

## Contributed Article

### **Costs and Benefits of New Apprenticeships**

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*The introduction of New Apprenticeships in January of 1998 marked an important initiative in Australia's efforts to develop a more encompassing system of employment based vocational education and training. This paper draws on evidence from case studies of 60 employers to assess the impact of these reforms on training outcomes and practices. The provisions most enthusiastically embraced by employers include competency-based assessment and flexibility in time spent in training. However, these positive indicators of the reform process have not translated into an improved cost/benefit outcome for employers. Comparison with previous findings suggests that the net cost of employing trainees has not really changed while the net cost of apprentices is estimated to be higher than it was in 1996.*

#### **Introduction**

The introduction of 'New Apprenticeships' in January 1998 was an important policy initiative in Australia's ongoing efforts to develop a more flexible and encompassing system of employment-based training and to boost entry-level vocational education and training (VET) opportunities. The essence of the New Apprenticeship reforms is to promote structured work based training by giving employers greater flexibility in how the training is organised. The aim of this paper is to investigate how these reforms have impacted on the costs and benefits of training. It is based on case studies of 60 organisations in four States. The next section of the paper provides a background and overview of the reforms. It is followed by the findings from the case studies, including quantitative estimates of the net cost of providing traineeships and apprenticeships. The fourth section of the paper discusses the impact of the reforms with reference to the qualitative findings from the case studies. The final section contains our concluding comments.<sup>1</sup>

## The New Apprenticeship Reforms

Increasing the level of VET has been a long held objective of public policy in Australia. This has seen a steady stream of reforms to the institutional arrangements for VET. The latest stage of reform has been to subsume apprenticeships and traineeships into a single framework that can accommodate the diverse range of skill requirements of individuals and employers. This emphasises 'seamless' transitions between the school, VET and higher education sectors and from one skill level to the next within the VET sector through accreditation under the Australian Qualifications Framework and recognition of prior learning. A major component of the development of a flexible framework was the creation of 'New Apprenticeships' in January 1998.

Under the New Apprenticeship System, all trainees are referred to as 'new apprentices'. This, one presumes, is part of the rhetoric of the reforms. The term 'traineeships' that was introduced in response to the 1985 Kirby report never achieved widespread acceptance. An apprenticeship, on the other hand, has ancient origins and has a high degree of recognition among most sections of the community. From this perspective, it makes good sense to try to transfer some of this kudos to traineeships by the adoption of the umbrella term 'New Apprentices'. Persons involved in the training sector, however, continue to use the terms 'trainees' and 'apprentices' so this nomenclature has been retained in this paper.

The overriding theme of New Apprenticeships is increased flexibility in training arrangements – moving from a system that provided a handful of 'one-size-fits-all' training products to one in which the product can be tailored to the individual needs of each firm. Trainees and apprentices enter into formal agreements with employers known as 'Training Agreements' or 'Contracts of Training'. These provide an outline of the training, support and supervision to be provided by the employer. As stated by the policy-makers, provisions that increase flexibility are:<sup>2</sup>

- Subject to mandatory requirements to ensure quality, such as competency standards, assessment guidelines and the qualification conferred, the structure of the training (e.g. the timing and mode of delivery of off-the-job training) is open for negotiation.
- Apprentices and trainees can be paid a 'training wage' which can be adjusted to reflect the amount of time spent in off-the-job training. If this wage falls below a specified minimum, they may be eligible for a 'wage top up' payment by the Commonwealth Government.

- Employers have access to public training funds from the State or Territory, but can choose from any training provider that is a Registered Training Organisation (RTO).
- New Apprenticeships are to be made available progressively in all major industry sectors, rather than just in 'declared trades' as was the case with apprenticeships.
- New apprenticeships can be school-based (off-the-job component is provided through vocational streams in secondary schools) and undertaken on a part-time basis.

An important implication of these flexibility provisions is that apprentices no longer need to be indentured for a full four years. A trainee can progress from an AQF Level II traineeship, to an AQF Level III traineeship and then complete the equivalent of a trade certificate. New Apprenticeships also potentially allow employers to improve the cost/benefit outcome. Such mechanisms include wage trade-offs for offering more off-the-job training; increasing the proportion of training that is firm specific; concentrating off-the-job training in the trainee's lower productivity periods as determined by the firm's work or demand patterns or the trainee's progress; and varying the duration of the training in accordance with the trainee's ability or the firm's needs.

