills’ (Linsley, 2005, p. 121). Linsley also shows that about 21 per cent of workers with a degree are working in jobs which don’t require that level of education, while about 46 per cent of workers with a vocational qualification are in jobs not requiring that level (see Table 1.1).²

While Linsley’s main task is to assess competing accounts for why workers are over-educated, in her introduction she provides a useful summary of the characteristics of those workers she classifies as over-educated. This is reproduced in Table 1.2 and shows that about 24 per cent of males with a degree are overeducated, while 18 per cent of males with a vocational qualification are over-educated. The figures for women are 19 per cent, and 22 per cent, respectively. An important finding, highly relevant to the theme of this report, is that the proportion of underemployed workers—that is, those preferring to work more hours—who are over-educated is much higher than the average: for males it is 44 per cent and for females it is 37 per cent.

¹ Abrahamsson et al. (2004, p. 16) offers the following definition of over-education: ‘The concept of overeducation highlights the mismatch between employees’ education levels and skill requirements within a certain segment of the labour market or the match at individual level within a specific work context.’

² Some research in Britain puts the level of over-education in that country at about 20 per cent (Green et al., 1991). Other research puts the figure higher, at closer to 30 per cent [see Mavromaras et al. (2007, p. 2)].

Table 1.1: Allocation of workers to jobs by education attainment, combined sample

Educational attainment	Required education				Total
	Degree	Vocational	Secondary	Incomplete secondary	
Degree	79	9	7	5	100
Vocational	13	41	23	23	100
Secondary	11	15	39	35	100
Incomplete secondary	6	13	25	57	100
Total	27	22	22	29	100

Note: Based on data from Negotiating The Life Course survey.

Source: Linsley (2005, p. 127)

Table 1.2: Incidence of overeducation across population sub-groups, as proportion of all persons in population sub-group

	Male %	Female %
Age group (years)		
18–24	40.7	40.0
25–34	30.0	29.3
35–44	28.5	23.7
45–54	21.8	17.1
Country of birth		
Australian born	26.6	26.3
English speaking background	41.6	24.1
Non-English speaking background	29.6	19.5
Household characteristics		
Married	26.5	23.4
Unmarried	32.0	29.5
Preschool aged children in household	27.3	20.0
Education attainment		
Degree	23.9	19.0
Vocational	18.4	22.4
Secondary	35.9	33.3
Incomplete secondary	0.0	0.0
Job characteristics		
Prefer more hours	43.6	36.6
Prefer fewer hours	25.1	23.2
Tenure		
Fewer than 5 years	31.7	32.2
5 or more years	25.5	17.6
Overall	28.7	25.7

Note: Based on data from *Negotiating The Life Course* survey.
Source: Linsley (2005, p. 128)

In its series *Education and Work* the Australian Bureau of Statistics (ABS) publishes data on the occupation and the highest level of non-school qualification of its respondents. The relevant table is shown below (Table 1.3) and an indication of the extent of over-qualification can be gauged from Table 1.4. Similar to Linsley, this shows that about 20 per cent of tertiary graduates are working in jobs which don't require that level of education (that is, lower than technicians and associate professionals). The proportion of VET graduates (Certificate III/IV) working in jobs not requiring these qualifications is about 35 per cent (that is, lower than intermediate clerical, sales and service workers).

Table 1.3: Level of highest non-school qualifications by occupation, 2006 ('000s)

	Pgrad Degree	Grad Diploma	Bach Degree	Adv Diploma	Cert III/IV	Cert I/I	Cert nfd
Managers&administrators	66	30	192	89	120	30	6
Professionals	229	165	964	241	97	30	11
Technicians & assoc profess	33	31	193	187	224	75	28
Tradespersons	5	5	37	52	642	82	27
Adv clerical & serv workers	5	6	45	45	32	58	11
Inter clerical, sales & serv	19	21	175	166	263	125	43
Inter production & transport	5	2	27	22	164	43	17
Element clerical, sales & serv	4	6	59	43	93	60	16
Labourers & related workers	4	2	25	29	109	49	22
Total	370	268	1716	874	1746	553	182

Note: Grad Diploma includes Grad Certificate; Adv Diploma includes Diploma;
Source: ABS (6227.0, Table 12)

Table 1.4: Level of highest non-school qualifications by occupation, 2006 (percentages)

	Tertiary	Cert III/IV	All VET
Managers & administrators	12	7	7
Professionals	58	6	11
Technicians & assoc profess	11	13	15
Tradespersons	2	37	24
Adv clerical & serv workers	2	2	4
Inter clerical, sales & serv	9	15	18
Inter production & transport	1	9	7
Element clerical, sales & serv	3	5	6
Labourers & related workers	1	6	6
Total	100	100	100

Source: ABS (6227.0, Table 12)

An important study by Cully et al. (2006) looking at VET graduates in NSW also focuses on the extent of educational and occupational mismatches. The report finds that only one in four persons achieved a match between the intended occupation (based on the training they undertook) and the actual occupation in which they were subsequently employed. The authors observed:

There is only one area where there is a strong match between the skill level associated with the occupation and with highest educational attainment: two in five men with a certificate III/IV are employed as either tradespersons or advanced clerical and service workers (skill level III). (2006, p. 6).

But the report also argues that mismatches should not be unexpected, given the complexity and flexibility of the Australian labour market: 'the opportunities for job mobility are plentiful' (2006, p. 7). Nevertheless, the lack of choice for many people working at lower levels, is a cause for concern, and much of the report deepens this analysis of mismatching by introducing a longitudinal component. Utilising the NCVER's Student Outcomes Survey, Cully et al. show that those students not in work prior to training fared worse in terms of occupational outcomes. Moreover, their prior circumstances were more influential than the type of training they undertook (2006, p. 18). In an interesting variation on the traditional matching approach, Cully et al. (2006, p. 34) contrast the intended occupation of VET students with their destination occupations and

show that about 15 per cent of students end up employed at lower skill levels than intended in terms of the training they undertook. Among some occupations, for example, associate professionals, the proportion is more than double this. Figure 1.1, taken from Cully et al. (2006, p. 43), summarises these findings.

In making an overall assessment, Cully et al. (2006, p. 35) define outcomes as either 'good' or 'poor'. By good, they mean that the individual was employed after training in their intended occupation; or, they were employed at the same, or at a higher skilled level; or, they were enrolled in studying towards a higher level of qualification. On the other hand, a poor outcome was one where, after training, the individual ended up at a lower skill level than their intended occupation or was unemployed; or, was not undertaking further study; or, was not studying for a higher level qualification. By these criteria, Cully et al. judged that about 70 per cent of

VET graduates in 2005 experienced a good outcome and 29 per cent experienced a poor outcome.

In an important insight, the authors argue that:

... completing a vocational education and training qualification provides an initial fillip to many young people that facilitates their transition into employment, but over time it is the skills and experience while in work that are much stronger determinants of people's employment status and skill level in employment (Cully et al., 2006, p. 31).

This raises the important issue of how workers experience their jobs, and the skills implications of this. As noted earlier, this is one of the major issues dealt with in the second part of this report where skills utilisation in the workplace is examined. From a different perspective this theme has been termed 'overskilling' and a recent study of Australia and Britain—also using the HILDA data for

Australia—suggests that examining how workers utilise their skills is a more useful measure of labour market mismatch than is the traditional focus on over-education (Mavromaras et al., 2007, p. 27). Before moving to this analysis of skills usage, I examine an issue which straddles the labour market and the workplace. As noted in the preface, declarations of major skills shortages in the labour market have become commonplace in recent years, and part of the reason for the intensity of these declarations has been employer difficulties in recruiting skilled labour.

1.2 Skills shortages: the reality

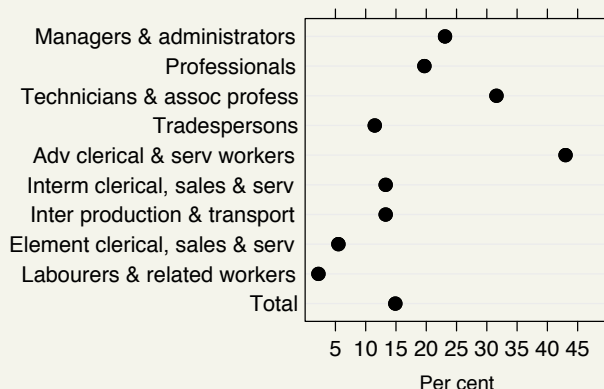
There can be little doubt that there are major skills shortages in some sections of the labour market, but how severe is the problem? In this section I look briefly at a recent employer association report which emphasises these shortages, and some data from a NCVER employer survey which provides a more sober picture.

A recent report, *World Class Skills for World Class Industries* was produced for the Australian Industry Group (Ai Group) by the Allen Consulting Group.

The report opens with a strong declaration of the importance of skills for the future, and the difficulties employers currently face:

As part of an increasingly open world, Australia's future economic fortunes depend in part on our having access to, and making use of, the skills that will help our industries to be world class.

Figure 1.1: Students employed at lower skill level in terms of training undertaken, NSW 2005



Source: Taken from Cully et al. 2006, (Table 14)

Most employers are having difficulty finding at least some of the skills they need, especially tradespeople, technicians and paraprofessionals, and engineering professionals . . . (2006, pp. vii & ix).

The Ai Group report presents data from an employer survey which shows that 64 per cent of firms experienced difficulties trying to recruit trades workers and 48 per cent had difficulties finding technicians and paraprofessionals (Allen Consulting Group, 2006, p. ix). In discussing 'barriers to upskilling employees', the Ai Group report notes that the major factor inhibiting upskilling of their non-apprentice employees is that 'training can't be accommodated around work demands' (56 per cent), followed closely by 'insufficient financial incentives from the government' (52 per cent) (Allen Consulting Group, 2006, p. xii).

How do these figures compare with other data? It is difficult to be definitive because of difficulties in directly comparing questions across various surveys. Nevertheless, some of the broad claims in the survey findings can be loosely compared. For example, where the Ai Group survey found 64 per cent of firms had difficulty recruiting tradespeople and 48 per cent had difficulty with recruiting technicians and paraprofessionals, data from the NCVET's *Survey of Employer Use and Views of the VET System* (SEUV) shows that the proportions of employers reporting 'a lot' of difficulty with recruitment were less than one half of these levels. Even when the definition is expanded to include those employers who

experienced only 'some' difficulty, the SEUV figures never rise much above 40 per cent. What makes the comparison harder to pursue is that the Ai Group survey asks about specific occupations, but provides no all-occupation total, and the SEUV does not ask for occupational details. Consequently, direct comparisons of comparable figures are not possible. While the DEWR (now DEEWR) vacancy report (DEWR, 2006a) maps skilled vacancies by occupation, these do not indicate whether employers faced difficulties in recruiting for these occupations.

The DEWR *Skills In Demand* (DEWR, 2006b) series does provide useful information about which trade and professional occupations face skills shortages (and it makes the important distinction between recruitment difficulties and actual skills shortages). While this publication provides a good geographical perspective (such as whether the shortage is state-wide, metropolitan or regional) there is no attempt to quantify such shortages or provide a time series index. As a result, it is not feasible to gauge changes over time, and to assess just how severe current skills shortages really are.¹

The figures on the difficulty in upskilling the workforce can be compared with a data item from another employer survey, the ABS 2001–02 survey of *Employer Training Expenditure and Practices* (ABS, 6362.0). When asked for the main constraint on providing structured training, 60.3 per cent of employers responded that their current employees were adequately trained. Cost and time constraints were only

mentioned by 16.7 and 17.4 per cent of employers, respectively (ABS, 6362.0, Table 10). These fall well short of the Ai Group figures (in the 50 per cent range). Again, direct comparisons are difficult, because the ABS questions refer only to structured training.

In summary, it is quite difficult to compare the Ai Group results, with other surveys. The most likely reason for this lies in the methodological weaknesses which are evident in the Ai Group survey. In particular, the views of large firms dominate the Ai Group survey findings, an outcome which does not appear to have been adequately dealt with by the weighting strategy adopted. Moreover, the very low response rate (around 5 per cent) means that the Ai Group survey is composed of 'self-selected volunteers'. As is well known, surveys with high proportions of these kinds of respondents are not representative of the population as a whole. In this case, firms experiencing problems are far more likely to be represented than would be the case with a genuine probability sample of the firms were selected. This is likely to increase the proportion of firms who report various problems or issues of concern, than would be the case if a true probability sample of firms were selected.

¹ There is a categorising of shortages as "easing over the next 12 months", but this is the closest one gets to discerning the severity of the shortage.

For a more reliable guide to the extent of skills shortages, the NCVER's *Survey of Employer Use and Views of the VET System (SEUV)* is useful. This was a survey of more than 4,500 employers conducted in 2005 and repeated again in 2007. Employers were asked about the level of difficulty they faced in recruiting staff over the last 12 months and the detailed results can be found in Table B. 1. In 2005, about 21 per cent of *all* employers reported a lot of difficulty in recruiting staff and another 20 per cent reported some difficulty. In 2007 the figures were 24 per cent and 20 per cent respectively.

When the sample is restricted to just those employers who tried to recruit staff, the figures rise to 24 per cent and 23 per cent respectively (see Table B.3). The industries which

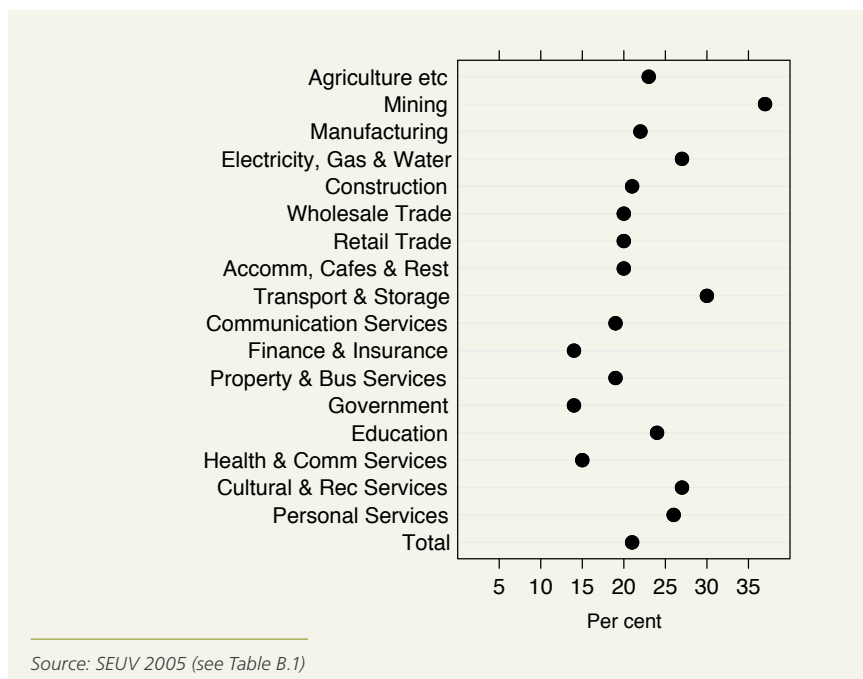
faced the most severe difficulties with recruitment were mining, transport and storage, and electricity, gas and water supply (see Figure 1.2).

If our focus is skill shortages, rather than recruitment difficulties per se, then responses which allude to 'a lot' of difficulty are the appropriate measure. Because the SEUV also asked for the reason behind these recruitment difficulties, one can move even closer to measuring actual skill shortages. Most of the SEUV employers gave, as their reason for difficulties with recruitment: 'a shortage of skilled people in the industry'. Such a response relies on perceptions and the employer's general knowledge, and may not be a reliable indicator of sector-wide labour market conditions. However, given that this is the best

approximation to a recruitment/skills shortage measure, the results are worth a closer look. In 2005, some 68 per cent of organisations who experienced a lot of difficulty with recruitment attributed this to an industry-wide skills shortage. In some industries, this figure was much higher (mining at 87 per cent and construction at 81 per cent), and in others it was lower (eg. 56 per cent in hospitality). By way of comparison, the next most common set of reasons were all in single figures. In some industries, these other reasons reached higher figures. For example, 32 per cent of employers in electricity, gas and water supply reported that wages and salaries were considered too low to attract recruits. In mining, and in government administration and defence, remote locations were a problem for recruitment. Finally, employers who relied on high levels of casuals and part-timers reported that a problem with recruitment was that 'young people have a poor work ethic.' (See Table B.5).

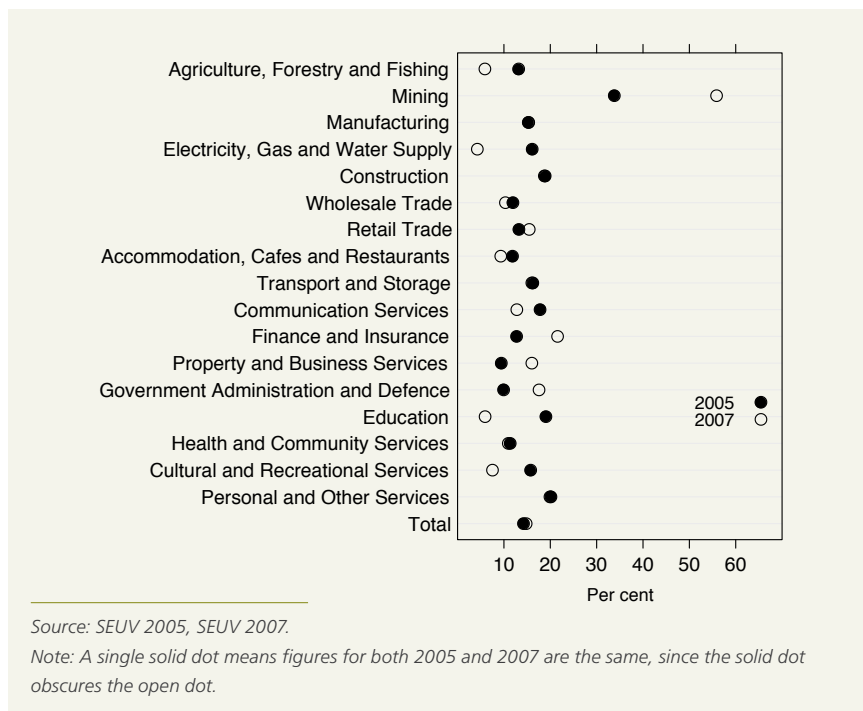
With these data in mind, can we make some reasonable estimates about the extent of the skills shortage? By looking at the proportion of employers who had 'a lot' of difficulty recruiting staff, and who also gave the skill shortage answer, we can arrive at a reasonable estimate. In 2005, the proportion for all industries was 14 per cent, and in 2007 it was 15 per cent. As Figure 1.3 shows the most striking aspect of these data in 2005 was is the similarity of this measure across industries, *with the notable exception of mining*. At 34 per cent, this industry was a clear anomaly. The remaining industries ranged

Figure 1.2: Employers reporting a lot of difficulty in recruiting staff, by industry



Source: SEUV 2005 (see Table B.1)

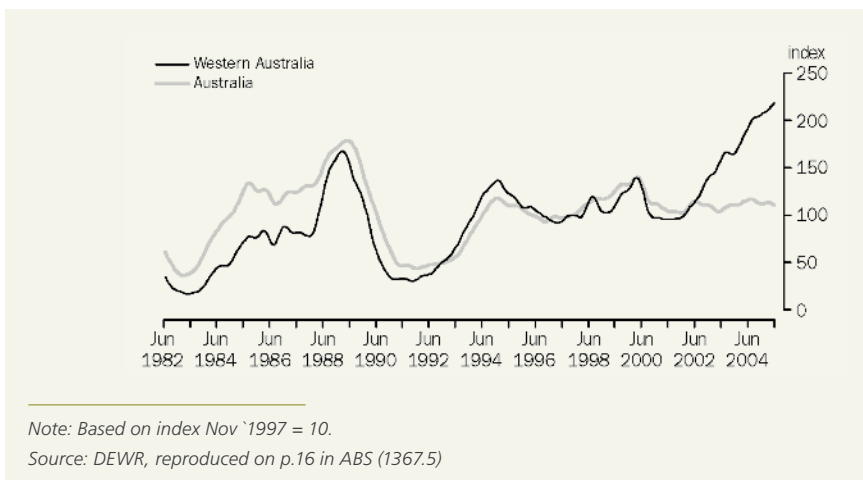
Figure 1.3: Employers reporting industry skill shortages, by industry



number of other industries had risen (finance and insurance, property and business services, and government).

Were we to focus on employer responses to recruitment which included “some” difficulty as well as “a lot” of difficulty, it would be difficult to reconcile the survey evidence with the notion of a growing “crisis”. The proportion of all employers who reported either “some” or “a lot” of difficulty recruiting, and who attributed this to shortages of skilled people in their industry, was about 28 per cent in 2005. By 2007 this figure was 26 per cent. Indeed, with a few exceptions, the figure had fallen slightly across most industries. In mining, one of the few industries which witnessed a rise over this period, the increase was 11 per cent (from 52 per cent to 63 per cent).

Figure 1.4: Skilled vacancies index: trend



Employer survey data like these two SEUV datasets are not the only data which cast doubt on the existence of a widespread ‘skills crisis’ in Australia. Wage movements over the last few years, with the notable exception of mining, have not been consistent with the growth of major labour shortages or a ‘skills crisis’. In 2004–2005 wages grew at an annual rate of 3.8 per cent. This figure rose to 4.1 per cent in 2005–2006 and then fell back to 4.0 per cent in 2006–2007. Over this same period, annual wages growth in mining rose from 4.0 per cent to 6.1 per cent (March 2008, ABS6345.0). These are nominal rates, and do not take account of inflation, which grew at 2.4 per cent over 2004–2005, at 3.2 per cent over 2005–2006 and at 2.9 per cent over 2006–2007.

from a low of 9 per cent (property and business services) to a high of about 20 per cent (personal and other services). By 2007 mining had pulled further ahead – at 56 per cent – but

most other industries had remained at or below 20 per cent. Some industries had dropped (electricity, gas and water supply, education and cultural and recreational services), while a

It's important to get a feel for the numbers involved here. Detailed population estimates for these skill shortages are shown in the appendix Table B.7 but the key aspects are as follows. Despite its high proportion, the mining sector only accounts for a few thousand employers (3,616), and only about 1,200 make up the count of those experiencing skill shortages. The industry with the largest number of employers facing skill shortages is construction: some 20,000 employers out of a total of about 107,000. In the case of retail, those facing shortages make up about 19,000 employers (out of a total of about 141,000). Indeed, in most industries there are fewer than 10,000 employers experiencing these skill shortages. It must be emphasised that the overall number of employers represented in this survey is nearly 900,000. Clearly, the data from the SEUV do not support the impression that a major skills crisis exists.

Mining is clearly an anomaly, and the raw materials commodity boom has been identified by many as one of the drivers of the tight labour market, particularly in states like Western Australia.

A recent ABS study of the Western Australia economy examines the issue of skill shortages in that state (ABS, 1367.5).

The report demphasises the cyclical nature of the skills shortage in that state and provides a useful graph—based on DEEWR's skilled vacancy index—which shows how much WA has departed from the national trend since 2002.

Indeed, the national figures in this graph reveal that since 2000, the trend line has fallen and has remained largely flat ever since (see Figure 1.4). Moreover, the trend remains much lower than during the late 1980s.

