



Scholarship Programs Value for Money Analysis

December 2011

EXECUTIVE SUMMARY

This report was commissioned by the Board of BERT Training Queensland (“BTQ”) to assess the value being generated by its funding of a number of apprentice and trainee scholarship programs.

Evidence collected since the commencement of the programs in 1997 show that the programs deliver greater certainty for employers that an apprentice or trainee will complete their training as a productive contributor to the sustainability of the business. The high completion rates and mentoring arrangements associated with these programs are highly regarded across the Queensland construction sector. This report will analyse those aspects of the programs that contribute to their overall success.

Headline outcome 1: Higher Completion Rates

Since 1997, the Construction, Forestry, Mining and Energy Union (“CFMEU”) Scholarship Program has achieved an average completion rate of 94 percent, with a 100 percent completion rate achieved for apprentices who commenced since 2004.

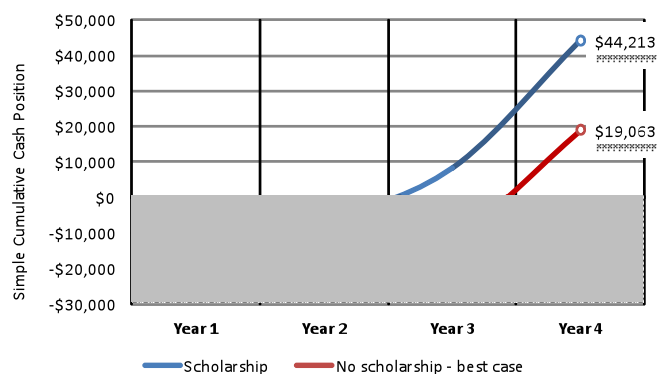
The Builders Labourers’ Federation (“BLF”) scholarship which commenced in 2005 has achieved an average completion rate of 63 percent for trainees, but this does not reflect the continuous improvement of the program over time. The completion rates of recent intakes are in excess of 70 percent.

These outcomes compare to an average national contract completion rate of 45 percent for apprentices and trainees in the construction trades who commenced training in 2004, 2005 and 2006

Headline outcome 2: Positive Financial Return

This report has calculated the indicative financial value arising from the scholarships based on their superior retention rates and the value of the services they provide. The complete cost of a single scholarship apprentice equates to \$32,000. The nominal value created by a single scholarship apprentice is \$38,284. As a result, **the financial value to the employer is 120 percent of the cost.** In the case of two-year traineeships, the nominal cost is \$15,600. The value created is \$17,753. **The financial value to the employer is 114 percent of the cost.** These results confirm the scholarships deliver value greater than their costs.

An important fact that this report has highlighted is the economic return to employers produced by the current apprenticeship model. This is highlighted in the figure below which shows the return on investment and the breakeven position for scholarship and non scholarship employers.



Headline outcome 3: Lower Risk

Scholarship arrangements lower the risk of adverse outcomes for both apprentices and employers. Apprentice Managers work to prevent problems, and limit their effects when they arise. The scholarship arrangements provide greater assurance that if a problem arises, it will be identified, managed and if possible resolved, often with assistance from external resources. In this respect, the apprentice scholarships provide a valuable 'insurance policy' for employer's that reduces risk and encourages them to take on additional apprentices and trainees.

Headline outcome 4: Higher Quality Outcomes

The involvement of Apprentice Managers with both training organisations and employers has led to more relevant and higher quality training as opposed to the development of a narrow range of skills to meet present demands. This delivers tradespersons capable of adapting to changing market needs, different project types, and different locations who are thus more independent and resilient in their working life. Employers benefit via greater access to high quality workers with a broad skills base, capable of life-long learning and continuous skills development.

Headline outcome 5: Improving Industry skills sustainability

The current fragmented industry structure, characterised by boom and bust development cycles and the proliferation of lean, specialised sub-contractors, is not conducive to long term sustainable skill-development. The scholarship programs have established a sustainable skills development model that addresses the structural deficiencies of the industry. This framework enables smaller contractors (who employ the majority of apprentices and trainees) to contribute to the overall industry's skill development needs. This enables the industry to adapt to meet the needs of the modern marketplace while supporting the operation of the traditional apprenticeship model.

**Value arising from the funding of Apprentice Scholarship programs by
BERT Training Queensland**

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DISCLAIMER

The information provided in this document has been prepared in good faith and with due care. Actual financial outcomes will depend on many factors that may not have been considered in detail in our analysis. In preparing this report we have relied on

information provided to us by third parties that has not been independently verified. We believe that the conclusions are fair and reasonable but no warranty of fairness or reliability is given. Neither the firm nor any employee of the firm undertakes responsibility in any way whatsoever to any person for actions, errors or omissions however caused.

PURPOSE OF THIS REPORT

BERT Training Queensland (“BTQ”) distributes funding each year to support the operation of four separate apprentice and trainee scholarship programs. Funding for these initiatives is approved annually by the BTQ Board after consideration of applications that comply with published grant criteria. Funding recipients submit regular reports for review and consideration by the BTQ Board.

As part of its ongoing analysis of the efficacy of these programs, the BTQ Board has commissioned this report into the value for money arising as a result of the scholarship programs. In addressing this objective, this report will examine the benefits to individual employers arising from their involvement with the scholarship. Value to the broader industry will also be analysed, however, due to the intangible nature of these results, the report will not seek to assign a monetary value to these outcomes. With regard to the results achieved by participating employers, measurement of these benefits will be multifaceted. Conventional accounting methods used to measure value will be combined with tools designed to quantify less tangible outcomes. In essence, the methodology used in this report has been developed to provide BTQ Directors with an evidence based, analytical process that can be used to calibrate the long-term economic utility of these labour market programs. To enhance the utility of this report, complex accounting and economic formulas will be interpreted to ensure the results are concise and unambiguous.

It should be noted that the purpose of this report is not to identify potential cost savings for BTQ or to recommend changes to the existing scholarship programs. Consequently, this report will not seek to measure aspects of the apprentice/trainee system to improve the efficiency, economy or effectiveness of the programs. Whilst the report will analyse the benefits to industry arising from the scholarship programs, it should also be noted that the full public benefits cannot be adequately measured by this report. However, where these benefits are clear and unambiguous, they will be highlighted for possible additional consideration in the future.

INTRODUCTION

Structured learning through apprenticeships and traineeships remains a cornerstone of quality skills development in the construction industry. This is despite academic literature increasingly proclaiming apprenticeships and traineeships impose a cost on employers. Ironically, it has been reported that the costs of employing an apprentice have increased since 2006ⁱ, despite there having been no proportionate change to apprentice wage rates.

In 2001, the National Council for Vocational Education Research (“NCVER”) identified a number of factors that contribute to retention and completion rates for apprentices and trainees.ⁱⁱ The Council found that apprentices and trainees with a higher level of prior educational achievement, who were trained and supported by better trainers, backed up by more supportive families and placed with more understanding and committed employers have a higher chance of completing their training. It was also reported that completion rates are improved if high remuneration is available following completion of the qualification and if no alternative employment was available in the mean time that provides greater remuneration and less onerous working conditions.

The coincidence of these factors rarely occurs in the building and construction industry. Construction sites are often difficult and harsh workplaces, regardless of training or experience. Not surprisingly, the workers within the industry reflect this tough environment. The sector is directly exposed to economic forces and is characterised by continuing boom and bust fluctuations. Many employers are small sub-contracting firms with limited resources or expertise in human resource management or training. In 2004 a report commissioned by Construction Training Queensland reinforced the need for “*mentoring assistance and support to employers to reduce administrative burdens*”ⁱⁱⁱ. There was a growing body of evidence arguing for a new approach to managing apprenticeship training.

Five years before the 2001 NCVER report, the idea of a union scholarship program emerged in Queensland which brought together a number of new innovative solutions. Today a number of scholarship programs fund up to 420 apprenticeships and traineeships with an annual recruitment of 135 new starters. The programs are run by a number of industry associations including the CFMEU, the BLF, the CEPU and a joint venture arrangement between the CFMEU and QMCA. Each program’s approach is targeted at specific industry sectors and while there is broad commonality across the programs, different facets and approaches are emerging as each program matures.

PROGRAM HISTORY

In 1996, the board of Construction Training Queensland (“CTQ”) received a report identifying a greater number of apprentice cancellations for the previous 12 months than commencements for the same period. This was long before the term “skills crisis” became the popular way to define the shortcomings of construction industry skills development. Despite the best efforts of many committed people, the industry was failing to keep pace.

The Deputy Chairman of CTQ and State Secretary of the CFMEU, Wallace Trohear considered the causes for the decline in apprentice numbers. One reason was the cyclical ‘boom and bust’ nature of the industry. Another factor was the move away from direct employment by builders and the shift of trade services to sub-contractors over the preceding decades. Builders no longer employed the majority of

apprentices. With the outsourcing of labour, the builders retained overall control of projects, but they contracted out the responsibility for skill development. Yet indentured training contracts spanning four years became difficult to maintain by sub-contractors engaged on a project by project basis with ever-shorter construction timelines. The industry's failure to adapt to this structural change was reflected in lower apprentice numbers.

At the time, federal government policy changes had resulted in apprentices being required to directly contribute towards the costs their training. Employers would only be required to pay wages while an apprentice was working *on the job*. This meant wages paid while undertaking *off-the-job* training (an entitlement dating back to the 1970's) could be abolished. On top of all this, the increasing bureaucratic complexity associated with apprenticeships was further alienating employers, particularly those with limited personnel management resources. Changes to the industry and the broader society had undermined the traditional apprenticeship model, yet there remained a consensus that it was still the best method of producing quality tradespeople.

After considered discussion with genuine employers of apprentices about the costs and difficulties associated with apprenticeships, the idea of an apprentice scholarship was developed. Drawing in part on schemes operating in the United States and Canada^{iv}, the scholarship program was developed to address emerging problems within the local industry while strengthening the basic foundation of the apprenticeship model which is the relationship between an employer and an apprentice.

Under the Apprentice Scholarship model, funding would be sought from an existing training fund (the QCTF) and paid to a single grant recipient to enable the independent management of the program. The scholarship program would then apportion funds, deliver support and provide resources to various contractors who directly employed a Scholarship Apprentice. Funding paid via the scholarship to employers would be targeted to specific costs associated with the existing apprenticeship model (i.e. tool provision, payment of wages, payment of student fees) to ensure the best possible results would be leveraged in terms of quality of outcome and maximisation of employer commitment.

Funding for the initial CFMEU Apprentice Scholarship was secured from the Queensland Construction Training Fund enabling the first intake to commence in 1997. The Scholarship focused on placing apprentices with employers engaged in the commercial construction sector who contributed to the BERT fund. A series of aims and objectives were developed to provide the scholarship with the key criteria by which development could proceed and achievements could be measured. These included:

- To encourage employers to take on extra apprentices.
- To promote the direct-hire model of apprentice employment.
- To assist employers with the management and training of apprentices.
- To produce tradespersons with the highest quality skills.
- To promote a commitment to life-long learning amongst participants.
- To develop future industry leaders with a commonsense approach.
- To help the sons and daughters of union members to get a start in life.

In 2005, the Builders Labourers' Federation ("BLF") began a Scholarship program similar to the existing CFMEU initiative. The BLF program addressed a different set of callings with newly developed non-traditional training outcomes delivered via two year traineeships. While this new scholarship program shared many of the same features of the existing program, the BLF scholarship was focused on sectors of the industry that did not traditionally employ trainees or apprentices. As a result, there was no existing training culture to use as a foundation. Many of the qualifications being advanced were

relatively new and consequently many employers had limited exposure to employment based training arrangements.

In 2009, the CFMEU expanded the existing scholarship from 15 to 25 participants per intake. The BLF scholarship also expanded with 50 participants per intake. Also in 2009, the CFMEU and QMCA established a joint venture civil apprentice scholarship stream with 15 participants. These schemes were essentially designed around the original CFMEU scholarship structure. A further apprentice program was also commenced in 2009 by the Communications, Electrical and Plumbing Union (“CEPU”) which provided for annual intakes of apprentices within the Mechanical Services sector of the industry. The approach of the CEPU differs from the CFMEU initiative with a higher proportion of costs directed toward mentoring and workplace based assistance for apprentices and employers. The CEPU program is also closely linked to a specific registered training organisation—Joint Industry Services Training (“JIST”) and a sector specific training fund, the Services Trades Industry Fund (“STIF”) which together provide additional coordination and support to certain employers within the services sector.

TABLE 1 SUMMARY OF APPRENTICE PLACES BY SCHOLARSHIP

Group	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CFMEU	36	10	15	25	15	13	-	8	15	15	15	15	15	25	25	25
BLF									70	63	39	50	49	56	48	50
CFMEU/QMCA														15	15	20
CEPU														30	20	40
TOTAL	36	10	15	25	15	13	-	8	85	78	54	65	64	126	108	135

Source: BTQ

KEY ELEMENTS OF THE PROGRAMS

Each scholarship program is designed to address the needs of a specific industry sector. As a consequence, there are tangible differences between the programs. In the CFMEU, BLF and QMCA/CFMEU scholarship programs, funding is used for the following purposes:

- Wages and costs of Apprentice Managers
- Selection and induction of apprentices
- Employer liaison and assistance
- Apprentice mentoring
- Payment of college fees
- Payment of Apprentice wages while undertaking off-the-job training
- Payment of apprentice tools

In the case of the Plumbers Apprentice Program, funding is used for the following purposes:

- Wages and costs of Apprentice Managers
- Selection and induction of apprentices
- Employer liaison and assistance
- Part-provision of apprentice tools

Each of the aspects of the CFMEU and BLF programs will be discussed below to highlight the workings of the scholarship programs.

