

Youth wages, training wages and productivity: the economic anatomy of traineeships

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Abstract

From a very low base in 1995, traineeship starts now number around 200,000 each year. Their growth belies the economic cycle. In this paper a range of evidence is brought to bear to show that the productivity gap between trainees and adult workers is narrower than implied by the structure of training wages which, by implication, accounts for the high concentration of trainees in relatively low-pay industries such as retail and hospitality. Government subsidies for traineeships are best seen as a labour market program and should be re-oriented towards disadvantaged individuals as originally suggested by the 1986 Kirby report. The application of a standard nominal training wage across industries is also a contributory factor to the pattern of traineeship activity.

1. Introduction

There are two major exceptions to the coverage of the Federal Minimum Wage: junior wages and training wages, both of which allow firms to hire workers at pay rates below the adult minima.

In this paper we are interested in exploring the interaction between these three regulatory instruments. The argument is that the bluntness of these instruments across industries creates opportunities for some firms in some industries to structure employment arrangements to capture economic rents. Overlaying minimum wage instruments are a range of government incentive payments to firms that subsidise the hiring of apprentices and trainees. These may provide additional rents.

We argue that these rents most likely account for much of the remarkable growth in traineeships over the past decade. A further finding is that traineeship completions do not enhance productivity. Taken together, these findings imply that traineeships are best conceived of as a labour market program than a skills program and, as such, are more likely to be socially advantageous if they are explicitly oriented to this end and targeted towards disadvantaged individuals. There are also implications for wage-setting arrangements.

2. Apprentice and trainee commencements

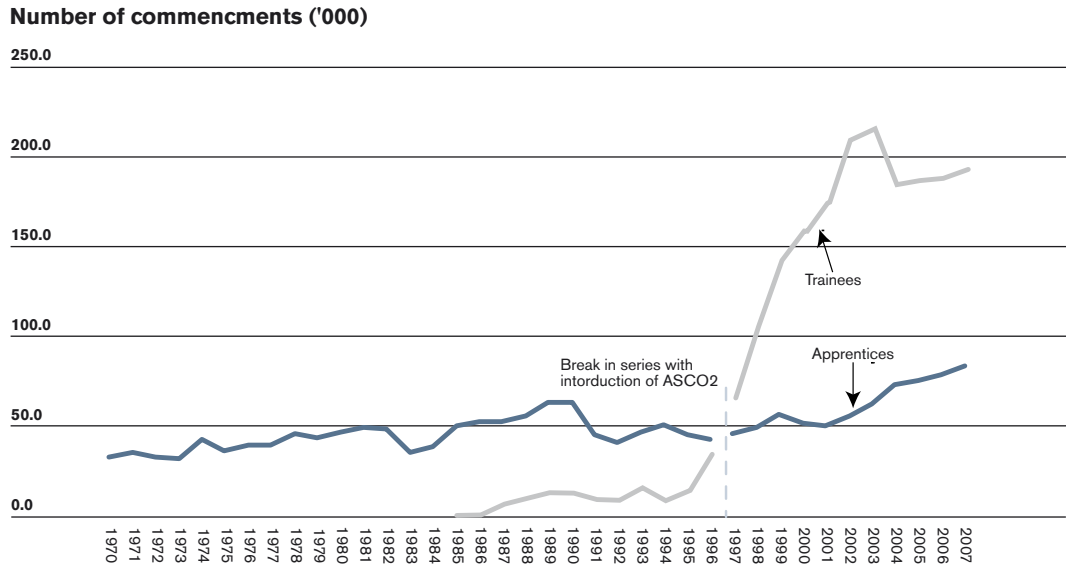
In Figure 1 we trace back to 1970 the annual number of commencements of apprentices and trainees. Apprentices are those who are undertaking a contract of training in a trade occupation, and have long been a feature of employment arrangements in Australia. Traineeships, by which we mean employees with a contract of training in a non-trades area, did not become a feature of the institutional landscape until 1986, when they were introduced in line with recommendations of the Kirby review of labour market programs. It was not until 1995 that the number of traineeship commencements began to rise above a

modest amount, after which it rose prodigiously – an annual rate of 46 per cent between 1995 and 2002 – and presently sits in the region of 200,000 per annum.

Kapuscinski (2001) aggregates these two series and then models the impact of the business cycle on total commencements. Plain observation of the traineeship time series indicates that the business cycle can, at best, explain only a small fraction of the variation in traineeship activity. In contrast, apprenticeship commencements appear to be pro-cyclical. Karmel and Mlotkowski (2008) show that the precise relationship with economic activity differs across different trades. In the electrical trades, commencements increase with total employment and decline with total unemployment. For the building trades, commencements increase with construction employment but not total employment, and also decline with total unemployment.