This ABS study also makes some pertinent points in its discussion of the concept of skill shortages. It draws on the DEEWR distinction between *skill shortages*, *skill gaps* and *recruitment difficulties* and points out that:

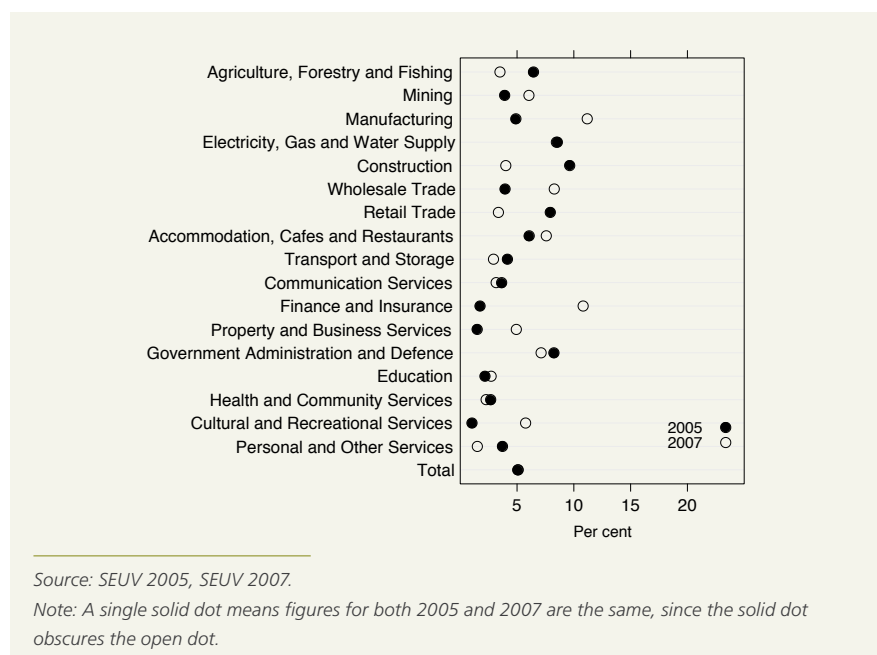
- skill shortages occur 'when employers are unable to fill... vacancies for an occupation... at current levels of remuneration...';
- skill gaps reflect the situation 'where existing employees do not have the required qualifications, experience and/or specialised skills to meet a firm's skill needs'; and

- recruitment difficulties point to situations where employers have difficulties in filling vacancies, something which may be due to 'characteristics of the industry, occupation or employer, such as relatively low remuneration, unsatisfactory working hours, location hard to commute to' (ABS, 1367.5, p. 15).

While these distinctions appear clear cut, in practice surveys of employers often produce findings which blur the distinctions:

The use of employer-based surveys can provide very specific and detailed information, but may be problematic due to the reliance on employers' perceptions of shortage and the reporting of skills gaps and recruitment difficulties as skills shortages.

Figure 1.5: Employers reporting employees had skill levels below that required by the organisation



Analysis of labour market indicators provides a market-wide perspective and is more objective, but also suffers shortcomings such as the inability to distinguish between job vacancies and hard-to-fill vacancies. (ABS, 1367.5, p. 15)

The overseas experience is salutary. As Ewart Keep (pers. comm.) observed, it is common to find that surveys fail to adequately distinguish between vacancies which remain unfilled due to skills shortages and those that are simply hard to fill:

In the UK we used to ask the same sort of general question as NCVET and it produced big 'shortages'. After 1999 UK surveys shifted to a much more differentiated and carefully designed set of questions, and skill shortages declined to single figure percentages at a stroke.

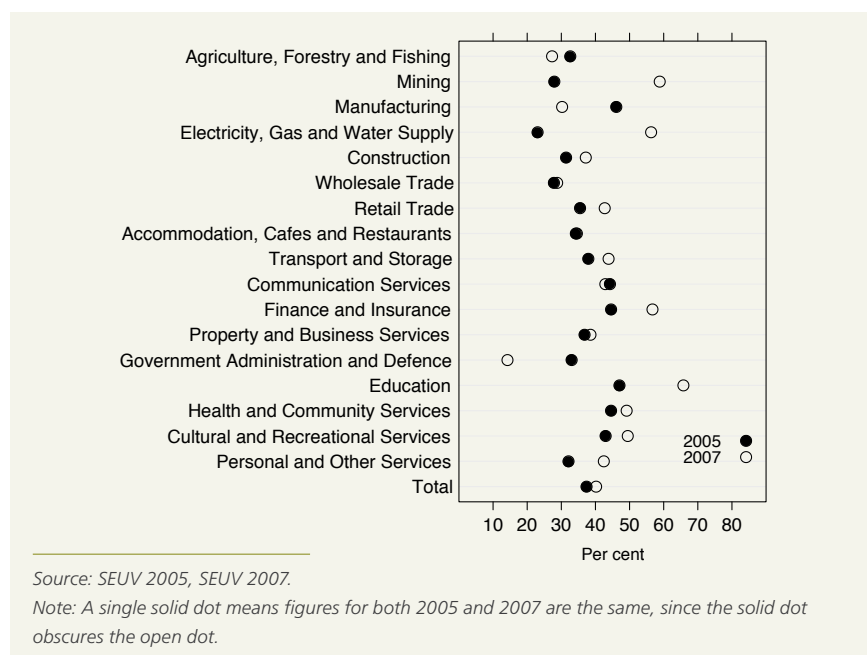
Turning now to the issue of skill gaps, the SEUV is most informative in this regard. The SEUV specifically asked employers to rate the skill levels of their employees relative to their organisational needs. They were asked whether these skills were above what was required, adequate or below what was required. Their overall ratings in 2005 and 2007 by industry are shown in Figure 1.5 and the fuller details are in Table B.8. The most striking aspect to these data is the uniformity in the results: in 2005 about 58 per cent of employers rated the skill levels of their workforce as adequate, and this covered a narrow range between 49 per cent (manufacturing) and 68 per cent (mining).

Surprisingly, only 5 per cent of employers regarded the overall skill levels of their workforce as below

what was required, and this only reached double figures (10 per cent) in construction. Finally, and most strikingly, some 37 per cent of employers regarded their employees as having skill levels above what was required. This figure was high in a number of quite diverse industries, reaching 47 per cent in education and 46 per cent in manufacturing (see Figure 1.6).

In summary, based on the proportion of employers, the size of the *skills shortage*³ in Australia is about 15 per cent, while the size of the *skills gap* is about 5 per cent. Clearly, these levels are hard to reconcile with the notion of a skills crisis, which has received considerable publicity in recent years. They highlight the importance of examining just how effectively employers are actually utilising the skills base which currently exists within their workplaces.

Figure 1.6: Employers reporting employees had skill levels above that required by the organisation



³ Skills shortage is used here in the sense of 'when employers are unable to fill . . . vacancies for an occupation . . . at current levels of remuneration . . .' and they attribute this to an industry wide shortage of skills.

2. The workplace

In this chapter the focus shifts to the workplace practices of employers and the workplace experiences of employees. The first section looks in detail at how skills are utilised in the workplace and the second section examines more briefly the issue of work-related training.

2.1 The use of skills in the workplace

How much use do workers make of their existing skills and abilities? How much scope do they have to enhance their skills? These are clearly crucial questions for the issue of workforce development. Fortunately, several of the datasets used for this report relate directly to these questions.

The NCVER's *Student Outcome Survey* (SOS 2005) and its *Down the Track Survey* (DTT 2004) asked its respondents to agree or disagree with these two statements:

1. "My job lets me use my skills and abilities"; and
2. "My job provides training and learning opportunities to improve my skills and knowledge".

In the case of the *Household, Income and Labour Dynamics in Australia Survey* (HILDA) survey, the skills questions were phrased differently and respondents were asked to offer agreement on a scale from 1 to 7. Nevertheless, they are reasonably comparable to the NCVER questions. The great advantage of the HILDA data is that it represents the employed population as a whole, not just VET graduates (nor just young people, as in the DTT). While the currently

available HILDA data covers five 'waves' (from 2001 to 2005), the data items used below cover the period 2003 to 2005, the years in which the training question was asked. HILDA also asked some other questions which went beyond skills, and which dealt with other dimensions of work. The questions which have been examined for this report are:

1. "I use many of my skills and abilities in my current job";
2. "My job often requires me to learn new skills";
3. "My job is complex and difficult";
4. "I have a lot of freedom to decide how I do my own work".

Data on the last two items are briefly analysed below. The main focus in this section is on the first two items: the utilisation of skills and the opportunity to enhance skills (that is, learn new skills). These are essentially the same items which the NCVER data provides. Finally, at times, a subset of HILDA respondents—those whose highest level of education was a VET qualification—has also been included in the analysis in order to make the HILDA population more closely correspond to the NCVER populations.

2.1.1 Skills usage

This section examines the extent to which workers' skills are under-utilised. The focus is essentially on investigating which respondents replied in a negative way to the questions on skills usage outlined above.

According to the SOS, about 10 per cent of respondents disagreed that they used their skills. Another 10 per cent were 'fence sitters' and did not positively agree that they used their skills. The DTT put these figures at 14 per cent (disagreed) and 15 per cent (neither). The figure from HILDA closely corresponds to this: about 14 per cent scored from 1 to 3 on the 7 point agreement scale, which constitutes a very low response (since the mean figure is 5.3 and the median is 6). The HILDA VET subpopulation figure of 11 per cent corresponds more closely to the SOS figure. It seems clear from these four different measures that the rate of skills under-utilisation lies somewhere between 10 and 15 per cent, though it is probably closer to 20 per cent if one splits the 'fence sitters' in half.

Skills under-utilisation shows no gender differences in any of the datasets, while the results for age differ slightly. In the SOS, for example, the proportion disagreeing that they used their skills rose to 16 per cent for those aged 15 to 19, and to 13 per cent for those aged 20 to 24 (compared to the overall average of 10 per cent).

Figure 2.1: Under-utilisation of skills, by occupation

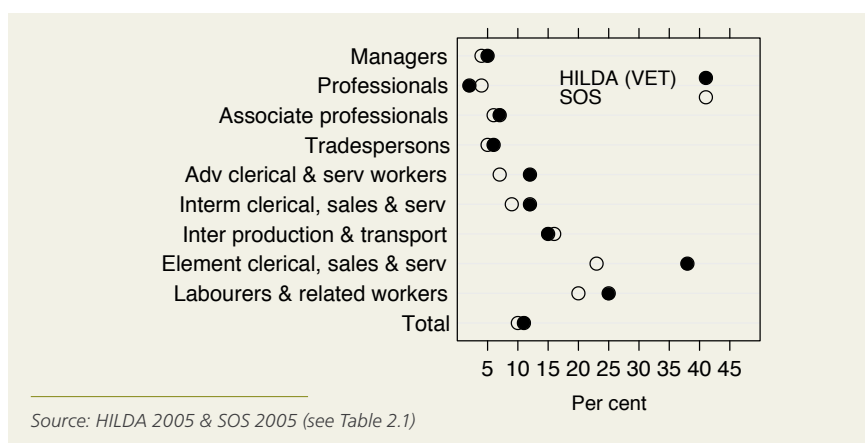


Table 2.1: Employees not using skills and abilities by occupation, comparison of data sources

	HILDA (All)	HILDA (VET)	SOS	DTT
Managers	4	5	4	2
Professionals	5	2	4	7
Associate professionals	8	7	6	8
Tradespersons	8	6	5	4
Adv clerical & serv workers	14	12	7	5
Interm clerical, sales & serv	16	12	9	13
Inter production & transport	21	15	16	39
Element clerical, sales & serv	33	38	23	31
Labourers & related workers	32	25	20	24
Total	15	11	10	14

Notes: Data weighted. Specific question: “My job lets me use my skills and abilities (SOS & DTT); “I use many of my skills and abilities in my current job (HILDA).

Sources: HILDA 2005, Student Outcome Survey 2005, DDT 2004.

Population: HILDA (All): All employed respondents; HILDA (VET): All employed respondents with VET as highest qualification; SOS: All survey respondents who were employed in May 2005; DTT: All survey respondents who were employed in August 2004.

Occupation and industry

As one would expect, the strongest differences between respondents lies in the occupations in which they work. Because skills attainment is closely matched to occupational level, managerial and professional jobs invariably score better than lower level jobs when it comes to skills utilisation. For example, the SOS shows that whereas about 4 per cent of these two occupations indicate under-utilisation of skills, the proportions for elementary clerical, sales and services workers and for labourers are 23 per cent and 20 per cent respectively. It is worth noting, however, that some of the intermediate level occupations—such as tradespersons and intermediate clerical, sales and services—are closer to the higher level jobs than they are to these lower level jobs (with proportions of under-utilisation at 5 per cent and 9 per cent respectively).

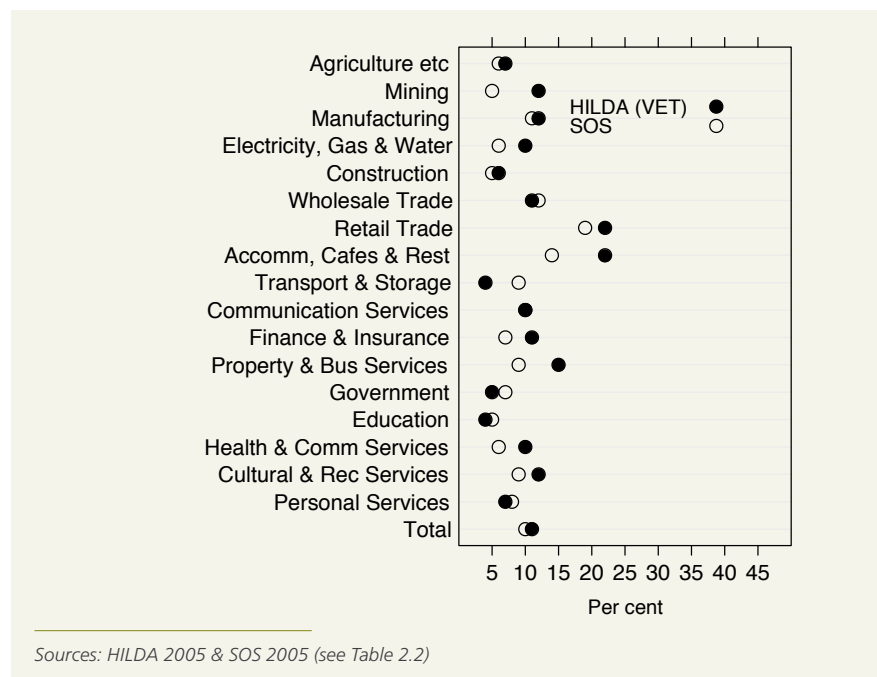
There is a reasonably close correspondence between the data sets when it comes to the higher level occupations, but some sharp differences in the lower level occupations. As Table 2.1 shows, the rate of skill under-utilisation among intermediate production and transport workers ranges from 15 per cent (HILDA VET and SOS) to 21 per cent (HILDA All) and 39 per cent (DTT). The DTT figure needs to be treated with caution, given its restriction to young people, a group whom one would not expect to achieve the same levels of skill utilisation as older adults in jobs requiring working with machinery.

Another quite sharp difference is evident in the under-utilisation rate for elementary clerical, sales and service workers. HILDA (VET subpopulation) puts this at 38 per cent whereas the SOS gives a figure of 23 per cent. Given that these two populations are the most comparable, this anomaly is somewhat perplexing. The closeness of these two datasets are shown in Figure 2.1, which also emphasises the almost linear relationship between occupational level and skills utilisation.

The industry perspective on these findings for the VET population are shown in Figure 2.2 and Table 2.2. Two industries stand out with high rates of skills under-utilisation, with figures in the low 20 per cent range: retail trade, and accommodation, cafes and restaurants. Industries with the best performance include education, government, transport and storage and construction. When the population is broadened to include all workers (not just those with a VET background), the rates of skills under-utilisation reach nearly 30 per cent in accommodation, cafes and restaurants (Table 2.2).

The DTT figures show the most fluctuation across industries, and are probably less reliable because of their restricted population (those under 25). For example, in mining the rate of skills under-utilisation is 27 per cent, well out of line with the other data sources (which range from 5 to 12 per cent).

Figure 2.2: Under-utilisation of skills, by industry



Similarly, communication services shows 39 per cent of workers are under-utilised: a substantial difference from the 10 to 15 per cent shown by the other data sources. On the other hand, in property and business services, the DDT figures are much closer to the HILDA figures. This suggests that in industries where youth work has atypical characteristics—such as some of the ‘blue collar’ industries—the DDT figures should be treated with caution. The HILDA data, on the other hand, is likely to be more reliable across all industry groups and would come closest to what an ABS labour force survey might show.

Table 2.2: Employees not using skills and abilities by industry, comparison of data sources

	HILDA (All)	HILDA (VET)	SOS	DTT
Agriculture, forestry & fishing	14	7	6	5
Mining	10	12	5	27
Manufacturing	16	12	11	15
Electricity, gas & water supply	9	10	6	
Construction	8	6	5	5
Wholesale trade	15	11	12	17
Retail trade	26	22	19	25
Accommodation, cafes & restaurants	28	22	14	19
Transport & storage	14	4	9	8
Communication services	15	10	10	39
Finance & insurance	10	11	7	13
Property & business services	16	15	9	17
Government administration & defence	6	5	7	3
Education	5	4	5	1
Health & community services	9	10	6	3
Cultural & recreational services	15	12	9	11
Personal & other services	14	7	8	4
Total	14	11	10	14

Notes: Data weighted. Specific question: "My job lets me use my skills and abilities (SOS & DTT); "I use many of my skills and abilities in my current job (HILDA).

Sources: HILDA 2005, Student Outcome Survey 2005, DDT 2004.

Population: HILDA (All): All employed respondents; HILDA (VET): All employed respondents with VET as highest qualification; SOS: All survey respondents who were employed in May 2005; DTT: All survey respondents who were employed in August 2004.

Contingent work

As noted earlier, contingent work has been on the rise in the Australian labour market over the last two decades (ACIRRT, 1999; Watson et al., 2003). In their overview of workplace change over the last decade, Martin and Healy (2008, p. 7) observe that a major component of organisational change for many firms has been 'a drive to reduce operating costs'. And 'the principal routes to this form of change have been downsizing and increasing use of 'non-standard' forms of employment such as casual and agency staff.' While such changes can lead to employees undertaking a more diverse range of tasks and more on-the-job learning, they can also lead to increased work intensification and high job turnover. Certainly, the adverse impact of contingent work on workplace training is well documented (Hall et al., 1998, 2000). But what about skills utilisation? Is contingent work adversely related to that dimension of skills development? For example, do casual jobs involve less skills usage? And what about part-time workers? To explore questions like these, two strategies are employed. First, the large number of observations in the SOS data makes it feasible to tabulate the occupational results to show detailed disaggregation of both hours and employment status. Secondly, regression modeling of the HILDA data allows us to examine the net effect of hours and employment status on skills utilisation.

Looking first at the tabulated data (Table 2.3), it is evident that skills utilisation in the higher level jobs—managers and professionals—is not influenced by contingent work. In the case of middle level jobs, some impact is evident. For example, among technicians and associate professionals 9 per cent of casual part-time workers report under-utilisation, a figure nearly twice that of permanent full-timers.

The more severe impacts, however, are evident in the lower level jobs. Among intermediate production and transport workers, for example, the proportion of casual part-time workers reporting under-utilisation of their skills is 34 per cent, more than three times the rate for permanent full-timers. For elementary clerical, sales and service workers the figures are 27 per cent and 13 per cent; and for labourers the figures are 27 per cent and 12 per cent.

It is clear from this data that there are both occupational effects, hours effects and employment status effects. The indexed results, for example, show that the ratio between labourers and professionals in the permanent full-time category is about 4:1. Among the other employment categories, the difference ranges from over 4:1 (permanent part-time) to 9:1 (casual full-time) to 7:1 (casual part-time).

What is notable about the figures in Table 2.3 is the relative rankings of the different modes of employment.

Table 2.3: Employees not using skills and abilities by occupation, hours and employment status

	Perm FT	Perm PT	Cas FT	Cas PT	Total
Percentage in each category					
Managers & administrators	4	8	2	5	3
Professionals	3	5	2	4	4
Technicians & assoc professionals	5	6	6	9	6
Tradespersons	4	9	5	7	5
Advanced clerical & service workers	7	9	5	7	7
Intermediate clerical, sales & service	6	7	10	12	9
Intermediate production & transport	10	27	16	34	16
Elementary clerical, sales & service	13	28	17	27	23
Labourers & related workers	12	23	19	27	20
Total	6	12	9	18	10
Indexed to Perm FT managers					
Managers & administrators	100	200	50	125	75
Professionals	75	125	50	100	100
Technicians & assoc professionals	125	150	150	225	150
Tradespersons	100	225	125	175	125
Advanced clerical & service workers	175	225	125	175	175
Intermediate clerical, sales & service	150	175	250	300	225
Intermediate production & transport	250	675	400	850	400
Elementary clerical, sales & service	325	700	425	675	575
Labourers & related workers	300	575	475	675	500
Total	150	300	225	450	250

Notes: Data weighted.

Source: Student Outcome Survey 2005.

Population: All survey respondents who were employed in May 2005.

For most of the occupations, casual part-time work is clearly at the bottom, but even permanent part-time work has high rates of under-utilisation. Full-time casual work represents a small, but discernible, improvement, and full-time permanent work is, as expected, at the top. This suggests that the opportunities to utilise one's skills and abilities hinges not just on the mode of engagement and how contingent the work is. It also depends on one's presence in the workplace, and the way in which part-time workers are excluded from these kinds of opportunities.

The second strategy for dealing with contingent work and examining the net effects of hours and employment status is to fit regression models to the HILDA data. The implementation of this is detailed in Appendix A, but the overall approach has been to transform the HILDA individual data into aggregate data, and to analyse the characteristics of the jobs in this aggregate data. In what follows I do not model individual skills usage and how this relates to demographic, workplace and labour market characteristics. Rather, I model the associations between 'jobs' and these various characteristics.¹ A job is defined as an occupation in an industry (for example, an automotive trades worker working in retailing, or a cleaner working in accommodation). This has the advantage of using the more finely disaggregated two digit occupational coding (eg. cleaners or factory labourers, rather than labourers). Controlling for broad occupational skill levels in the regressions² takes account of the obvious link between the nature of

the job (eg. cleaning or teaching) and its pre-existing, generic skill level (5 and 1, respectively).

In what follows, the questions posed to the data take the form: are jobs with poor mean scores on skills usage associated with jobs with high concentrations of casuals, or jobs with high levels of unionisation, and so on? In other words, the dependent variable in these regressions is the mean score for skills usage and the independent variables are the proportions of workers with various demographic, workplace and labour market characteristics in those jobs. In a few cases, these are not proportions but mean values (eg. average number of years of education, or average number of years of occupational tenure).

The detailed results are found in Appendix A and the key findings are presented in graphical form. The panels in the graphs show the strength and direction of the association between the outcome variable, and the various explanatory variables which are in the model. If the line slopes backwards, this indicates a negative association. The steepness of the line indicates the strength of the effect. The data behind these graphs are based on predicted values, with all other variables set to their mean values. Essentially, this means that each panel in the graphs shows the net effect of that variable (eg. occupational tenure) on the outcome (eg. skills use), controlling for the influence of all other variables in the model.³

Figure 2.3 shows the results for skills use. There are positive associations for occupational tenure, proportions

of small business, youth intensity, public sector employment and VET qualifications. A negative association exists between skills use and the degree of casualisation. The positive effect for occupational tenure is to be expected: occupational tenure is a measure of career development, with longer years associated with greater seniority and more scope to use one's skills and abilities. The other positive effects are not only considerably weaker, but are also less precise. At first glance, the positive effects for small business and the public sector may appear contradictory.

¹ It is important to stress this distinction between individuals and jobs. The latter is an aggregate unit of analysis, composed of the characteristics of many individuals. As with the ecological inference problem one needs to be aware that results at this aggregate level may not apply at the individual level. See Robinson (1950) and King (1997).

² Based on the five fold occupational classification of skill levels used by Cully (2003, p. 13).

³ The dashed lines indicate confidence intervals around the predictions and allow one to assess how precise the predictions are at different levels of the explanatory variable. Wherever feasible, the x-axis scales have been kept consistent, to facilitate direct visual comparisons.

But on reflection they do make sense. Small businesses typically require their workers to be 'jacks of all trades', and opportunities to show initiative in such workplaces are often available. The public sector provides structured opportunities for career development, as well as movement between departments. As for the negative effect for casualised work, this is one of the strongest effects in the model and shows that the links between contingent work and skills use is not just a question of occupational differences.