APPRENTICE MANAGERS

The duties of Apprentice Managers¹ in the CFMEU and BLF programs include the following.

- Apprentice selection and induction
- Assessment of employers' suitability to employ and train apprentices
- Apprentice placement with suitable employers, drawing on industry knowledge and contacts
- Monitoring apprentice performance and progress
- Providing timely intervention/assistance to both the employer and the apprentice as required
- Availability on a 24-hour/7-day basis for support and assistance as required.

Apprentice Managers visit apprentices and employers on site, at the employer's office or at the training facility. According to Apprentice Managers, site visits are critical to the success of the program because of the tendency among young male workers (and also busy employers) not to seek assistance until a problem becomes serious or a crisis occurs. Site visits allow problems to be identified early and steps taken to resolve them or avoid escalation. They also enable the Apprentice Managers to conduct regular quality inspections to determine whether both the apprentice and the employer are maximising their opportunities. These visits also help engender stability and certainty into the apprenticeship.

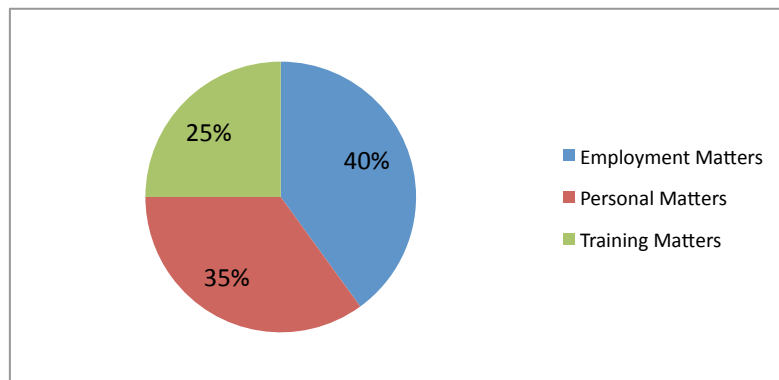
¹ Apprentice Manager is a generic term used to identify officers employed as part of the scholarship programs. Individual programs may use a different title to identify persons performing these duties.

Employers have comfort that the apprentice is being managed as part of a broader program. The apprentice becomes more committed because he is part of a select group who gained a 'Scholarship'.

PASTORAL CARE AND MENTORING

Apprentice Managers are generally contactable on a 24-7 basis to assist apprentices and employers with a myriad of issues. Essentially, these events fall into the three broad categories: Employment Matters, Personal Matters and Training Matters.

FIGURE A TYPES OF PASTORAL CARE EVENT



Source: CFMEU

Most interventions relate to employment matters which include the apprentice's attendance at work, attitude to work, fitting in at work and progressing in the expected manner. Managing the training aspect of the apprenticeship involves standard tasks such as ensuring the apprentice is capable of and is provided with the opportunity to develop skills. In a limited number of cases, additional learning assistance may be provided such as literacy and numeracy training. The management of personal issues accounted for the next greatest segment at 35 percent of cases. This is possibly the most difficult aspect of this work due to the broad social skills required and the risks associated with a failure to achieve the appropriate result. The issues that confront Apprentice Managers are not atypical considering the age and socio-economic characteristics of the apprentice cohorts. Issues can include family and relationship breakdowns, criminal and legal matters, alcohol and drug related problems and lifestyles that lead to poor work and training performance.

To effectively deal with these matters, Apprentice Managers must have highly developed problem solving skills, mature life skills and a good knowledge of both the industry they work in and the associated training services. It should be noted that apprentices may be reluctant to seek assistance directly from their employer, but will confide in the Apprentice Manager because they are regarded as independent and trustworthy. This leads to an intangible but core component of the scholarship programs, which is the relationships that the Apprentice Managers must develop and maintain as part of their role. It is impossible to measure and therefore calculate the value associated with relationships

other than to note that the effectiveness² this central aspect of the programs is integrally linked to overall success.

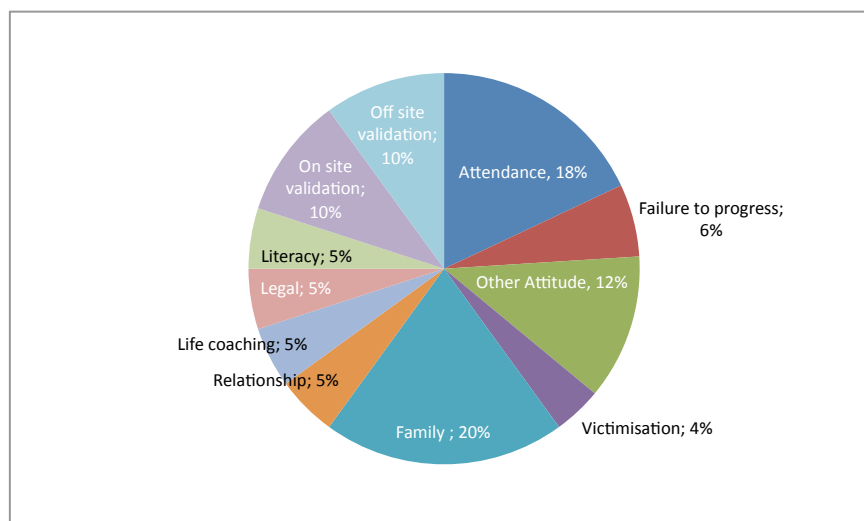
Importantly, as the scholarship programs are independent of the employer and the apprentice, there is no vested interest in guiding either party toward a pre-determined outcome. As a result, the Apprentice Managers are well regarded for their independent approach and are highly trusted by the parties.

Apprentice Managers also assist in managing apprentices who may lack basic literacy and numeracy skills. Without assistance, these apprentices would inevitably fail to progress at the same rate as their higher skilled counterparts. This can then lead to problems at the workplace when a frustrated employer grapples with understanding why there has been an apparent failure. For apprentices with serious deficiencies, intervention can involve referral to adult literacy programs and in other cases direct assistance by the apprentice manager. Apprentice Managers also assist employers and apprentices to interpret training and assessment material.

In these cases, Apprentice Managers also communicate with employers and provide a degree of certainty that the apprentice is being managed through a recovery process. Without this assistance to both apprentices and employers, a high proportion of apprentices confronting serious problems would most likely be terminated for poor performance or breach of their employment contract

The chart below provides a breakdown of pastoral care categories by type and time associated with the activity.^v The chart does not represent all of the activities of all Apprentice Managers, but can be regarded as indicative of the work associated with this aspect of the role.

FIGURE B REASONS FOR PASTORAL CARE INTERVENTION



Source: CFMEU

It should be noted that significant issues often require multiple sessions with the trainee or apprentice. Further, the work involved in each activity varies from apprentice to apprentice, further complicating measurement of these activities.

² Effectiveness is one of the three criteria used to measure value for money in regard to intangible results.

SELECTION OF APPRENTICES

A critical factor underpinning the success of the programs is the quality of apprentice selected to participate in a scholarship. Research published by NCVER highlights the value of the screening process^{vi} to the overall likelihood of the apprenticeship progressing to full term. The selection process has a number of important facets that each contribute the quality of the successful candidate and enhance the chance of continuation and completion.

RECRUITMENT

Apprentice Managers often assist employers in the recruitment of apprentices and trainees. Employers draw on their significant experience in assessing candidates. Apprentice Managers identify common traits that suggest candidates may be unsuitable for the training/occupation^{vii}. They include:

- Lack of personal motivation (e.g. trade training being someone else's idea)
- Apprenticeship being a fallback option with another career being the ultimate goal
- Lack of general knowledge about the trade, industry and lifestyle
- Evidence an applicant may be unwilling or unable to adjust to harsh working environments
- Evidence the applicant may not be capable of accepting responsibility

Another factor to deal with in recruitment is the fact that young men, who numerically dominate these occupational areas, are often not effective communicators and this can pose a challenge for assessors.

The NCVER also attributes a value (though not quantified) to the fact that group training schemes *"(undertake) a rigorous screening process and offered extra pastoral care"* which resulted in higher retention rates for these employers^{viii}. The research also claims that this activity helps with the productivity of the apprentice. In the case of scholarship apprentices and trainees, the common requirement that they must have completed an approved pre-employment training course further enhances their productivity and employability. This course itself acts as a vetting procedure, sorting those who wish to advance on to an apprenticeship/traineeship from those who, having gained exposure to aspects of the work may choose alternative employment options. The work placement requirement associated with these courses also ensures graduates have been exposed to the reality of site work and are therefore more job ready and productive from day one.

Screening of applicants helps to reduce costs in a number of areas. Firstly, written applications and résumés are screened to determine whether they pass the most basic of requirements which includes whether the applicant:

- Is within the acceptable age range
- Has completed the required pre-employment schooling and vocational training
- Has an appropriate association with the industry

Once the applications have been vetted, successful applicants are then tested. This involves requiring the completion of proprietary psychometric tests to further determine the suitability of the applicant. They include base knowledge associated with the particular trade (e.g. calculations), analysis of school marks, attendance and attitude to work.

Most applicants undertake pre-apprenticeship placements and training to further establish their suitability or otherwise for training. The placement allows the prospective apprentice to experience the

lifestyle and workplace at first hand. If they continue experience has shown that it can increase the apprentice's subsequent productivity.

Finally, the applicant who has passed screening and testing will be introduced to a prospective employer to ensure an appropriate bond can be formed. Once all of these stages have been completed, arrangements can then proceed to formalise the employment arrangements. There is then a three-month probation period before the applicant is formally signed into the apprenticeship.

UNION AFFILIATION AND OCCUPATION-BELONGING

In 1996 the CFMEU Apprentice Scholarship was targeted at the sons and daughters of building workers who were suitable candidates for the apprenticeship. It was believed that a family background in the sector would help to ensure that apprentices understood the nature of the work and the lifestyle associated with it. Applicants would enter the program with realistic expectations and a more supportive and understanding family, and thus have a greater chance of success^{ix}. Importantly, in the early years of the scholarship a significant focus was placed on enabling the children of union members to access places within the scholarship. This positive discrimination was designed to reward committed unionists. It was also believed that if parents helped their children secure a scholarship, they would enhance the commitment to see the apprenticeship to its end, thereby helping engender increased commitment. This prerequisite has changed over time. Since the inception of the CFMEU scholarship program 38 percent of apprentices have come from non-trade families.

Representatives of all scholarship programs indicated the importance to the apprentice of *belonging* and feeling that they are a part of a trade, have a future in the trade and industry, and the knowledge that they have somewhere to go for support if required. In practical terms, each apprentice is inducted into the program and informed of the support and assistance that is available. Apprentices are also given a clear idea of what to expect in the workplace and of their responsibilities.

In these programs it is the unions that seek to provide the sense of belonging, both to the union and to the occupation. In the construction industry, which is characterised by small and medium sized enterprises, itinerant employment arrangements and a constant turnover of contractors, the unions can be a consistent institutional presence. Furthermore, as is widely acknowledged, it is the role of unions to defend the interests of apprentices as the most vulnerable of workers^x.

INTERVENTION BY APPRENTICE MANAGERS

There are numerous intangible reasons for the achievement of higher completion rates. One apparent and unambiguous measure that ensures apprentices complete their time is the intervention by an Apprentice Manager to stabilise an at-risk apprenticeship.

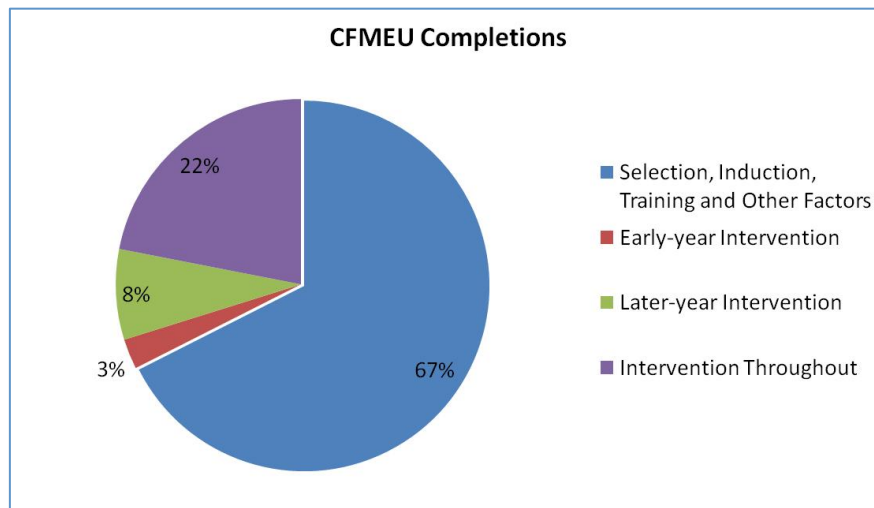
The 2004 report *Matching Supply and Demand with Results* recommended “clear support for additional mentoring, intervention and assistance to help avoid apprentice cancellations”. This was supported by evidence that showed at least “one in ten employers agreed cancellation could have been avoided with (early) outside assistance”.^{xi}

Evidence from the CFMEU and BLF programs show that approximately one-third (33%) of apprentices completed their training after the intervention of an Apprentice Manager. While two-thirds (67%) did not require intervention and completed without withdrawal or significant interruption of training, this outcome was achieved within the broad management of the scholarship program. This is a high result

compared to the average and could be attributed to the combined effects of such factors as selection, employer relationships, minor and incidental support, and union/trade affiliation.

The following chart shows a breakdown, using CFMEU data, of the basis of retention of apprentices.