### **The Case Study Findings**

The case studies had two aims. The first was to gather data to calculate quantitative estimates of the costs of employing and training an AQF level II trainee and an apprentice. The second aim was to investigate whether the New Apprenticeship reforms had impacted upon costs and how employers were utilising the flexibility provisions.

The methodology for measuring the net cost is the same as used by the authors in previous studies (Dockery *et al.* 1997) and is essentially the same as that used by similar studies in several other countries (Smits and Stromback 2001, pp. 100-107). Respondents were asked to make assessments of the costs and benefits of a 'typical' trainee or apprentice. The two main cost components are the wage cost of employing an apprentice/trainee and the training cost. The wage cost is a simple matter of recording the wage and on-costs. The training cost is mainly comprised of the time spent or lost by experienced workers supervising an apprentice or trainee. This time is valued at the cost of employing an experienced worker. The principal benefit is the value of the output produced by the trainee/apprentice. This is measured by asking respondents to assess the productivity of the trainee relative to an experienced worker, and valuing the output of the experienced worker at their wage costs. Although the same or similar methods have been used in all

studies, reservations about the resulting estimates have been expressed (Acemoglu and Pischke 1999, Smits and Stromback 2001 pp. 100-101). The major conceptual issue is the implied assumption that the wage cost of an experience worker equals the value of their output. This equality only holds in a perfectly competitive labour market. As regards measurement issues, many authors have argued that the cost of supervision is overestimated since it can be scheduled to times when the opportunity cost of supervisors time is low.

A total of 60 case studies were undertaken in four States, New South Wales, Victoria, South Australia and Western Australia. A list of potential respondents was identified with the assistance of the relevant State Government Department. From these lists firms were selected to give a mix of industries, occupational groups and firm size that corresponds to the population distribution of trainees and apprentices.

### **Trainees**

Thirty-four case studies of organisations employing trainees were undertaken. In four of these, respondents were unwilling or unable to estimate the output of a typical trainee relative to an experienced worker. The estimate of net cost and its main components based on the responses of the remaining thirty firms is shown in Table 1. In calculating these estimates the figures for each firm was weighted by the number of trainees they employed.

Trainees achieve experienced worker productivity after a period of about eight months and over the 12 months training period their relative productivity is almost 90 per cent of an experienced worker. In the table, this is reflected in the value of trainees' output (\$28,082) being almost as large as their wage cost (\$31,844). The Commonwealth subsidy that averaged \$896 compensates for part of this difference. This figure is lower than the nominal initial payment of

**Table 1: Costs and Benefits of Employing a 'Typical' AQF II Trainee (weighted average)**

	<i>Dollars</i>	<i>Percentage</i>
Value of output	28,082	97.0
Commonwealth subsidy	896	3.0
Total benefits	28,978	100.0
Wage costs	31,844	88.0
Training costs	4,349	12.0
Total costs	36,193	100.0
Net costs	7,215	

\$1,250 since firms that put on existing workers as trainees are not eligible for this payment. Firms also incur a training cost that amount to \$4,349. Supervision of trainees accounts for about 60 per cent of this figure, the remainder comprising wastage due to trainee inexperience, administrative costs and fees to external training providers. Taking all costs and benefits into account resulted in an estimated net cost of \$7,215. However, not all firms incurred a net cost. There was considerable variation around this average ranging from a net return of \$7,196 to a net cost of \$20,287 and with seven of the 30 firms reporting a net benefit.

What is notable about these figures is the rather high wage costs of trainees. This reflects the fact that traineeships are no longer a purely entry-level training system but are also used to formalise the training of existing and older workers.<sup>3</sup> Thus, only 38 per cent of firms paid trainees the national training wage.

To complement the quantitative estimates, respondents were also asked for a qualitative assessment of the costs and benefits of a traineeship. This assessment was more favourable in that 12 of the 30 respondents thought that there was a net benefit and seven that they broke even by employing a trainee. The most likely reason for the more positive assessment is that employers take into account benefits that they derive from trainees staying on even though the question referred to the training period.

That some benefits may not be incorporated in the quantitative estimate of net cost is evident from the responses summarised in Table 2.