If traineeship activity is not especially amenable to business cycle explanations, then what are the factors associated with their take-up and, in particular, what explains the prodigious growth rate between 1995 and 2002? Cully (2006) argues that four changes to policy settings in the second half of the 1990s are obvious candidates: the introduction of a national training wage; the lifting of an age bar which had limited traineeships to younger workers; provisions for workers already employed – so-called ‘existing workers’ – to add a contract of training to their contract of employment; and, changes to the structure of employer incentive payments provided by the Commonwealth government associated with the hiring and training of apprentices and trainees.

Figure 1: Apprentice and trainee commencements, 1970–2007



The areas in which trainees are mostly employed are detailed in Table 1, which shows commencements in 2007 across training packages (i.e. the industry area in which the training is being undertaken).

Table 1: Commencements of trainees by most popular training packages, 2007

	Australia
	'000
WRR – Retail	31.7
BSB – Business services ^(a)	31.5
TDT – Transport and distribution	21.1
THH – Hospitality	16.6
CHC – Community services	16.3
ICT – Telecommunications	8.8
PRM – Asset maintenance	5.8
MTM – Australian meat industry	5.5
PMB – Plastics, rubber and cablemaking	4.4
HLT – Health	4.0
FNS – Financial services ^(b)	3.6
Total training packages	190.4
Non-training packages	2.9
Total	193.3

Notes: The formal description is commencements of apprentices and trainees in non-trade occupations.

(a) Includes superseded BSA – Administration Training Package.

(b) Includes superseded FNB – Financial Services Training Package.

Source: Australian vocational education and training statistics, Apprentices and trainees, 2007 – Annual.

3. Training wages

Having set the scene of apprentice and trainee activity in recent years we now turn to wages and wage setting arrangements.

It is instructive to look at the logic of the apprentice wage model in terms of the economic incentives it provides to both the apprentice and the employer to agree to the arrangement. In stylised terms, the apprentice agrees to receive a wage below that of an unskilled worker for the period they are in-training. This represents the opportunity cost of their training. The employer agrees to train the apprentice to the necessary standard and pay them the full skilled wage on completion of their training, which provides the apprentice with a return on their investment.

Apprentice wages in Australia, relative to skilled adult wages, are high by international standards, more so in later years than in the first year (Sweet, 1995). This very much affects the overall cost-benefit analysis undertaken by employers in determining whether or not to hire apprentices. Karmel *et al.* (forthcoming) undertook six case studies on apprenticeship costs in electrotechnology and plumbing and estimate that total costs range from \$161,800 to \$251,300, well in excess of the estimated value the apprentice makes to production at \$113,300 to \$121,000. Employers, of course, do hire apprentices in substantial numbers, implying there are other benefits to doing so than these net costs would suggest. One benefit might be lower recruitment costs for skilled labour which rise when the skill is in short supply, consistent with the pro-cyclical nature of apprentice activity presented earlier. Stevens (1994) develops a formal model of this and finds strong empirical support for it in an analysis of engineers in Britain.

While apprentice wages may be high for employers, some argue that they are below the level needed to provide an adequate standard of living, especially for those living away

from home. Bittman *et al.* (2007) demonstrate across six different trade occupations that apprentices live below the poverty line in their first year of training. They also note that the apprentice wage in the first year is typically \$40–\$70 below the junior wages on which school leavers are hired – though, this is implicit in the apprentice wage model as described. Again, there is no apparent shortage of people wishing to commence an apprenticeship, and a recent study of senior secondary school students (Misko, 2007) found that many considered it to be an attractive prospect.

3.1 Incentive payments

The provision of incentives will alter the cost-benefit equation and, at the margin, have an impact on the decisions of employers and would-be apprentices and trainees.

Incentive payments to employers for hiring apprentices have been in place, in one form or another, since the 1960s, with the quantum and structure of the payments having been reviewed and revised many times since (Toner *et al.*, 2007). At present, the standard incentive payments offered under the Australian Apprenticeship Incentives Program is \$1,250 for contracts leading to a Certificate II qualification, and \$4,000 for contracts leading to a Certificate III or higher qualification. In addition, there is a range of special incentive payments for apprentices in particular circumstances, which are broadly designed to encourage greater take-up in areas given a high priority by government. For example, an additional \$1,500 is available for hiring and training mature-aged workers or school-based apprentices. Several state and territory governments provide further incentives to employers, either by direct subsidy as the Commonwealth government does, or indirectly by reducing liabilities for payroll tax and workers' compensation.

More recently, incentive payments have extended to apprentices and trainees as the recipients. In particular the Commonwealth government widened the eligibility for Youth Allowance – a scheme intended to support students of a low socioeconomic status to attend university – to encompass apprentices living away from home, and also pays progression-tied wage bonuses to apprentices in occupations deemed to be in short supply.

3.2 Junior and training wages: regulatory settings

The structure of junior and training wages is complex. What we do know about them is summarised in an issues paper prepared by the Australian Fair Pay Commission (2007) as part of the (since disbanded) review of junior and training wages. Rather than go into detail here, we draw out four salient points. This also draws on scans of awards and enterprise agreements undertaken for NCVET by the Workplace Research Centre, University of Sydney.