FIGURE C BASIS OF RETENTION OF APPRENTICES



Source: CFMEU

HIGH QUALITY TRAINING

High quality training has the breadth and depth to enable tradespeople to perform high quality work that delivers value to employers and customers, and to undertake a variety of tasks and duties associated with the occupation. This characteristic also provides the tradesperson with choice and flexibility in relation to the work they undertake and enables them to better manage economic downturns and shifts.

While Apprentice Managers screen applicants for their potential to complete the training, they also consider the employers' ability to provide an adequate variety of work experience for apprentices. Apprentice managers work with both apprentices and employers when necessary to ensure that apprentices are properly engaged according to the stage of their structured training. If the employer cannot provide an adequate scope of work experience, the Apprentice Manager will work towards facilitating a transition for the apprentice to another employer and, if appropriate, replacing that apprentice with another who needs exposure to the specific scope of work available.

The apprentice managers also supervise the quality of training being delivered off the job. Where appropriate, they act as liaison between the employer and the RTO, advising on the skills that need to be supplemented off the job because they cannot be attained in the workplace. This work requires Apprentice Managers to maintain a high level of technical expertise and knowledge of current training

packages. This is another example of value for money being delivered through effectiveness³; where the provision of external expert assistance helps deliver a higher quality outcome.

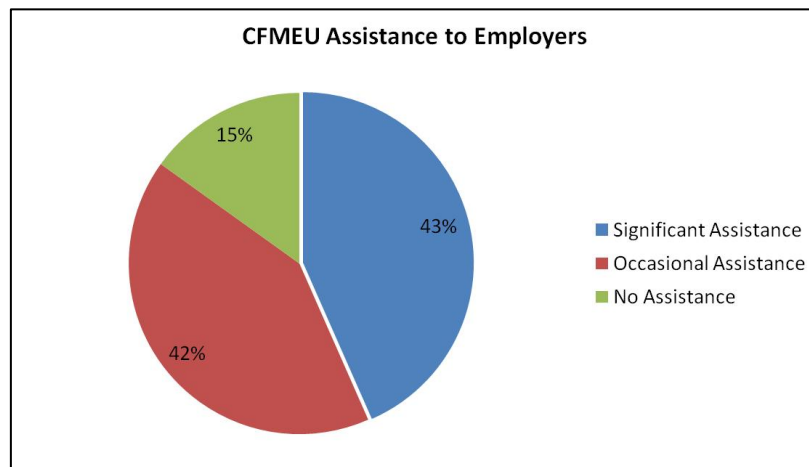
EMPLOYER LIAISON AND ASSISTANCE

A core role of the Apprentice Managers is to assist employers with the management of apprentices. Both the CFMEU and BLF have developed agreements that are signed with employers on commencement of an apprenticeship/traineeship. The agreements set out responsibilities on both sides and inform employers of the action that should be taken should certain situations arise. The purpose of the agreements is to ensure appropriate action is taken promptly to avoid the employer-apprentice relationship deteriorating if problems occur. The agreement is not aimed at enforceability, but more to clarify and highlight some of the commitments of the parties. It should be noted however that the act of signing an agreement does help secure a greater commitment from the parties.

Human resource and training management are not core business activities for most small and medium-sized employers in the construction industry who have limited resources. However, this is where the majority of apprentice employment in the industry takes place. Given that many scholarship apprentices and trainees are placed with small and medium-sized employers, the assistance provided by Apprentice Managers is invaluable to these resource-poor contractors. Assistance includes selection of apprentices, compliance and administrative matters related to apprentices.

Due to the expertise provided by the Apprentice Managers, they are often called on to assist with non-scholarship apprentices. The following chart provides an indication of the role that CFMEU Apprentice Managers have with employers. Apprentice Managers from other programs report similar activities.

FIGURE D LEVELS OF ASSISTANCE PROVIDED TO EMPLOYERS



Source: CFMEU

³ See page 34 for an analysis of value for money measured through effectiveness.

ANALYSIS OF COMPLETION RATES

High apprentice and trainee completion rates are important to industry, employers and individual apprentices. For industry it contributes to a continuing supply of qualified tradespeople. For employers, high completion rates reduce the risk that the investment into the apprentice in the early years will not be returned in the later years. For the apprentices themselves, it means that their own investment of time, foregone wages and other opportunities will ultimately pay dividends in the form of higher wages, employability and a basis for more consistent employment and independent enterprise throughout their lives.

There are two types of completion rate that need to be understood in an analysis of this kind. They are:

1. **The contract completion rate.** This is the rate of completion of the original training contract by an apprentice or trainee.
2. **The training or individual completion rate.** This is the rate of completion of the training qualification by the individual regardless of whether the original training contract was terminated and the apprentice or trainee recommenced at a later date.

Even within these two broad categories there are variances among the figures reported by different agencies. For example, the Queensland Department of Education and Training does not consider its figures for training are comparable to those published by NCVER. Experience has shown that raw data is closely guarded by agencies. As a result, analysis by third parties is challenging.

This report is interested in analysing the financial impact on the employer when a training contract is terminated before the apprenticeship or traineeship has reached full term. The closest published figures must therefore be the *contract* completion rates.

NCVER ESTIMATED AVERAGE COURSE-COMPLETION RATES

In 2011 NCVER published figures in relation to completion rates for apprentices and trainees who commenced their training from 2004 to 2006.^{xii} The completion rates are presented below:

Construction Trades Workers	2004	2005	2006	Average
Contract completion rates	45.0%	45.9%	45.3%	45.4%

Source: NCVER

Though the contract completion rates are most relevant to this report, individual completion rates averaged 59 percent allowing for recommencements of trainees and apprentices.

ESTIMATED AVERAGE COURSE-COMPLETION RATES FROM DET

Construction Skills Queensland (“CSQ”) has provided the Queensland Government Department of Education and Training’s current estimation of individual training completion rates for all construction apprentices and trainees in Queensland. These figures show a much higher level of completion than the NCVET report. As the DET figures apply to Queensland, which is where the scholarship programs operate, and because they differentiate between traineeships and apprenticeships, these figures are of interest. However, as stated previously, it is contract completion that is most relevant to BTQ and so these figures are not used in our calculations.

TABLE 2 INDIVIDUAL TRAINING COMPLETION RATES FOR CONSTRUCTION APPRENTICES/TRAINEES (2007 TO 2010)

	2006/07	2007/08	2008/09	2009/10
Apprenticeships	81%	80%	74%	71%
Traineeships	64%	61%	59%	58%

Source: CSQ/DET^{xiii}

The above figures indicate completion rates have trended downwards since 2006/07, with the most marked decline aligning with the onset of the global financial crisis in 2008/09. From this data, we can determine an average completion rate (for the 4 year period) of 77 percent for apprentices and 61 percent for trainees.

COMPLETION RATES FOR SCHOLARSHIP PROGRAMS

To ensure a clear comparison is made between the available data, only apprenticeships that have been completed will be used for the purposes of this report. As a result, the QMCA/CFMEU program commencing July 2009 is excluded, as is the Plumbers Apprenticeship program. Current (incomplete) intakes of the existing CFMEU and BLF programs are also excluded from this analysis. Also, as the programs deal with apprenticeships and traineeships, each program will be addressed separately.

It should be noted that scholarship trainees and (most commonly) scholarship apprentices can and sometimes do also change employers during their time. Also, as mentioned previously, the Apprentice Manager can initiate a transition from one to another employer for the benefit of the apprentice or trainee. Under the scholarships however, this is a managed process undertaken largely by the Apprentice Manager in consultation with the employers and apprentices involved. This reduces or eliminates the time, risk and cost to the employer.

CFMEU APPRENTICE SCHOLARSHIP

The CFMEU intakes from the 1997 to 2007 financial years that will be considered in this report are complete.

TABLE 3 CFMEU APPRENTICE COMPLETIONS FOR INTAKES COMMENCING 1997 TO 2007

		1997 to 2001	1998 to 2002	1999 to 2003	2000 to 2004	2001 to 2005	2002 to 2006	2003 to 2007	2004 to 2008	2005 to 2009	2006 to 2010	2007 to 2011	TOTAL
Intake by FY	a	36	10	15	25	15	13	0	8	15	15	15	167
No. remaining	b										3	9	12
No. completed*	c	33	9	14	23	13	12	0	8	15	12	6	145
No. withdrawn	d	3	1	1	2	2	1	0	0	0	0	0	10
No. known result	e = c+d	36	10	15	25	15	13	0	8	15	12	6	155
Withdrawal rate	f = d/e	8%	10%	7%	8%	13%	8%	N/A	0%	0%	0%	0%	6%
Completion rate	g = c/e	92%	90%	93%	92%	87%	92%	N/A	100%	100%	100%	100%	94%

Source: CFMEU

This data reveals a completion rate across a 10 year time-span of 94 percent. Over the last four years the rate has been 100 percent. It is also worth noting that for each cancellation within the CFMEU scholarship program, an 'out of trade' apprentice has been recruited to fill the vacancy. As a result, it can be argued the CFMEU program has achieved a 100 percent completion rate across all intakes.

BLF TRAINEE SCHOLARSHIP

The BLF intakes from the 2005 to 2009 financial years are considered in the table below:

TABLE 4 BLF TRAINEE COMPLETIONS FOR INTAKES COMMENCING 2005 TO 2009

		2005 to 2007	2006 to 2008	2007 to 2009	2008 to 2010	2009 to 2011	TOTAL
Intake by FY	a	70	63	39	50	49	271
No. remaining	b	0	0	0	0	9	9
No. completed	c	44	32	24	35	29	164
No. withdrawn	d	26	31	15	15	11	98
No. known result	e = c+d	70	63	39	50	40	262
Withdrawal rate	f = d/e	37%	49%	38%	30%	28%	37%
Completion rate	g = c/e	63%	51%	62%	70%	73%	63%

Source: BLF

This program has achieved an overall completion rate of 63 percent. However, we believe using this rate in our value analysis would give a misleadingly low estimate of the value of the program. This was a pioneering program with respect to these occupations and at the outset; the sector had limited experience and no real culture of formal training. Early problems with the program which led to high cancellation rates were overcome and this led to an ongoing improvement of completion rates. The low completion rate for the 2006 intake reflects the failure of a single, large employer of many BLF scholarship trainees. This concentration of employment no longer occurs under the program. Consequently, interpretation of program data should reflect the skewed nature of these early results.

For these reasons we consider that the average rate for the 2008 and 2009 years of 71.5 percent is a fairer and more reasonable estimate of contract-completion to be used in this value analysis.

PROGRAM FUNDING AND EXPENDITURE

Scholarship program funding is influenced by numerous factors, including income received from BERT, the value of grant applications submitted to the fund and the capacity of QCTF to support programs.

Since 2009 following an expanded funding commitment from BERT and a concurrent interest from existing grant recipients to expand their program commitments, funding allocated to the scholarship programs has exceeded \$2.6 million per year. Expenditure for the 2011 financial year was as follows:

TABLE 5 EXPENDITURE BY SCHOLARSHIP PROGRAM 2011

Group	Stream	2011 Funding	Avg. Places	Avg. Funding per Place	Avg. Funding per Place p.a.
CFMEU	Scholarship A	\$480,000	15	\$32,000	\$8,000
	Scholarship B	\$355,000	10	\$35,500	\$8,875
BLF		\$800,000	50	\$16,000	\$8,000
QMCA/CFMEU	Civil Program	\$480,000	15	\$32,000	\$8,000
CEPU	Plumbers Apprentice Program	\$490,000	20	\$24,500	\$6,125
TOTAL		\$2,605,000	110	\$23,682	

Source: BTQ

While the funding per place has been expressed as a figure, this is for the purposes of the NPV analysis. In practice, the funding is not allocated on a per-head basis. Similarly, when the BTQ board reviews the progress of programs, consideration is not made based on funding allocated per head.

CFMEU APPRENTICESHIPS

Most of the funding distributed to the CFMEU programs is allocated to pay the salaries of Apprentice Training Managers and apprentice wages while attending off-the-job training. As the cost of Managers' salaries is shared among all current intakes, only the salary in the intake year is considered.

The following table shows the allocation of funding for a 15-place, four-year apprenticeship intake:

TABLE 6 AVERAGE ALLOCATION OF SCHOLARSHIP FUNDING FOR AN APPRENTICESHIP

Item	%	Avg. Per Place	Avg. Per Place	p.a.	Overall	Overall	p.a.
Training wages	35%	\$11,310	\$2,830	p.a.	\$169,600	\$42,400	p.a.
Manager Salaries	28%	\$8,930	\$2,230	p.a.	\$134,000	\$33,500	p.a.
Costs ⁴	12%	\$3,920	\$980	p.a.	\$58,800	\$14,700	p.a.
Tools and clothing	11%	\$3,400	\$850	p.a.	\$51,000	\$12,500	p.a.
Employer subsidy	9%	\$3,000	\$750	p.a.	\$45,000	\$11,250	p.a.

⁴ Costs = Promotion, advertising, travel, audit and administration

Item	%	Avg. Per Place	Avg. Per Place	p.a.	Overall	Overall	p.a.
College fees and seminars	5%	\$1,440	\$360	p.a.	\$21,600	\$5,400	p.a.
TOTAL	100%	\$32,000	\$8,000	p.a.	\$480,000	\$120,000	p.a.

Source: BTQ/CFMEU

BLF TRAINEESHIPS

The following table breaks down funding for a 50-place, two-year trainee intake as an indication of where funds are allocated.

TABLE 7 AVERAGE ALLOCATION OF SCHOLARSHIP FUNDING FOR A TRAINEESHIP

Item	%	Per Place	Per Place	p.a.	Overall	Overall	p.a.
Training wages	35%	\$7,600	\$3,800	p.a.	\$380,000	\$190,000	p.a.
Manager Salaries	28%	\$6,400	\$3,200	p.a.	\$320,000	\$160,000	p.a.
Costs	12%	\$400	\$200	p.a.	\$20,000	\$10,000	p.a.
Tools and clothing	11%	\$700	\$350	p.a.	\$35,000	\$17,500	p.a.
College fees and seminars	5%	\$500	\$250	p.a.	\$25,000	\$12,500	p.a.
TOTAL	100%	\$15,600	\$7,800	p.a.	\$780,000	\$390,000	p.a.