**Table 2: Factors that Firms Consider a Benefit of Employing Trainees**

<i>Factor</i>	<i>Percentage of firms</i>
Stronger commitment from persons employed	68
Flexibility in time spent in training	62
Competency rather than time-based assessment	53
Exemption from payroll tax	41
Useful as a screening mechanism	38
Offering traineeships attracts higher quality recruits	29
A difficulty in attracting other recruits	24
Lower wages paid to trainees	21
Trainees can move into apprenticeships	12
Exemption from workers compensation payments	6

Many of the perceived benefits centered on the quality of recruits and organisational commitment. For example, it was common for organisations to use the fact that they employed trainees in their marketing and promotional material, in an attempt to gain a competitive edge. Often this was linked to health and safety or to demonstrate a commitment to training and quality more generally.

Many of the benefits listed above accrue from trainees that stay on with the training firm. From the responses it was estimated that 83 per cent of trainees stay on with the firm for an expected average period of four to five years. There was also evidence that the training has a large firm specific component. Seventy-five per cent of firms rated trainees who stay on with the firm as more productive than external recruits. None indicated that trainees were less productive.

### **Apprentices**

The methodology for calculating the costs and benefits of apprentices is identical to that for traineeships. Again, respondents were asked to answer with respect to a typical apprentice. The relative productivity of an apprentice increases from 21 per cent in the first year to 90 per cent in the fourth year, which has commensurate effect on the value of their output. In the first year, the wage cost is only about \$15,000 but increases to about \$30,000 in the fourth year. Training costs, as is to be expected, displays the reverse pattern. First year training costs amount to about \$15,000 but are less than \$8,000 by the fourth year. Taking all the costs and benefits into account results in a first year net cost of \$18,807. By the fourth year, the net cost becomes a small net benefit. Over the full four years, however, it costs an average of \$38,329 to employ and train an apprentice. Only four of the 20 firms showed a net benefit. At the other end of the distribution, seven firms incurred a net cost exceeding \$60,000.

**Table 3: Costs and Benefits of Employing Apprentices by year of Apprenticeship (\$, weighted average)**

	Year				Total
	1	2	3	4	
Value of output	10,141	18,782	31,003	38,097	98,023
Commonwealth subsidy	1,234	1,163	229	1,422	4,048
Total benefits	11,375	19,945	31,232	39,519	102,071
Wage costs	15,189	20,095	26,298	30,870	92,452
Training costs	14,993	13,623	11,709	7,623	47,948
Total costs	30,182	33,718	38,007	38,493	140,400
Net cost	18,807	13,773	6,775	-1,026	38,329

Comparing apprentices with trainees reveals more differences than similarities. Apprentices are, on average, younger and paid the training wage as set out in the relevant award, although some firms paid bonuses as well. Their training cost is far higher than for trainees – even during the fourth year the training cost of an apprentice is higher than for a trainee. They also spend a much larger proportion of their work time in training as indicated by the low value of output during the first two years.

When making a qualitative assessment employers were more optimistic. More than half (12 out of 20) thought that there was a net benefit from training apprentices, and four that they broke even, even though the calculations summarised in Table 3 resulted in a net benefit for only four firms. In this context, it should be noted that the calculations for the quantitative estimates were returned to the interviewee for validation.

As with traineeships, other benefits may have influenced employers' qualitative assessment but were not included in the quantitative calculations. In some sectors, a certain ratio of apprentices to tradespersons is required to tender for government contracts. Where the firm commands a dominant market position as an employer, increasing the pool of trained workers may reduce the wages they need to pay to attract skilled labour. There were also indicators of firm specific skills being important that might allow the training firm to recover some of the training cost from apprentices that stay on. A commonly cited benefit of employing apprentices was being able to 'train them the way you want', and tradespersons trained in-house were perceived to offer the same significant productivity advantage over externally recruited workers as was noted for trainees. Finally, many employers convey altruistic motives for training apprentices, such as a sense of community obligation to provide apprentice training, or an obligation to 'keep the trade going'.

### **The Impact of the New Apprenticeship Reforms**

As discussed in the introduction to this paper, the overriding theme of the New Apprenticeship reforms has been to further increase flexibility. In policy discussions, flexibility is commonly used as a euphemism for efficiency and we take it that in plain language the motivation for the reforms is to increase the efficiency of apprenticeship training by lowering the training costs and/or improving the training outcome. Furthermore, and even though this has never been explicitly stated, there is little doubt that it is the cost efficiency to employers that has been foremost in the minds of the policy makers. In keeping with this employer-dominated perspective, this paper is exclusively concerned with the cost and benefits to employers.