First, junior rates of pay can apply up to the age of 21 years, but in many instances a worker becomes eligible for the full adult rate once they reach 18. The span of junior rates is wide. For example, at age 16 years they span from 40 per cent to 80 per cent of the adult rate.

Second, training wages are generally lower, and sometimes equal to, junior wages.

Third, apprentice wages are relatively uniform in their structure on the following point: the wage is tied to progression through the apprenticeship, rising each year until completion when they become eligible for the full skilled rate. This means that apprentice wages, strictly, are independent of age.

Fourth, many collective agreements set trainee wages by reference to the National Training Wage Award 2001. Our scan of collective agreements showed only a couple of instances of a departure from this award. This is notable because trainee wages in the award are dependent upon both age and the time elapsed since leaving school.

4. Minimum wages and youth employment

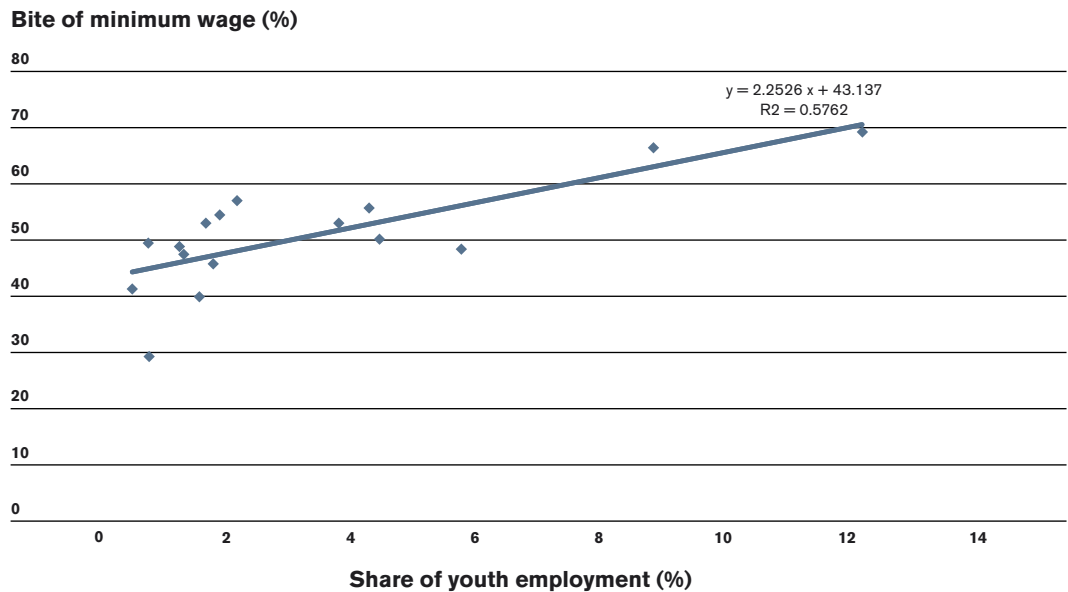
The effects of minimum wages on employment is one of the most researched – and contested – areas in labour economics. Lewis (1985) argues that minimum wage setting needs to have regard to the substitution of one kind of labour for another, and that this is likely to be sharper in its impact than any effect minimum wages might have on output and total employment. A long-standing consideration in the economics literature is the impact of changes in the minimum wage on youth employment. Neumark and Wascher (2003) provide cross-country evidence that the disemployment effects of minimum wages are smaller in those countries, such as Australia, that have junior rates below the adult minima. Indeed, across the OECD, Australia has one of the highest employment rates of young people, albeit many employed under part-time and casual conditions.

An argument sometimes put forward within Australia is that employment will fall if the minimum wage rises in excess of overall wage movements, such that its 'bite' increases. Consistent with Lewis though, one implication is that employers substitute workers on sub-minimum wages for other workers.

A point-in-time illustration of this is shown in Figure 2, which presents a scatterplot of youth employment in 2006 (measured in hours of 15–19 year olds as percentage of total hours) and the 'bite' of the Federal Minimum Wage by industry. As can be quite clearly seen from this, the higher the bite the greater the proportion of youth employment. The two extreme, and well-known, cases are the retail and hospitality industries. In retail, the Federal Minimum Wage represented (in 2006) 69.7 per cent of full-time adult non-managerial median earnings, the highest of all industries, and youth employment accounted for 12.2 per cent of total hours worked in the industry, also the highest of all industries. Hospitality ranks second of all industries on both measures, at 66.4 per cent and 8.8 per cent respectively.

A similar positive association is found across occupations, where the extreme case is elementary sales, service and clerical workers where the minimum wage bite in 2006 was 63.2 per cent and hours worked by 15–19 year olds were 16.8 per cent. In contrast, among managers the bite of the minimum wage was 29.9 per cent and youth employment represented just 0.1 per cent of all hours.

Figure 2: Association between minimum wage bite and youth employment, by industry (May 2006)



Source: Derived from ABS Employee Earnings and Hours, May 2006 (Cat. No. 6306), and ABS Labour Force Survey (May 2006) electronic data cubes.