Source: BTQ/BLF

ASSESSMENT OF VALUE

ASSESSMENT METHODOLOGIES

We have taken both quantitative and qualitative approaches to assessing the value of the scholarship programs. The quantitative approach seeks to provide a clearly measurable return on investment while the qualitative approach looks more broadly at the more intangible benefits generated by the scholarship programs. The methodology seeks to achieve the following:

- A. Measure the tangible outcomes achieved by employers associated with the programs and compare them to results achieved outside the programs. These outcomes will be measured using a discounted cash flow analysis to determine the financial rate of return on funds invested in the scholarship programs.
- B. Identify the value arising from the scholarship programs to employers, the industry and the broader community. This will be presented utilising Value for Money ("VFM") analysis.

AN INTRODUCTION TO NET PRESENT VALUE

Net Present Value ("NPV") represents the present value of future cash flows, discounted at the appropriate discount rate (cost of capital). The approach calculates the present-day value of future cash flows to enable comparison between projects; taking time, risk and returns into account.

Evidence collected since the commencement of the programs in 1997 show that the programs deliver greater certainty for employers that an apprentice or trainee will complete their training and will do so as a productive employee contributing to the profitability of the business. Completion of the apprenticeship or traineeship with the same employer allows the employer to recoup their early investment in supervision and training during the later, more productive period of the apprenticeship or traineeship. Scholarship program funding provides both a direct financial benefit to employers and reduces costs to employers by providing services that the employer would otherwise have to provide for themselves.

To obtain financial values for comparison, we calculate the Net Present Value ("NPV") of a number of simple completion and non-completion/replacement scenarios.

If the NPV of a prospective project is positive, it should be accepted. However, if NPV is negative, the project should probably be rejected because cash flows will also be negative. A higher NPV is better than a lower NPV when comparing projects.

VALUE-FOR-MONEY RATIONALE

VFM analysis takes a broad view of outcome measurement to include intangibles such as the quality of the end product and the extent to which a service or process contributes to the performance of an enterprise. Value for money tends to be equated with value for money expended, although it can take into account abstract factors such as hidden or indirect costs and opportunity costs. Furthermore, value

for money can compare the quality of provision, processes or outcomes against the monetary cost of making the provision, undertaking the process or achieving the outcomes.^{xiv} VFM analysis also enables consideration of whether a program achieves its aims against the criteria of economy, efficiency and effectiveness, thereby providing a more holistic assessment to be provided.

It is essential when undertaking any analysis to ensure the scope of the assessment remains focused. To achieve this, the VFM analysis will examine a spectrum of scholarship aspects from the most clearly identifiable toward the more obscure and difficult to assess results. Further, as the scope of this report does not include a critical analysis of the efficiency of the scholarship programs, complex analytical processes such as industry surveys and individual case studies have not been conducted.

FINANCIAL VALUE ASSUMPTIONS

A key component of the value of the scholarships program is their financial value to employers. Substantial work has been done in relation to the economics of apprenticeships and traineeships to employers because it is a key factor in the amount of investment that takes place in trade training and therefore in the supply of qualified tradespeople.

In 2009 the NCVER published a paper entitled *The Cost of Training Apprentices*^{xv} which was based on six case studies of electrical and plumbing apprentices and examined the various costs associated with the employment and training of apprentices. Although the paper examined different specific trades, many of the costs factors measured in the report are similar to the costs associated with the scholarship and trainee programs. Also, the methodology used to measure the costs has proven useful and can be readily adapted to the scholarship programs.

SUPERVISION COSTS

Supervision of the apprentice is one of the main costs borne by the employer during the early part of the apprenticeship. This investment is later recouped as the apprentice gains competence and their productivity and associated labour value increases. If the apprenticeship is terminated before the employer's investment is recouped, the result is an unrecoverable loss for the employer.

This report measures the cost of supervision under different retention scenarios. If the apprentice fails to complete and is replaced by a new, first-year apprentice, then the costs to the employer are higher because the employer incurs the high early-year supervision costs twice, without benefiting from the productivity of the later years.^{xvi}

To establish accurate supervision costs, discussions were undertaken with the Queensland Master Builders Association ("QMBA") and several current apprentice employers engaged in the commercial building construction sector^{xvii}. It was strongly argued by the QMBA, that a simple profit analysis would reveal that few firms would train apprentices if the NCVER costs were typical. Employers would be financially better off by keeping qualified tradespeople working rather than supervising apprentices.^{xviii}

Costs were developed based on 'typical' competence and productivity of an apprentice at monthly and yearly intervals and the way that qualified tradespeople/supervisors work with apprentices on a building project. We have checked the reasonableness of the assumptions in discussions with Apprentice Managers and further checked that the economics of employing an apprentice are reasonable. Based

on the advice received, we consider that average apprentice supervision costs by qualified tradespeople are equivalent to the following:

TABLE 8 ESTIMATED TIME AND COSTS OF SUPERVISION OF AN APPRENTICE

	Year 1	Year 2	Year 3	Year 4
% FTE tradesperson	15% to 25%	7.5% to 12.5%	7.5% to 12.5%	1.0% to 2.5%
\$-cost	\$15,000 - \$25,000	\$7,500 - \$12,500	\$7,500 - \$12,500	\$0 - \$1,000

Sources: QMBA and Industry Consultation

As stated previously, we have used a cost of employment of \$105,250 for the qualified tradesperson/supervisor. This reflects the loaded Enterprise Bargaining Agreement (“EBA”) or market rates currently being paid in the industry. (Our analysis also uses EBA cost rates for apprentices, thus maintaining a consistent approach.) The wage rate reflects current total wage levels for a senior tradesperson capable of training apprentices.

It should be noted that actual costs vary widely for many reasons. These may include different supervision and training approaches, the type of work undertaken, numbers of apprentices employed, and the capabilities and willingness of apprentices and supervisors. For the purposes of our analysis however, we have used the average cost assumptions shown in the figure inset.

TABLE 9 ASSUMED TIME AND COSTS OF SUPERVISION

	Year 1	Year 2	Year 3	Year 4
Apprentice:				
Cost	\$21,050	\$10,525	\$10,525	\$2,110
% Tradesperson costs	20%	10%	10%	2%
Trainee:				
Cost	\$19,110	\$7,960	N/A	N/A
% Tradesperson costs	20%	8% ⁵	N/A	N/A

APPRENTICE/TRAINEE EMPLOYMENT COSTS AND MARGIN

As the majority of scholarship apprentices and trainees work for employers who have EBAs, the costs used for the purpose of this report reflect the current EBA wages and conditions^{xix}. Total employment costs are as follows:

TABLE 10 EMPLOYMENT COSTS OF EBA APPRENTICES AND TRAINEES

	Year 1	Year 2	Year 3	Year 4
Apprentice	\$42,863	\$55,968	\$72,814	\$85,625
Trainee	\$44,856	\$71,911	N/A	N/A

⁵ 8 per cent (actually 8.3 percent used in calculation) is one-twelfth or one-month of a tradesperson’s costs.

The net profit margin was developed in consultation with the QMBA and employers who participate in the scholarships⁶. The standard margin on the cost of labour (i.e. the figures in shown above), including profit and overheads, is 20 percent. As overhead costs are included in cash flow calculations (i.e. overheads are deducted from labour gross profit) this margin is considered appropriate to use.

These assumptions have subsequently tested with Mr John Crittall from the QMBA who confirmed they are reasonable^{xx}.

APPRENTICE/TRAINEE PRODUCTIVITY

After consultation with the QMBA and industry representatives^{xxi}, we consider that the following estimates for apprentice productivity are reasonable averages while recognising that there will be significant variability among apprentices and workplaces. The assumptions are shown in the following figure.

TABLE 11 APPRENTICE AND TRAINEE PRODUCTIVITY AS A PERCENTAGE OF QUALIFIED TRADESPERSON

	Year 1	Year 2	Year 3	Year 4
Apprentice	40.0%	55.0%	75.0%	95.0%
Trainee	47.5%	85.0%	N/A	N/A

Our productivity rates relate to scholarship carpentry apprentices operating in a commercial construction environment. Commercial construction generally allows higher productivity to be achieved sooner because of greater standardisation and more effective organisation than in other construction settings. Furthermore, scholarship apprentices receive pre-apprenticeship training that improves their productivity from the outset of their training.

In relation to the trainee, productivity in year one is assumed to be the average of the apprentice's productivity in their first two years. In year two it is the average of the apprentice's productivity in their last two years. These are conservative estimates as it could be argued that trainees become more productive sooner due to the scope of work being undertaken.

⁶ Employers interviewed were Peter Veale (Vealstruct) and Peter Morrison (P&P Morrison Plasterers)

OTHER COSTS

The scholarship programs provide funding for other services that add value for many employers. This value is derived from four sources set out in the table below.

TABLE 12 OTHER SERVICES FUNDED BY SCHOLARSHIPS

Source of Value	Description	Services
Direct cost subsidies	Money reimbursed to employers	<ul style="list-style-type: none"> • apprentice/trainee wages while training • tool and clothing costs • employer subsidies
Systems and administration savings	BTQ-funding allows Apprentice Managers to efficiently undertake administrative tasks that would otherwise have to be undertaken by business owners, managers, or tradespeople.	<ul style="list-style-type: none"> • introduction to work ⁷ • booking into college • making changes to bookings • planning the training required • chasing certificates of competency • paying tuition fees • acquiring and providing tools • validating training quality
Effective apprentice/trainee mentoring and specialised services	Experience and scale—as well as their “friendly third-party” status—allow Apprentice Managers to provide key services more effectively	<ul style="list-style-type: none"> • apprentice/trainee selection ⁸ • apprentice/trainee mentoring
Risk reduction	Avoiding problems and providing back-up for employers when problems arise with apprentice/trainees	<ul style="list-style-type: none"> • significant time and expertise in pastoral care when required • higher probability of success in overcoming problems and returning apprentice/trainee to productive employment • employer preparation to engage and manage apprentice/trainee

Source: BTQ

BACK OFFICE SYSTEMS AND ADMINISTRATION

Employers who engage a scholarship-funded apprentice/trainee can use Scholarship Managers for “back-office” functions that would otherwise be provided less effectively and efficiently in-house. These services are particularly important for small to medium-sized employers who may lack the scale, systems and human resourcing capabilities needed for effective apprentice management. In such firms, it is often the employer who must undertake back-office tasks. Administration expenses include

⁷ Introduction includes access to assistance and “life-skills” necessary to deal with transition to work. These include e.g. safety awareness, greater understanding of the industry, financial literacy, and dispute resolution.

⁸ Selection includes trade-specific psychometric testing, assessment of base knowledge associated with the particular trade, consideration of school marks, attendance and attitudes to work and training, long term goals and aspirations, etc all in the context of significant experience of assessing candidates.

recruitment and screening, assessing the training needs of the apprentice or trainee, dealing with training providers (e.g. college bookings and changes).

We have assumed costs of \$1,500 p.a. per apprentice for administration. This reflects a mix of administrative staff and senior manager or employer/owner time equivalent to 20 hours per year per apprentice at an hourly rate of \$75 per hour.

TABLE 13 SYSTEMS AND ADMINISTRATION SAVINGS PER APPRENTICE/TRAINEE

	Year 1	Year 2	Year 3	Year 4
Apprentice	\$1,500	\$1,500	\$1,500	\$1,500
Trainee	\$1,500	\$1,500	N/A	N/A

In considering whether such costs are reasonable, it is worthwhile to consider the tasks required in a relatively straightforward area such as the provision of tools of trade. To supply tools to an apprentice, a person with sufficient experience and authority must decide which tools are required based on workplace experience (stage of the apprenticeship) and the work being undertaken by the apprentice (scope of work). They must know which tools are already held by the apprentice, determine the best vendor, source (including ordering and collecting) the tools, deliver the tools to the apprentice at the worksite, update records, and advise the relevant supervisors.

It should be noted that if any pastoral care or other intensive assistance is required for either the employer or apprentice the cost saving would be much greater. The level of pastoral care required by an apprentice is an unknown for employers and is potentially the greatest cost. Both its provision and its absence have significant costs to the employer. A significant component of value that employers obtain from the scholarship program is the 'insurance' it provides. Scholarship participants are able to access an externally-funded provider to deliver a service that the employer would otherwise have to provide.

The capacity of the persons undertaking this work affects the time required or whether the tasks are undertaken at all. Where they are not undertaken or done poorly, this has a detrimental effect on the apprentice's training experience. Our research indicates that the interaction of Apprentice Managers with the employer ensures that the employer is aware of his obligations and is therefore ready to utilise the apprentice as productively as possible. Because of this purposeful interaction, the apprentice receives more appropriate supervision, instruction and direction.

TRAINING WAGES

The Scholarship programs pay the wages of apprentice and trainees while they are undertaking training off the job. This funding provides tangible financial benefit or value that is relevant to this report. On average the wage paid for a CFMEU apprentice is \$2,828 p.a. For BLF trainees the wage is \$3,800 p.a. The impact of wage costs on the cashflow of the business has not been included in this assessment.

TOOLS AND TUITION FEES

As detailed previously, the scholarship programs supply tools and pay all tuition fees. These payments are \$1,210 p.a. per CFMEU apprentice and \$600 p.a. per BLF trainee. Administration costs associated with sourcing and delivering tools to apprentices and trainees are included in administration expenses.