Figure 2.3: Factors influencing the usage of skills in jobs

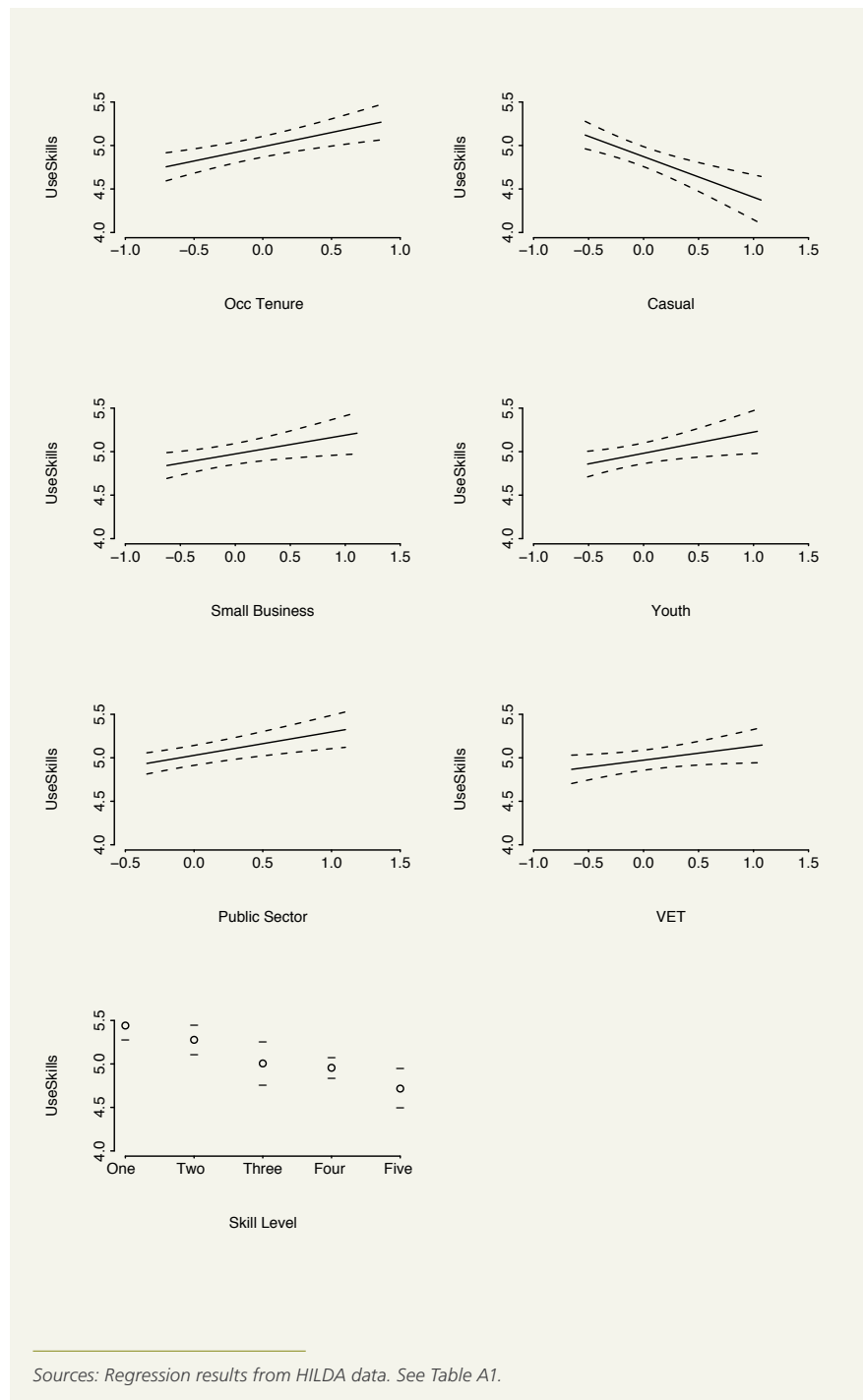


Table 2.4: Changes in skill usage over time: 2003–2005

	Decrease	No change	Increase	Total
Occupation				
Managers	8	85	7	100
Professionals	6	82	12	100
Associate Professionals	10	78	13	100
Tradespersons	13	76	11	100
Advanced clerical & service	13	75	12	100
Intermediate clerical & service	14	70	16	100
Intermediate production & transport	15	71	15	100
Elementary clerical, sales & service	23	64	13	100
Labourers & related workers	22	62	16	100
Total	12	75	13	100
Industry				
Agriculture, forestry & fishing	12	78	10	100
Mining	9	79	12	100
Manufacturing	14	73	13	100
Electricity, gas & water supply	13	77	9	100
Construction	10	79	11	100
Wholesale trade	11	75	14	100
Retail trade	18	71	12	100
Accommodation, cafes & restaurants	15	68	17	100
Transport & storage	12	72	15	100
Communication services	17	69	14	100
Finance & insurance	6	80	14	100
Property & business services	16	70	13	100
Government administration & defence	7	80	12	100
Education	4	85	10	100
Health & community services	10	76	13	100
Cultural & recreational services	14	69	17	100
Personal & other services	15	71	14	100
Total	12	75	13	100

Notes: Data weighted.

Sources: HILDA 2005.

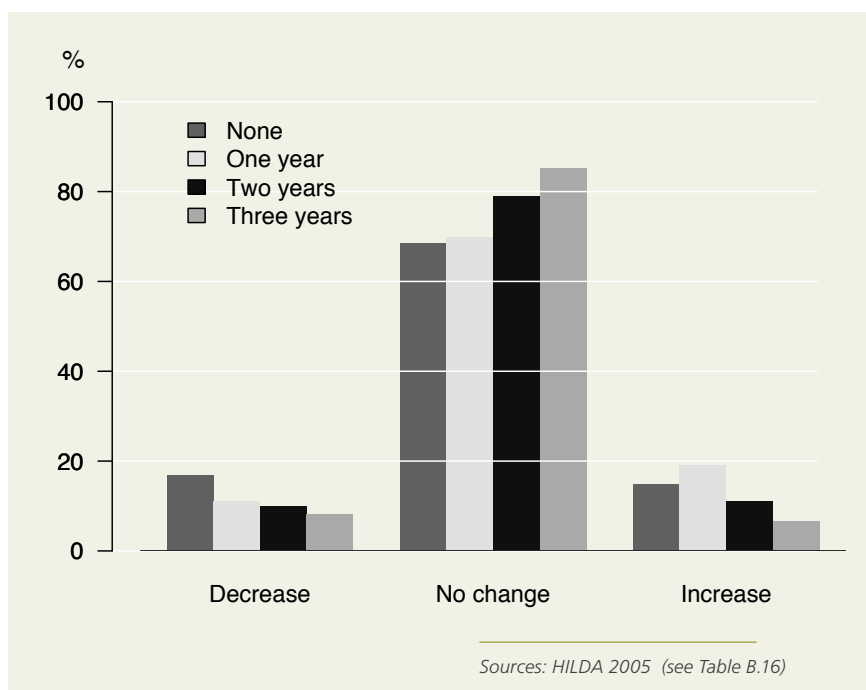
Population: HILDA: All employed respondents.

2.1.2 Changes over time

Three quarters of employees experienced no change in their usage of skills in the period from 2003 to 2005. About 12 per cent experienced a decrease and 13 per cent an increase. These results are based on analysing the HILDA data, a longitudinal survey which re-interviews the same people each year. ‘Change’ here was measured as a difference in skills usage scores between two points of time for the same individual (in 2003 and again, in 2005). Skills usage was defined as *decreasing* if the person’s score fell by more than one point. The *no change* measure was defined as scoring the same, or one point above or below. Finally, an *increase* in skills usage was defined as improving on the scale by more than one point.⁴ The full set of results are shown in Table 2.4.

As we might expect, the occupational impact on skills usage is quite pronounced. Among the two lowest-skilled occupations, over one fifth of respondents experienced a decrease in their skills usage, figures which considerably outranked the proportions who experienced an increase (from 13 to 16 per cent). On the other hand, the three highest-skilled occupations experienced very small decreases in skill usage.

Figure 2.4: Change in skills usage by frequency of training



⁴ This is quite a conservative approach and favours the no change. For example, if increase and decrease are defined as simply a higher or lower score than two years before, the proportion reporting these outcomes each jumps to 31 per cent, and the proportion reporting the no change falls to 39 per cent.

Somewhat surprisingly, there was little variability among those reporting an increase in skills usage. This might reflect, for the lower skilled occupations, a lack of opportunity to deepen their skills; while for the higher skilled occupations they may already be working at a high level of skill.

The industry profile, shown in the bottom panel of Table 2.4, also shows very little variability when it comes to increases in skills usage. In the case of skill declines there is greater diversity among industries. Three industries have relatively poor results: retail trade, communication services and property and business services. By contrast, three industries which show good results (with minimal proportions reporting declines) are

education, government and finance and insurance.

The HILDA survey also offers some insights into how workplace training relates to skills. As we shall see in the next section respondents were asked about their participation in work-related training or education over the last 12 months.

This training question was repeated over three years and thereby provides an opportunity to gauge whether participation in training was related to skills utilisation. Because there is no measure of *how much* training they received (in terms of hours, or number of courses etc), the best option is to rate respondents' training according to whether they had no training, whether they had participated in training in all these waves (three years), or only one or two waves (ie. one or two years).

Table B.16 shows these results in full, and Figure 2.4 presents the general picture.

The results of this analysis are quite striking. In general, about 15 per cent of employees improved in their skills usage between 2003 and 2005, and this increased to 19 per cent among those who had one year of training. However, the figure then dropped sharply for those with more years of training. As one might expect, more years of training was associated with a decline in the proportions whose skills usage had decreased, but these numbers mainly transferred to the 'no change' category rather than to the 'increased' usage category.

2.1.3 Skills enhancement

About 14 per cent of employees lacked the opportunity to enhance their skills on the job.⁵ As one might expect, this situation was very much influenced by occupation: the least skilled occupations had the most limited opportunities.

As Figure 2.6 shows, over one fifth of all labourers and elementary clerical, sales and service workers both lacked the opportunity to enhance their skills. By way of contrast, only about one tenth of associate professionals and tradespersons were in this situation.

From an industry perspective (Figure 2.5), a number of industries had high proportions of their workforce with limited opportunities for skills enhancement: wholesale and retail trade, accommodation, cafes and restaurants, manufacturing, and transport and storage.

It is noteworthy that most of these belong within the 'low wage' sector of the economy. Industries where workers did have greater opportunities to enhance their skills included mining, utilities, construction, government, education and health and community services.

It is worth noting that this mix of industries includes those with either high proportions of professional workers or high proportions of tradespersons.

Figure 2.5: Limited opportunities for skills enhancement, by industry

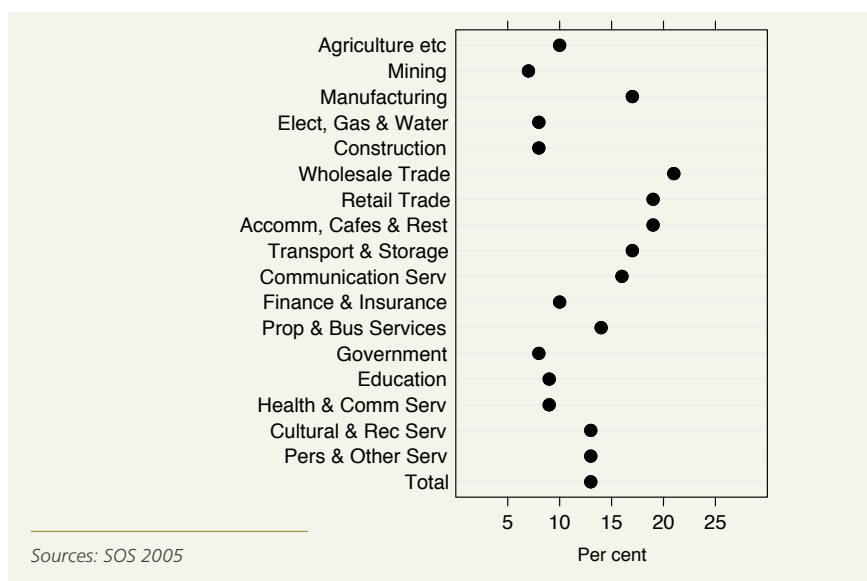
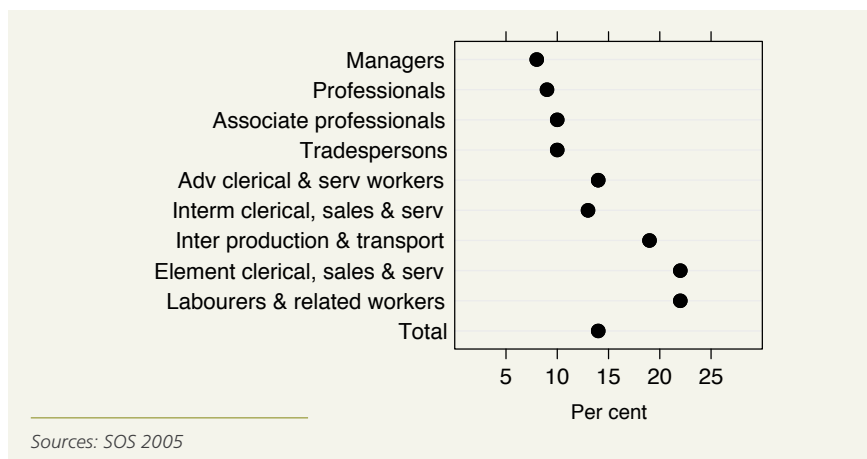


Figure 2.6: Limited opportunities for skills enhancement, by occupation



⁵ These figures come from the SOS (14 per cent) and the DTT (15 per cent). The specific question asked respondents if they agreed with the proposition that: 'My job provides training and learning opportunities to improve my skills and knowledge'. The figures reported in this section are for those who disagreed. The Figures from HILDA, for a similar question, were much higher: 28 per cent among all HILDA respondents and 25 per cent among HILDA respondents with VET qualifications. Across most occupations, the HILDA figures are generally about double what the NCVER data sources indicate. Among the lower level occupations, the figures in HILDA reach nearly half of the population (47 per cent), while among the DTT the highest figures are just under 30 per cent.

As with the skills usage question, a more detailed breakdown of the skills enhancement question is possible with the SOS data. Table 2.5 shows these findings in the same fashion as before, with both cell proportions and indexed results. As with skills usage, casual part-timers fare the worst when it comes to enhancing their skills.

However, the middle of the hierarchy differs slightly: permanent part-timers fare slightly better than casual full-timers, though both still fall well behind permanent full-timers. This outcome very much reflects the circumstances of managers and professionals, for whom learning opportunities among permanent part-timers are on par with—or even better than—for permanent full-timers.

In these occupations, even casual full-timers fare reasonably well. It is the casual part-time workforce in these occupations which loses out most: some 14 per cent of these workers miss the opportunity to enhance their skills, compared with figures of half that magnitude among the permanent (full-time and part-time) workforce.

At the lower occupational levels, the permanent part-timers and the casual full-timers are closely matched: around one fifth to one quarter don't get the opportunity to enhance their skills. Among the casual part-timers these proportions rise to more than one third. By contrast, among the permanent full-time workforce the proportion missing out never rises above 14 per cent, even among labourers.

Table 2.5: Limited opportunities to enhance skills, by occupation, hours and employment status

	Perm FT	Perm PT	Cas FT	Cas PT	Total
Percentage in each category					
Managers & administrators	8	3	8	14	8
Professionals	7	7	10	14	8
Technicians & assoc profess	8	11	9	16	10
Tradespersons	8	13	11	14	10
Adv clerical & serv workers	12	15	15	18	14
Interm clerical, sales & serv	10	10	18	18	13
Inter production & transport	14	23	20	34	19
Element clerical, sales & serv	14	22	20	26	22
Labourers & related workers	14	24	23	28	22
Total	10	13	15	22	13
Indexed to Perm FT managers					
Managers & administrators	100	38	100	175	100
Professionals	88	88	125	175	100
Technicians & assoc profess	100	138	112	200	125
Tradespersons	100	162	138	175	125
Adv clerical & serv workers	150	188	188	225	175
Interm clerical, sales & serv	125	125	225	225	162
Inter production & transport	175	288	250	425	238
Element clerical, sales & serv	175	275	250	325	275
Labourers & related workers	175	300	288	350	275
Total	125	162	188	275	162

Notes: Data weighted. Top panel figures show the percentages disagreeing with the statement: 'My job provides training and learning opportunities to improve my skills and knowledge'.

Source: Student Outcome Survey 2005.

Population: All survey respondents who were employed in May 2005.

As with skills usage, these findings for opportunities to enhance skills suggests that even when we take account of the occupational dimension, there is still a strong effect coming from contingent employment relations. This is particularly so for the

most marginal group: the casual part-time workforce.

As with the issue of skills usage, this investigation of skills enhancement can also be extended using multivariate analysis of the aggregate

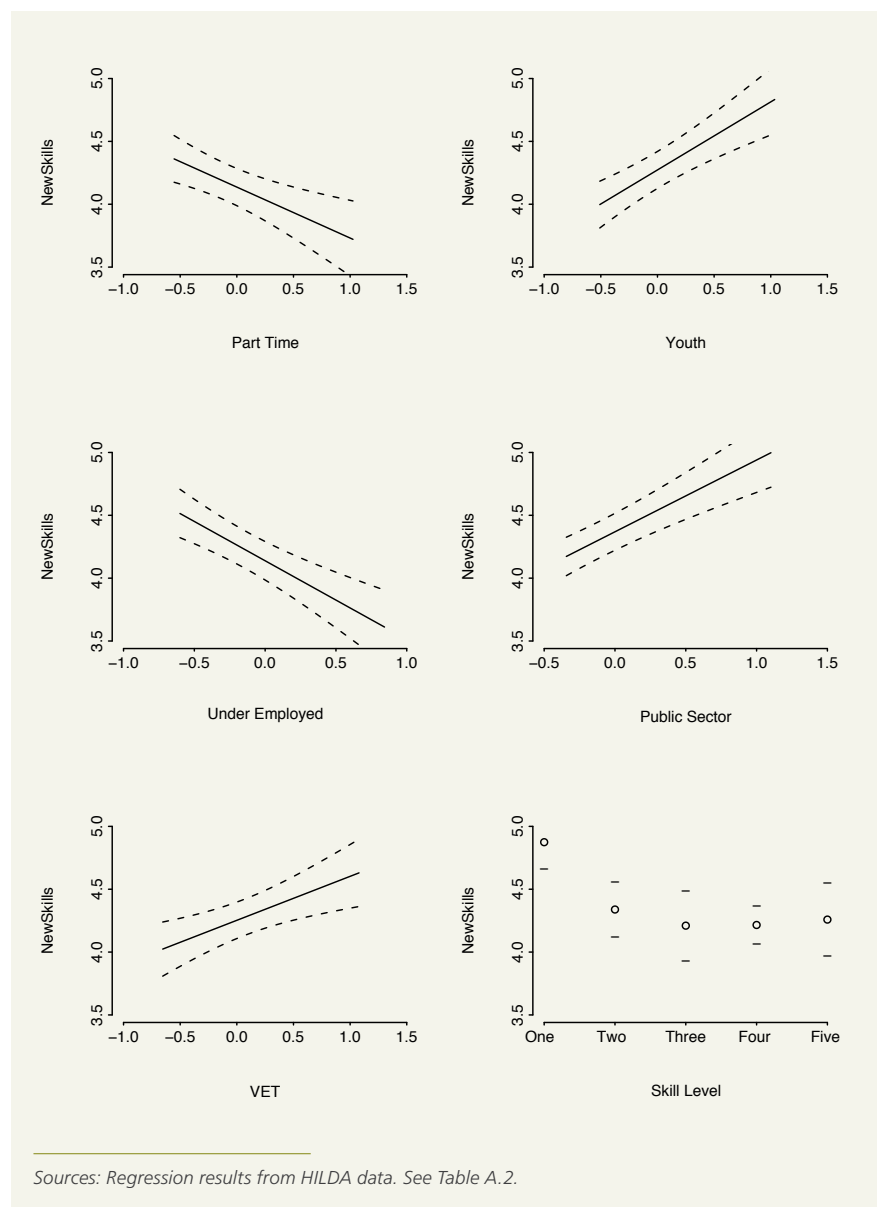
HILDA data. While the question was worded slightly differently, the concept is essentially the same.⁶ The results are shown in Appendix A, and the key findings—which are quite dramatic—are illustrated in Figure 2.7. There are positive associations for the youth intensity of jobs, public sector employment and holding VET qualifications. In other words, jobs which have high proportions of these are also jobs where skills enhancement is more likely. On the other hand, jobs with higher levels of part-time employment and under-employment are jobs where there are fewer opportunities for skills enhancement.

While the pre-existing skill level is included in the model as a control, to take account of occupational confounding, it is interesting to note pre-existing skills only appear to matter among the highest skilled (professional occupations). There is little variation among the other four skills levels. This contrasts with the skills usage results, which showed an almost linear association between skill levels and skills usage (see Figure 2.3).

In summary, the overall impression conveyed by Figure 2.7 is consistent with the findings for skills usage.

Again, contingent work appears to have an adverse effect on skills development. However, where casual employment impacted more negatively on the opportunity to use one’s skills, it is part-time work and underemployment which appear to have the greatest effect on the opportunity to enhance skills.

Figure 2.7: Factors influencing opportunities for skills enhancement



⁶ The HILDA question was: 'My job often requires me to learn new skills.'

2.1.4 Job autonomy and complexity

As noted earlier, two other questions from the HILDA survey were analysed: one dealing with job complexity and one dealing with job autonomy (freedom to decide how to do the work). It has been argued that the link between these areas and skills enhancement is a strong one. For example, Abrahamsson et al. (2004, p.16) develop the concept of ‘underlearning’—where workers fail to develop their skills—and suggest that this problem may be due to the characteristics of the workplace and the nature of the job:

Underlearning. . . is not only an issue of inefficient learning at work, but also a situation in which work organisation and corporate culture is rejecting learning opportunities or supporting a negative learning climate . . . underlearning tends to be more common in situations of high skills demands, low level of control and influence as a well as a non-supportive social setting. (2004, p.16)

Autonomy has also been emphasised as one of the key ingredients in the creation of high-skilled workplaces. As Lloyd and Payne (2002, p. 370) argue:

To create a broadly-based high skills economy requires a large number of employers to shift their business strategies, adopting long-term approaches and focusing on higher quality product markets or innovative/ differentiated markets. In addition, these firms must use forms of work organisation that require more, not less, skill and provide greater levels of autonomy for employees at all levels within the company.

Turning now to the survey evidence, what can we conclude about the connection between skills and autonomy? Is it the case that jobs which provide a challenge, or which offer a degree of autonomy, are more likely to be jobs which enhance learning or allow workers to utilise their skills? The HILDA job data⁷ suggest that we need to separate job complexity from autonomy. As Table 2.6 shows, the bivariate relationship between these two areas and the two skills components are by no means equivalent, with the strongest correlation found between the complexity of the job and skills, rather than between autonomy and skills. This finding certainly makes sense: difficult and complex jobs are more likely to involve a greater engagement of skills, or a greater impetus to acquire new skills. Despite the lower figures, the link between autonomy and skills is still quite strong, reinforcing the argument advanced by Abrahamsson et al.

Table 2.6: Correlations between skills and job complexity and autonomy

	Autonomy †	Complexity ‡
Use skills §	0.53	0.79
New skills ¶	0.44	0.83

Notes: Bivariate correlations for HILDA job data. See discussion of regression results for an explanation of this data (page 47).

¶ “I use many of my skills and abilities in my current job.”

§ “My job often requires me to learn new skills.”

† “I have a lot of freedom to decide how I do my own work.”

‡ “My job is complex and difficult.”

Source: HILDA Wave E (Release 5.1).

Population: All employed persons 2001 to 2005.

⁷ That is, the transformed data which makes jobs the unit of analysis. See Appendix 4 for details

Of course one of the reasons for these strong correlations is that those workers in higher skilled occupations are also the workers most likely to be given autonomy or to be challenged in their jobs. As Table B.13 shows, and as one might expect, the mean scores for autonomy are very high among the three most skilled occupations—managers, professionals and associate professionals—at 5.72, 5.10 and 5.17 respectively (the occupational average is 4.73). Interestingly, the less skilled occupation of advanced clerical and sales workers comes second to managers on autonomy (5.23), even though its score for learning new skills is considerably lower (3.74, compared with the occupational average of 4.48). Job complexity shows a different profile, with advanced clerical and service workers faring well below the all occupational average. The explanation for these figures is that advanced clerical and service workers—which includes secretaries and personal assistants—are often given considerable responsibility and flexibility in their jobs, even though the work itself may not be highly skilled nor complex.