What appears to be going on here is that there is a distribution of the productive value of workers across industries, which are set against a uniform Federal Minimum Wage. In industries (and occupations) where the productive value of workers – as proxied by median adult earnings – is low, firms have an incentive to substitute youth workers on sub-minimum wages for adult workers. That is, the productivity gap between youth and adult workers in these industries (and occupations) is narrower than the wage gap.

5. Traineeships and productivity

Another form of labour-labour substitution is to hire workers under a contract of training. Typically, training wages lie below junior wages, which is intended to compensate employers for the lower productivity of apprentices and trainees and the time they spend in training. If the relativities of training wages to wages upon qualification, or training wages to junior wages, are out of alignment with relative productivity levels, then substitution of one form of labour for another may occur.

Karmel (forthcoming) estimates the wage premium associated with completion of a traineeship qualification. Table 2 reports the results for occupations typically associated with traineeships. There is virtually no evidence that the possession of a vocational certificate leads to higher wages in these occupations. By inference, this means that those who have completed a traineeship qualification are no more productive than an unqualified worker.

Table 2: Weekly wages for full-time wage and salary earners, by level and occupation, 2005

	Full-time wage and salary earners	
	Weekly \$s	Relative to Year 12
5 Advanced clerical and service workers		
Left school before Year 12	832	0.95
Year 12	879	1.00
Certificate I/II	639	0.73
Certificate III/IV	897	1.02
Diploma or degree	990	1.13
61+81 Clerical workers		
Left school before Year 12	697	0.97
Year 12	721	1.00
Certificate I/II	717	0.99
Certificate III/IV	708	0.98
Diploma or degree	811	1.12
62+82 Sales workers		
Left school before Year 12	700	1.03
Year 12	678	1.00
Certificate I/II	651	0.96
Certificate III/IV	725	1.07
Diploma or degree	651	0.96
63+83 Service workers		
Left school before Year 12	570	0.98
Year 12	583	1.00
Certificate I/II	608	1.04
Certificate III/IV	685	1.18
Diploma or degree	737	1.26
71+72 Machine and plant operators		
Left school before Year 12	811	0.93
Year 12	868	1.00
Certificate I/II	767	0.88
Certificate III/IV	885	1.02
Diploma or degree	804	0.93
73+79 Transport workers		
Left school before Year 12	737	0.95
Year 12	776	1.00
Certificate I/II	738	0.95
Certificate III/IV	838	1.08
Diploma or degree	770	0.99
9 Labourers and related workers		
Left school before Year 12	552	0.92
Year 12	602	1.00
Certificate I/II	654	1.09
Certificate III/IV	674	1.12
Diploma or degree	577	0.96

Notes: Bold signifies a statistically significant difference relative to an individual with a diploma or degree. Calculated for a male, age 30, working 40 hours (for the hourly rate). The relativity to Year 12 is not affected by this assumption.
 Source: Karmel (forthcoming).

This does not imply, however, that the possession of such a qualification does not provide the individual with skills, just that they are not utilised effectively. It suggests that the necessary skills for the job can be learned on the job, as evidenced by a positive association between experience and wages.

6. Incentive payments as implicit wage subsidies

Incentive payments to employers are not specifically tied to reducing the costs of hiring apprentices or paying for their training – there is no requirement to show how they have been acquitted – but it is most sensible to think of them as an offset against costs. The most straightforward way of understanding their magnitude is to consider them as implicit wage subsidies. The figures we present in this section are the reduction in the employer's wage bill, expressed as a percentage. On-costs are not taken into account.

It is difficult to obtain data on apprentice wages. There are no ABS surveys which report this information. To overcome this difficulty we devised a series of illustrative case studies, which marry two distinct information sources together: the eligibility rules for incentive payments, and pay rates for apprentices, trainees, juniors and adults as set out in collective agreements and awards. In total, fourteen case studies were compiled – half in the trades, half outside – across industries and occupations with high volumes of apprentice and trainee activity.

For each case we estimate the scale of the implicit wage subsidy under several different scenarios. These are:

- commencement age – using a starting age of 16, 18 or as an adult;
- qualification level – Certificate III compared with Certificate II qualifications;
- qualification duration – this ranges from 12 to 48 months;
- exiting after one year compared with completing;
- eligibility for special incentive payments.

In Appendix A, three of the case studies are written up in a narrative form which highlights the scale of some of the implicit wage subsidies and the extent to which these vary according to changes in one or more of the above parameters. For example, the Good Luck Hotel chain (case study #1) can employ a 16 year old kitchenhand under a contract of training (Certificate II in hospitality) for which their wage bill during 2008 would be \$12,900. This is reduced to \$11,650 (or 10.1 per cent) if they receive the standard commencement incentive payment, or to \$10,900 (or 16.2 per cent) if the kitchenhand was engaged under a school-based apprenticeship.

Across the fourteen cases as a whole, the implicit wage subsidy ranges from a low of 2.6 per cent to a high of 22.3 per cent depending upon the precise circumstances. Below we describe how the various parameters affect the scale of the subsidy. The details are in Appendix B.