EMPLOYEE TERMINATION AND REPLACEMENT COSTS

Discussions with employers and industry sources (as well as common knowledge in this regard) indicate that there are costs associated with termination and replacement of any staff member. These costs include, but are not limited to, any pre-termination decline in productivity, absenteeism, counseling, discipline, actual termination costs, and the recruitment and induction of a new team member. For the purpose of this analysis we have adopted a balanced assumption that termination costs are equivalent to six weeks of the apprentice or trainee's total employment cost in the year of termination and replacement. This estimate is based on discussion with Apprentice Managers and representatives from the QMBA. It includes consideration of the time usually required to first recognise a problem, and then to counsel, terminate and replace an apprentice.

TABLE 14 EMPLOYEE TERMINATION AND REPLACEMENT COSTS

Termination	Year 1	Year 2	Year 3
Apprentice	\$5,613	\$7,718	\$10,525
Trainee	\$4,984	N/A	N/A

OCCURRENCE OF TERMINATION OF EMPLOYMENT/TRAINING

To obtain the average apprentice termination rates in each year of employment we refer to NCVER published data for training course completions and attrition for the 2009 year^{xxii}. Even though this data does not show retention by a single employer, it appears to be the most comprehensive published data of completion and attrition by year available, and the most useful independent analysis that we can use as a proxy for retention by a single employer⁹.

TABLE 15 AVERAGE APPRENTICE TERMINATION RATES BY YEAR

	Termination Year 1	Termination Year 2	Termination Year 3	Completion
Apprentice	35%	14%	5%	46%
Trainee	54%	N/A	N/A	46%

Sources: NCVER for apprentice rates; trainee rates inferred

We take these figures to mean that, on average, employers who do not participate in a scholarship program have a 46 percent chance of having a trade apprentice or trainee complete their time and training with them in the allotted time. For apprentices they have a 35 percent chance that the apprentice will terminate in year one, a 14 percent chance that this will occur in year two, and a 5 percent chance that it will occur in year three. Due to the nature of our model we ignore terminations

⁹ According to NCVER, "Due to lags in processing, recent activity levels in the Apprentice and Trainee Collection are estimated (for training activity from June quarter 2008 to December quarter 2009)".

in year four (approximately 1 percent of commencements) as immaterial, and add these to the completion rate. These weightings are used to derive a weighted average NPV for scholarship participating employers.

For trainees we have simply assumed the 46 percent chance of completion and a 54 percent chance of non-completion, which we have assumed occurs in year one.

DISCOUNT RATE

In all NPV calculations, we have used a pre-tax discount rate of 26.4 percent. See [Appendix B](#) for details of how this figure has been determined.

CALCULATION OF NPV

This section provides a summary of the approach taken to calculate NPV for each case. The detailed analyses are provided as appendixes to this report.

The approach taken in this report to calculate and use NPV is described below.

1. We consider a four-year period for apprenticeships and a two-year period for a traineeship.
2. Using common discount rate and cost assumptions we estimate the NPV of the cash outflows and inflows related to five apprenticeship scenarios and four traineeship scenarios. Cash outflows include supervision costs, wage costs and administration. Cash inflows include direct financial contributions from the scholarship program (where applicable) and revenue earned by the supervisor and apprentice or trainee over the period.
3. The scenarios are:
 - For four-year apprenticeships:
 - With scholarship contributions and assistance:
 - Completion of training under the same employer by one apprentice; and
 - Without scholarship contributions and assistance:
 - Completion of training under the same employer by one apprentice; and
 - Termination of training by the original apprentice (a) in year one; (b) in year two and (c) in year three, and their replacement by another for the remainder of the period.
 - For two-year traineeships:
 - With scholarship contributions and assistance:
 - Completion of training under the same employer by one trainee;
 - Termination of training by the original trainee in year one and their replacement by another for the remainder of the period
 - Without scholarship contributions and services:
 - Completion of training under the same employer by one trainee;
 - Termination of training by the original trainee in year one and their replacement by another for the remainder of the period;
4. All NPVs can be compared individually. For overall comparison purposes however, we require one weighted-average NPV for a non-scholarship employer for apprenticeships and one for traineeships. To obtain this we refer to the NCVER figures for training course completions and attrition and multiply them by the calculated NPVs.

5. For comparison purposes, in the case of BLF trainees, a termination scenario is modeled and a weighted average NPV is calculated for both the scholarship scenario and the non-scholarship scenario. This is not done for the CFMEU program because whenever required, the Apprentice Manager works with employers and apprentices to ensure that the apprenticeship is completed and that most of the employers' time, risk and costs associated with the replacement of an apprentice is eliminated.
6. The difference between the discounted NPV of the base case (i.e. scholarship) scenario and the weighted average NPV of the alternatives is the financial value created by the Scholarship funding for an employer.

This methodology is clearly based on simplified, abstract scenarios and assumptions. While the NPVs obtained are similarly abstract, the approach allows useful comparisons to be made between scenarios—at least how they rank in relation to one-another. The methodology focuses on the value of the greater certainty of completion/retention that scholarship programs provide as well as the financial benefits and cost savings.

In the alternative cases we do not assume that an apprentice or trainee is replaced by another at the same level of training. They are assumed to be replaced by a first-year apprentice. The reason for this is that any apprentice at an intermediate level must have obtained some training under another employer at some stage. This first employer must have incurred the losses associated with early termination of that apprentice. For the BTQ Board the value of this loss is still relevant in its estimate of value arising from the scholarship program.

In undertaking the financial analysis, we ruled out using either a case-study based approach or undertaking an industry survey. A case-study approach, examining relatively few businesses associated with the scheme to estimate and compare actual costs, would be unlikely to produce adequate data for comparison or general conclusions. This is because of the extensive variations between trades, businesses and individuals and because of inadequacy and variability in the way cost information is recorded. A widespread industry survey would be a major task and would face the same issues as the case-study approach.

FINANCIAL VALUE OF APPRENTICE SCHOLARSHIPS

APPRENTICE SCHOLARSHIP BASE CASE—COMPLETION OF A FOUR-YEAR APPRENTICESHIP WITH SCHOLARSHIP FUNDING

Scenario: Employer retains the apprentice for the full term. Scholarship payments are received.

TABLE 16 APPRENTICESHIP BASE CASE: COMPLETED; SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>
TOTAL EMPLOYER INCOME	57,058	88,633	113,893	148,251
TOTAL EMPLOYER EXPENSES	69,451	82,555	99,402	112,212
CASH POSITION	(12,393)	6,077	14,491	36,038
NPV	19,330			

The NPV of the cash flow obtained in this case is \$19,330.

This is positive, so theoretically a worthwhile investment. *Please note: This is not the value of the scholarship.* This NPV relates only to this employer's future cash flow. (See detailed analysis in [Appendix C](#) for more information.)

We use the same method to analyse alternative scenarios.

APPRENTICE ALTERNATIVE CASE A: COMPLETION OF A FOUR-YEAR APPRENTICESHIP WITH NO SCHOLARSHIP FUNDING

Scenario: Employer retains the apprentice for the full term. No BTQ payments are received.

TABLE 17 APPRENTICESHIP ALTERNATIVE CASE A: COMPLETED; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>
TOTAL EMPLOYER INCOME	50,520	82,095	107,355	142,713
TOTAL EMPLOYER EXPENSES	69,451	82,555	99,402	112,212
CASH POSITION	(18,931)	(460)	7,953	30,501
NPV	787			

The NPV of the cash flow obtained in this case is \$787.

This is positive, so theoretically a worthwhile investment, but it is a lower figure than that obtained in the Base Case.

APPRENTICE ALTERNATIVE CASE B: APPRENTICE TERMINATION AND REPLACEMENT AFTER YEAR ONE WITH NO SCHOLARSHIP FUNDING

Scenario: Apprentice withdraws after one year and is replaced by another in year two:

TABLE 18 APPRENTICESHIP ALTERNATIVE CASE B: TERMINATED YEAR ONE; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice B</u>	<u>Apprentice B</u>	<u>Apprentice B</u>
TOTAL EMPLOYER INCOME	50,520	50,520	82,095	107,355
TOTAL EMPLOYER EXPENSES	75,064	69,451	82,555	99,402
CASH POSITION	(24,544)	(18,931)	(460)	7,953
NPV	(35,870)			

The NPV of the cash flow obtained in this case is negative: -\$35,870.

This is over \$55,000 lower than the base case scenario. A negative NPV indicates an investment that is not worthwhile.

APPRENTICE ALTERNATIVE CASE C: APPRENTICE TERMINATION AND REPLACEMENT AFTER YEAR TWO WITH NO SCHOLARSHIP FUNDING

Scenario: Apprentice is engaged in Year 1 and withdraws after Year 2 and a new apprentice is engaged in Year 3, supervision costs are higher and productivity of both personnel is lower.

TABLE 19 APPRENTICESHIP ALTERNATIVE CASE C: TERMINATED YEAR TWO; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice B</u>	<u>Apprentice B</u>
TOTAL EMPLOYER INCOME	50,520	82,095	50,520	82,095
TOTAL EMPLOYER EXPENSES	69,451	90,273	69,451	82,555
CASH POSITION	(18,931)	(8,178)	(18,931)	(460)
NPV	(37,477)			

The NPV of the cash flow obtained in this case is also negative: -\$37,477, and is thus another non-worthwhile investment.

APPRENTICE ALTERNATIVE CASE D: APPRENTICE TERMINATION AND REPLACEMENT AFTER YEAR THREE WITH NO SCHOLARSHIP FUNDING

Scenario: The original apprentice withdraws after three years and is replaced by another in year four:

TABLE 20 APPRENTICESHIP ALTERNATIVE CASE D: TERMINATED YEAR THREE; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice B</u>
TOTAL EMPLOYER INCOME	50,520	82,095	107,355	50,520
TOTAL EMPLOYER EXPENSES	69,451	82,555	109,927	69,451
CASH POSITION	(18,931)	(460)	(2,572)	(18,931)
NPV	(30,278)			

The NPV of the cash flow obtained in this final case is -\$30,278.

THE WEIGHTED AVERAGE NPV OF ALTERNATIVE SCENARIOS

Using the approach described previously we calculate the weighted average of the alternative scenarios for a four-year apprenticeship.

Alternative Scenarios	Occurrence = weighting	x scenario NPVs	= Result
Apprentice completes	46%	x \$787	362
Apprentice terminates in year 1; replaced from year 2	35%	x (\$35,870)	(\$12,555)

Alternative Scenarios	Occurrence = weighting	x scenario NPVs	= Result
Apprentice terminates in year 2; replaced from year 3	14%	x (\$37,477)	(\$5,247)
Apprentice terminates in year 3; replaced in year 4	5%	x (\$30,278)	(\$1,514)
Weighted average	100%		(\$18,953)

Recalling our definition that *the financial value created by the Scholarship funding for an employer is the difference between the NPV of the base case scenario and the weighted average NPV of the alternatives*, then the financial value created is

$$\$19,330 - (\$18,953) = \$38,284$$

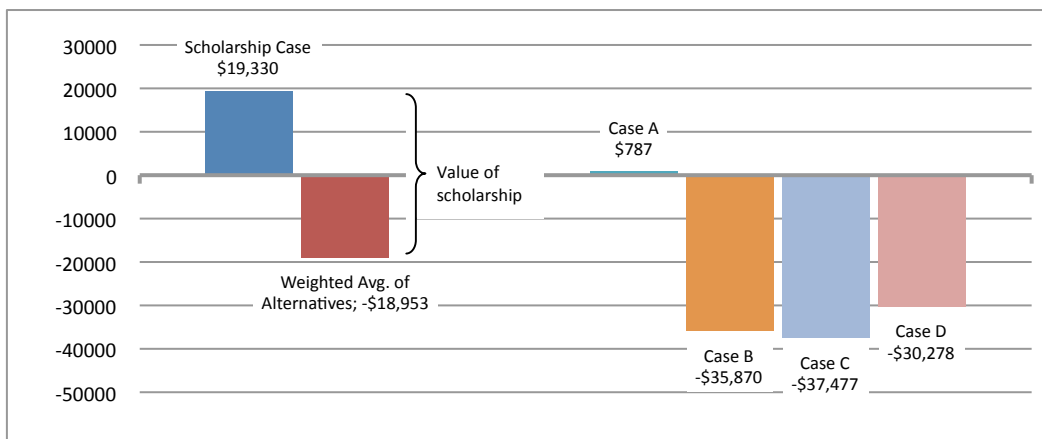
If we consider the cost of funding a single apprenticeship to be \$32,000 then the financial value to the employer, excluding other value created, is 120 percent of the cost.

CONCLUSIONS

The Base Case scenario with scholarship funding has the highest NPV.

Of the alternative scenarios without Scholarship funding, the only positive NPV is obtained when the apprentice completes their training with the same employer. If they terminate early, the investment made by the employer is not worthwhile. The NPVs of each scenario are presented in the graph below.