Some of the lower skilled occupations fare very poorly on job complexity, even where their autonomy scores are higher. Labourers, for example, score only 2.92 on the complexity score, but come in at 4.25 on the autonomy score. While some areas of labouring, such as factory process work, are highly routinised, other areas may demand more initiative or decision-making, such as construction labouring, or may simply be unsupervised, such as cleaning. Examples like these suggest that the link between skills enhancement and job autonomy may be quite weak at the bottom of the occupational ladder. The autonomy extended to the workers in these jobs does not necessarily extend the skills content of the job itself.

2.2 Workplace training

2.2.1 Participation in training: employee perspectives

The HILDA survey asked employees about their participation in work-related training or education over the last 12 months. This question was asked in three years (2003, 2004 and 2005). In 2005, some 41 per cent of employees reported that they had undertaken such training or education. The largest proportion of employees undertaking training were professionals (57 per cent) while the lowest proportion were labourers (23 per cent). Figure 2.8 shows the full range of occupations while Table B.22 shows a breakdown by highest qualifications held. Those with higher education qualifications were more likely to undertake training (53 per cent). Those with VET qualifications followed next (46 per cent) and those with no post-school qualifications were last (32 per cent).

Among those who did undertake training, the most common reason was to improve skills in the current job (71 per cent). Training for meeting professional or occupational standards was also important (55 per cent), particularly among managers and professionals. Finally, training to develop skills more generally was mentioned by 52 per cent of those taking part in training.

An industry perspective on work related training is shown in Figure 2.9.

Figure 2.8: Employees undertaking work-related training, by occupation

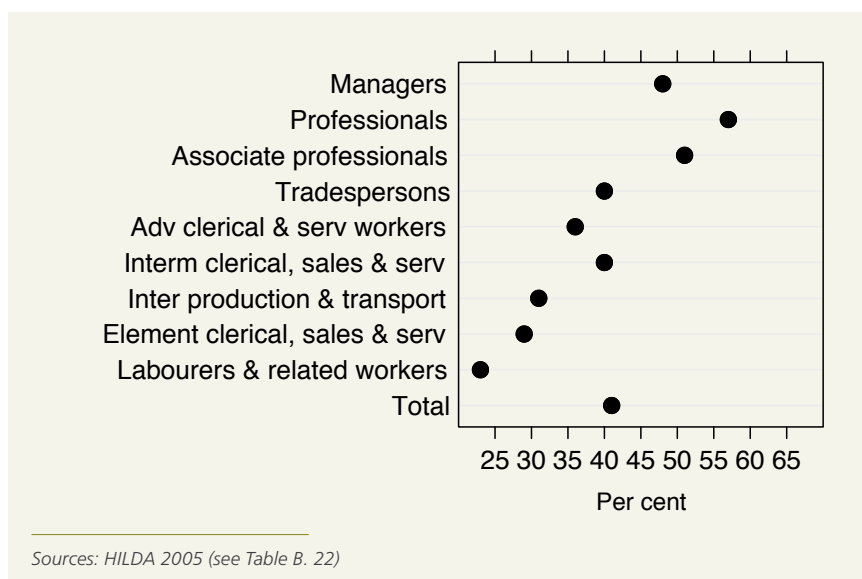
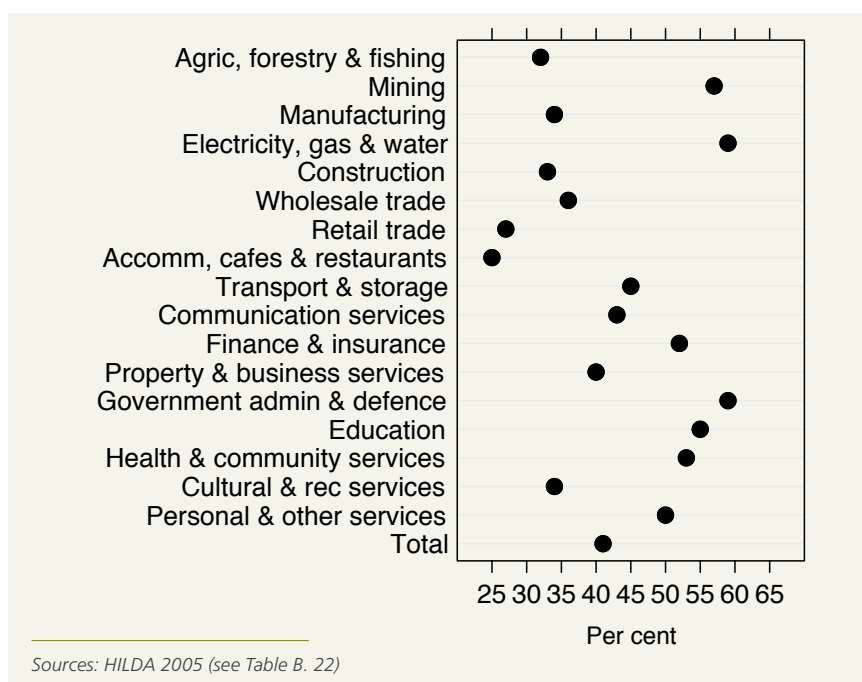


Figure 2.9: Employees undertaking work-related training, by industry



A cluster of industries are well ahead of the all-industry average for training. Government and utilities head this group, followed closely by mining, education, health and community services, and finance and insurance. At the other end of the spectrum, industries with proportions well below the all-industry average include retail trade and accommodation, cafes and restaurants.

This pattern is consistent with the industry profile evident throughout this report. Somewhat surprising, however, is the low proportion of employees in construction who undertook training. At just over 30 per cent, this industry is on a par with agriculture and manufacturing.

2.2.2 Training needs: employer perspectives

The SEUV asked employers how they determined their training needs, and the two most common responses were:

1. using performance management, skills appraisal or training needs analysis; and
2. using informal methods.

How these responses varied across industries is shown in Figures 2.10 and 2.11 and a more detailed picture is presented in Table B.24. Government administration and defence strongly favoured the first response (some 77 per cent of organisations used this approach), as did education (66 per cent). On the other hand, informal methods dominated in agriculture (54 per cent) and were widespread across a range of diverse industries.

Mining was notable for its low use of this approach (only 21 per cent of organisations).

Of course, ‘informal’ can be a polite term for an absence of planning or strategic decision-making. Some firms simply grapple with skills gaps as they emerge. A common pattern is for someone to be recruited on the basis of their existing skills, and apart from induction training, no more thought may be given to further training until some problem arises. By way of contrast, in firms where performance management or skills appraisal are used, formal arrangements for training are more likely to be planned in a more strategic way. Part of the reason for this difference can be organisational size: as Table B.24 shows, some 90 per cent of large organisations make use of performance management etc. compared with just 39 per cent of small organisations. Quite often, large organisations, which generally maintain a dedicated human resources section implement performance management etc, whereas smaller organisations often lack this capacity. As Table B.24 shows, nearly half of small organisations make use of informal methods, a figure which is higher than those making use of performance management etc.

The results shown in Figures 2.10 and 2.11 should come as no surprise. The same industries which show high levels of training, and which rate highly in terms of skills usage and enhancement, are the same industries which are inclined towards more performance appraisal: government, education and health

and community services. Not only are these industries predominantly based in the public sector, but they are primarily large organisations (though the workplaces themselves may be small).⁸ By way of contrast, those industries which make strong use of informal methods are the same industries which score poorly on the training and skills measures: retail trade, accommodation, cafes and restaurants, cultural and recreational services, manufacturing and agriculture. Most of these are small organisations so the prevalence of informal methods is to be expected. While these findings may suggest little scope for policy interventions—since organisational size is largely predetermined—the strong link between poor training and skills outcomes and ‘informal’ methods in the workplace should not be overlooked. As is well known, good training and skills outcomes are more likely when planning methods move from the informal level to the formal.

⁸ Community services is a very mixed situation. Large Church-based organisations, and some large private sector organisations, co-exist alongside small community-managed organisations.

Figure 2.10: Employer use of performance management, skills appraisal etc to determine training needs

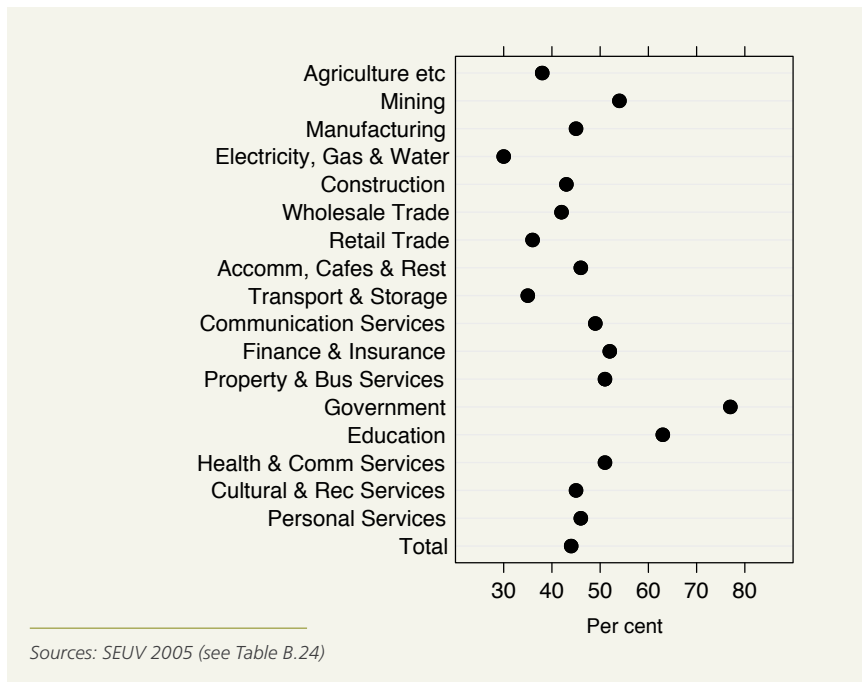
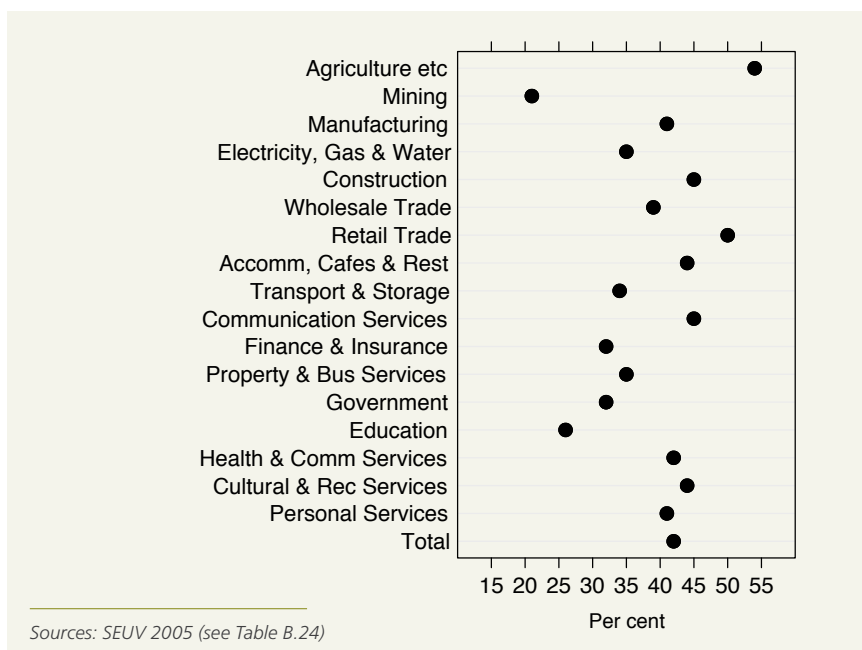


Figure 2.11: Employer use of informal methods to determine training needs



2.2.3 Contingent work and training

Given the findings in the earlier section about the strong links between contingent work and the under-utilisation of skills it is important to ask: where do the openings lie for skills development among this segment of the workforce? Is work-related training available to casuals and part-timers and might this lead to opportunities for skills development in the workplace?

Data from the Australian Bureau of Statistics suggest that about half of all casuals undertook no type of training during the last 12 months. This compared with a figure of about 30 per cent among permanents (ABS, 6361.0, 2000, Table 8). When it came to structured training courses, about 12 per cent of casuals took part, compared with 31 per cent of permanents. On the other hand, with on-the-job training the differences were less stark: 35 per cent (casuals) to 37 per cent (permanents). Clearly, apart from learning on the job, the opportunity for casuals to undertake training is considerably limited.

Nevertheless, it is worth examining which casuals do get these opportunities. In particular, what factors are most strongly associated with casuals getting access to training? To help answer this question, the following analysis draws on the HILDA pooled data (covering the years 2003 to 2005) and fits logistic regression models for both casuals and permanents. The outcome modeled was whether the individual took part in work-related education or

training during the year. The detailed results can be found in Tables A.3 and A.4 in the appendix. Because casuals are the main focus here, it is worth summarising their results. Basically, the key factors associated with an increased probability of undertaking training by casuals were:

1. working full-time;
2. working in a workplace with 20 or more employees;
3. being a trade union member;
4. having VET qualifications;
5. working in the mining industry or in health and community services.

Of course, a number of these factors are also important among the permanent workforce and these can be examined in detail in Table A.4.⁹ For the purposes of this report, what is most interesting is a comparison between the casual and permanent workforce outcomes for some of these factors. While being in a union and working full-time are both associated with increased probabilities of undertaking training, there is little difference between casuals and permanents in this regard. On the other hand, the workplace size effect is more influential among the casual workforce than the permanent workforce. Most importantly, however, is the role of VET qualifications. These make much more of a difference among the casual workforce than they do for permanents. For example, for a 'typical' casual worker the probability of undertaking training rises from 22

per cent to 29 per cent if the person has VET qualifications. For a 'typical' permanent employee the rise is more modest if they hold VET qualifications, from 31 per cent to 34 per cent.¹⁰

In summary, this section has shown that casuals do poorly in terms of skills development, particularly the utilisation of their skills and the opportunity for skills enhancement. But not all casuals experience the same fate. One way of thinking about this is that some factors offer protection against the vicissitudes of casualised work, particularly its more marginalised outcomes. Taking, as an example, participation in training, the results in the final part of this section suggest a number of factors offer casuals such protection. If they work in industries suffering acute labour shortages—such as mining and health—then casuals have an increased chance of undertaking training. Similarly, working in larger workplaces and being in a union also increase their chances. Finally, VET qualifications do appear to make a real difference when it comes to work-related training, conferring a greater degree of labour market advantage to casuals than to permanents.

⁹ A larger number of industries and occupations are statistically significant in the model for the permanent workforce, but this largely reflects the much larger sample size available for this population.

¹⁰ The 'typical' worker is a statistical artifact, a 'scenario' of characteristics plugged into the regression equation. A different scenario will produce a different set of probabilities, but the interest here lies in the difference which VET qualifications make. The particular scenario chosen for this example was: full-time worker, in a workplace with 20 to 99 employees, a member of a union, working as a labourer, and employed in manufacturing.

3. Conclusion

3.1 Overview

In the first part of this report, an analysis of recently published research indicates that about 30 per cent of workers are overeducated for the jobs that they are doing. The figure for those with VET qualifications is even higher. Figures from the ABS support these findings, though they place the figures at a lower level. NCVET research looking at VET graduates found that about 15 per cent of them were under-employed in terms of skill. Indeed, the NCVET research suggested that nearly 30 per cent of VET graduates had poor outcomes when it came to matching education experiences with intended occupational outcomes. This quite varied research suggests major problems in the utilisation of existing skills within the Australian workforce. All of this comes at a time when government and employers are anxious about skills shortages.

This report suggests that this anxiety is overstated. While there are certainly skill shortages in some sectors of the labour market, the notion of a skills crisis is not supported by the evidence presented in this report. Employer surveys, such as those undertaken by the NCVET, indicate that about one fifth of employers reported a lot of difficulty in recruiting staff. When this is recast as a measure of skills shortages (that is, when the reason for difficulty can be attributed to industry-wide skills recruitment problems) the figure drops to about 15 per cent. While in some industries— particularly mining—the figures are much higher, across most industries the proportion of employers

facing skills shortages is quite modest. In absolute terms, the number of employers facing this problem can be counted in the tens of thousands, out of a population of nearly 900,000 employers.

The problem of an over-qualified workforce also surfaces in employer surveys. When asked to rate the skill levels of their workforce, relative to their organisational needs, some 37 per cent of employers indicated that their workers had skill levels above what was required. Only 5 per cent of employers indicated that their employees' skills were below what was required.

The current pre-occupation with skills shortages can lead to important oversights. For example, as well as the problem of over-qualified workers mentioned above, evidence based on survey data also suggests a major problem of skills being under-utilised in workplaces. Moreover, the opportunities for workers to enhance their skills and to participate in training were also found to be quite limited.

The main task of this report was to investigate the usage of skills in workplaces. This was supplemented with an examination of opportunities for skills enhancement and opportunities to participate in training. The results showed that the occupation held by the worker was fundamental in determining outcomes such as these. This should come as no surprise. After all, an occupation is primarily a skills-based framework for deploying labour. This is not to say that middle and lower level occupations (in the skills hierarchy)

have no need for skills enhancement or training. Most workers would clearly benefit from these kinds of arrangements. Indeed, it is clear that a lot of workers who are not occupying managerial, professional or trades jobs do undertake challenging work which utilises and enhances their skills. The problem is that this situation is a very uneven one. These sorts of outcomes are much less prevalent in low-paid industries such as retail and hospitality, but feature strongly in public sector areas such as government and education.

3.2 The industry dimension

The industry pattern evident throughout this report is quite distinctive. While there is some variability around particular data items, the main fault line is the division between public sector industries such as government and education, and low-wage service industries such as retail trade and hospitality. Whether it be skills usage, opportunities for skills enhancement or participation in training, the former group of industries tend to be associated with positive outcomes, and the latter with negative ones. Clearly, these industries are highly occupationally specific: the former dominated by managers and professionals, the latter by intermediate and elementary clerical, sales and service workers (and, to a lesser extent, labourers). However, this does not mean that skills development is unnecessary in retail trade or hospitality. Indeed these are industries highly reliant on well developed social skills. The

point is that these skills are often assumed to pre-exist employment and are therefore not prioritised as an area for further development. This is particularly so in the case of women returning to the workforce whose years of child rearing and domestic labour have fostered a large range of 'tacit' skills (Norris et al., 2003, p. 354).

Another set of critical distinctions between these two industry groupings is the large organisation/small organisation distinction, the public sector/private sector distinction, and the high wage/low wage distinction. Research suggests that the public sector has always been prepared to invest in employee skills because of the importance of career paths in this sector. The modeling results shown earlier (Figures 2.3 and 2.7) suggested a strong association between public sector jobs and jobs that utilised and enhanced skills. Where the private sector invests in skills, this has traditionally been more common in larger organisations. While this continues, research suggests that the emphasis on cost-cutting strategies since the early 1990s has seen the diminution of traditional career structures in the private sector. Finally, low wage industries have little incentive to enhance the skills of their workforce unless they seek to move into higher-value product markets. It is worth briefly looking at a recent case study of training practices and skills utilisation in the hospitality industry in the UK because it highlights this link between wages and skills, and also draws attention to the importance of organisational size.

When the National Minimum Wage (NMW) was introduced in the UK in 1999, two lower differential rates of pay were established, partly in the hope that this would protect young people's employment prospects and partly in the hope that it might encourage training of older workers (who could be paid at a lower rate if they were engaged in accredited training). In their study of the hospitality sector in Portsmouth, Norris et al. (2003) found that while most employers paid above the minimum because of an increasingly tight labour market, their training practices did not change. The expectation that training might increase among the lower-paid older workers proved illusory: 'the major obstacle was perceived to be the burdensome arrangements necessary to deliver the training' (2003, p. 357). Where training did increase in the sector was among larger firms which sought to increase their competitive position at the top-end of the market. Here customer service was a priority and staff training was seen as integral to this strategy of competing on quality (2003, p. 359). For the rest of the industry, however, any impetus towards increased training remained largely absent. As Norris et al. (2003, p. 361) concluded:

... hospitality is an industry characterised by a relatively low level of formal training, often restricted to induction schemes, and a reliance on tacit skills . . . the gendered nature of jobs, casualisation and the high level of turnover stifles demand from employers and workers for improved job training opportunities. This is not to say that bar work and housekeeping work are 'unskilled'—rather, jobs in

these areas require little formal training to be carried out effectively and are poorly rewarded as a result.

In this example a number of key factors are intertwined: casual work, gender, low pay and an absence of training opportunities. It is only among larger organisations, whose focus is on expanding their market, that some of these factors are mitigated.

3.3 Contingent employment

As well as the key determinants of industry and occupation, another major factor needs recognition. This report has shown that contingent work has an important impact on the utilisation and enhancement of skills, and on participation in training. Those workers employed in this fashion do poorly when it comes to skills development and this cuts across industry, occupation, gender and age. In the light of this finding, the remainder of this conclusion is devoted to unpacking further this link between skills and contingent work.

One of the distinguishing features of the last decade has been strong employment growth alongside an expansion in contingent employment. While much of this expansion has been underway for several decades, its persistence during a period of buoyant economic growth has been startling. Thus, whereas the unemployment rate reached the low 4 per cent range during 2007, the under-utilisation rate—which incorporates a measure of underemployment—was still above 11 per cent.

Casual employment has not only grown strongly during the last two decades, but it has steadily extended into new areas and among the full-time workforce. As Table 3.1 shows, there has been strong growth in 'traditional' areas of casualisation, industries where fluctuating time-periods of consumer demand or seasonal factors have pushed employers towards engaging staff in this way. However, there has also been strong growth in industries which do not fit this pattern of fluctuation or seasonality, industries such as finance, where there has been a tripling of casualisation over this period.

There has been considerable debate in Australia about this growth in casualisation. While the detractors (for example, Burgess and Campbell (1998a,b); ACIRRT (1999); Watson et al. (2003) have emphasised the precarious nature of this kind of work, the defenders have argued that various non-standard forms of employment, such as casual and part-time jobs, provide flexibility to both employers and employees (Wooden, 2000; Wooden and Warren, 2003). The latter are seen to benefit by gaining greater choice in balancing work and non-work activities. From within this perspective, casual jobs—particularly if they are part-time jobs—can be seen as desirable jobs:

... the persons who are most content with their jobs are those in part-time jobs, and it appears to matter little whether these workers were hired on a permanent, casual or fixed-term basis (Wooden, 2001, p. 65).

Table 3.1: Growth in casualisation by industry, 1985–2006

	1985 (%)	2006 (%)
Traditional areas		
Accommodation, cafes & restaurants	50	64
Agriculture, forestry & fishing	38	53
Manufacturing	8	17
Cultural & recreational services	30	41
Retail trade	33	41
Education	15	17
New areas		
Construction	18	30
Transport & storage	10	26
Health & community services	18	22
Wholesale trade	10	20
Finance & insurance	4	12
Total	16	27

Source: ABS (6310.0). Population: Employees.

However, to understand the links between skills and various forms of contingent work, we need to focus on employer strategies rather than just employee preferences. In this regard, it is useful to distinguish between the engagement of labour, its deployment, and its development. The first refers to the employment relationship, the second to the labour process in the workplace, and the third refers to skills development through working. For more on this distinction, see Watson et al. (2003, Ch. 10). At first glance, casual status is simply a mode of engagement—a

short-term contract of employment with additional compensation paid in lieu of lost entitlements. Yet casual employment can be more than just this: it can also be a strategy for the deployment of labour: a way of maintaining a just-in-time workforce in order to minimise costs. In this context, contingent employment arrangements can be seen as a strategy by those employers intent on driving down costs to gain 'access to labour without obligation' (Gonos, 1997).

Consequently, once engaged, many casuals are deployed in a different way in the workplace compared

with permanents. Their reduced entitlements reflect the reduced obligations owed to them. In monetary terms, they are usually compensated with higher hourly rates of pay and this often suits those employees—like students—whose long term future lies elsewhere. But for those casuals intent on staying around for the long haul, this second-class status has major implications for their skill development. On a day-to-day basis, the skills content of their work is not deepened. This may reflect the kind of work they are doing—often the least skilled or most routine—but it may also reflect their subordinate status in the workplace (the ‘temp’ who is just filling in). A body of research has shown that casuals face only limited training and career opportunities in the workplace (Pocock et al., 2004; Hall et al., 1998, 2000; Connell and Burgess, 2006), and their lack of access to training is certainly evident in the HILDA data.