As regards quantifiable costs and benefits, the finding in this study can be compared to a previous study by the authors (Dockery *et al* 1997). In this earlier study based on interviews with 59 employers, the average net cost was estimated at \$22,800 for a four-year apprenticeship.<sup>4</sup> This compares to the figure of \$38,329 obtained in the present study, an increase of 68 per cent. The composition of net costs, between wage cost, training cost and value of output over the duration of an apprenticeship was very similar in the two studies. Since the estimates come from small samples and there are large variations in net costs between firms, strong conclusions cannot be drawn from this comparison. However, other findings from the case studies are consistent with there being no decrease in net costs. Only five of the 26 employers indicated that the flexibility provisions had improved the cost-benefit outcome, while four indicated that the outcome had worsened. Furthermore, although 21 of the 26 employers had used at least one of the flexibility provisions, only six went on to acknowledge that the changes had affected their organization or recruitment of apprentices. Many more indicated that they would like to utilize some of the provisions. Still the overriding impression is that the reforms, to date, have had very little impact on quantifiable aspects of apprentice training.

In the case of trainees, there are no previous quantitative estimates of the net cost. However, several of the other indicators can be directly compared to the findings in Centre for Labour Market Research (CLMR 1997). Thus, both this and the previous study found that trainees take about eight months to reach an experienced worker standard. The relative productivity during the training period was not directly measured in the previous study but, drawing on other indicators in the study, appears to have been lower than the 88 per cent in the present study. Another indicator of an improved cost benefit outcome was the much lower drop out rate. The qualitative assessments, on the other hand, suggest that the cost/ benefit has worsened. In CLMR (1997) 49 per cent of employers indicated that trainees were a net benefit compared to 40 per cent in the present study.

That the reforms have not impacted on the net cost of training apprentices does not necessarily imply that they have not had any effect at all. There are many aspects of training arrangements that cannot be subsumed and quantified under a cost or benefit heading even though they matter to outcomes. Thus, the case studies also used a more direct approach to assess the impact of the reforms by asking employers if they were aware of each of the main changes that had been put in place, whether they had used the new features and whether they were likely to adopt them in the future (Table 4).

**Table 4: Awareness and use of the Features of New Apprenticeships (per cent)**

<i>New Apprenticeship Feature</i>	<i>Aware of</i>	<i>Have used</i>	<i>Haven't used but likely to</i>
Ability to vary time in off-the-job training	69	23	31
Ability to vary wage accordingly	42	15	4
Competency based rather than time based assessment, so that the time taken to complete the apprenticeship may vary	88	46	31
Apprentices being able to progress from traineeships into the apprenticeships	77	38	15
Ability to use private providers rather than TAFE	85	46	12
School-based apprenticeships	77	35	8

The first column shows that there is a high level of awareness of the features of New Apprenticeships, the second that the degree to which the features have been adopted is distinctly lower and the third that some features are yet to be adopted by some firms. Of the features that have been adopted, the responses by firms indicate that there will be increases in the number of firms varying the amount of time apprentices spend in off-the-job training and using competency-based, rather than time-based, assessments.<sup>5</sup> Finally, the number of firms who indicated that they would utilise the feature of apprentices progressing from traineeships into apprenticeships suggests that this practice might increase.

#### ***Ability to vary time in off-the-job training***

One-quarter of employers indicated they had used this provision and a further 30 per cent indicated they were likely to do so. The reasons for the positive responses can be traced to the ability to schedule off-the-job training to slack periods. However, there is still a lack of choice among training providers and it takes time to implement training arrangements to take advantage of this provision.

#### ***Ability to vary the wage according to the time off-the-job training***

Employers of apprentices and trainees alike had not much used or did not intend to use this provision. Using it presumably means reducing the wage in exchange for more off-the-job training thereby shifting more of the cost onto the trainees. In the case of trainees, much of the training can be regarded as firm-specific and it is not clear that trainees would be willing to pay a larger proportion of the costs. In addition, as most employers expect trainees to stay on for quite some time there is no pressing need to reduce the training wage in

return for a higher post-training wage. Indeed, many employers put existing employees through a traineeship without any reduction in pay.

In the case of apprentices, previous studies (Dockery *et al.* 1997, 1998) have shown that although there may be a case for apprentices carrying a larger share of the training costs, employers are reluctant to reduce apprentice wages. The current relativities between apprentices and tradespersons have persisted for a long time and have acquired the status of being fair and equitable. In addition, many employers believe there is a trade-off between the wage they pay and the quality of apprentices. In view of these previous findings, it is not surprising that little use has been made of this provision.