Implicit wage subsidies are higher for trainees than they are for apprentices. This is because the contract of training is of a much shorter duration outside the trades (typically two years) than in the trades (typically four years). As the incentive payment is an absolute sum unrelated to duration, the shorter the duration the greater the subsidy. The availability of some special incentive payments in the trades (e.g. skill shortages in a rural or remote area) is not sufficient to correct this effect.

The wage subsidy is greater for younger workers than it is for adult workers, and it is greater still if the apprenticeship is undertaken as a formal school-based apprenticeship. In some circumstances the wage subsidy can be more than 20 per cent, a very considerable reduction in wage costs to the employer. This is because incentive payments are unrelated to age whereas the training wage for young people is low relative to adult wages.

The wage subsidy to employers is, by definition, greater for higher skill levels – the standard incentive payment for a Certificate II completion is \$1,250 compared with \$4,000 for a Certificate III completion, with \$2,500 of that conditional on completion so as to encourage completion. However, in 11 of the 14 illustrative case studies examined (including all seven trade apprenticeships) the implicit wage subsidy is lower over the lifetime of the contract of training than it is in its first year. This is because the \$2,500 completion payment when spread over the remaining duration of the contract is a smaller proportion of the wage bill than the \$1,500 commencement payment, a function of the wage bill rising as the apprentice or trainee ages/progresses and the duration of the contract. The only cases where this is not true are short-duration traineeships. Only in these instances do employers have a genuine financial incentive for the apprentice to complete.

The structure of training wages in awards and enterprise agreements provides an incentive for employers to hire trainees at as young an age as possible, as wages are tied to both age and progression. Within the trades, wages are not age-related; they are tied only to progression. Employers of apprentices would be indifferent to starting age, but may prefer those with more years of schooling. For apprentices, however, it is in their interests to commence as early as possible as the foregone income (relative to an unqualified junior) of training is lower at younger ages.

As we have seen, the scale of the implicit wage subsidy ranges from the relatively trivial to the generous; it is smaller for employers hiring apprentices than it is for trainees, a situation which on the face of it is at odds with skill shortages faced in the trades in recent years. A further illustration of this point is provided in Table 3, which shows the estimated sum of incentive payments for which employers were eligible in 2007 and the contribution those payments provided to the total wage bill. The Mining industry has received the lowest contribution, in both absolute terms and as a percentage of the total wage bill, while Manufacturing and Construction are around the all-industry average of 0.18 per cent. The two industries with the largest shares – Retail and Accommodation, cafés and restaurants – at 0.29 per cent and 0.43 per cent respectively are also the two industries where the share of youth work is the highest (see Figure 2).

Table 3: Estimated incentive payments, by industry, 2007

Industry	Total incentive payments (\$m)	Payments as % of total wage bill
Mining	4.0	0.03
Manufacturing	97.2	0.18
Electricity, gas and water supply	5.6	0.09
Construction	69.8	0.15
Wholesale trade	15.0	0.07
Retail trade	112.8	0.29
Accommodation, cafés and restaurants	50.5	0.43
Transport and storage	42.7	0.17
Communication services	16.7	0.16
Finance and insurance	15.1	0.06
Property and business services	95.2	0.17
Government administration and defence	30.9	0.13
Education	14.4	0.04
Health and community services	59.5	0.13
Cultural and recreational services	9.7	0.10
Personal and other services	36.0	0.22
Total	684.9	0.15

Note: These estimates are derived based on the number of apprentice and trainee commencements and completions during 2007, and assuming that standard incentive payments are provided in each case. The estimates will approximate but not match actual incentive payments due to timing, eligibility rules and employers willingness to seek payment.

7. Conclusion

This paper has examined a variety of evidence on the pattern of traineeships and how this relates to the interaction between training wages, youth wages, the Federal Minimum Wage and incentive payments for employers. It appears that the wage relativities set down in the various regulatory instruments provide opportunities for some employers in low-paying industries to structure their employment arrangements around traineeships so as to contain labour costs. These opportunities are amplified by the structure of incentive payments to employers for hiring apprentices and trainees which are systematically biased towards traineeships because of their shorter duration.

While traineeships might have been celebrated as an unheralded labour market program in a time of higher unemployment (Cully and Curtain, 2001), it now seems an opportune time to fundamentally reconsider the basis of the program; if it does not lead to productivity improvements, the program is probably best re-directed towards those disadvantaged in the labour market, as originally envisaged in the Kirby Report. In doing so, it would be appropriate to also examine the structure of training wages and whether a standard nominal value – as opposed to a rate based on the fraction of the adult wage – remains appropriate.

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Appendix A: Narrative accounts of illustrative case studies

Case study #1: Good Luck Hotel chain

The Good Luck Hotel chain runs a number of hotel operations across the country, providing gaming operations and dining. It is a large employer with a nationwide enterprise agreement. It employs trainee kitchenhands and waiters and apprentice chefs.