In the case of part-time workers, the problem is compounded because so much casual work is part-time. However, it is also clear that part-time work, in itself, raises problems of access to training and skills development. The NCVET data, for example, indicated that twice as many permanent part-time as full-time workers felt they are not using their skills and abilities at work. There is an important gender issue here, as the literature shows that many women workers find that their presence in the workplace is not taken seriously if they choose to work part-time. Being given more challenging work, and the opportunity to learn new skills, goes

with the full-time jobs, not the part-time ones.

Part-time jobs are also characterised by lower pay than their full-time equivalent jobs, and this appears to be worsening over time. See Whitehouse (2002, p. 388) and Joshi et al. (1999, p. 561) for more on this. The notion that ‘part-time work equals low pay’ has led some writers to regard part-time work as a ‘trap’ which marginalises women in the labour market. Yet part-time jobs are obviously a desirable destination for many workers who wish to balance paid work with other aspect of their lives. In Sweden, for example, part-time work has ‘not marginalized women but, on the contrary, has increased the continuity of their labor force attachment, strengthened their position in the labor market, and reduced their economic dependency’ (Sundström, 1991, p. 167). But Australia is not Sweden and many of the advantages which part-timers encounter in the Swedish labour market are absent here.¹ As noted above, what characterises Australia’s female part-time workforce is its high incidence of casualisation: more than 50 per cent of the jobs held by adult workers are casual.

In summary, it seems clear that while ever these trends towards the growth of contingent work continue, the under-utilisation of the skills of the workforce will persist. Rather than employers calling for more public investment in training, it is within their province to examine their employment practices and to make greater use of the skills already existing within their workplaces.

¹ Marianne Sundström notes the following: highly progressive tax rates, extensive provision of childcare, generous parental leave and a ‘diminishing net-wage differential between full-time working men and part-time working women’ (1991, p. 172).

Appendix A

Regression results

The detailed model results for the regression analyses conducted for this report are shown below. As well as the conventional coefficients and standard errors, a set of Bayesian posterior means are also shown. These have been derived from Raftery et al. (2006). For a fuller account of the Bayesian approach to model selection, see Raftery (1995). All of the analysis in this report was conducted using the R statistical language (see R Development Core Team, 2007).

A.1 Skills usage and skills enhancement

The data for these regressions is taken from the first five waves of the HILDA data. These data are pooled, and a new observation representing a 'job' is created using aggregate statistics. The 'job' is defined as the intersection of 2-digit ASCO categories and 1-digit ANZSIC categories, for example, an automotive trades worker working in retailing, or a cleaner working in accommodation. Some of these combinations will clearly have few, or no, individual person observations, so any combination with less than 20 such observations is dropped from the analysis. This process leaves 100 aggregate 'job' observations in the dataset, and the various variables used in the analysis are the mean values in each of these 'jobs' for the items like part-time work, casual work, occupational tenure, job tenure and so forth. In most cases, the mean values represent the proportion of workers with that characteristic in

the job (eg. casual or youth). In some cases, the mean value is the actual average for that job (eg. years of occupational tenure).

All of the continuous explanatory variables (that is, except the skill level variable) have been standardised using the approach recommended by Gelman (2007, pp. 56-57) which scales by two standard deviations. This means that a one unit change in the explanatory variable corresponds to a change from one standard deviation below the mean to one

standard deviation above.

The advantage of this is that it makes interpretation of continuous variables comparable to those for discrete variables (in this case, the skill level variable).

For the outcome variables – skills usage and skills enhancement – the mean values are averages of the scores for these data items in the original questionnaire (that is, a scale from 1 to 7).

Table A.1: Regression results for skills usage

	Coefficient	SE	P value	Bayesian EV†
Intercept	5.522	0.087	0.000	5.657
Occupational tenure	0.328	0.089	0.000	0.332
Casual	-0.467	0.112	0.000	-0.263
Small business	0.215	0.086	0.015	0.140
Youth	0.244	0.101	0.018	0.167
Public sector	0.269	0.073	0.000	0.238
VET	0.161	0.082	0.052	0.159
Skill (2 compared to 1)	-0.164	0.117	0.163	
Skill (3 compared to 1)	-0.436	0.160	0.008	
Skill (4 compared to 1)	-0.486	0.104	0.000	
Skill (5 compared to 1)	-0.725	0.151	0.000	
Adjust R-Squared	0.73			
Sigma	0.309			
N	100			

Outcome variable: Mean score on skills usage in each job

Method: OSL

Notes: Data weighted for construction of aggregates, unweighted for modeling. Note that skills usage score is answer to question: 'My job lets me use my skills and abilities.'" (scaled 1 to 7).

† posterior means for Bayesian model averaging.

Source: HILDA Wave E (Release 5. 1).

Population: All employed persons 2001 to 2005.

Table A.2: Regression results for skills enhancement

	Coefficient	SE	P value	Bayesian EV†
Intercept	4.965	0.111	0.000	4.922
Part time	-0.405	0.122	0.001	-0.405
Youth	0.541	0.111	0.000	0.460
Under employed	-0.625	0.131	0.000	-0.393
Public sector	0.571	0.097	0.000	0.518
VET	0.350	0.112	0.002	0.068
Skill (2 compared to 1)	-0.536	0.147	0.000	
Skill (3 compared to 1)	-0.664	0.192	0.001	
Skill (4 compared to 1)	-0.659	0.131	0.000	
Skill (5 compared to 1)	-0.616	0.194	0.002	
Adjust R-Squared	0.69			
Sigma	0.395			
N	100			

Outcome variable: Mean score on learning new skills in each job

Method: OSL

Notes: Data weighted for construction of aggregates, unweighted for modeling. Note that skills usage score is answer to question: 'My job often requires me to learn new skills.' (scaled 1 to 7).

† posterior means for Bayesian model averaging.

Source: HILDA Wave E (Release 5.1).

Population: All employed persons 2001 to 2005.

A.2 Participation in training

The regressions on participation in training made use of the HILDA data for Waves 3 to 5. To provide a sufficiently large sample, these data were pooled. The outcome variable was a dichotomous outcome: whether the individual had taken part in education or training courses during the previous 12 months as part of their employment. Being dichotomous this outcome was modeled using logistic regression, and the coefficients (logits) are shown in the regression tables. Being a non-linear model, the predicted probabilities from a logistic regression depend on the value of all of the variables in the model.

For this reason, a 'typical' individual was created to present some of the results in the main body of the text. Two models were fitted to the data: one for casuals and one for permanent. The pooling of the data means that the same individual may appear three times as separate observations. This violates the assumption of independent observations, and so the standard errors have been adjusted to take account of this clustering of individuals.

Table A.3: Regression results for casuals receiving training

	Coefficient	SE	P value	Bayesian EV †
Intercept	-1.460	0.507	0.0040	-1.434
Part-time	-0.338	0.096	0.0004	-0.309
WP size: 20 to 99	0.417	0.088	0.0000	0.414
WP size: 100to499	0.603	0.112	0.0000	0.598
WP size: 500 plus	0.390	0.178	0.0286	0.388
Union member	0.440	0.108	0.0000	0.454
VET qualifications	0.337	0.092	0.0002	0.344
Professionals	0.081	0.519	0.8765	0.102
Associate Professionals	0.369	0.52 1	0.4789	0.369
Tradespersons	-0.508	0.525	0.3334	-0.489
Advanced Clerical & Service	-0.412	0.582	0.4785	-0.411
Intermediate Clerical, Sales & Service	0.089	0.508	0.8609	0.073
Intermediate Production & Transport	-0.484	0.522	0.3539	-0.492
Elementary Clerical, Sales & Service	-0.144	0.514	0.7795	-0.161
Labourers	-0.357	0.506	0.4800	-0.375
Mining	1.501	0.550	0.0064	1.502
Manufacturing	-0.288	0.266	0.2784	-0.297
Electricity, gas, water	1.010	0.703	0.1510	1.008
Construction	0.175	0.282	0.5337	0.174
Wholesale trade	-0.474	0.378	0.2100	-0.481
Retail trade	0.286	0.244	0.2398	0.266
Accommodation etc	0.102	0.250	0.6829	0.087
Transport & storage	0.065	0.3 16	0.8368	0.066
Communication services	0.249	0.597	0.6767	0.230
Finance & insurance	0.053	0.436	0.9025	0.048
Property & business services	0.255	0.263	0.3338	0.238
Government	0.538	0.356	0.1302	0.527
Education	0.179	0.283	0.5261	0.169
Health & community services	0.810	0.255	0.0015	0.802
Cultural & recreation services	0.528	0.286	0.0644	0.508
Personal services	0.497	0.311	0.1095	0.483
Adjusted R-Squared	0.089			
Model L.R.	280.100			
N	4538.000			

Outcome variable: Whether received training

Method: Logistic regression

Notes: Data pooled for 3 waves (2003–2005). Standard errors adjusted for non-independence of individuals across waves. † posterior means for Bayesian model averaging.

Source: HILDA Wave E (Release 5.1).

Population: All casual employees 2003 to 2005.

Table A.4: Regression results for permanents receiving training

	Coefficient	SE	P value	Bayesian EV†
Intercept	-0.363	0.173	0.0362	-0.244
Part-time	-0.311	0.055	0.0000	-0.303
WP size: 20to99	0.155	0.046	0.0008	0.172
WP size: 100to499	0.206	0.053	0.0001	0.240
WP size: 500 plus	0.261	0.063	0.0000	0.320
Union member	0.397	0.045	0.0000	0.458
VET qualifications	0.145	0.046	0.0015	0.170
Professionals	0.275	0.083	0.0009	0.275
Associate Professionals	0.136	0.087	0.1162	0.103
Tradespersons	0.034	0.099	0.7346	-0.041
Advanced Clerical & Service	-0.450	0.130	0.0006	-0.476
Intermediate Clerical, Sales & Service	-0.119	0.086	0.1676	-0.196
Intermediate Production & Transport	-0.524	0.107	0.0000	-0.602
Elementary Clerical, Sales & Service	-0.215	0.116	0.0649	-0.328
Labourers	-0.610	0.115	0.0000	-0.727
Mining	0.473	0.212	0.0253	0.514
Manufacturing	-0.367	0.171	0.0322	-0.232
Electricity, gas, water	0.421	0.263	0.1088	0.518
Construction	-0.229	0.187	0.2211	-0.114
Wholesale trade	-0.327	0.186	0.0793	-0.168
Retail trade	-0.333	0.176	0.0589	-0.258
Accommodation etc	-0.554	0.202	0.0061	-0.510
Transport & storage	0.157	0.191	0.4124	0.324
Communication services	0.031	0.207	0.8796	0.188
Finance & insurance	0.555	0.191	0.0037	0.700
Propoerty & business services	-0.087	0.175	0.6196	0.040
Government	0.492	0.179	0.0059	0.605
Education	0.404	0.177	0.0221	0.544
Health & community services	0.520	0.174	0.0028	0.657
Cultural & recreation services	-0.285	0.205	0.1630	-0.190
Personal services	0.392	0.191	0.0397	0.511
Adjusted R-Squared	0.108			
Model L.R.	1264.500			
N	14922.000			

Dependent variable: Whether received training

Method: Logistic regression

Notes: Data pooled for 3 waves (2003–2005). Standard errors adjusted for non-independence of individuals across waves. † posterior means for Bayesian model averaging.

Source: HILDA Wave E (Release 5.1).

Population: All permanent employees 2003 to 2005.

Appendix B

Tables

Table B.1: Difficulties in recruiting staff in past 12 months (all organisations)

	Level of difficulty				Total	n
	A lot %	Some %	None %	NA § %		
Industry						
Agriculture, Forestry & Fishing	23	21	44	12	100	311
Mining	37	22	35	6	100	131
Manufacturing	22	24	38	16	100	330
Electricity, Gas & Water Supply	27	6	48	19	100	135
Construction	21	19	47	13	100	303
Wholesale Trade	20	17	45	18	100	181
Retail Trade	20	19	46	15	100	498
Accommodation, Cafes & Restaurants	20	22	41	17	100	237
Transport & Storage	30	13	45	12	100	304
Communication Services	19	10	68	2	100	158
Finance & Insurance	14	26	37	23	100	245
Property & Business Services	19	22	48	12	100	233
Government Administration & Defence	14	31	36	18	100	243
Education	24	28	40	8	100	310
Health & Community Services	15	22	46	17	100	433
Cultural & Recreational Services	27	15	51	7	100	333
Personal & Other Services	26	9	40	25	100	202
Total	21	20	45	15	100	4587
Sector						
Private	21	20	45	15	100	4076
Public	28	19	36	17	100	512
Total	21	20	45	15	100	4588
Organisational size						
Small	18	17	46	19	100	2431
Medium	29	28	41	3	100	1449
Large	28	40	32	0	100	712
Total	21	20	45	15	100	4592
Proportion of permanents						
None	14	18	52	15	100	260
One to 49 per cent	23	27	43	7	100	460
50 to 74 per cent	21	23	48	7	100	542
75 to 99 per cent	27	25	43	5	100	903
All	20	18	44	18	100	2427
Total	21	20	45	15	100	4592
Proportion of full-timers						
None	12	13	51	23	100	599
One to 49 per cent	20	23	50	7	100	929
50 to 74 per cent	21	22	44	13	100	857
75 to 99 per cent	28	28	38	7	100	999
All	23	18	41	18	100	1207
Total	21	20	45	15	100	4591

Note: Data weighted (except n column). §Not trying to recruit staff. Source: SEUV 2005.

Population: All organisations surveyed.

Table B.2: Difficulties in recruiting staff in past 12 months (all organisations), by occupational group

	Level of difficulty				Total	n
	A lot %	Some %	None %	NA § %		
Managers						
None	17	16	47	20	100	1724
One to 49 per cent	27	27	40	6	100	2674
50 to 74 per cent	15	15	53	17	100	130
75 to 99 per cent	1	22	78	0	100	9
All	20	3	43	34	100	55
Professionals						
None	21	17	45	18	100	2570
One to 49 per cent	23	26	43	8	100	1347
50 to 74 per cent	21	22	50	7	100	423
75 to 99 per cent	21	46	27	6	100	166
All	7	20	57	16	100	86
Tradespersons						
None	17	19	46	18	100	2702
One to 49 per cent	30	26	41	2	100	1258
50 to 74 per cent	27	17	42	15	100	289
75 to 99 per cent	28	32	33	7	100	131
All	20	10	50	20	100	212
Clerical workers						
None	18	17	47	18	100	1589
One to 49 per cent	29	23	41	6	100	2362
50 to 74 per cent	12	26	44	19	100	341
75 to 99 per cent	15	29	39	17	100	121
All	4	6	51	39	100	179
Service workers						
None	21	20	44	16	100	3823
One to 49 per cent	20	30	46	3	100	392
50 to 74 per cent	30	22	43	5	100	177
75 to 99 per cent	27	23	41	9	100	140
All	5	18	63	14	100	60
Sales workers						
None	20	19	45	15	100	3459
One to 49 per cent	34	24	33	9	100	717
50 to 74 per cent	19	28	37	16	100	165
75 to 99 per cent	12	24	57	7	100	103
All	8	15	54	23	100	148
Machine operators						
None	20	19	45	16	100	3508
One to 49 per cent	28	28	38	6	100	673
50 to 74 per cent	39	11	42	8	100	184
75 to 99 per cent	28	27	43	1	100	92
All	13	23	43	21	100	135
Labourers						
None	20	19	45	16	100	3508
One to 49 per cent	28	28	38	6	100	673
50 to 74 per cent	39	11	42	8	100	184
75 to 99 per cent	28	27	43	1	100	92
All	13	23	43	21	100	135
Totals	21	20	45	15	100	4592

Note: Data weighted (except n column). §Not trying to recruit staff. Source: SEUV 2005.

Population: All organisations surveyed.

Table B.3: Difficulties in recruiting staff in past 12 months (among those recruiting)

	Level of difficulty			Total	n
	A lot %	Some %	None %		
Industry					
Agriculture, Forestry & Fishing	26	24	51	100	276
Mining	39	23	37	100	122
Manufacturing	27	29	45	100	300
Electricity, Gas & Water Supply	33	7	60	100	123
Construction	24	22	54	100	268
Wholesale Trade	24	21	55	100	155
Retail Trade	23	23	54	100	439
Accommodation, Cafes & Restaurants	24	27	49	100	218
Transport & Storage	34	15	51	100	279
Communication Services	20	11	70	100	149
Finance & Insurance	18	33	48	100	212
Property & Business Services	21	25	54	100	211
Government Administration & Defence	18	38	44	100	237
Education	26	31	43	100	295
Health & Community Services	18	27	55	100	394
Cultural & Recreational Services	29	16	55	100	306
Personal & Other Services	35	12	53	100	174
Total	24	23	52	100	4158
Sector					
Private	24	23	52	100	3672
Public	34	23	43	100	488
Total	24	23	52	100	4160
Organisational size					
Small	22	21	57	100	2031
Medium	30	29	42	100	1423
Large	28	40	32	100	709
Total	24	23	52	100	4163
Proportion of permanents					
None	17	21	62	100	226
One to 49 per cent	24	30	46	100	440
50 to 74 per cent	23	25	52	100	518
75 to 99 per cent	28	27	45	100	882
All	25	22	54	100	2097
Total	24	23	52	100	4163
Proportion of full-timers					
None	16	17	67	100	489
One to 49 per cent	22	25	54	100	884
50 to 74 per cent	24	25	51	100	793
75 to 99 per cent	29	30	41	100	970
All	28	22	50	100	1026
Total	24	23	52	100	4162

Note: Data weighted (except n column).

Source: SEUV 2005.

Population: All organisations who attempted to recruit staff in the last 12 months.

Table B.4: Difficulties in recruiting staff in past 12 months (among those recruiting), by occupational groups

	Level of difficulty			Total	n
	A lot %	Some %	None %		
Managers					
None	21	20	58	100	1427
One to 49 per cent	29	28	43	100	2584
50 to 74 per cent	18	18	64	100	110
75 to 99 per cent	1	22	78	100	9
All	30	4	65	100	33
Professionals					
None	25	21	54	100	2229
One to 49 per cent	25	28	47	100	1305
50 to 74 per cent	23	24	54	100	400
75 to 99 per cent	22	49	29	100	160
All	8	24	68	100	69
Tradespersons					
None	21	24	56	100	2376
One to 49 per cent	31	27	42	100	1233
50 to 74 per cent	31	20	49	100	259
75 to 99 per cent	30	34	36	100	124
All	25	12	62	100	171
Clerical workers					
None	22	21	57	100	1354
One to 49 per cent	31	25	44	100	2269
50 to 74 per cent	14	32	54	100	297
75 to 99 per cent	18	35	47	100	117
All	7	10	83	100	126
Service workers					
None	24	23	52	100	3418
One to 49 per cent	21	31	48	100	386
50 to 74 per cent	32	23	46	100	169
75 to 99 per cent	30	25	45	100	137
All	6	20	73	100	53
Sales workers					
None	24	23	53	100	3112
One to 49 per cent	37	27	36	100	688
50 to 74 per cent	22	34	44	100	151
75 to 99 per cent	13	26	62	100	100
All	11	20	69	100	112
Machine operators					
None	23	23	54	100	3135
One to 49 per cent	30	30	40	100	654
50 to 74 per cent	42	12	46	100	173
75 to 99 per cent	29	27	44	100	91
All	16	29	55	100	110
Labourers					
None	23	23	54	100	3135
One to 49 per cent	30	30	40	100	654
50 to 74 per cent	42	12	46	100	173
75 to 99 per cent	29	27	44	100	91
All	16	29	55	100	110
Totals	24	23	52	100	4163

Note: Data weighted (except n column).

Source: SEUV 2005.

Population: All organisations who attempted to recruit staff in the last 12 months.

Table B.5: Reasons for recruitment difficulties (row percentages §)

	A	B	C	D	E	F	G	n
Industry								
Agriculture, Forestry & Fishing	60	11	12	13	11	16	3	156
Mining	87	4	6	20	4	2	2	72
Manufacturing	73	10	5	1	0	13	5	202
Electricity, Gas & Water Supply	67	32	17	1	1	0	0	75
Construction	81	4	11	6	1	3	0	167
Wholesale Trade	59	0	5	16	0	15	5	79
Retail Trade	66	4	9	6	3	17	6	244
Accommodation, Cafes & Restaurants	56	7	16	12	5	15	6	136
Transport & Storage	57	3	13	14	1	4	2	167
Communication Services	69	1	4	7	1	2	4	73
Finance & Insurance	75	2	7	5	1	3	2	116
Property & Business Services	67	4	4	5	4	6	14	103
Government Administration & Defence	68	13	5	27	17	1	2	143
Education	66	9	10	16	5	1	3	168
Health & Community Services	70	12	7	8	11	2	11	238
Cultural & Recreational Services	58	9	7	9	1	15	12	137
Personal & Other Services	73	3	12	11	6	7	4	97
Total	68	6	9	8	4	9	6	2373
Sector								
Private	68	6	9	8	4	10	6	2090
Public	75	23	5	20	7	0	2	281
Total	68	6	9	8	4	9	0	62371
Organisational size								
Small	68	6	8	9	4	11	5	941
Medium	68	5	9	7	3	7	7	900
Large	70	19	9	4	3	3	3	533
Total	68	6	9	8	4	9	6	2374
Proportion of permanents								
None	56	3	9	4	10	17	9	107
One to 49 per cent	65	8	8	5	2	12	5	273
50 to 74 per cent	60	7	13	11	5	9	5	289
75 to 99 per cent	79	11	13	4	8	9	5	593
All	69	5	7	9	3	8	0	61112
Total	68	6	9	8	4	9	6	2374
Proportion of full-timers								
None	50	5	6	14	6	22	11	203
One to 49 per cent	64	11	9	8	1	10	9	513
50 to 74 per cent	63	7	9	6	10	11	5	433
75 to 99 per cent	76	7	8	5	5	9	8	653
All	75	4	9	8	1	4	1	571
Total	68	6	9	8	4	9	6	2373

Note: Data weighted (except n column). § Row percentages may not total 100 because multiple responses allowed.

Key:

A Shortage of skilled people in the industry

B Wages/salaries are considered too low

C Lack of existing workers in the industry who are being skilled up

D Remote location

E Location not desirable (but not remote location)

F Young people have a poor work ethic

G Limited applicants/limited appropriate applicants

Source: SEUV 2005.

Population: All organisations who reported a lot of difficulty, or some difficulty, in recruiting staff over last 12 months.

Table B.6: Reasons for recruitment difficulties, by occupational groups (row percentages §)

	A	B	C	D	E	F	G	n
Managers								
None	67	6	9	8	4	13	5	684
One to 49 per cent	69	7	8	6	4	6	6	1643
50 to 74 per cent	90	6	13	1	0	17	16	40
75 to 99 per cent	98	0	2	0	0	0	0	2
All	1	0	0	87	0	0	0	5
Professionals								
None	65	6	9	9	4	12	5	1183
One to 49 per cent	71	8	7	6	3	7	8	848
50 to 74 per cent	73	3	10	6	9	1	4	212
75 to 99 per cent	88	6	4	5	1	0	1	98
All	73	1	3	9	0	2	18	33
Tradespersons								
None	63	5	7	9	3	10	8	1183
One to 49 per cent	73	8	7	4	6	10	3	843
50 to 74 per cent	80	6	21	8	1	10	1	175
75 to 99 per cent	77	8	6	9	10	10	1	84
All	71	9	11	6	1	5	4	89
Clerical workers								
None	66	8	10	10	4	13	5	673
One to 49 per cent	72	6	7	5	5	7	5	1469
50 to 74 per cent	54	1	7	9	0	6	8	138
75 to 99 per cent	85	9	17	8	0	8	0	63
All	54	4	5	8	0	0	45	31
Service workers								
None	69	6	8	7	4	9	5	1895
One to 49 per cent	70	10	16	10	3	9	3	258
50 to 74 per cent	60	15	19	11	4	4	21	107
75 to 99 per cent	57	15	6	24	8	16	10	92
All	58	1	0	7	12	8	3	22
Sales workers								
None	69	8	9	8	4	9	6	1714
One to 49 per cent	74	3	6	4	1	11	2	473
50 to 74 per cent	52	1	8	16	1	6	7	86
75 to 99 per cent	54	0	8	1	13	4	10	57
All	49	1	1	8	1	35	15	44
Machine operators								
None	68	7	9	8	4	10	6	1691
One to 49 per cent	69	8	8	6	2	9	4	475
50 to 74 per cent	65	5	8	1	0	7	1	98
75 to 99 per cent	68	4	7	10	2	1	2	61
All	78	1	6	7	0	6	5	49
Labourers								
None	68	7	9	8	4	10	6	1691
One to 49 per cent	69	8	8	6	2	9	4	475
50 to 74 per cent	65	5	8	1	0	7	1	98
75 to 99 per cent	68	4	7	10	2	1	2	61
All	78	1	6	7	0	6	5	49
Totals	68	6	9	8	4	9	6	2374

Note: Data weighted (except n column). §Row percentages may not total 100 because multiple responses allowed.