FIGURE E COMPARISON OF NPVS OF APPRENTICESHIP CASES



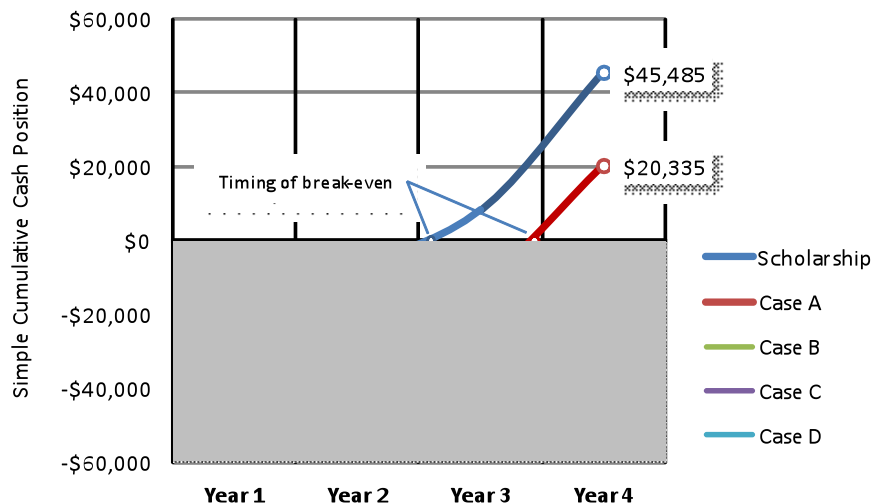
The four columns on the right of this graph illustrate the NPVs of each of the four non-scholarship case considered. The two columns on the left illustrate the NPV of the scholarship case and the weighted average of the four non-scholarship cases. The value of the scholarship encompasses both of these figures, as indicated by the bracket.

This represents actual value for BTQ because a hypothetical employer (being an amalgam of many employers) making an investment in an apprentice stands, on average, to lose money. Their average investment has a substantial negative NPV amounting to -\$18,953. This is the baseline position for investments in apprenticeships outside the scholarships programs. Through the scholarships the value of their investment goes from -\$18,953 to +\$19,330, and thus \$38,284 is added in value to the hypothetical employer.

BREAK-EVEN ANALYSIS

A graph of the simple cumulative cash position is useful to visually indicate when the employer breaks even on their investment.

FIGURE F COMPARISON OF SIMPLE CUMULATIVE CASH POSITION AND BREAK-EVEN TIMING



Break-even occurs at the beginning of year three in the Scholarship Case and almost one year later, towards the end of year three, in Case A. The employer does not break even in any scenario where the apprentice terminates before completion.

The cumulative cash position at the end of year four is also significantly greater in the Scholarship Case. It is notable that, in the Scholarship Case, the cumulative cash position at the end of year three is similar to the end-of-year-four position in Case A. Thus if the apprentice is capable of completing their 'time' in under four years then, under the Scholarship program, the employer may be more willing to allow them to complete their training early, having had at least a year of return from their training investment.

FINANCIAL VALUE OF TRAINEE SCHOLARSHIPS

TRAINEE SCHOLARSHIP CASE A—COMPLETION OF A TWO-YEAR TRAINEESHIP WITH SCHOLARSHIP FUNDING

TABLE 21 TRAINEESHIP BASE CASE: COMPLETED; SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee A</u>
TOTAL INCOME	60,358	116,731
TOTAL EXPENSES	69,866	96,921
CASH POSITION	(9,509)	19,810

	Year1	Year2
NPV	6,164	

The NPV of the cash flow obtained in this case is \$6,164.

TRAINEE SCHOLARSHIP CASE B—TRAINEE TERMINATION AND REPLACEMENT AFTER YEAR ONE WITH SCHOLARSHIP FUNDING

TABLE 22 TRAINEESHIP BASE CASE: COMPLETED; SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee B</u>
TOTAL EMPLOYER INCOME	60,358	60,358
TOTAL EMPLOYER EXPENSES	74,851	69,866
CASH POSITION	(14,493)	(9,509)
NPV	(22,015)	

The NPV of the cash flow obtained in this case, even with scholarship funding is negative: -\$22,015.

TRAINEE ALTERNATIVE CASE A: COMPLETION OF A TWO-YEAR TRAINEESHIP WITH NO SCHOLARSHIP FUNDING

Scenario: Employer retains the apprentice for the full term. No scholarship payments are received.

TABLE 23 TRAINEESHIP ALTERNATIVE CASE A: COMPLETED; NO SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee A</u>
TOTAL EMPLOYER INCOME	54,458	110,831
TOTAL EMPLOYER EXPENSES	69,866	96,921
CASH POSITION	(15,409)	13,910
NPV	(4,404)	

The NPV of the cash flow obtained in this case is negative: -\$4,404.

TRAINEE ALTERNATIVE CASE B: TRAINEE TERMINATION AND REPLACEMENT AFTER YEAR ONE WITH NO SCHOLARSHIP FUNDING

Scenario: Apprentice withdraws after one year and is replaced by another in year two:

TABLE 24 TRAINEESHIP ALTERNATIVE CASE B: TERMINATED YEAR ONE; NO SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee B</u>
TOTAL EMPLOYER INCOME	54,458	54,458
TOTAL EMPLOYER EXPENSES	74,851	69,866

	Year1	Year2
CASH POSITION	(20,393)	(15,409)
NPV	(32,583)	

The NPV of the cash flow obtained in this case is negative: -\$32,583.

THE WEIGHTED AVERAGE NPV OF TRAINEESHIP SCENARIOS

Using the approach described previously we calculate the weighted average of the alternative scenarios for a two-year traineeship.

Alternative Scenarios	Occurrence = weighting	x scenario NPVs	= Result
Scholarship Scenarios			
Trainee completes	71.5%	x \$6,164	4,407
Trainee terminates in year 1; replaced from year 2	28.5%	x (\$22,015)	(\$6,274)
<i>Weighted average</i>	<i>100%</i>		<i>(\$1,867)</i>
Non-Scholarship Scenarios			
Trainee completes	46.0%	x (\$4,404)	(\$2,026)
Trainee terminates in year 1; replaced from year 2	54.0%	x (\$32,583)	(\$17,595)
<i>Weighted average</i>	<i>100%</i>		<i>(\$19,621)</i>

Using the same definition that *the financial value created by the Scholarship funding for an employer is the difference between the NPV of the base case scenario and the weighted average NPV of the alternatives*, then the financial value created is:

$$(\$1,867) - (\$19,621) = \$17,753$$

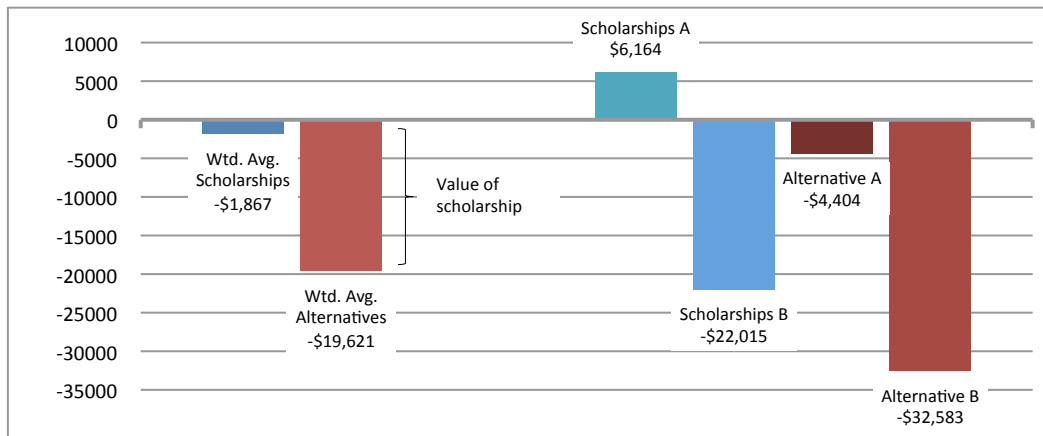
If we consider the cost of funding a single traineeship to be \$15,600 then the financial value to the employer, excluding other value created, is 114 percent of the cost.

CONCLUSIONS

The Base Case scenario with Scholarship funding has the highest NPV.

For traineeships, with the assumptions used, there are no alternative scenarios without Scholarship funding that have a positive NPV. The closest result is obtained when the trainee completes their training. The NPVs of each scenario are presented in the graph below.

FIGURE G COMPARISON OF NPVS OF TRAINEESHIP CASES



VALUE FOR MONEY ANALYSIS

The University of Cambridge (2010) and the Higher Education Funding Council for England^{xxiii} have adopted the description of Erlendsson (2002)^{xxiv} to explain value for money in the following way:

'Value for money' is a term used to assess whether or not an organisation has obtained the maximum benefit from the goods and services it both acquires and provides, within the resources available to it. Some elements may be subjective, difficult to measure, intangible and misunderstood. Judgement is therefore required when considering whether VFM has been satisfactorily achieved or not. It not only measures the cost of goods and services, but also takes account of the mix of quality, cost, use of resources, fitness for purpose, timeliness, and convenience to judge whether or not together, they constitute good value.

Value for money tends to be equated with value for money expended, although it can take into account abstract factors such as hidden or indirect costs and opportunity costs. Furthermore, value for money can compare the quality of provision, processes or outcomes against the monetary cost of making the provision, undertaking the process or achieving the outcomes.^{xxv}

In relation to education and training, which inevitably involves intangible and difficult-to-measure outcomes, VFM analysis can be adapted to cover all relevant outcomes. One method involves considering three key criteria as described below:^{xxvi}

- Economy: The acquisition of resources in the quantity and of a quality needed for the job.
- Efficiency: Comparing outputs to inputs...Doing things the right way.
- Effectiveness: The extent to which objectives are achieved and planned benefits delivered.

This report will utilise the above criteria to analyse the benefits generated by the scholarship programs.

In undertaking the value for money analysis, like the financial analysis, we have ruled out using either a case-study approach or undertaking an industry survey. It should be noted that the case-study approach would document the views of scheme participants, provide useful insights into some of the intangible benefits generated by the programs and provide a more holistic perspective of the programs. This may be a worthwhile project for the future.

A widespread industry survey would provide empirical data that could support a more detailed analysis of value and inform future public policy deliberations. This approach may also be useful in future to assess the broader industry applicability of aspects of the scholarship programs such as mentoring and the provision of employer subsidies. Information collected could also be used to influence public policy reforms at the State and Federal Government levels. Examples would be the operation of the apprenticeship and traineeship training systems, publicly funded mentor programs and targeted financial assistance aimed at increasing the number of people undertaking apprenticeships and traineeships. This may another worthwhile project for the future.

ECONOMY

Economy can be summarised as the acquisition of resources in the right quantity and of a quality no higher than is needed for the job... (doing things at a low cost).^{xxvii}

To perform the functions of the scholarship programs, administrative and managerial support is commonly provided by the organisations (unions) that operate each of the programs. Funding applications detail the breakdown of where resources are nominally to be allocated to ensure the successful completion of the program and this includes a provision of 10 percent for administration. Further, the CFMEU scholarship program assigns \$100,000 of “in kind” coordination support to be provided by the organisation at no cost.

The other scholarship programs are also grafted onto existing operational structures. They utilise the administrative and managerial resources available from these organisations which provides economies of scale that contain these ancillary costs. These factors support the contention that costs associated with the scholarships are being minimised.

EFFICIENCY

Efficiency involves a comparison of outputs to inputs. It refers to the extent to which the objectives of a policy are achieved... (doing things the right way).^{xxviii}

INTEGRATION OF SUBSIDIES AND SERVICES

The scholarship programs are not unique in providing incentives to employers with the intention of achieving improved training results. Governments and NGOs at all levels provide training incentives. However the most obvious difference between these funding arrangements and the scholarship programs is the focus on extracting the maximum value arising from every incentive. The integrated nature of the scholarship programs, together with their flat management structures, and the close relationships between program participants (employers and apprentices) and the program management (apprentice managers) ensures costs are minimised and outcomes are maximised.

For example, the Federal Government provides funding for the acquisition of tools of trade. While this clearly assists with the overall cost burden, the remote administration of the initiative limits the additional benefits that can be generated by associated activities such as the distribution of the tools.

REDRESSING THE INEFFICIENCIES OF CURRENT INDUSTRY PRACTICES

As discussed previously the current industry structure, with building companies acting as managers of a host of lean, specialised sub-contractors is efficient and flexible. As a basis for trade training however, it is neither efficient nor effective. Subcontractors often have little capacity to offer apprentices either a breadth of training experience, continuity of employment, or the support necessary for young adults to develop into productive workers. With fragmentation of both commercial interests and involvement in the stages of projects there is a constant focus on short-term objectives and underinvestment in the development of broad skills for the future.

In theory training under this model should be efficient because the costs of training—and in particular of training failure—are borne by; the apprentice or trainee and the employer, both of whom benefit only when training is completed. Therefore, there is a strong incentive for the potential beneficiaries to complete. Despite this however, very high rates of attrition still occur, resulting in significant wasted time, expertise, individual potential, resources and opportunities. This is gross inefficiency that is largely unaddressed. The economic loss to society is also significant, given the cost of training delivery is publicly funded. The scholarship programs address the gaps in the current system that seem to give rise to this inefficiency.¹⁰ This is an important aspect of value for BTQ.

EFFECTIVENESS

Effectiveness is the extent to which objectives are achieved and planned benefits delivered. These results can be positive or negative.^{xxix} Analysis of this outcome involves more than a consideration of service delivery, because one of the stated objectives of the scholarship programs is to produce high quality tradespeople. Consequently, the methods by which this objective is achieved are many and varied.

DIRECT EMPLOYMENT OF APPRENTICES AND TRAINEES

The scholarship programs support the direct employment of apprentices and trainees. This is considered an important aspect of the value created by the scholarships. Group training (built on the labour-hire model) can encourage some employers to regard apprentices and trainees as a short-term, low-cost resource. Naturally employers vary in their commitment to training and to the individuals themselves. Equally, apprentices and trainees employed under these arrangements will have less connection with an employer if they are not engaged for any significant length of time. This option has had a deleterious effect on the traditional apprenticeship model because it undermines the enduring mutual commitment required between the employer and the apprentice. Such a relationship provides better socialisation, greater understanding of the trade and a breadth of experience that goes hand in hand with skills development. Engaging apprentices on an hourly, daily or weekly basis also undermines the tolerance that needs to be developed between the parties. As a result, group scheme apprentices can find their employment has become casualised and precarious. Given the historically low wage rates paid to apprentices and trainees, such arrangements serve to further undermine the potential for the apprentice or trainee to complete their time.