Ongoing employees work 152-hour shifts over a four-week period, at an equalised hourly rate intended to take into account working unsociable hours.

Wages for trainees are set through the National Training Award, while wages for apprentices are set in the enterprise agreement where they are a fraction of the wage paid to a qualified worker, the fraction rising with each year completed. In the table we compare the annual average wage bill of apprentices who commence at age 16, and how this compares with the wages paid to an unqualified junior and a qualified adult.

The scale of the difference in wages for an apprentice relative to an unqualified junior is considerable, and may provide sufficient incentive for the employer to put all juniors under a Contract of Training arrangement.

	Average annual wage bill of apprentice – aged 16 on commencing	Average annual wage bill of unqualified junior	Average annual wage bill of qualified adult
Kitchenhand	\$12,900	\$21,900	\$31,300
Waiter	\$14,100	\$21,900	\$32,800
Chef	\$14,500	NA	\$36,500

When incentive payments are taken into account, the reduction in the wage bill ranges from 5.5 per cent to 22.3 per cent depending upon the particular scenario.

	Reduction in total wage bill if apprentice exits after one year	Reduction in total wage bill if apprentice exits after one year after starting as school-based	Reduction in total wage bill if apprentice completes
Kitchenhand	10.1%	16.2%	5.5%
Waiter	12.1%	22.3%	9.5%
Chef	11.0%	20.1%	6.9%

In the first scenario, the apprentice quits after one year in the job, so the employer is eligible for the commencement payment – this is \$1,250 for the kitchenhand (a Certificate II qualification) and \$1,500 for the waiter and chef (both Certificate III qualifications).

If the apprentice goes on to complete, the employer is eligible for the standard completion payment of \$2,500 for the waiter and chef, but nil for the kitchenhand. In all three cases, the value of the implicit wage subsidy falls.

If the apprentices had been hired under a school-based program and, as under the first scenario, quit after one year, the employer is eligible for a special incentive commencement payment of \$750. This raises the value of the implicit wage subsidy markedly in all three instances, over 20 per cent for both the waiter and the chef.

Case study #2: At the butcher counter

A nationwide supermarket chain runs a butchery service in its larger stores. Butchers cut and prepare slaughtered animals to standard cuts and create value-added products, such as sausages and ready-to-cook meals. Meat packers assist butchers in their work and pack meat on to trays for display in the refrigerated shelves and may also serve on meat/ deli counters in the store.

The meatpacker undertakes a Certificate II qualification of 15 months' duration, while the butcher does a Certificate III in meat processing that typically takes 48 months to complete.

	Average annual wage bill of apprentice – aged 16 on commencing	Average annual wage bill of unqualified junior	Average annual wage bill of qualified adult
Meatpacker	\$12,600	DK	\$35,100
Butcher	\$29,300	DK	\$39,700

When incentive payments are taken into account, the reduction in the wage bill ranges from 3.4 per cent to 16.2 per cent depending upon the particular scenario. In each scenario the subsidy is greater for the meatpacker than for the butcher, due in this instance to the relatively high wages earned by the apprentice butcher relative to the meatpacker. This is due to the meatpacker's wage being a function of age whereas the butcher's is unrelated to age. If the meatpacker was hired as an adult apprentice rather than a 16 year old the average annual wage would be \$24,200, while if the butcher was hired as an adult apprentice the wage would be unchanged at \$29,300.

	Reduction in wage bill if apprentice exits after one year	Reduction in wage bill if apprentice undertaken in regional or remote area and completes	Reduction in wage bill if apprentice completes
Meatpacker	10.1%	7.9%	7.9%
Butcher	7.5%	4.3%	3.4%

In the first scenario, the apprentice quits after one year in the job, so the employer is eligible for the commencement payment – this is \$1,250 for the meatpacker (a Certificate II qualification) and \$1,500 for the butcher (a Certificate III qualification).

If the apprentice goes on to complete, the employer is eligible for the standard completion payment of \$2500 for the butcher, but nil for the meatpacker. In both, the value of the implicit wage subsidy is lower for completers than for those exiting relatively early. For the meatpacker this is a function of duration only, whereas the four-year duration for the butcher means the standard completion incentive is worth \$833 per year for Years 2 to 4 to the employer.

If the butcher was based in a regional or remote area the employer would be eligible for a special incentive payment of \$1,000 as it is a skill-shortage occupation. That has the effect of raising the wage subsidy from 3.4 per cent to 4.3 per cent.

Case study #3: At the video store

A nationwide chain hires videos, DVDs and games out to customers.

Its employees are retail workers and the employer may consider having them complete an apprenticeship qualification in retail operations. These are of either 12 months' (Certificate II) or 24 months' (Certificate III) duration. There is nothing in the enterprise agreement which indicates any grading in seniority of sales assistants.

The wages paid to shop workers are strongly associated with age – a 16 year old (whether a trainee or not) earns 44 per cent of an adult wage. The average annual wage bill of the shop worker undertaking the Certificate III is higher than that for undertaking the Certificate II because the wage rises in the second year of the apprenticeship.