Key:

A Shortage of skilled people in the industry

B Wages/salaries are considered too low

C Lack of existing workers in the industry who are being skilled up

D Remote location

E Location not desirable (but not remote location)

F Young people have a poor work ethic

G Limited applicants/limited appropriate applicants

Source: SEUV 2005.

Population: All organisations who reported a lot of difficulty, or some difficulty, in recruiting staff over last 12 months.

Table B.7: Employers reporting industry skill shortages, by industry

Industry	Reporting difficulties		All employers
	%	No.	No.
Agriculture, Forestry and Fishing	13	10,726	81,360
Mining	34	1,223	3,616
Manufacturing	15	12,831	84,008
Electricity, Gas & Water Supply	16	2,100	13,042
Construction	19	20,286	107,345
Wholesale Trade	12	4,596	38,481
Retail Trade	13	18,721	141,415
Accommodation, Cafes & Restaurants	12	4,194	35,388
Transport & Storage	16	6,362	39,193
Communication Services	18	2,924	16,432
Finance & Insurance	13	8,691	68,229
Property & Business Services	9	8,642	91,544
Government Administration & Defence	10	271	2,727
Education	19	2,405	12,617
Health & Community Services	11	8,918	78,523
Cultural & Recreational Services	16	6,140	38,926
Personal & Other Services	20	7,770	38,563
Total	14	126,799	891,408

Note: Data weighted (including counts). Source: SEUV 2005.

Population: All organisations responding.

Table B.8: Overall rating of skill levels of employees

	Above required %	Adequate %	Below required %	Total %	n
Industry					
Agriculture, Forestry and Fishing	33	61	6	100	309
Mining	28	68	4	100	131
Manufacturing	46	49	5	100	332
Electricity, Gas and WaterSupply	23	68	9	100	135
Construction	31	59	10	100	303
Wholesale Trade	28	68	4	100	180
Retail Trade	35	57	8	100	497
Accommodation, Cafes and Restaurants	34	60	6	100	237
Transport and Storage	38	58	4	100	302
Communication Services	44	52	4	100	158
Finance and Insurance	45	54	2	100	244
Property and Business Services	37	62	1	100	232
Government Administration and Defence	33	59	8	100	243
Education	47	51	2	100	311
Health and Community Services	45	53	3	100	433
Cultural and Recreational Services	43	56	1	100	334
Personal and Other Services	32	64	4	100	202
Total	37	58	5	100	4583
Sector					
Private	37	57	5	100	4069
Public	36	60	4	100	515
Total	37	58	5	100	4584
Organisational size					
Small	40	55	5	100	4069
Medium	30	64	6	100	515
Large	24	66	10	100	4584
Total	37	58	5	100	4069
Proportion of permanents					
None	33	57	10	100	260
One to 49 per cent	34	57	9	100	462
50 to 74 per cent	39	53	7	100	541
75 to 99 per cent	30	65	5	100	904
All	39	57	4	100	2421
Total	37	58	5	100	4588
Proportion of full-timers					
None	39	56	4	100	598
One to 49 per cent	37	58	5	100	933
50 to 74 per cent	38	56	6	100	853
75 to 99 per cent	22	72	6	100	998
All	43	53	5	100	1205
Total	37	58	5	100	4587

Note: Weighted data.

Source: SEUV 2005.

Population: All organisations surveyed.

Table B.9: Overall rating of skill levels of employees, by occupational groups

	Above required %	Adequate %	Below required %	Total %	n
Managers					
None	39	55	6	100	1718
One to 49 per cent	32	63	4	100	2676
50 to 74 per cent	45	54	1	100	130
75 to 99 per cent	89	11	0	100	9
All	65	35	0	100	55
Professionals					
None	37	57	6	100	2565
One to 49 per cent	30	64	6	100	1346
50 to 74 per cent	43	56	0	100	425
75 to 99 per cent	44	54	2	100	166
All	70	28	2	100	86
Tradespersons					
None	40	57	4	100	2700
One to 49 per cent	30	61	9	100	1259
50 to 74 per cent	32	63	5	100	288
75 to 99 per cent	20	69	11	100	130
All	45	49	6	100	211
Clerical workers					
None	38	56	6	100	1584
One to 49 per cent	33	61	5	100	2364
50 to 74 per cent	45	53	2	100	340
75 to 99 per cent	29	63	9	100	121
All	47	51	2	100	179
Service workers					
None	37	58	5	100	3818
One to 49 per cent	41	56	3	100	393
50 to 74 per cent	40	57	2	100	177
75 to 99 per cent	29	53	18	100	140
All	37	63	0	100	60
Sales workers					
None	38	58	5	100	3455
One to 49 per cent	30	60	10	100	718
50 to 74 per cent	39	60	1	100	165
75 to 99 per cent	31	63	6	100	103
All	50	44	6	100	147
Machine operators					
None	38	57	5	100	3505
One to 49 per cent	32	64	5	100	674
50 to 74 per cent	28	64	7	100	183
75 to 99 per cent	39	52	10	100	92
All	41	56	3	100	134
Labourers					
None	38	57	5	100	3505
One to 49 per cent	32	64	5	100	674
50 to 74 per cent	28	64	7	100	183
75 to 99 per cent	39	52	10	100	92
All	41	56	3	100	134
Totals	37	58	5	100	4588

Note: Weighted data.

Source: SEUV 2005.

Population: All organisations surveyed.

Table B.10: Employee use of skills and abilities (%)

	'My job lets me use my skills and abilities'				n
	Agree	Neither	Disagree	Total	
Gender					
Male	81	10	9	100	24351
Female	79	10	10	100	29103
Age					
15-19	69	15	16	100	7700
20-24	76	11	13	100	9104
25-29	82	9	9	100	4621
30-34	83	9	8	100	5033
35-39	82	10	8	100	5477
40-44	84	9	7	100	6461
45-49	84	9	7	100	6041
50-54	84	8	7	100	4504
55-59	86	8	6	100	2806
60-64	86	8	6	100	991
65+	92	7	1	100	255
Aboriginal or TSI					
Yes	79	10	11	100	1151
No	80	10	10	100	52005
Lang other than Eng					
Yes	81	10	9	100	46901
No	76	13	12	100	6397
Geographical location					
Capital city	78	11	11	100	26517
Other metro	80	10	10	100	3085
Rural	82	9	8	100	20843
Remote	85	8	7	100	3080
Field of study					
Natural & physical sciences	73	10	17	100	298
Information technology	65	16	19	100	1824
Engineering	82	9	9	100	8409
Architecture & building	86	7	7	100	2409
Agriculture etc	83	9	7	100	3885
Health	86	7	7	100	3598
Education	85	7	8	100	3803
Management & commerce	77	11	11	100	12379
Society & culture	80	10	10	100	6634
Creative arts	61	17	22	100	1377
Food, hospitality & personal services	80	11	9	100	4965
Mixed field programs	79	11	10	100	3207
Subject only enrolment	84	9	7	100	737
Prior educational level					
Bachelor degree or higher	84	7	8	100	6450
Advanced diploma or associate degree	82	9	9	100	1213
Diploma	83	7	10	100	3840
Certificate IV	81	9	10	100	3636
Certificate III	84	9	7	100	7444
Certificate II	79	12	10	100	3928
Certificate I	78	11	11	100	1078
Miscellaneous	80	10	10	100	6320
Year 12	74	13	13	100	7863
Year11	78	12	11	100	3181
Year 10	78	12	10	100	5363
Year 9 or less	75	14	11	100	1781
Totals	80	10	10	100	53454

Notes: Data weighted.

Source: Student Outcomes Survey 2005.

Population: All survey respondents who were employed in May 2005.

Table B.10: Employee use of skills and abilities (continued) (%)

	'My job lets me use my skills and abilities'			Total	n
	Agree	Neither	Disagree		
Weekly earnings					
\$1–\$79	66	17	17	100	2014
\$80–\$159	60	16	23	100	3706
\$160–\$299	71	14	15	100	5371
\$300–\$499	78	11	11	100	9163
\$500–\$699	81	11	9	100	9824
\$700–\$999	86	8	6	100	8473
\$1,000–\$ 1,499	88	7	5	100	5960
\$1,500 or more	92	4	4	100	2189
Occupation					
Managers & administrators	90	6	4	100	3302
Professionals	91	5	4	100	7570
Technicians & associate professionals	87	7	6	100	5969
Tradespersons	89	6	5	100	7811
Advanced clerical & service workers	85	8	7	100	1411
Intermediate clerical, sales & service	81	10	9	100	13042
Intermediate production & transport	69	15	16	100	3234
Elementary clerical, sales & service	59	18	23	100	5482
Labourers & related workers	63	17	20	100	5074
Industry					
Agriculture etc	84	10	6	100	2722
Mining	87	8	5	100	919
Manufacturing	76	12	11	100	4855
Electricity, Gas & Water	86	8	6	100	624
Construction	89	6	5	100	3722
Wholesale Trade	75	13	12	100	960
Retail Trade	65	16	19	100	7877
Accommodation, Cafes & Restaurants	74	12	14	100	3280
Transport & Storage	81	11	9	100	1746
Communication Service	77	13	10	100	671
Finance & Insurance	84	9	7	100	1265
Property & Business Service	82	9	9	100	4643
Government	85	8	7	100	2432
Education	91	4	5	100	4180
Health & Community Service	87	7	6	100	8653
Cultural & Recreation Services	81	10	9	100	1460
Personal & Other Services	84	9	8	100	1746
Employment status					
Permanent	84	9	7	100	33510
Casual	73	13	14	100	19788
Hours worked					
Full-time	85	8	7	100	30069
Part-time	70	14	16	100	18551
Totals	80	10	10	100	53454

Notes: Data weighted.

Source: Student Outcomes Survey 2005.

Population: All survey respondents who were employed in May 2005.

Table B.11: Employees not using skills and abilities (%)

	Perm	Cas	FT	PT	Perm FT	Perm PT	Cas FT	Cas PT	Total
Weekly earnings									
\$1-\$79	14	17	6	18	13	14	4	19	17
\$80-\$ 159	20	24	8	24	7	22	10	24	23
\$160-\$299	12	17	5	18	4	17	9	18	15
\$300-\$499	9	14	9	13	8	11	13	15	11
\$500-\$699	8	12	9	9	8	9	12	10	9
\$700-\$999	6	9	6	8	5	9	9	7	6
\$1,000-\$1,499	5	5	5	4	5	4	5	4	5
\$1,500 or more	4	5	4	8	4	2	5	10	4
Occupation									
Managers & administrators	4	3	3	6	4	8	2	5	3
Professionals	4	4	3	5	3	5	2	4	4
Technicians & associate professional	5	7	5	8	5	6	6	9	6
Tradespersons	4	5	4	8	4	9	5	7	5
Advanced clerical & service workers	8	6	7	8	7	9	5	7	7
Intermediate clerical, sales & service	7	12	7	10	6	7	10	12	9
Intermediate production & transport	12	24	12	33	10	27	16	34	16
Elementary clerical, sale & services	18	26	14	27	13	28	17	27	23
Labourers & related workers	14	24	15	26	12	23	19	27	20
Industry									
Agriculture etc	3	8	5	12	3	4	6	14	6
Mining	4	6	4	17	3	45	6	6	4
Manufacturing	9	19	10	21	9	15	17	24	12
Electricity, Gas & Water	5	16	6	7	5	0	18	11	6
Construction	4	6	4	9	4	13	5	8	5
Wholesale Trade	8	22	10	23	8	11	17	28	12
Retail Trade	13	24	10	27	9	26	12	27	19
Accommodation, Cafes & Restaurants	8	17	8	18	6	17	12	18	14
Transport & Storage	7	14	7	17	6	13	12	18	9
Communication Service	8	14	7	18	7	22	12	16	10
Finance & Insurance	6	10	6	9	6	6	7	14	7
Property & Business Services	7	13	6	15	6	15	9	15	9
Government	7	13	7	12	7	8	8	17	7
Education	5	5	4	5	4	5	1	5	5
Health & Community Services	5	7	5	7	5	6	6	8	6
Cultural & Recreation Services	5	13	4	14	4	9	3	15	9
Personal & Other Services	6	9	5	10	5	12	7	10	7
Totals	7	14	7	16	6	12	9	18	10

Notes: Data weighted. Note that percentages for permanent part-time and casual part-time in mining and in electricity gas and water supply are unreliable as they are based on cell counts of below 30 observations. The combined part-time counts, however, are greater than 30.

Source: Student Outcomes Survey 2005.

Population: All survey respondents who were employed in May 2005.

Table B.12: Employees learning skills in the job (%)

	'My job provides training & learning...'			Total	n
	Agree	Neither	Disagree		
Gender					
Male	69	17	13	100	24088
Female	70	16	14	100	28936
Age					
15-19	70	16	14	100	7700
20-24	70	16	15	100	9095
25-29	71	16	13	100	4624
30-34	70	17	13	100	5020
35-39	69	17	14	100	5448
40-44	70	18	13	100	6433
45-49	70	17	13	100	5982
50-54	70	17	13	100	4436
55-59	68	18	14	100	2700
60-64	66	19	15	100	912
65+	67	27	7	100	223
Aboriginal or TSI					
Yes	72	15	13	100	1145
No	70	17	14	100	51595
Language other than English					
Yes	70	17	13	100	46519
No	68	17	15	100	6353
Geographical location					
Capital city	69	17	15	100	26334
Other metro	70	17	13	100	3065
Rural	71	17	13	100	20644
Remote	74	16	11	100	3051
Field of study					
Natural & physical sciences	61	24	16	100	296
Information technology	58	21	20	100	1811
Engineering	70	17	13	100	8309
Architecture & building	75	15	10	100	2356
Agriculture etc	71	18	11	100	3836
Health	74	16	10	100	3572
Education	73	16	11	100	3759
Management & commerce	68	16	16	100	12329
Society & culture	73	14	13	100	6618
Creative arts	55	20	24	100	1367
Food, hospitality & personal services	69	18	13	100	4925
Mixed field programs	67	17	16	100	3182
Subject only enrolment	74	14	12	100	734
Prior educational level					
Bachelor degree or higher	73	15	12	100	6409
Advanced diploma or associate degree	69	17	15	100	1200
Diploma	70	16	14	100	3794
Certificate IV	69	16	14	100	3619
Certificate III	71	17	12	100	7364
Certificate II	71	17	12	100	3910
Certificate I	68	17	15	100	1079
Miscellaneous	69	16	15	100	6242
Year 12	67	18	16	100	7837
Year 11	72	16	12	100	3165
Year 10	67	18	14	100	5316
Year 9 or less	67	19	14	100	1763
Totals	70	17	14	100	53024

Notes: Data weighted. Answers to full question: "My job provides training and learning opportunities to improve my skills and knowledge."

Source: Student Outcomes Survey 2005.

Population: All survey respondents who were employed in May 2005.

Table B.12: Employees learning skills in the job (continued) (%)

	'My job provides training & learning. . . '			Total	n
	Agree	Neither	Disagree		
Weekly earnings					
\$1–\$79	57	23	20	100	2003
\$80–\$159	54	21	25	100	3687
\$160–\$299	64	19	18	100	5377
\$300–\$499	70	16	14	100	9096
\$500–\$699	71	16	13	100	9762
\$700–\$999	74	16	10	100	8414
\$1,000–\$1,499	77	14	10	100	5914
\$1,500 or more	78	13	8	100	2161
Occupation					
Managers & administrators	75	17	8	100	3247
Professionals	79	12	9	100	7485
Technicians & associate professionals	75	16	10	100	5910
Tradespersons	75	15	10	100	7702
Advanced clerical & service workers	68	18	14	100	1402
Intermediate clerical, sales & services	71	15	13	100	12992
Intermediate production & transport	60	21	19	100	3223
Elementary clerical, sales & service	58	20	22	100	5465
Labourers & related workers	58	21	22	100	5045
Industry					
Agriculture etc	69	20	10	100	2682
Mining	77	16	7	100	912
Manufacturing	65	18	17	100	4820
Elect, Gas & Water	78	13	8	100	616
Construction	75	16	8	100	3653
Wholesale Trade	60	19	21	100	960
Retail Trade	61	20	19	100	7847
Accommodation, Cafes & Restaurants	60	21	19	100	3266
Transport & Storage	64	19	17	100	1728
Communication Services	65	19	16	100	667
Finance & Insurance	78	12	10	100	1263
Property & Business Services	70	17	14	100	4610
Government	80	12	8	100	2428
Education	78	12	9	100	4129
Health & Community Services	79	12	9	100	8588
Cultural & Recreation Services	71	16	13	100	1453
Personal & Other Services	72	15	13	100	1730
Employment status					
Permanent	75	14	11	100	33316
Casual	60	21	19	100	19549
Hours worked					
Full-time	74	15	11	100	29857
Part-time	61	20	19	100	18434
Totals	70	17	14	100	53024

Notes: Data weighted. Answers to full question: "My job provides training and learning opportunities to improve my skills and knowledge."

Source: Student Outcomes Survey 2005.

Population: All survey respondents who were employed in May 2005.

Table B.13: Attitude towards job, by highest qualification held (mean scores)

	Skills¶	Learnt †	Complex ‡	Autonomy§
All persons				
Managers	5.81	4.96	5.01	5.72
Professionals	5.82	5.35	4.93	5.10
Associate Professionals	5.57	4.76	4.34	5.17
Tradespersons	5.54	4.77	4.02	4.93
Advanced clerical and service	5.30	3.74	3.43	5.23
Intermediate clerical and service	5.05	4.22	3.37	4.34
Intermediate production and transport	4.81	3.89	3.17	4.26
Elementary clerical, sales and service	4.27	3.72	2.56	3.79
Labourers and related workers	4.33	3.65	2.92	4.25
Total	5.23	4.48	3.86	4.73
VET qualifications				
Managers	5.80	4.82	4.79	5.75
Professionals	5.86	5.23	4.80	5.10
Associate Professionals	5.66	4.92	4.46	5.05
Tradespersons	5.62	4.77	4.11	5.04
Advanced clerical & service	5.48	3.92	3.56	4.92
Intermediate clerical & service	5.21	4.49	3.61	4.35
Intermediate production & transport	4.98	4.04	3.34	4.54
Elementary clerical, sales & service	4.13	4.10	2.74	3.89
Labourers & related workers	4.61	3.70	2.97	4.42
Total	5.37	4.60	3.95	4.81
Higher education qualifications				
Managers	5.80	5.29	5.41	5.64
Professionals	5.80	5.37	5.01	5.10
Associate Professionals	5.49	4.97	4.53	5.33
Tradespersons	5.42	4.74	4.22	4.74
Advanced clerical & service	4.75	3.92	3.48	5.31
Intermediate clerical & service	4.72	4.15	3.47	4.46
Intermediate production & transport	3.62	3.64	2.80	3.48
Elementary clerical, sales & service	3.19	3.46	2.48	3.68
Labourers & related workers	4.01	4.02	3.33	4.51
Total	5.51	5.06	4.69	5.07
No post-school qualifications				
Managers	5.83	4.57	4.62	5.82
Professionals	5.83	5.39	4.69	5.15
Associate Professionals	5.52	4.41	4.06	5.18
Tradespersons	5.39	4.75	3.82	4.75
Advanced clerical & service	5.33	3.62	3.36	5.36
Intermediate clerical & service	5.02	4.05	3.18	4.30
Intermediate production & transport	4.77	3.82	3.10	4.15
Elementary clerical, sales & service	4.41	3.63	2.52	3.77
Labourers & related workers	4.26	3.59	2.86	4.17
Total	4.96	4.06	3.32	4.48

Notes: Data weighted. Items from self-completion questionnaire, scaled 1 (strongly disagree) to 7 (strongly agree).

¶ 'I use many of my skills and abilities in my current job.'

† 'My job often requires me to learn new skills.'

‡ 'My job is complex and difficult.'

§ 'I have a lot of freedom to decide how I do my own work.' Source: HILDA Wave E (Release 5.1)

Population: All employed persons in 2005.

Table B.14: Low assessments, by occupation and highest qualification held

	All persons		VET quals		Higher ed		No post-schl	
	All %	FT only %	All %	FT only %	All %	FT only %	All %	FT only %
Low use of skills ¶								
Managers	4	4	5	4	4	2	5	6
Professionals	5	5	2	1	6	6	6	7
Associate professionals	8	7	7	7	9	9	7	5
Tradespersons	8	6	6	5	6	8	12	8
Advanced clerical & service workers	14	7	12	7	25	10	12	6
Intermediate clerical, sales & service	16	12	12	10	26	19	17	12
Intermediate production & transport	21	17	15	14	53	54	23	17
Elementary clerical, sales & service	33	25	38	29	58	61	30	19
Labourers & related workers	32	26	25	19	28	18	35	29
Total	15	10	11	8	10	8	20	13
Little learning of new skills †								
Managers	15.2	12.6	15.8	10.5	9.8	8.2	23.5	22.9
Professionals	11.5	9.3	12.6	9.2	11.6	9.4	9.4	8.7
Associate Professionals	22.2	20.2	20.3	19.4	14.6	11.2	29.9	27.9
Tradespersons	20.5	18.1	19.2	17.9	21.8	11.2	22.7	19.2
Advanced clerical & service	42.8	30.9	41.4	38.8	44.1	13.5	43.2	29.3
Intermediate clerical & service	33.0	29.5	26.3	22.3	33.9	33.5	37.4	35.0
Intermediate production & transport	42.4	39.1	38.1	38.5	50.1	38.8	44.3	39.4
Elementary clerical, sales & service	44.7	26.3	36.8	11.8	51.8	36.3	46.3	33.2
Labourers & related workers	46.6	36.3	45.7	36.4	39.4	22.0	47.6	38.0
Total	28.1	21.6	24.8	20.6	16.7	11.6	37.2	29.9
Job not complex ‡								
Managers	16.0	13.8	19.2	16.2	10.0	9.4	22.2	18.8
Professionals	18.0	14.1	17.4	12.3	16.8	13.4	25.7	20.9
Associate Professionals	29.2	24.7	29.3	25.1	23.4	19.3	33.2	28.1
Tradespersons	34.9	31.7	31.3	29.1	45.6	35.7	40.4	36.6
Advanced clerical & service	49.8	36.7	47.9	38.6	46.9	19.6	51.3	39.0
Intermediate clerical & service	52.4	44.1	46.5	39.3	54.7	52.0	55.9	46.5
Intermediate production & transport	59.6	55.9	53.4	52.4	78.4	71.6	62.0	57.4
Elementary clerical, sales & service	71.8	55.8	67.1	57.0	67.7	25.3	73.5	58.4
Labourers & related workers	64.3	51.4	60.0	45.8	56.1	51.5	66.5	53.7
Total	41.4	31.7	38.0	31.8	24.1	17.5	54.0	42.2
Job little autonomy §								
Managers	6.5	6.8	7.9	8.8	6.3	5.9	5.4	6.1
Professionals	15.9	14.0	14.8	9.4	16.6	15.9	13.8	9.6
Associate Professionals	14.7	15.2	17.1	17.9	11.9	12.5	13.9	14.0
Tradespersons	17.8	19.3	16.8	17.6	26.0	25.9	18.7	22.1
Advanced clerical & service	16.7	21.0	19.4	24.2	19.5	39.0	14.7	14.9
Intermediate clerical & service	31.9	28.3	30.1	27.2	26.7	24.5	34.4	30.2
Intermediate production & transport	32.9	31.2	24.8	25.2	62.8	55.6	35.8	34.0
Elementary clerical, sales & service	46.6	41.2	45.8	41.4	56.2	72.6	45.9	37.8
Labourers & related workers	34.5	34.4	33.0	32.2	28.3	32.3	35.5	35.6
Total	24.2	20.8	22.2	20.3	17.6	16.0	29.7	25.0

Notes: Data weighted. Items from self-completion questionnaire, percentage who answered strongly disagree to items (ie. 1, 2 or 3 on 7 point scale).