Another important factor is the impact of contract rates. Group schemes, like other employers make significant investments in apprentices in the early years which they seek to recoup in latter years. In many sectors of the construction industry, contract rates for a fully qualified tradesperson may be lower

¹⁰ Refers to Key Elements of Programs on page 10.

than the charge out rate for a third or fourth year group scheme apprentice. This places pressure on the group scheme to reduce charge out rates which then undermines both the ability of the group scheme to pay reasonable wages to the apprentice and ultimately threatens the profitability and long term viability of that business.

PROTECTION OF VULNERABLE WORKERS

If sub-contractors are low in the industry's pecking order, then it is their apprentices and trainees who are at the very bottom of the system. They are the most vulnerable of the sub-contractor's employees. The scholarship programs enable Apprentice Managers to influence an employer's ability and willingness to provide adequate working life and variety of work experience for apprentices. They also advise on and influence the training delivered, on and off the job. In short they ensure that the interests of apprentices and trainees do not fall victim to economic expedience or poor management practices. Apprentice Managers also bring a real world approach to managing apprentice and employer perceptions. They will assist where it is required, but equally they will bring pressure to bear on an apprentice or trainee that fails to do what is required of them. Their effectiveness in this role is an important aspect of the value of the scholarship programs.

PROVISION OF TOOLS

One aspect that can be readily assessed is the provision of tools, which exemplifies how the scholarships link together operational tasks and strategic aims to achieve the stated objectives of the program. This aspect of the scholarship program arose from the knowledge that apprentices respond positively to being provided with high quality tools and that the provision of this service would also help build sustainable relationships with employers. This activity provides significant intangible benefits. The supply of high quality, appropriate tools to an apprentice stimulates the apprentice to improve his/her productivity. This assists the employer. The activity also helps build a bond and a relationship of trust between the apprentice and the supplier of the tools (the apprentice mentor). It also lifts the confidence and the outlook of the apprentice who feels rewarded by having received a valued commodity. This inevitably helps engender a stronger commitment to delivering higher quality workmanship and completing the training program. The value to the employer in terms of cost savings across a range of tasks has been detailed previously. Other value arising from this activity includes the impact on other workers who observe new tools being issued on their job and the improved standing of the apprentice among his peers. All of these factors contribute to an environment that can foster improved productivity.

LEADING INDUSTRY INNOVATION

Being a leader and an agent for positive change in the industry is an important element of value for BTQ.

Since the inception of the Apprentice Scholarship concept, there have been a number of programs initiated within the industry that have sought to replicate aspects of the program. In 2006, Construction Training Queensland ("CTQ") implemented a scheme that involved the employment of an apprentice mentor to assist employers and apprentices across the industry. Later in 2008, Construction Skills Queensland (CSQ) conducted a pilot apprentice mentor management project on the Sunshine Coast based along similar lines. Recently a major construction contractor and employer, Hutchinson's Builders, introduced a program based around the original scholarship idea. Hutchinson's partnered with their key subcontractors to increase the number of apprentices employed on projects under the

company's control. Other sub-contractors have also developed in-house programs as a result of their exposure to the scholarship models¹¹.

Possibly the most significant initiatives to have arisen as a result of the operation of the scholarships are the Apprentice Mentor funding program managed by CSQ and the recently announced Australian Apprenticeships Mentoring Program, which also provides funding support for the employment of apprentice mentors.

Imitation is indeed the sincerest form of flattery and there can be little doubt that the ongoing operation of the scholarship program has influenced public policy. Equally, the programs punch well above their weight in regards to their influence on the culture of the industry. The proliferation of apprentice mentors is but one example of this influence. However, time will tell whether these new mentors (operating independently from the scholarship program structures) will achieve comparable outcomes.

DEVELOPING INDUSTRY LEADERS

A principal aim of the scholarship program is the development of future industry leaders. This is fostered by in a number of ways including individual instruction by the Apprentice Managers and targeted advice to encourage talented individuals to undertake additional study and learning. The involvement by all scholarship participants in training provided by the scholarship's host organisation (union) is also important as it exposes participants to information about the industry that they might not otherwise become aware of. This knowledge helps broaden the foundation knowledge of scholarship apprentices thereby improving their potential for leadership development in the future.

It should be noted however that the destination of previous scholarship participants was not part of the scope of this report. Therefore no data was collected regarding this objective. While there is anecdotal evidence that scholarship graduates are indeed filling leadership in the industry, statistical evidence to support these assertions has not been methodically collected at this stage. A survey of past participants or a more widespread industry survey may shed light on this, as may improved data collection and destination tracking by BTQ or its stakeholders in the future.

SUMMARY

The effectiveness of the scholarship programs is multifaceted and covers a broad range of activities and services. Each of the aspects detailed above provide examples of how the scholarships have effectively met their objectives. However, when these aspects of the programs are considered together, a synergy is apparent that maximises the overall value arising from the scholarship programs. This results in scholarship programs that produce a total value that is greater than the sum of its individual parts.

¹¹ Scooter Commercial Industries, Northwest Commercial Industries, Concretor (Eddie Butler)

APPENDIXES

APPENDIX A: ACRONYMS USED IN THE REPORT

Acronym	Full name	Description
BCITF	Building Construction Industry Training Fund	BCITF (Qld) Limited is the trustee for the Building and Construction Industry Training Fund (Queensland). The fund receives a fixed percentage of income from the Building and Construction Industry Portable Long Service Leave Scheme (QLLeave). The BCITF was established in 1999.
BERT	Building Employees Redundancy Trust	A trust fund established jointly by employers and unions to provide an independent facility for severance entitlements paid by employers to be held in trust and subsequently paid to employees upon becoming redundant.
BLF	Builders Labourer's Federation	The BLF is a registered industrial union of employees that represents skilled and semi skilled workers, many of whom come from non-traditional trade callings (i.e. concretors, steelfixers, scaffolders, riggers etc). The BLF is a shareholder in BTQ.
BTQ	BERT Training Queensland	The trading name of QCTF Pty Ltd as from 1 July 2009
CEPU	Communications, Electrical and Plumbing Union	The CEPU is a registered industrial union of employees that represents workers from the 'services' sector. (i.e. plumbers, fire sprinkler fitters, drainers etc). The CEPU is a shareholder in BTQ.
CFMEU	Construction, Forestry, Mining and Energy Union	The CFMEU is a registered industrial union of employees that represents numerous 'traditional' trade callings (i.e. plasterers, painters, carpenters, tilers, bricklayers) and also persons who operate machinery (i.e. excavators, bulldozers, loaders, cranes etc). The CFMEU is a shareholder in BTQ.
CSQ	Construction Skills Queensland	This is the trading name of the BCITF. CSQ administers the BCITF and is the peak construction industry skills council in Queensland. CSQ provides funding to BTQ annually, which includes support for apprentice mentors engaged via the apprentice and trainee scholarship programs.
CTQ	Construction Training Queensland	The Industry Training Advisory body which operated in Queensland from the late 1980's to 2007.
QCTF	Queensland Construction Training Fund	The non-profit, charitable trust fund established in 1991 to receive and distribute funds for training of Queensland construction workers. In 2009, QCTF commenced trading as BERT Training Queensland ("BTQ").
QCTF	QCTF Pty Ltd	The trustee of the Queensland Construction Training Fund Trust. QCTF Pty Ltd administers the fund and manages the assets held by the trust. QCTF Pty Ltd is jointly owned by the QMCA (50%), the BLF (12.5%), the CEPU (12.5%) and the CFMEU (25%). The company is governed by a board of 8 directors who are appointed on an apportioned basis by the shareholders.
QLLeave	Building and Construction Industry Portable Long Service Leave fund	The fund established by statute in 1992 to provide for a levy to be applied to the construction industry which funds portable long service leave entitlements for construction workers.
QMBA	Queensland Master Builders Association	The QMBA is a registered union of employers that represents employers engaged in the building and construction industry. The QMBA is regarded as the peak industry association representing building and construction employers in Queensland.

Acronym	Full name	Description
QMCA	Queensland Major Contractors Association	The QMCA is a registered union of employers that represents major employers engaged in the construction industry. QMCA membership has traditionally focused on the major civil sector contractors, but can also include major building construction contractors.

APPENDIX B: CALCULATION OF DISCOUNT RATE

In all NPV calculations we have used a pre-tax discount rate of 26.4 percent. This has been built up as follows.

- Pre-tax cost of debt
At time of writing, a representative interest rate on an unsecured business loan was 11.5 percent p.a., which we have increased to an effective rate of 12.5 percent p.a.
- Pre-tax cost of equity
At the time of writing, the Australian Government 10-year Bond rate varied between 4.0 and 4.5 percent. We have used 4.25 percent as our risk-free rate. To this we have added four premiums for risk.
 - 6.0 percent standard equity premium
 - 10.0 percent for business type (small, privately owned)
 - 10.0 percent for industry (construction more exposed)
 - 10.0 percent for specific business risk
 This adds to a pre-tax cost of equity of 40.25 percent.
- Capital structure
We have assumed a capital structure of 50 percent debt, 50 percent equity.
- Inflation
Inflation has not been considered in this calculation.

This results in the following equation.

- $(50\% \text{ debt} \times 12.5\% \text{ cost of debt}) + (50\% \text{ equity} \times 40.25\% \text{ cost of equity}) = 26.4\% \text{ discount rate.}$

Clearly, any of these NPV-related assumptions could be debated. Actual rates and perceptions of risk will vary from employer to employer. Changing any assumptions that result in a higher discount rate will result in a lower NPV for all scenarios. Conversely a lower discount rate will result in higher NPVs for all scenarios. Yet the relative positions of the NPVs with respect to one another will not change.

APPENDIX C: DETAILED FINANCIAL ANALYSIS OF APPRENTICESHIP CASES

The difference between the discounted NPV of the base case (i.e. scholarship) scenario and the weighted average NPV of the alternatives is the financial value created by the Scholarship funding for an employer.

APPRENTICESHIP BASE CASE—COMPLETION OF A FOUR-YEAR APPRENTICESHIP WITH SCHOLARSHIP FUNDING

TABLE 25 APPRENTICESHIP BASE CASE: FOUR-YEAR APPRENTICESHIP WITH SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>
GROSS EMPLOYER INCOME				
from Supervisor's Labour	0	12,630	12,630	22,728
from Apprentice's Labour	50,520	69,465	94,725	119,985
Subsidy payments	1,000	1,000	1,000	-
Training wages	2,828	2,828	2,828	2,828
Administration saving	1,500	1,500	1,500	1,500
Tools and college fees	1,210	1,210	1,210	1,210
TOTAL INCOME	57,058	88,633	113,893	148,251
EMPLOYER EXPENSES				
Supervisor's employment costs	21,050	21,050	21,050	21,050
Apprentice's employment costs	42,863	55,968	72,814	85,625
Training wages	2,828	2,828	2,828	2,828
Admin expenses	1,500	1,500	1,500	1,500
Tools and college fees	1,210	1,210	1,210	1,210
TOTAL EXPENSES	69,451	82,555	99,402	112,212
CASH POSITION	(12,393)	6,077	14,491	36,038
NPV	19,330			

The NPV of the cash flow obtained in this case is \$19,330.

The internal rate of return ("IRR") is 91 per cent.

EXPLANATION OF THESE RESULTS

In this example the employer can be said to make an investment in year one, with a cash outflow of \$12,393 in that year. The outflow is caused by the cost of the tradesperson's time spent in supervision, the low productivity of the apprentice and the various associated costs. Subsidy payments and savings obtained from the scholarship program are cash inflows that offset some of these costs.

In years two, three and four there are cash inflows that return cash to the business as the supervisor spends less time in unproductive supervision and as the apprentice becomes more productive. These future cash flows are discounted, however, at the discount rate of 26.4 percent per annum to reflect their future timing and the risks around whether they will be received as planned. The present value in today's dollars of the future cash inflows are shown in the table below.

TABLE 26 EXAMPLE OF FUTURE AND PRESENT VALUES OF CASH FLOWS

	Year 1 i.e. today	Year 2	Year 3	Year 4	
Future value (shown in cash flow)	(12,393)	6,077	14,491	36,038	
	↓	↓	↓	↓	Total = NPV
Discounted present value of future cash	(12,393)	4,808	9,070	17,845	\$19,330

The IRR is the discount rate that makes the NPV of the cash flows equal to zero. Generally speaking, the higher a project's IRR, the more desirable it is to undertake the project. As such, IRR can be used to rank several prospective projects a firm is considering. Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first. IRRs can also be compared against prevailing rates of return in the securities market. If a firm can't find projects with IRRs greater than the returns that can be generated in the financial markets, it may simply choose to invest its retained earnings in the market.^{xxx}

We use the same method to analyse alternative scenarios.

APPRENTICESHIP CASE A: COMPLETION OF A FOUR-YEAR APPRENTICESHIP WITH NO SCHOLARSHIP FUNDING

Scenario: Employer retains the apprentice for the full term. No BTQ payments are received.