### ***Competency-based Assessment and Progression from Traineeship to Apprenticeship***

Competency-based assessment is a difficult to pin down concept. In the mind of the respondents its meaning was strongly linked to the possibility of a shorter than normal four year apprenticeship. The large proportion of employers that had, or intended to use this provision, relate to reductions in the term of an apprenticeship by the progression from a traineeship into an apprenticeship. Many employers were very enthusiastic about this feature and many more would no doubt have used it had it been possible in all jurisdictions. At the time the fieldwork was undertaken, New South Wales still operated with a system of declared trades in which juniors can only be employed as apprentices (or tradespersons, if qualified). This is being reviewed and changes to the relevant legislation to accommodate New Apprenticeships are expected. Theoretical considerations and employers' responses both suggest that traineeships are not being used as probationary employment before employers commit themselves by offering an apprenticeship. Rather, the workers that first go through a traineeship are wanted in their own right. Some employers have restructured work to make greater use of workers with intermediate level skills that previously were not available. Thus, they take on workers as trainees, who on completion form a pool of AFQ level II workers from which they recruit the most suitable as apprentices which releases fully qualified tradespersons from low-value added work.

### ***Ability to use Private Providers rather than TAFE***

This provision has always been in place for traineeships, and indeed firms themselves can become registered training organizations and deliver their own training in-house. Thus, this provision does not change anything and is in any case not very important to traineeships where the off-the-job training component can be quite short. According to some respondents, the training amounted to little more than a couple of weeks of structured learning by observing experienced workers. For many firms, the formal component is little

different from what they would have provided in the way of in-house training or by sending employees to external courses. This being the case, this provision can be used to gain recognition and public funding of the training they would have provided in any case. Saunders (1999, p.46) has expressed concern about this, viewing it an inappropriate use of public funds.

It has also been possible, at least in theory, for apprenticeship training to be delivered by private providers for some time. In reality, State training authorities have had control over approving off-the-job training resulting in TAFE being the dominant approved provider. The large proportion of employers that indicated they had used alternative providers (46 per cent) suggests that the reforms have had a significant impact. However, this figure seems very large relative to the share of contracted training places held by alternative providers and must be treated with caution.

## **Conclusions**

This paper has assessed the impact of New Apprenticeship reforms on employers' costs and benefits of training trainees and apprentices.

Employers were well aware of the reforms and had used many of the new features. Overall, they viewed the changes as helpful and constructive to the way in which they conduct their training. The provisions most enthusiastically embraced by employers include competency-based assessment and flexibility in time spent in training. As employers of trainees and apprentices they were also quite satisfied with the cost/benefit outcome even though they incurred a net cost, and in the case of apprentices, a substantial net cost during the training period. Employers of trainees pointed to the stronger commitment they get from their own trainees. In the case of apprentices, there is a more complex set of factors that explain why employers are willing to incur the large training cost. Apart from drawing attention to a few factors, such as specific skills and being a dominant employer, this issue is not addressed in this paper.

To date, however, these positive indicators of the reform process have not translated into an improved cost benefit outcome for employers. The comparison with previous findings suggests that the net cost of a trainee has not really changed. In the case of apprentices, our estimate suggests a substantial increase in net costs since 1996. However, because of the large variation between firms and small samples, the extent of change is uncertain. Taking into account all the information from the present and previous studies, the most that can be claimed is that the reforms have not reduced the net costs of employing and training apprentices.

## Endnotes

- 1 The research reported in this paper was supported by a grant from the National Centre for Vocational Education Research and the data collection was undertaken with the assistance of the National Institute of Labour Studies and the Melbourne Institute of Economic and Social Research. Views expressed in this paper are those of the authors only and should not be attributed to any of the organisations mentioned.
- 2 Source: New apprenticeships and user choice', available on the ANTA Website <http://www.anta.gov.au/ABC/NTF/NewApprent.htm>
- 3 See NCVER (2001) for an extensive review of changes and the present state of the new apprenticeship system
- 4 In 2000 prices. The original figure in 1996 prices was \$21,800.
- 5 We are grateful to a referee for pointing out that varying the time in off the job training and the wage accordingly are intended to be used together. Thus, an employer who varies one should also vary the other. Note, however, that only one employer gave apparently inconsistent answers to the two questions.

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