¶ 'I use many of my skills and abilities in my current job.'

† 'My job often requires me to learn new skills.'

‡ 'My job is complex and difficult.'

§ 'I have a lot of freedom to decide how I do my own work.'

Source: HILDA Wave E (Release 5.1)

Population: All employed persons in 2005.

Table B.15: Low assessments, by industry and highest qualification held

	All persons		VET quals		Higher ed		No post-schl	
	All %	FT only %	All %	FT only %	All %	FT only %	All %	FT only %
Low use of skills ¶								
Agriculture, Forestry & Fishing	13.5	11.7	6.9	6.2	4.1	3.9	20.9	18.0
Mining	10.3	9.3	11.6	9.4	11.8	11.8	8.3	8.3
Manufacturing	15.8	13.6	11.8	12.0	13.0	13.0	20.2	15.4
Electricity, Gas & Water Supply	8.8	7.8	10.3	11.0	9.2	9.9	5.9	0.0
Construction	7.9	7.6	5.5	5.4	2.5	2.7	11.6	11.5
Wholesale Trade	15.3	12.9	10.6	9.6	16.0	9.8	18.9	16.5
Retail Trade	26.3	14.5	22.0	12.3	37.0	31.3	26.6	12.5
Accommodation, Cafes & Restaurants	27.7	19.4	22.0	19.3	39.2	14.7	29.1	20.2
Transport & Storage	13.8	8.5	4.3	3.1	18.7	11.7	18.7	12.2
Communication Services	14.8	11.7	9.9	2.8	8.7	3.1	20.4	22.9
Finance & Insurance	9.9	6.4	10.6	10.1	8.1	5.0	11.3	4.1
Property & Business Services	16.0	8.5	14.7	6.0	11.4	7.8	22.1	11.9
Government Administration & Defence	6.2	4.4	5.3	2.2	7.7	6.6	5.2	4.0
Education	4.6	2.2	3.6	3.6	4.2	2.2	7.2	0.0
Health & Community Services	9.5	9.0	10.2	10.8	7.0	6.1	11.4	10.6
Cultural & Recreational Services	15.3	12.0	12.3	14.0	11.3	7.9	20.0	13.4
Personal & Other Services	13.8	7.4	7.2	2.8	14.3	4.4	22.5	15.5
Total	14.4	9.7	11.0	8.4	10.3	7.4	19.4	12.8
Little learning of new skills †								
Agriculture, Forestry & Fishing	32.5	30.0	23.6	24.9	20.8	15.4	42.1	37.9
Mining	15.8	14.0	13.9	9.6	0.0	0.0	24.0	24.0
Manufacturing	32.1	29.1	29.4	27.8	26.6	21.8	36.5	33.3
Electricity, Gas & Water Supply	25.5	24.2	13.2	14.2	21.0	22.5	50.1	46.1
Construction	21.4	18.3	18.0	17.2	9.6	6.0	27.2	22.5
Wholesale Trade	34.3	29.5	32.7	27.5	24.9	25.0	38.5	32.4
Retail Trade	41.4	28.8	36.7	23.7	34.6	22.3	44.0	33.8
Accommodation, Cafes & Restaurants	47.7	37.1	40.5	34.7	37.2	11.0	52.1	42.8
Transport & Storage	35.4	30.0	27.4	26.4	17.5	10.7	45.1	39.3
Communication Services	28.4	26.7	37.7	31.8	16.2	11.0	27.1	30.6
Finance & Insurance	15.8	8.9	18.3	13.1	9.6	6.6	20.3	7.4
Property & Business Services	25.1	15.6	22.1	11.9	17.2	11.4	36.1	25.0
Government Administration & Defence	14.5	13.5	8.2	8.7	16.7	14.7	18.0	17.2
Education	14.2	7.3	16.5	7.8	8.3	3.1	31.5	34.2
Health & Community Services	20.7	20.2	18.8	15.9	13.1	13.3	30.7	35.8
Cultural & Recreational Services	34.8	23.7	35.6	37.0	35.2	16.2	33.9	14.6
Personal & Other Services	32.1	20.6	25.4	19.9	27.9	11.9	42.7	25.1
Total	28.1	21.6	24.8	20.6	16.7	11.6	37.2	30.1

Notes: Data weighted. Items from self-completion questionnaire, percentage who answered strongly disagree to items (ie. 1, 2 or 3 on 7 point scale).

¶ "I use many of my skills and abilities in my current job."

† "My job often requires me to learn new skills."

‡ "My job is complex and difficult."

§ "I have a lot of freedom to decide how I do my own work."

Source: HILDA Wave E (Release 5.1)

Population: All employed persons in 2005.

Table B.15: Low assessments (continued)

	All persons		VET quals		Higher ed		No post-schl	
	All %	FT only %	All %	FT only %	All %	FT only %	All %	FT only %
Job not complex ‡								
Agriculture, Forestry & Fishing	41.9	34.8	39.5	33.0	34.2	24.5	45.7	39.1
Mining	39.2	38.8	46.5	46.0	0.0	0.0	45.2	45.2
Manufacturing	41.1	37.6	37.4	35.5	36.6	33.5	46.0	41.4
Electricity, Gas & Water Supply	34.0	33.7	22.3	23.9	17.4	18.6	63.6	62.5
Construction	34.0	30.6	25.0	23.1	13.4	10.2	47.5	45.0
Wholesale Trade	47.4	42.5	43.6	39.4	40.0	43.7	52.8	44.8
Retail Trade	62.8	44.2	50.2	36.5	54.4	33.8	68.7	51.9
Accommodation, Cafes & Restaurants	62.6	42.1	60.9	47.5	61.9	42.3	63.5	37.8
Transport & Storage	43.5	39.6	36.6	36.0	40.6	36.7	48.6	43.7
Communication Services	34.8	29.7	32.5	24.0	24.0	19.3	40.6	39.2
Finance & Insurance	23.2	16.4	24.3	22.6	12.2	9.5	34.4	19.5
Property & Business Services	34.2	22.6	32.6	24.1	17.4	10.8	54.1	39.0
Government Administration & Defence	25.9	20.6	24.0	18.4	20.2	16.4	35.5	28.9
Education	25.9	12.7	29.9	10.8	15.9	8.7	55.3	42.4
Health & Community Services	40.1	36.4	47.2	44.6	24.1	19.6	50.0	49.3
Cultural & Recreational Services	40.6	30.6	36.5	37.9	38.9	27.2	44.7	24.8
Personal & Other Services	45.8	34.6	42.0	36.0	24.2	5.5	58.6	43.3
Total	41.3	31.7	38.1	31.9	24.0	17.4	53.9	42.1
Job little autonomy §								
Agriculture, Forestry & Fishing	16.4	16.6	16.2	18.2	5.8	7.3	19.5	18.0
Mining	20.0	18.2	19.3	15.3	35.5	35.5	15.1	15.1
Manufacturing	23.3	23.5	20.1	20.4	17.5	17.1	28.2	29.1
Electricity, Gas & Water Supply	13.4	12.1	10.4	9.8	24.4	26.1	13.6	9.4
Construction	17.1	17.5	14.5	13.9	6.2	5.5	21.8	24.7
Wholesale Trade	20.0	18.0	14.5	14.7	13.7	12.5	26.4	22.2
Retail Trade	37.5	27.2	33.9	28.0	37.1	36.2	39.0	24.7
Accommodation, Cafes & Restaurants	35.6	22.9	30.7	20.7	49.4	31.1	36.3	23.5
Transport & Storage	26.4	24.5	18.6	17.3	29.1	23.4	30.8	31.2
Communication Services	26.9	24.2	23.1	19.3	8.7	3.1	36.4	38.4
Finance & Insurance	25.3	25.3	32.3	34.6	16.6	16.0	28.1	28.5
Property & Business Services	15.3	13.4	18.0	15.5	11.8	11.2	17.3	14.9
Government Administration & Defence	21.5	20.5	24.1	25.5	14.2	13.3	28.6	24.5
Education	19.2	15.2	25.6	20.0	17.0	14.3	19.0	12.7
Health & Community Services	26.2	26.4	25.5	25.5	20.2	22.8	33.2	32.8
Cultural & Recreational Services	23.7	16.8	17.2	13.2	21.7	17.3	29.8	20.7
Personal & Other Services	22.5	25.7	20.3	24.8	13.1	15.2	28.7	31.2
Total	24.2	20.9	22.2	20.3	17.7	16.1	29.6	25.0

Notes: Data weighted. Items from self-completion questionnaire, percentage who answered strongly disagree to items (ie. 1, 2 or 3 on 7 point scale).

¶ I use many of my skills and abilities in my current job."

† 'My job often requires me to learn new skills.'

‡ 'My job is complex and difficult.'

§ 'I have a lot of freedom to decide how I do my own work.'

Source: HILDA Wave E (Release 5.1)

Population: All employed persons in 2005.

Table B.16: Change in skill usage, by training and highest qualification held

Amount of training ¶	Change between 2003 and 2005 §				n
	Worse	Same	Better	Total	
	%	%	%	%	
All persons					
None	34.1	35.5	30.4	100.0	1,516
One year	28.7	34.6	36.7	100.0	1,162
Two years	29.0	42.9	28.1	100.0	975
Three years	28.8	44.8	26.4	100.0	901
Total	30.7	38.5	30.8	100.0	4,554
VET qualifications					
None	36.5	34.5	29.0	100.0	449
One year	33.8	32.7	33.5	100.0	386
Two years	29.3	48.9	21.8	100.0	352
Three years	37.9	36.3	25.8	100.0	317
Total	34.5	37.7	27.8	100.0	1,504
Higher education qualifications					
None	28.1	35.6	36.2	100.0	312
One year	25.7	35.9	38.5	100.0	318
Two years	23.6	47.0	29.4	100.0	330
Three years	22.1	48.2	29.8	100.0	382
Total	24.9	41.6	33.5	100.0	1,342
No post-school qualifications					
None	35.0	36.1	28.9	100.0	755
One year	26.1	35.5	38.4	100.0	458
Two years	33.5	31.8	34.7	100.0	293
Three years	24.6	53.1	22.3	100.0	202
Total	31.2	37.1	31.6	100.0	1,708

Notes: Data weighted (except n column). Item from self-completion questionnaire, scaled 1 (strongly disagree) to 7 (strongly agree). 'Worse' defined as dropping on the scale; 'Same' defined as scoring the same; 'Better' defined as improving on the scale.

§ Item was: "I use many of my skills and abilities in my current job."

¶ Amount of training defined by answers in each year (2003, 2004, 2005) to question: "During the last 12 months, have you taken part in any education or training schemes or courses, as part of your employment?"

Source: HILDA Wave E (Release 5.1)

Population: All employees in 2003 who were still employed in 2005 (and answered the self-completion question).

Table B.17: Change in skill usage, by training and highest qualification held—alternative definition of change

Amount of training ¶	Change between 2003 and 2005 §				n
	Worse %	Same %	Better %	Total %	
All persons					
None	16.9	68.4	14.8	100.0	1,516
One year	11.1	69.9	19.0	100.0	1,162
Two years	10.0	79.0	11.0	100.0	975
Three years	8.2	85.2	6.6	100.0	901
Total	12.3	74.1	13.6	100.0	4,554
VET qualifications					
None	15.8	70.5	13.6	100.0	449
One year	13.3	72.0	14.6	100.0	386
Two years	12.1	80.1	7.8	100.0	352
Three years	12.6	80.6	6.9	100.0	317
Total	13.6	75.3	11.1	100.0	1,504
Higher education qualifications					
None	14.5	66.4	19.0	100.0	312
One year	9.2	69.6	21.2	100.0	318
Two years	6.4	83.5	10.1	100.0	330
Three years	5.3	88.5	6.2	100.0	382
Total	8.9	77.0	14.1	100.0	1,342
No post-school qualifications					
None	18.3	67.9	13.9	100.0	755
One year	10.3	68.4	21.4	100.0	458
Two years	10.6	73.6	15.8	100.0	293
Three years	5.6	87.6	6.8	100.0	202
Total	13.5	71.1	15.4	100.0	1,708

Notes: Data weighted (except n column). Item from self-completion questionnaire, scaled 1 (strongly disagree) to 7 (strongly agree). 'Worse' defined as dropping on the scale by more than one point; 'Same' defined as scoring the same, or one point above or below; 'Better' defined as improving on the scale by more than one point.

§ Item was: "I use many of my skills and abilities in my current job."

¶ Amount of training defined by answers in each year (2003, 2004, 2005) to question: During the last 12 months, have you taken part in any education or training schemes or courses, as part of your employment?"

Source: HILDA Wave F (Release 5.1)

Population: All employees in 2003 who were still employed in 2005 (and answered the self-completion question).

Table B.18: Change in skill usage, by training and selected occupation

Amount of training ¶	Change between 2003 and 2005 §				n
	Worse	Same	Better	Total	
	%	%	%	%	
Associate Professionals					
None	35.2	31.8	33.0	100.0	163
One year	17.4	41.1	41.5	100.0	150
Two years	29.3	40.3	30.4	100.0	149
Three years	30.3	48.0	21.7	100.0	150
Total	27.9	40.2	31.9	100.0	612
Tradespersons					
None	40.6	45.6	13.8	100.0	176
One year	41.5	26.1	32.4	100.0	114
Two years	22.6	50.6	26.8	100.0	95
Three years	32.2	53.4	14.4	100.0	73
Total	35.8	43.4	20.8	100.0	458
Intermediate clerical & service					
None	30.4	30.5	39.1	100.0	289
One year	33.5	31.9	34.6	100.0	256
Two years	31.2	39.4	29.4	100.0	168
Three years	36.0	33.0	31.0	100.0	133
Total	32.4	32.9	34.8	100.0	846
Intermediate production & transport					
None	33.2	30.9	35.9	100.0	149
One year	32.9	31.6	35.5	100.0	103
Two years	27.7	29.9	42.4	100.0	60
Three years	29.7	33.6	36.7	100.0	39
Total	31.9	31.3	36.8	100.0	351

Notes: Data weighted (except n column). Item from self-completion questionnaire, scaled 1 (strongly disagree) to 7 (strongly agree). 'Worse' defined as dropping on the scale; 'Same' defined as scoring the same; 'Better' defined as improving on the scale.

§ Item was: "I use many of my skills and abilities in my current job."

¶ Amount of training defined by answers in each year (2003, 2004, 2005) to question: "During the last 12 months, have you taken part in any education or training schemes or courses, as part of your employment?"

Source: HILDA Wave E (Release 5.1)

Population: All employees in 2003 who were still employed in 2005 (and answered the self-completion question).

Table B.19: Employees not learning skills in the job (%)

	Perm	Cas	FT	PT	Perm FT	Perm PT	Cas FT	Cas PT	Total
Weekly earnings									
\$1–\$79	14	21	10	22	22	11	7	23	20
\$80–\$159	19	26	11	26	1	21	16	26	25
\$160–\$299	12	21	7	21	5	16	13	22	18
\$300–\$499	12	19	13	16	11	12	18	19	14
\$500–\$699	11	16	12	12	11	9	16	17	12
\$700–\$999	10	15	10	12	9	12	15	13	10
\$1,000–\$1,499	9	13	10	14	9	10	12	20	10
\$1,500 or more	7	13	8	12	7	2	12	17	8
Occupation									
Managers & administrators	8	9	8	10	8	3	8	14	8
Professionals	7	12	8	10	7	7	10	14	8
Technicians & associate professionals	9	13	9	14	8	11	9	16	10
Tradespersons	9	12	9	14	8	13	11	14	10
Advanced clerical & service workers	13	17	13	17	12	15	15	18	14
Intermediate clerical, sales & service	10	18	11	15	10	10	18	18	13
Intermediate production & transport	16	26	16	32	14	23	20	34	19
Elementary clerical, sales & services	17	25	16	25	14	22	20	26	22
Labourers & related workers	16	26	17	27	14	24	23	28	22
Industry									
Agriculture etc	6	14	8	19	5	14	12	20	10
Mining	7	8	7	18	7	45	8	8	7
Manufacturing	15	23	15	25	14	26	23	25	17
Electricity, Gas & Water	8	11	8	13	8	13	8	13	8
Construction	7	10	8	14	6	13	10	15	8
Wholesale Trade	17	33	19	32	17	19	29	38	21
Retail Trade	15	24	14	24	13	20	17	25	19
Accommodation, Cafes & Restaurants	12	22	14	23	12	16	18	24	19
Transport & Storage	15	23	15	23	15	17	17	26	17
Communication Services	13	24	14	24	12	20	23	27	16
Finance & Insurance	8	16	9	12	9	8	14	20	10
Property & Business Services	10	21	10	22	9	18	16	23	13
Government	7	18	7	17	6	14	14	21	8
Education	8	13	7	11	7	9	7	14	9
Health & Community Services	8	12	8	10	7	8	11	12	9
Cultural & Recreation Services	9	17	8	18	8	12	7	20	13
Personal & Other Services	11	16	11	17	11	12	9	18	13
Totals	11	19	11	19	10	13	15	22	13

Notes: Data weighted. Note that percentages for permanent part-time and casual part-time in mining and in electricity gas and water supply are unreliable as they are based on cell counts of below 30 observations. The combined part-time counts, however, are greater than 30.

Source: Student Outcomes Survey 2005.

Population: All survey respondents who were employed in May 2005.

Table B.20: Changes in skill levels between 2002 and 2004 (%)

	Increase	Decrease	No change	Unable to say	Total	n
Gender						
Male	64	4	25	7	100	1029
Female	66	4	21	9	100	959
Age						
16	67	6	12	15	100	54
17	82	2	12	4	100	138
18	67	5	20	8	100	251
19	61	3	24	12	100	390
20	68	4	17	11	100	373
21	58	6	29	7	100	286
22	65	6	27	2	100	216
23	56	4	36	4	100	157
24	62	3	35	1	100	123
Metropolitan location						
Yes	64	4	24	8	100	1109
No	66	5	21	8	100	879
Prior field of study						
Land & marine resources, animal husbandry	52	4	39	5	100	77
Architecture, building	59	3	31	8	100	173
Art, humanities & social sciences	51	5	26	18	100	121
Business, administration, economics	68	3	23	6	100	413
Education	98	0	0	2	100	17
Engineering, surveying	72	3	18	7	100	336
Health, community services	70	5	18	8	100	265
Law, legal studies	79	0	21	0	100	19
Science	65	6	27	3	100	121
Veterinary science, animal care	47	1	2	50	100	17
Services, hospitality, transportation	61	8	24	7	100	379
VET multi-field education	59	6	26	9	100	50
Income						
Under \$26,000	58	6	25	11	100	718
\$26,000 to under \$36,400	69	4	21	6	100	607
\$36,400 to under \$52,000	70	3	23	4	100	339
\$52,000 and over	68	4	25	3	100	182
Occupation						
Managers & administrators	74	6	20	0	100	37
Professionals	90	2	6	2	100	146
Technicians & associate professionals	75	3	19	3	100	239
Tradespersons & related workers	71	3	22	5	100	560
Advanced clerical & service workers	88	3	9	0	100	52
Intermediate clerical, sales & service	58	5	24	14	100	499
Intermediate production & transport	53	7	20	20	100	85
Elementary clerical, sales & service	56	4	34	6	100	253
Labourers & related workers	34	10	39	16	100	117
Totals	65	4	23	8	100	1988

Notes: Data weighted. Question: 'Think about the level of skill you use in your job now compared to then (2002). Would you say there has been ...'. Increase: 'A significant increase between then and now'; Decrease: 'A significant decrease'; No change: 'Little or no change'; Unable to say: 'Too hard to compare jobs'.

Source: Down the Track Survey 2004.

Population: All employed persons who responded in 2004 from original 2002 Student Outcomes Survey.

Table B.20: Changes in skill levels between 2002 and 2004 (cont'd) (%)

	Increase	Decrease	No change	Unable to say	Total	n
Industry						
Agriculture etc	55	8	16	21	100	39
Mining	42	2	56	0	100	29
Manufacturing	61	2	26	12	100	173
Electricity, gas & water	50	3	47	0	100	17
Construction	68	4	24	5	100	279
Wholesale trade	75	5	18	2	100	55
Retail trade	59	5	31	6	100	412
Accomm, cafes & restaurants	43	9	24	23	100	178
Transport & storage	54	11	21	14	100	62
Communication services	56	0	29	15	100	18
Finance & insurance	66	3	29	1	100	43
Property & business services	82	4	13	2	100	180
Government	82	3	14	1	100	84
Education	66	0	29	5	100	56
Health & community services	75	2	13	10	100	205
Cultural & recreation services	68	8	19	5	100	65
Personal services	76	2	15	7	100	91
Job tenure						
Less than 2 years	58	7	20	14	100	972
2 years or more	71	2	25	2	100	1016
Employment status						
Permanent & other	71	3	20	6	100	1445
Casual	48	6	31	14	100	543
Hours worked						
Full-time	70	4	20	6	100	1480
Part-time	49	6	33	12	100	508
Number of jobs since 2002						
One	71	1	25	3	100	1076
Two	56	8	22	13	100	458
Three	55	10	22	13	100	250
Four or more	62	4	18	17	100	204
Holds multiple jobs						
Yes	67	4	17	12	100	267
No	65	4	24	7	100	1721
Totals	65	4	23	8	100	1988

Notes: Data weighted. Question: 'Think about the level of skill you use in your job now compared to then (2002). Would you say there has been . . .'. Increase: 'A significant increase between then and now'; Decrease: 'A significant decrease'; No change: 'Little or no change'; Unable to say: 'Too hard to compare jobs'.

Source: Down the Track Survey 2004.

Population: All employed persons who responded in 2004 from original 2002 Student Outcomes Survey.

Table B.21: How increased skills were learned, 2002–2004 (%)

	A	B	C	D	E	F	n
Gender							
Male	47	35	44	48	39	18	705
Female	45	37	40	43	52	13	656
Age							
16	81	8	18	41	49	11	34
17	40	30	67	27	52	5	104
18	50	43	41	38	39	13	188
19	41	32	26	55	48	14	271
20	47	37	50	53	39	17	256
21	54	42	49	48	43	22	170
22	49	43	40	44	44	24	153
23	40	34	34	44	52	25	101
24	45	46	39	58	40	12	84
Metropolitan location							
Yes	45	34	42	48	43	15	740
No	48	39	43	42	48	16	621
Prior field of study							
Land & marine resources, animal husbandry	62	63	48	37	44	9	50
Architecture, building	42	48	48	59	31	20	125
Art, humanities & social sciences	46	32	35	43	43	11	73
Business, administration, economics	46	39	46	37	51	12	296
Education	7	8	91	5	79	3	16
Engineering, surveying	46	37	45	51	36	24	246
Health, community services	41	30	28	58	68	16	179
Law, legal studies	57	8	3	27	70	3	15
Science	33	30	41	61	37	19	82
Veterinary science, animal care	76	11	10	93	70	0	11
Services, hospitality, transportation	51	40	36	43	36	13	240
VET multi-field education	96	21	22	34	35	20	28
Income							
Under \$26,000	52	34	43	38	41	14	420
\$26,000 to under \$36,400	46	42	38	52	49	15	464
\$36,400 to under \$52,000	43	36	41	48	48	22	245
\$52,000 and over	39	32	43	58	36	17	145
Occupation							
Managers & administrators	27	8	10	68	77	6	26
Professionals	21	17	42	44	60	11	119
Technicians & associate professionals	53	45	43	51	55	20	181
Tradespersons & related workers	49	45	48	52	38	21	429
Advanced clerical & service workers	45	34	22	25	36	7	45
Intermediate clerical, sales & service	52	39	41	46	47	16	337
Intermediate production & transport	47	31	24	53	11	8	49
Elementary clerical, sales & service	48	26	54	27	44	11	132
Labourers & related workers	53	37	34	28	36	4	43
Totals	46	36	42	46	45	16	1361

Notes: Data weighted.