TABLE 27 APPRENTICESHIP ALTERNATIVE CASE A: COMPLETED; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice A</u>
GROSS EMPLOYER INCOME				
from Supervisor's Labour	0	12,630	12,630	22,728
from Apprentice's Labour	50,520	69,465	94,725	119,985
TOTAL INCOME	50,520	82,095	107,355	142,713
EMPLOYER EXPENSES				
Supervisor's employment costs	21,050	21,050	21,050	21,050
Apprentice's employment costs	42,863	55,968	72,814	85,625
Training wages	2,828	2,828	2,828	2,828
Admin expenses	1,500	1,500	1,500	1,500
Tools and college fees	1,210	1,210	1,210	1,210
TOTAL EXPENSES	69,451	82,555	99,402	112,212
CASH POSITION	(18,931)	(460)	7,953	30,501
NPV	787			

The NPV of the cash flow obtained in this case is \$787. This is positive, so theoretically a worthwhile investment, but it is a lower figure than that obtained in the Base Case.

The IRR of this case is 28 percent.

APPRENTICESHIP CASE B: APPRENTICE TERMINATION AND REPLACEMENT AFTER YEAR ONE WITH NO SCHOLARSHIP FUNDING

Scenario: Apprentice withdraws after one year and is replaced by another in year two:

TABLE 28 APPRENTICESHIP ALTERNATIVE CASE B: TERMINATED YEAR ONE; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice B</u>	<u>Apprentice B</u>	<u>Apprentice B</u>
GROSS EMPLOYER INCOME				
from Supervisor's Labour	0	0	12,630	12,630
from Apprentice's Labour	50,520	50,520	69,465	94,725
TOTAL INCOME	50,520	50,520	82,095	107,355
EMPLOYER EXPENSES				
Supervisor's employment costs	21,050	21,050	21,050	21,050
Apprentice's employment costs	42,863	42,863	55,968	72,814
Apprentice termination & replacement	5613	0	0	0
Training wages	2,828	2,828	2,828	2,828
Admin expenses	1,500	1,500	1,500	1,500
Tools and college fees	1,210	1,210	1,210	1,210
TOTAL EXPENSES	75,064	69,451	82,555	99,402
CASH POSITION	(25,544)	(18,931)	(460)	7,953
NPV	(35,870)			

The NPV of the cash flow obtained in this case is negative: -\$35,870. This is over \$55,000 lower than the base case scenario. A negative NPV indicates an investment that is not worthwhile.

APPRENTICESHIP CASE C: APPRENTICE TERMINATION AND REPLACEMENT AFTER YEAR TWO WITH NO SCHOLARSHIP FUNDING

Scenario: Apprentice is engaged in Year 1 and withdraws after Year 2 and a new apprentice is engaged in Year 3, supervision costs are higher and productivity of both personnel is lower.

TABLE 29 APPRENTICESHIP ALTERNATIVE CASE C: TERMINATED YEAR TWO; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	<u>Apprentice A</u>	<u>Apprentice A</u>	<u>Apprentice B</u>	<u>Apprentice B</u>
GROSS EMPLOYER INCOME				
from Supervisor's Labour	0	12,630	0	12,630
from Apprentice's Labour	50,520	69,465	50,520	69,465
TOTAL INCOME	50,520	82,095	50,520	82,095
EMPLOYER EXPENSES				
Supervisor's employment costs	21,050	21,050	21,050	21,050
Apprentice's employment costs	42,863	55,968	42,863	55,968
Apprentice termination & replacement	0	7,718	0	0
Training wages	2,828	2,828	2,828	2,828
Admin expenses	1,500	1,500	1,500	1,500
Tools and college fees	1,210	1,210	1,210	1,210
TOTAL EXPENSES	69,451	90,273	69,451	82,555
CASH POSITION	(18,931)	(8,178)	(18,931)	(460)
NPV	(37,477)			

The NPV of the cash flow obtained in this case is also negative: -\$37,477.

APPRENTICESHIP CASE D: APPRENTICE TERMINATION AND REPLACEMENT AFTER YEAR THREE WITH NO SCHOLARSHIP FUNDING

Scenario: The original apprentice withdraws after three years and is replaced by another in year four:

TABLE 30 APPRENTICESHIP ALTERNATIVE CASE D: TERMINATED YEAR THREE; NO SCHOLARSHIP FUNDING

	Year1	Year2	Year3	Year4
	Apprentice A	Apprentice A	Apprentice A	Apprentice B
GROSS EMPLOYER INCOME				
from Supervisor's Labour	0	12,630	12,630	0
from Apprentice's Labour	50,520	69,465	94,725	50,520
TOTAL INCOME	50,520	82,095	107,355	50,520
EMPLOYER EXPENSES				
Supervisor's employment costs	21,050	21,050	21,050	21,050
Apprentice's employment costs	42,863	55,968	72,814	42,863
Apprentice termination & replacement	0	0	10,525	0
Training wages	2,828	2,828	2,828	2,828
Admin expenses	1,500	1,500	1,500	1,500
Tools and college fees	1,210	1,210	1,210	1,210
TOTAL EXPENSES	69,451	82,555	109,927	69,451
CASH POSITION	(18,931)	(460)	(2,572)	(18,931)
NPV	(30,278)			

The NPV of the cash flow obtained in this case is -\$30,278.

THE WEIGHTED AVERAGE NPV OF ALTERNATIVE SCENARIOS

Using the approach described previously we calculate the weighted average of the alternative scenarios for a four-year apprenticeship.

Alternative Scenarios	Occurrence = weighting	x scenario NPVs	= Result
Apprentice completes	46%	x \$787	362
Apprentice terminates in year 1; replaced from year 2	35%	x (\$35,870)	(\$12,555)
Apprentice terminates in year 2; replaced from year 3	14%	x (\$37,477)	(\$5,247)
Apprentice terminates in year 3; replaced in year 4	5%	x (\$30,278)	(\$1,514)
Weighted average	100%		(\$18,953)

Recalling our definition that *the financial value created by the Scholarship funding for an employer is the difference between the NPV of the base case scenario and the weighted average NPV of the alternatives*, then the financial value created is

$$\$19,330 - (\$18,953) = \$38,284$$

If we consider the cost of funding a single apprenticeship to be \$32,000 then the financial value to the employer, excluding other financial and non-financial value created, is 120 percent of the cost.

CONCLUSIONS

The Base Case scenario with Scholarship funding has the highest NPV.

Of the alternative scenarios without Scholarship funding the only positive NPV is obtained when the apprentice completes their training with the same employer. If they terminate early, the investment made by the employer is significantly negative, and not worthwhile.

APPENDIX D: DETAILED FINANCIAL ANALYSIS OF TRAINEESHIP CASES

TRAINEE SCHOLARSHIP CASE A—COMPLETION OF A TWO-YEAR TRAINEESHIP WITH SCHOLARSHIP FUNDING

TABLE 31 TRAINEESHIP BASE CASE: COMPLETED; SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee A</u>
GROSS EMPLOYER INCOME		
from Supervisor's Labour	0	13,380
from Trainee's Labour	54,458	97,451
Training wages	3,800	3,800
Administration saving	1,500	1,500
Tools and college fees	600	600
TOTAL INCOME	60,358	116,731
EMPLOYER EXPENSES		
Supervisor's employment costs	19,110	19,110
Trainee's employment costs	44,856	71,911
Training wages	3,800	3,800
Admin expenses	1,500	1,500
Tools and college fees	600	600
TOTAL EXPENSES	69,866	96,921
CASH POSITION	(9,509)	19,810
NPV	6,164	

The NPV of the cash flow obtained in this case is \$6,164. The IRR is 108 percent.

TRAINEE SCHOLARSHIP CASE B—TRAINEE TERMINATION AND REPLACEMENT AFTER YEAR ONE—WITH SCHOLARSHIP FUNDING

TABLE 1 TRAINEESHIP BASE CASE: COMPLETED; SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee B</u>
GROSS EMPLOYER INCOME		
from Supervisor's Labour	0	0
from Trainee's Labour	54,458	54,458
Training wages	3,800	3,800
Administration saving	1,500	1,500
Tools and college fees	600	600
TOTAL INCOME	60,358	60,358
EMPLOYER EXPENSES		
Supervisor's employment costs	19,110	19,110
Trainee's employment costs	44,856	44,856
Trainee termination & replacement	4,984	
Training wages	3,800	3,800
Admin expenses	1,500	1,500
Tools and college fees	600	600
TOTAL EXPENSES	74,851	69,866
CASH POSITION	(14,493)	(9,509)
NPV	(22,015)	

The NPV of the cash flow obtained in this case is negative: -\$22,015.

TRAINEE ALTERNATIVE CASE A: COMPLETION OF A TWO-YEAR TRAINEESHIP—NO SCHOLARSHIP FUNDING

Scenario: Employer retains the apprentice for the full term. No scholarship payments are received.

TABLE 2 TRAINEESHIP ALTERNATIVE CASE A: COMPLETED; NO SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee A</u>
GROSS EMPLOYER INCOME		
from Supervisor's Labour	0	13,380
from Trainee's Labour	54,458	97,451
TOTAL INCOME	54,458	110,831
EMPLOYER EXPENSES		
Supervisor's employment costs	19,110	19,110
Trainee's employment costs	44,856	71,911
Training wages	3,800	3,800
Admin expenses	1,500	1,500
Tools and college fees	600	600
TOTAL EXPENSES	69,866	96,921
CASH POSITION	(15,409)	13,910
NPV	(4,404)	

The NPV of the cash flow obtained in this case is negative: -\$4,404.

TRAINEE ALTERNATIVE CASE B: TRAINEE TERMINATION AND REPLACEMENT AFTER YEAR ONE—NO SCHOLARSHIP FUNDING

Scenario: Apprentice withdraws after one year and is replaced by another in year two:

TABLE 3 TRAINEESHIP ALTERNATIVE CASE B: TERMINATED YEAR ONE—NO SCHOLARSHIP FUNDING

	Year1	Year2
	<u>Trainee A</u>	<u>Trainee B</u>
GROSS EMPLOYER INCOME		
from Supervisor's Labour	0	0
from Trainee's Labour	54,458	54,458
TOTAL INCOME	54,458	54,458
EMPLOYER EXPENSES		
Supervisor's employment costs	19,110	19,110
Trainee's employment costs	44,856	44,856
Trainee termination & replacement	4,984	0
Training wages	3,800	3,800
Admin expenses	1,500	1,500
Tools and college fees	600	600
TOTAL EXPENSES	74,851	69,866
CASH POSITION	(20,393)	(15,409)
NPV	(32,583)	

The NPV of the cash flow obtained in this case is negative: -\$31,337.

THE WEIGHTED AVERAGE NPV OF ALTERNATIVE TRAINEESHIP SCENARIOS

Using the approach described previously we calculate the weighted average of the alternative scenarios for a two-year traineeship.

Alternative Scenarios	Occurrence = weighting	x scenario NPVs	= Result
Scholarship Scenarios			
Trainee completes	71.5%	x \$6,164	4,407
Trainee terminates in year 1; replaced from year 2	28.5%	x (\$22,015)	(\$6,274)
<i>Weighted average</i>	<i>100%</i>		<i>(\$1,867)</i>
Non-Scholarship Scenarios			
Trainee completes	46.0%	x (\$4,404)	(\$2,026)
Trainee terminates in year 1; replaced from year 2	54.0%	x (\$32,583)	(\$17,595)
<i>Weighted average</i>	<i>100%</i>		<i>(\$19,621)</i>

Recalling our definition that *the financial value created by the Scholarship funding for an employer is the difference between the NPV of the base case scenario and the weighted average NPV of the alternatives*, then the financial value created is:

$$(\$1,867) - (\$19,621) = \$17,753$$

If we consider the cost of funding a single traineeship to be \$15,600 then the financial value to the employer, excluding other value created, is 114 percent of the cost.

CONCLUSIONS

The Base Case scenario with Scholarship funding has the highest NPV.

For traineeships, with the assumptions used, there are no alternative scenarios without Scholarship funding that have a positive NPV. The closest result is obtained when the trainee completes their training.

APPENDIX E: SENSITIVITY OF VALUE

The discount rate used in this analysis is reasonable but, like any discount rate, subjective. Its underlying assumptions are open to debate. For this reason this appendix shows the sensitivity of the value of the scholarships to changes in the discount rate.

In each table we have incremented the discount rate by plus and minus 10 percent and 20 percent. In calculating the value the same discount rate is applied to all scenarios.

APPRENTICE SCHOLARSHIPS

TABLE 4 SENSITIVITY OF VALUE: APPRENTICE SCHOLARSHIPS

Discount Rate	Value	% of Cost
21.1%	\$40,916	128%
23.7%	\$39,578	124%
26.4%	\$38,284	120%
29.0%	\$37,121	116%
31.7%	\$35,994	112%

This analysis indicates that the NPV of the apprentice scholarship program remains positive and significantly greater than the cost of the scholarship with discount rates between 21.1 percent and 31.7 percent.

TRAINEE SCHOLARSHIPS

TABLE 1 SENSITIVITY OF VALUE: APPRENTICE SCHOLARSHIPS

Discount Rate	Value	% of Cost
21.1%	\$18,217	117%
23.7%	\$17,984	115%
26.4%	\$17,753	114%
29.0%	\$17,540	112%
31.7%	\$17,328	111%

This analysis indicates that the NPV of the trainee scholarship program also remains positive and significantly greater than the cost of the scholarship with discount rates between 21.1 percent and 31.7 percent.

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^{iv} Interview with Wallace Trohear 21 July 2011

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^{ix} Interview with Wallace Trohear 21 July 2011

^x Interview with Wallace Trohear 21 July 2011

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^{xiv} Harvey, L. and Green, D. (1993), "Defining Quality", Assessment and Evaluation in Higher Education, HEQC (1997), "Graduate Standards Programme: Final Report", Higher Education Quality Council. Quoted in Value for Money Guidelines Rural Transport Programme. p4

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^{xvii} Interviews with Peter Veale, Vealstruct, 29 September 2011; George Englert, Master Painters, 28 September 2011; Peter Morrison, PP Morrison Plasterers, 28 September 2011.

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