	Average annual wage bill of apprentice – aged 16 on commencing	Average annual wage bill of unqualified junior	Average annual wage bill of qualified adult
Sales assistant (Cert II)	\$13,100	\$13,100	\$29,600
Sales assistant (Cert III)	\$13,780	\$13,780	\$29,600

When incentive payments are taken into account, the reduction in the wage bill ranges from 4.8 per cent to 14.5 per cent depending upon the particular scenario. In each scenario the subsidy is greater for the trainee undertaking the Certificate III qualification, whether a junior or an adult, and whether the trainee completes or not. This reflects the impact of the higher standard incentive payments for Certificate III compared with Certificate II, so that the completion payment represents a \$2,500 wage subsidy in the second year of employment, greater than the \$1,500 paid in the first upon commencement. In this example, it is clearly in the employer's interests to register the trainee for a Certificate III qualification and to have that trainee complete.

The other factor illustrated in this case study is that it is clearly in the employer's interests to hire junior staff.

	Reduction in wage bill if apprentice exits after one year	Reduction in wage bill if apprentice commences as an adult and exits after one year	Reduction in wage bill if apprentice completes
Sales assistant (Cert II)	9.5%	4.8%	9.5%
Sales assistant (Cert III)	11.4%	7.6%	14.5%

Appendix B: Illustrative case studies of wage costs and implicit wage subsidies

Trade occupation examples

Case	Occupation	Apprentice qualification	Duration of apprenticeship (median)	Total standard incentive payment	Total wage cost over life of apprenticeship (in 2008 dollars), by commencement age			Total wage cost of qualified adult	Unqualified junior
					16	18	21 or over		
A	Motor mechanic	Cert III in Auto Mechl Technology	48 months	4,000	137,808	119,849	151,449	212,013	108,534
B	Carpenter (assume)	Cert III in Carpentry	48 months	4,000	107,878	107,878	123,086	155,865	16 and 18 same
C	Toolmaker and fitter (assume)	Cert III in Engineering – Mechanical	48 months	4,000	122,198	111,449	140,496	187,997	
D	Metal worker	Cert III in Engineering – Fabrication	48 months	4,000	127,107	132,339	132,339	195,550	
E	Electrician	Cert III in Electrotech	48 months	4,000	112,704	112,704	112,704	223,822	•
F	Butcher	Cert III in Meat Processing	48 months	4,000	117,243	117,243	117,243	158,973	•
G	Mech. eng.	Cert III	48 months	4,000	135,298	135,298	135,298	211,147	•

Scenario 1: exit after one year

Case	Percentage reduction in total wage bill, by commencement age			
	16	18	21 or over	No age
A	6.7	9.2	6.2	
B	8.2	8.2	5.2	
C	7.6	9.2	6.2	
D	7.7	6.1	6.1	
E	8.3	8.3	8.3	
F	7.5	7.5	7.5	
G	6.9	6.9	6.9	

Total incentives: \$1,500

Scenario 2: exit after two years

Case	Percentage reduction in total wage bill, by commencement age			
	16	18	21 or over	No age
A	2.9	4.3	2.3	
B	3.6	3.6	2.6	
C	3.3	4.3	2.5	
D	3.2	2.9	2.9	
E	3.6	3.6	3.6	
F	3.3	3.3	3.3	
G	3.0	3.0	3.0	

Total incentives: \$1,500

Scenario 3: completion

Case	Percentage reduction in total wage bill, by commencement age			
	16	18	21 or over	No age
A	2.9	3.3	2.6	
B	3.7	3.7	3.2	
C	3.3	3.6	2.8	
D	3.1	3.0	3.0	
E	3.5	3.5	3.5	
F	3.4	3.4	3.4	
G	3.0	3.0	3.0	

Total incentives: \$4,000

Scenario 4: exit after one year starting as school-based

Case	Percentage reduction in total wage bill, by commencement age			
	16	18	21 or over	No age
A	10.1	NA	NA	
B	12.2	NA	NA	
C	11.4	NA	NA	
D	11.5	NA	NA	
E	12.5	NA	NA	
F	11.3	NA	NA	
G	10.3	NA	NA	

Total incentives: \$2,250

Scenario 5: completion after starting as school-based

Case	Percentage reduction in total wage bill, by commencement age			
	16	18	21 or over	No age
A	4.0	NA	NA	
B	5.1	NA	NA	
C	4.5	NA	NA	
D	4.3	NA	NA	
E	4.9	NA	NA	
F	4.7	NA	NA	
G	4.1	NA	NA	

Total incentives: \$5,500

Scenario 6: completion in regional skill-shortage area

Case	Percentage reduction in total wage bill, by commencement age			
	16	18	21 or over	No age
A	3.6	4.2	3.3	
B	4.6	4.6	4.1	
C	4.1	4.5	3.6	
D	3.9	3.8	3.8	
E	4.4	4.4	4.4	
F	4.3	4.3	4.3	
G	3.7	3.7	3.7	