Key:

A: 'My supervisor taught me on the job'

B: 'I learned by watching others at work'

C: 'I learned by being helped by colleagues at work'

D: 'I learned at work through trial and error'

E: 'I did one or more courses of training or education'

F: 'I learned with the aid of manuals, books, videos or on-line materials' Source: Down the Track Survey 2004.

Population: All employed persons who responded in 2004 from original 2002 Student Outcomes Survey and who answered that they had experienced a significant increase in their skill between 2002 and 2004.

Table B.21: How increased skills were learned, 2002–2004 (cont'd) (%)

	A	B	C	D	E	F	n
Industry							
Agriculture etc	41	54	53	30	58	11	25
Mining	28	64	57	31	44	24	21
Manufacturing	46	36	61	36	53	24	114
Electricity, gas & water	85	10	27	10	68	5	14
Construction	45	42	48	58	29	18	206
Wholesale trade	52	52	49	43	30	22	39
Retail trade	59	37	42	44	37	15	251
Accommodation, cafes & restaurants	51	27	33	42	31	4	101
Transport & storage	25	29	11	29	52	8	41
Communication services	11	22	20	42	42	16	13
Finance & insurance	60	39	32	6	43	10	31
Property & business services	32	22	42	49	46	8	135
Government	58	31	40	45	62	13	67
Education	19	18	27	45	51	11	42
Health & community services	45	39	33	67	74	23	146
Cultural & recreation services	43	32	25	25	38	8	40
Personal services	49	50	39	43	56	17	74
Job tenure							
Less than 2 years	45	33	40	38	40	13	619
2 years or more	47	38	44	52	49	17	742
Employment status							
Permanent & other	47	37	41	47	45	17	1072
Casual	42	32	46	41	44	11	289
Hours worked							
Full-time	46	38	43	46	46	17	1101
Part-time	45	28	38	47	39	11	260
Number of jobs since 2002							
One	48	38	44	50	46	17	777
Two	46	39	34	42	46	17	294
Three	49	36	45	41	32	16	155
Four or more	37	19	49	34	51	5	135
Holds multiple jobs							
Yes	55	38	39	40	44	25	171
No	45	36	43	47	45	14	1190
Totals	46	36	42	46	45	16	1361

Notes: Data weighted.

Key:

A: 'My supervisor taught me on the job'

B: 'I learned by watching others at work'

C: 'I learned by being helped by colleagues at work'

D: 'I learned at work through trial and error'

E: 'I did one or more courses of training or education'

F: 'I learned with the aid of manuals, books, videos or on-line materials'

Source: Down the Track Survey 2004.

Population: All employed persons who responded in 2004 from original 2002 Student Outcomes Survey and who answered that they had experienced a significant increase in their skill between 2002 and 2004.

Table B.22: Work-related training or education, by occupation and highest qualification held

	Undertook training¶		Aim of training as % of those undertaking training			
	%	n	Skills † %	Standards ‡ %	General § %	n
All persons						
Managers	48	372	78	66	56	174
Professionals	57	1,590	77	63	57	922
Associate Professionals	51	840	74	57	54	426
Tradespersons	40	680	73	56	50	292
Advanced clerical & service	36	193	61	32	43	74
Intermediate clerical & service	40	1,342	71	51	52	550
Intermediate production & transport	31	544	63	48	48	172
Elementary clerical, sales & service	29	721	62	46	47	198
Labourers & related workers	23	529	48	43	32	129
Total	41	6,811	71	55	52	2,937
VET qualifications						
Managers	47	95	66	69	54	46
Professionals	58	293	77	60	54	171
Associate Professionals	51	345	74	61	53	179
Tradespersons	41	410	73	55	49	181
Advanced clerical & service	45	58	70	24	39	29
Intermediate clerical & service	51	483	74	54	54	245
Intermediate production & transport	39	179	63	61	46	70
Elementary clerical, sales & service	37	133	66	60	61	46
Labourers & related workers	27	123	44	38	39	33
Total	46	2,119	71	57	52	1,000
Higher education qualifications						
Managers	54	196	82	64	62	100
Professionals	57	1,114	78	66	59	651
Associate Professionals	59	210	79	54	57	121
Tradespersons	41	15	82	46	15	6
Advanced clerical & service	46	24	41	41	57	11
Intermediate clerical & service	45	149	63	51	62	65
Intermediate production & transport	31	14	58	65	51	6
Elementary clerical, sales & service	26	48	37	48	24	14
Labourers & related workers	25	25	40	74	40	7
Total	53	1,795	76	62	58	981
No post-school qualifications						
Managers	35	81	79	67	36	28
Professionals	56	183	71	52	50	100
Associate Professionals	44	285	68	54	53	126
Tradespersons	37	255	73	58	54	105
Advanced clerical & service	29	111	62	34	40	34
Intermediate clerical & service	32	710	71	48	47	240
Intermediate production & transport	27	351	64	38	50	96
Elementary clerical, sales & service	27	540	63	40	43	138
Labourers & related workers	22	381	50	42	28	89
Total	32	2,897	67	47	46	956

Notes: Data weighted (except n columns). Percentages based on n's of less than 30 should be regarded as unreliable.

¶ "During the last 12 months, have you taken part in any education or training schemes or courses, as part of your employment?"

† "To improve your skills in your current job."

‡ "To maintain professional status and/or meet occupational standards."

§ "To develop your skills generally."

Source: HILDA Wave E (Release 5.1)

Population: All employees in occupations in 200

Table B.23: Work-related training or education, by industry and highest qualification held

	Undertook training¶		Aim of training as % of those undertaking training			
	%	n	Skills † %	Standards ‡ %	General § %	n
All persons						
Agriculture, Forestry & Fishing	32	139	62	47	30	41
Mining	57	103	76	43	58	57
Manufacturing	34	738	69	44	41	260
Electricity, Gas & Water Supply	59	57	75	47	46	34
Construction	33	328	64	50	46	124
Wholesale Trade	36	288	64	56	39	102
Retail Trade	27	943	71	49	53	254
Accommodation, Cafes & Restaurants	25	356	63	46	42	96
Transport & Storage	45	261	72	63	52	119
Communication Services	43	130	69	55	50	60
Finance & Insurance	52	257	69	65	48	143
Property & Business Services	40	624	67	59	57	258
Government Administration & Defence	59	411	79	54	63	239
Education	55	770	78	59	57	426
Health & Community Services	53	925	71	63	55	514
Cultural & Recreational Services	34	192	71	68	54	68
Personal & Other Services	50	243	70	47	50	126
Total	41	6,765	71	55	52	2,921
VET qualifications						
Agriculture, Forestry & Fishing	25	46	53	54	10	10
Mining	66	52	69	49	51	33
Manufacturing	33	290	67	49	36	104
Electricity, Gas & Water Supply	73	30	83	48	38	22
Construction	35	142	65	48	43	58
Wholesale Trade	48	109	55	69	28	46
Retail Trade	34	216	80	56	64	76
Accommodation, Cafes & Restaurants	31	103	54	40	37	34
Transport & Storage	52	83	88	70	60	42
Communication Services	43	35	89	38	66	16
Finance & Insurance	61	78	83	73	55	49
Property & Business Services	42	161	65	60	60	74
Government Administration & Defence	59	119	83	61	64	73
Education	57	166	75	58	61	93
Health & Community Services	59	299	61	59	56	176
Cultural & Recreational Services	30	60	73	53	53	21
Personal & Other Services	57	121	82	48	52	71
Total	46	2,110	71	57	52	998

Notes: Data weighted (except n columns). Percentages based on n's of less than 30 should be regarded as unreliable.

¶ "During the last 12 months, have you taken part in any education or training schemes or courses, as part of your employment?"

† "To improve your skills in your current job."

‡ "To maintain professional status and/or meet occupational standards."

§ "To develop your skills generally."

Source: HILDA Wave E (Release 5.1)

Population: All employees in occupations in 2005.

Table B.23: Work-related training or education (cont'd)

	Undertook training¶		Aim of training as % of those undertaking training			
	%	n	Skills † %	Standards ‡ %	General § %	n
Higher education qualifications						
Agriculture, Forestry & Fishing	52	24	70	84	44	13
Mining	63	14	92	33	71	9
Manufacturing	51	117	76	38	46	56
Electricity, Gas & Water Supply	50	12	91	53	73	7
Construction	20	23	79	64	68	7
Wholesale Trade	45	45	74	40	54	20
Retail Trade	31	71	52	52	44	21
Accommodation, Cafes & Restaurants	39	27	72	44	55	11
Transport & Storage	56	39	76	74	56	24
Communication Services	40	27	51	69	70	11
Finance & Insurance	51	89	62	52	50	50
Property & Business Services	51	226	70	68	60	115
Government Administration & Defence	60	173	78	56	64	98
Education	58	475	82	64	59	279
Health & Community Services	62	332	81	76	61	211
Cultural & Recreational Services	49	50	78	77	65	22
Personal & Other Services	53	39	53	44	55	21
Total	53	1,783	76	62	58	975
No post-school qualifications						
Agriculture, Forestry & Fishing	31	69	63	19	35	18
Mining	43	37	80	38	64	15
Manufacturing	27	331	65	42	42	100
Electricity, Gas & Water Supply	38	15	35	39	61	5
Construction	33	163	62	49	46	59
Wholesale Trade	24	134	72	44	50	36
Retail Trade	24	656	70	46	49	157
Accommodation, Cafes & Restaurants	20	226	68	51	42	51
Transport & Storage	38	139	57	51	44	53
Communication Services	44	68	65	59	35	33
Finance & Insurance	45	90	62	70	38	44
Property & Business Services	29	237	62	45	49	69
Government Administration & Defence	56	119	76	44	61	68
Education	43	129	68	41	44	54
Health & Community Services	40	294	71	48	42	127
Cultural & Recreational Services	28	82	62	72	43	25
Personal & Other Services	39	83	56	46	44	34
Total	32	2,872	67	47	46	948

Notes: Data weighted (except n columns). Percentages based on n's of less than 30 should be regarded as unreliable.

¶ "During the last 12 months, have you taken part in any education or training schemes or courses, as part of your employment?"

† "To improve your skills in your current job."

‡ "To maintain professional status and/or meet occupational standards."

§ "To develop your skills generally."

Source: HILDA Wave E (Release 5.1)

Population: All employees in occupations in 2005.

Table B.24: How organisations determine their training needs (row percentages §)

	A	B	C	D	E	F	G	H	n
Industry									
Agriculture, Forestry & Fishing	38	54	9	0	9	2	3	2	311
Mining	54	21	11	0	10	3	6	1	131
Manufacturing	45	41	5	1	7	4	8	4	332
Electricity, Gas & Water Supply	30	35	26	0	1	18	16	11	135
Construction	43	45	27	0	8	0	9	3	303
Wholesale Trade	42	39	4	1	17	0	11	2	181
Retail Trade	36	50	6	1	6	6	9	11	498
Accommodation, Cafes & Restaurants	46	44	13	0	7	3	2	2	237
Transport & Storage	35	34	22	2	4	1	4	5	304
Communication Services	49	45	4	1	18	4	25	2	158
Finance & Insurance	52	32	23	0	14	2	7	2	246
Property & Business Services	51	35	12	0	19	2	4	4	233
Government Administration & Defence	77	32	13	2	12	4	2	0	244
Education	63	26	14	2	20	8	2	5	312
Health & Community Services	51	42	12	0	15	3	7	3	434
Cultural & Recreational Services	45	44	13	1	7	3	2	12	334
Personal & Other Services	46	41	12	0	2	5	8	6	203
Total	44	42	13	0	10	3	7	5	4596
Sector									
Private	44	42	13	0	10	3	7	5	4081
Public	58	37	16	3	15	4	2	1	516
Total	44	42	13	0	10	3	7	5	4597
Organisational size									
Small	39	45	12	0	9	3	7	5	2431
Medium	60	34	16	0	12	3	4	5	1455
Large	90	31	18	1	11	3	11	3	715
Total	44	42	13	0	10	3	7	5	4601
Proportion of permanents									
None	31	52	10	0	6	2	1	0	261
One to 49 per cent	45	43	9	0	8	6	3	6	462
50 to 74 per cent	41	40	13	0	8	2	5	6	544
75 to 99 per cent	57	46	14	0	8	4	7	5	905
All	44	41	14	1	11	3	8	5	2429
Total	44	42	13	0	10	3	7	5	4601
Proportion of full-timers									
None	35	50	10	0	9	3	5	2	599
One to 49 per cent	50	44	10	1	9	4	5	5	933
50 to 74 per cent	45	41	14	1	11	3	6	6	858
75 to 99 per cent	53	40	11	0	9	4	8	5	1001
All	42	39	16	1	12	2	9	6	1209
Total	44	42	13	0	10	3	7	5	4600

Note: Data weighted (except n column). §Row percentages may not total 100 because multiple responses allowed

Key:

A Performance Mgt/ Skills Appraisal/ Training Needs Analysis

B Informal Methods

C Legislative, Regulatory Or Licensing Requirements

D Award Or Enterprise Bargaining Agreements

E Employees Flag Own Training Requirements

F Client Needs/ Feedback

G When New Products Are Released

H Advised Of Courses From Supplier Or Training Provider

Source: SEUV 2005.

Population: All organisations surveyed.

Table B.25: How organisations determine their training needs, occupational groups (row percentages §)

	A	B	C	D	E	F	G	H	n
Managers									
None	36	46	11	1	9	3	7	6	1724
One to 49 per cent	58	38	15	0	12	3	8	4	2682
50 to 74 per cent	47	33	11	0	10	3	4	2	131
75 to 99 per cent	71	28	12	0	1	0	0	0	9
All	25	40	29	0	13	0	0	0	55
Professionals									
None	38	45	13	1	8	2	8	5	2572
One to 49 per cent	63	41	12	0	13	6	7	3	1350
50 to 74 per cent	52	28	18	0	14	4	4	4	427
75 to 99 per cent	57	24	24	0	24	4	2	4	166
All	46	24	6	1	23	0	0	8	86
Tradespersons									
None	44	42	13	0	11	3	5	4	2709
One to 49 per cent	56	39	13	0	14	5	8	5	1260
50 to 74 per cent	39	43	10	0	3	1	12	8	289
75 to 99 per cent	41	38	17	1	8	6	20	7	131
All	32	53	12	2	6	2	10	10	212
Clerical workers									
None	37	49	12	0	8	2	6	5	1590
One to 49 per cent	54	34	13	1	12	4	8	6	2369
50 to 74 per cent	52	43	16	0	13	4	4	1	341
75 to 99 per cent	66	41	9	0	12	11	14	1	122
All	26	43	17	1	8	0	10	3	179

Note: Data weighted (except n column). §Row percentages may not total 100 because multiple responses allowed.

Key:

A Performance Mgt/ Skills Appraisal/Training Needs Analysis

B Informal Methods

C Legislative, Regulatory Or Licensing Requirements

D Award Or Enterprise Bargaining Agreements

E Employees Flag Own Training Requirements

F Client Needs/ Feedback

G When New Products Are Released

H Advised Of Courses From Supplier Or Training Provider

Source: SEUV 2005.

Population: All organisations surveyed.

Table B.25: How organisations determine their training needs, occupational groups (row percentages §) (cont'd)

	A	B	C	D	E	F	G	H	n
Service workers									
None	43	43	13	0	10	3	7	5	3830
One to 49 per cent	71	40	8	0	15	3	2	2	393
50 to 74 per cent	57	31	21	1	8	0	2	10	178
75 to 99 per cent	69	21	21	1	21	17	2	5	140
All	32	36	8	0	17	2	10	0	60
Sales workers									
None	44	42	15	1	10	3	7	5	3467
One to 49 per cent	53	39	8	0	13	3	7	5	718
50 to 74 per cent	42	46	5	0	9	6	10	8	165
75 to 99 per cent	48	39	12	1	7	4	2	9	103
All	30	55	4	0	4	6	6	4	148
Machine operators									
None	44	42	13	1	10	3	7	5	3516
One to 49 per cent	50	43	9	0	13	2	5	2	674
50 to 74 per cent	42	30	21	0	9	1	6	2	184
75 to 99 per cent	35	45	21	0	9	1	6	1	92
All	28	48	22	0	5	3	6	6	135
Labourers									
None	44	42	13	1	10	3	7	5	3516
One to 49 per cent	50	43	9	0	13	2	5	2	674
50 to 74 per cent	42	30	21	0	9	1	6	2	184
75 to 99 per cent	35	45	21	0	9	1	6	1	92
All	28	48	22	0	5	3	6	6	135
Totals	44	42	13	0	10	3	7	5	4601

Note: Data weighted (except n column). §Row percentages may not total 100 because multiple responses allowed.

Key:

A Performance Mgt/ Skills Appraisal/Training Needs Analysis

B Informal Methods

C Legislative, Regulatory Or Licensing Requirements

D Award Or Enterprise Bargaining Agreements

E Employees Flag Own Training Requirements

F Client Needs/ Feedback

G When New Products Are Released

H Advised Of Courses From Supplier Or Training Provider

Source: SEUV 2005.

Population: All organisations surveyed.

References

- Abrahamsson, K., Abrahamsson, L. and Johansson, J. (2004), 'From Overeducation to Underlearning: a Survey of Swedish Research on the Interplay between Education, Work and Learning', *European Journal of Vocational Training* 31, pp. 15–26.
- ABS (1367.5), *Western Australian Statistical Indicators*, Australian Bureau of Statistics, April to June 2000.
- ABS (6227.0), *Education and Work*, Australian Bureau of Statistics May 2006.
- ABS (6345.0) *Labour Price Index*, Australian Bureau of Statistics.
- ABS (6310.0), *Employee Earnings, Benefits and Trade Union Membership, Australia*, Australian Bureau of Statistics.
- ABS (6361.0), *Employment Arrangements and Superannuation*, Australian Bureau of Statistics, April to June 2000.
- ABS (6362.0), *Employer Training Expenditure and Practices, Australia*, Australian Bureau of Statistics.
- ACIRRT (1999), *Australia at Work: Just Managing*, Prentice Hall, Sydney.
- Allen Consulting Group (2006), *World Class Skills for World Class Industries*, Report to the Australia Industry Group.
- Burgess, J. and Campbell, I. (1998a), 'Casual Employment in Australia: Growth Characteristics, a Bridge or a Trap?', *The Economic and Labour Relations Review* 9(1), pp. 31–54.
- Burgess, J. and Campbell, I. (1998b), 'The Nature and Dimensions of Precarious Employment in Australia', *Labour and Industry* 8(3), pp. 5–22.
- Connell, J. and Burgess, J. (2006), 'The Influence of Precarious Employment on Career Developments: the Current Situation in Australia', *Education & Training* 48(7), pp. 493–507.
- Cully, M. (2003), *Pathways to Knowledge Work*, NCVER, Leabrook, SA.
- Cully, M., Delaney, M., Ong, K. and Stanwick, J. (2006), *Matching Skill Development to Employment Opportunities in New South Wales*, Independent Pricing and Regulatory Tribunal of NSW.
- DEWR (2006a), *Vacancy Report, March 2006*, Australian Government, Department of Employment and Workplace Relations.
- DEWR (2006b) Skills in Demand Lists - States and Territories, September 2006. url: www.workplace.gov.au/NR/rdonlyres/35D58940-96FF-4260-AB85-23D9BF7CAF64/0/SkillsinDemandSeptember2006.pdf
- Gelman, A. and Hill, J. (2007) *Data Analysis Using Regression and Multilevel/Hierarchical Models*, Cambridge University Press, Cambridge.
- Gonos, G. (1997), 'The Contest over "Employer" Status in the Postwar United States: The Case of Temporary Help Firms', *Law and Society Review* 31(1), pp. 81–110.
- Green, F., McIntosh, S. and Vignoles, A. (1991), *Overeducation and Skills - Clarifying the Concepts*, Paper No: CEPDP0435, Centre for Economic Performance.
- Hall, R., Bretherton, T. and Buchanan, J. (2000), *'It's Not My Problem': The Growth of Non-standard Work and its Impact on Vocational Education and Training in Australia*, National Centre for Vocational Education Research, Leabrook, South Australia.
- Hall, R., Harley, B. and Whitehouse, G. (1998), 'Contingent Work and Gender in Australia: Evidence from the 1995 Australian Workplace Industrial Relations Survey', *The Economic and Labour Relations Review* 9, pp. 55–81.
- Joshi, H., Paci, P. and Waldfogel, J. (1999), 'The Wages of Motherhood: Better or Worse?', *Cambridge Journal of Economics* 23(5), pp. 543–564.
- Keep, E. and Mayhew, K. (1999), 'The Assessment: Knowledge, Skills, and Competitiveness', *Oxford Review of Economic Policy* 15(1), pp. 1–15.
- King, G. (1997), *A Solution to the Ecological Inference Problem: Reconstructing individual behaviour from aggregate data*, Princeton University Press, Princeton.
- Linsley, I. (2005), 'Causes of Overeducation in the Australian Labour Market', *Australian Journal of Labour Economics* 8(2), pp. 121–143.
- Lloyd, C. and Payne, J. (2002), 'On the 'Political Economy of Skill': Assessing the Possibilities for a Viable High Skills.

- Project in the United Kingdom', *New Political Economy* 7(3), pp. 367–395.
- Martin, B. and Healy, J. (2008), *Changing Work Organisation and Skill Requirements*, National Centre for Vocational Education Research, Leabrook, South Australia.
- Mavromaras, K. G., McGuinness, S., O'Leary, N. C., Sloane, P. J. and Fok, Y. K. (2007), *The Problem of Overskilling in Australia and Britain*, Discussion Paper No. 3136, IZA.
- Norris, G., Williams, S. and Adam-Smith, D. (2003), 'The Implications of the National Minimum Wage for Training Practices and Skill Utilisation in the United Kingdom Hospitality Industry', *Journal of Vocational Education and Training* 55(3), pp. 351–367.
- Pocock, B., Prosser, R. and Bridge, K. (2004), *'Only A Casual...': How Casual Work affects Employees, Households and Communities in Australia*, Labour Studies Report, University of Adelaide.
- R Development Core Team (2007), *R: A Language and Environment for Statistical Computing*, R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0.
www.R-project.org
- Raftery, A. E. (1995), 'Bayesian Model Selection in Social Research', in P. Marsden, ed., *Sociological Methodology 1995*, Blackwell Publishers, Cambridge, Mass., pp. 111–163.
- Raftery, A., Hoeting, J., Volinsky, C., Painter, I. and Yeung, K. Y. (2006), *BMA: Bayesian Model Averaging*. R package version 3.03.
www.r-project.org, <http://www.research.att.com/~volinsky/bma.html>
- Robinson, W. S. (1950), 'Ecological Correlation and the Behaviour of Individuals', *American Sociological Review* 15, pp. 351–357.
- Sundström, M. (1991), 'Part-time Work in Sweden: Trends and Equality Effects', *Journal of Economic Issues* 25(1), pp. 167–178.
- Watson, I., Buchanan, J., Campbell, I. and Briggs, C. (2003), *Fragmented Futures: New Challenges in Working Life*, Federation Press, Sydney.
- Whitehouse, G. (2002), 'Parenthood and Pay in Australia and the UK: Evidence from Workplace Surveys', *Journal of Sociology* 38(4), pp. 381–397.
- Wooden, M. (2000), *The Transformation of Australian Industrial Relations*, Federation Press, Sydney.
- Wooden, M. (2001), 'Are Non-standard Jobs Sub-standard Jobs?', *Australian Social Monitor* 3, pp. 65–70.
- Wooden, M. and Warren, D. (2003), *The Characteristics of Casual and Fixed-Term Employment: Evidence from the HILDA Survey*, Working Paper No. 15/03, Melbourne Institute of Applied Economics and Social Research, University of Melbourne.

For further information see www.skillecosystem.net

GPO Box 33
Sydney NSW 2001
Australia
T 9244 5534

© July 2008
NSW Department of Education & Training



The report was produced as a project funded under the Skill Ecosystem National Project and administered by the New South Wales Department of Education and Training on behalf of the Australian Government Department of Education, Employment and Workplace Relations. The views and opinions expressed in this document are those of the author and do not necessarily reflect the views of the Australian Government, or state and territory governments.