Total incentives: \$5,000

Non-trade occupation examples

Case	Occupation	Apprentice qualification	Duration of apprenticeship (median)	Total standard incentive payment	Total wage cost over life of apprenticeship (in 2008 dollars), by commencement age			Total wage cost of qualified adult	Unqualified junior
					16	18	21 or over		
H	Sales assistant	Cert II in Retail Operations	12 months	1,250	13,117	17,734	26,274	29,543	13,117
I	Sales assistant	Cert III in Retail Operations	24 months	4,000	27,561	38,736	52,547	59,086	27,561
J	Truckdriver	Cert III in Tran & Dist (Road Tran)	24 months	4,000	25,915	35,144	50,370	86,035	
K	Kitchenhand	Cert II in Hospitality (Kitchen Op)	21 months	1,250	22,526	29,317	42,431	54,752	38,326
L	Waiter	Cert III in Hospitality	36 months	4,000	42,184	57,149	75,555	98,437	65,702
M	Cook	Cert III in Hospitality (Comm cook)	36 months	4,000	58,139	58,139	58,139	109,434	
N	Meat packer		15 months	1,250	15,747	20,270	30,308	43,839	

Scenario 1: exit after one year

Case	Percentage reduction in total wage bill, by commencement age		
	16	18	21 or over
H	N/A	N/A	N/A
I	11.4	8.5	5.7
J	12.1	9.2	6.0
K	10.1	7.9	5.2
L	12.1	9.2	6.0
M	11.0	11.0	11.0
N	10.1	7.9	5.2

Total incentives: \$1,250 (Cert II), \$1,500 (Cert III)

Scenario 2: exit after two years

Case	Percentage reduction in total wage bill, by commencement age		
	16	18	21 or over
H	N/A	N/A	N/A
I	N/A	N/A	N/A
J	N/A	N/A	N/A
K	N/A	N/A	N/A
L	5.8	4.3	3.0
M	4.6	4.6	4.6
N	N/A	N/A	N/A

Total incentives: \$1,250 (Cert II), \$1,500 (Cert III)

Scenario 3: completion

Case	Percentage reduction in total wage bill, by commencement age		
	16	18	21 or over
H	9.5	7.0	4.8
I	14.5	10.3	7.6
J	15.4	11.4	7.9
K	5.5	4.3	2.9
L	9.5	7.0	5.3
M	6.9	6.9	6.9
N	7.9	6.2	4.1

Total incentives: \$1,250 (Cert II), \$4,000 (Cert III)

Scenario 4: exit after one year starting as school-based

Case	Percentage reduction in total wage bill, by commencement age		
	16	18	21 or over
H	NA	NA	NA
I	21.0	NA	NA
J	22.3	NA	NA
K	16.2	NA	NA
L	22.3	NA	NA
M	20.1	NA	NA
N	16.2	NA	NA

Total incentives: \$2,000 (Cert II), \$2,750 (Cert III)

Scenario 5: completion after starting as school-based

Case	Percentage reduction in total wage bill, by commencement age		
	16	18	21 or over
H	21.0	NA	NA
I	20.0	NA	NA
J	21.2	NA	NA
K	12.2	NA	NA
L	13.0	NA	NA
M	9.5	NA	NA
N	17.5	NA	NA

Total incentives: \$2,750 (Cert II), \$5,500 (Cert III)

Scenario 6: completion for mature aged disadvantaged

Case	Percentage reduction in total wage bill, by commencement age		
	16	18	21 or over
H	NA	NA	10.5
I	NA	NA	10.5
J	NA	NA	10.9
K	NA	NA	6.5
L	NA	NA	7.3
M	NA	NA	9.5
N	NA	NA	9.1

Total incentives: \$2,750 (Cert II), \$5,500 (Cert II)

Forum discussion

General discussion following the presentation focussed on:

- the magnitude of the elasticity of labour demand for trainees;
- longer-term labour market outcomes of trainees who complete their training versus those who do not; and
- the relationship between award wages and productivity for trainees.

Some participants suggested that the elasticity of labour demand for trainees is relatively large. It was suggested that the offering of training subsidies to employers may constitute a good natural experiment concerning the effect of minimum wages on employment, and that the employment effect appeared to be strongly positive. This appeared to be consistent with previous research findings in Australia that there are large substitution effects between youth and adult employment.

The relative level of minimum wages for trainees in different industries was also mentioned as a factor that could be influencing the distribution of traineeships across different industries.

A further aspect of the discussion centred on the labour market outcomes for those who start but do not complete their training, compared to those who do complete their training. It was not clear to what extent wages feature in these decisions. It was felt that there was a lack of quality and well-rounded data to examine this issue fully.

There was considerable interest in the apparent discrepancy between award wages and productivity relativities between trainees and non-trainees. In particular, this raises the question of why traineeships have apparently not increased productivity. It was suggested that this may be due to an increasing use of firm-specific rather than generic training packages, which may have resulted in skills that are less transferable from firm to firm.