The Case for a British Columbia Human Resources Investment Tax Credit Program

Submitted to:
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Sponsored and Submitted by:
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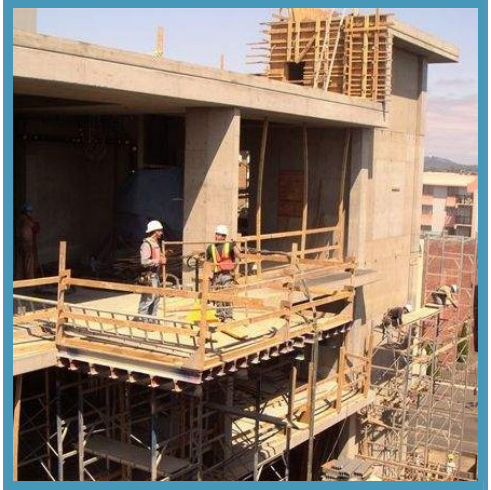

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EXECUTIVE SUMMARY

INTRODUCTION

British Columbia's economy is firing on all cylinders, leading job growth across the country. Associated with this good news, employers are increasingly faced with skill shortages and difficulties in recruiting and retaining skilled workers. **Challenges in finding and keeping human capital are starting to impact the BC economy.**

Companies are using innovative approaches to recruiting, developing and keeping their talent and industry workplace training is one part of this tool kit. In this context, one of the most popular public policy options put forward by employers to stimulate more training of skilled workers is a training tax incentive. This option has been recommended by several business and industry groups in BC and Canada in recent years.

While other measures by industries, governments and educators are needed to ensure people are available to hire and train, this submission focuses on the benefits and implementation of a tax credit to support more training by businesses.

Business groups advocating a training tax incentive have approached provincial and federal governments in the past, but they have not been able to answer policy makers' questions on how such an initiative will work, how much will it cost, and what its impact will be.

This report delves deeper into the topic to answer these questions and to estimate the costs and benefits of a training tax credit in BC. **The purpose of this paper is for the sponsoring business and industry groups to present a strong case for a British Columbia Human Resource Investment Tax Credit.**

EVIDENCE ELSEWHERE

Training tax credits exist in many jurisdictions including Ontario, Quebec, several U.S. states, Austria, Italy, Luxembourg, Brazil, Chile and Japan. Many of these programs are targeted to at certain types of employees and/or certain sectors.

The OECD's Employment Outlook 2003 concluded that an effective use of tax incentives to reduce firms' under-investment in training could be realized if such measures include deductions above the normal business expenses and if they are refundable.

A number of studies have shown a net benefit of training tax credits to taxpayers and government. In a 2001 study, Dr. Roslyn Kunin concluded that a training tax credit could increase "the level of human capital and speed the transition to a knowledge-based economy."

In a recent report for the Ontario government, the economic consulting company DRI-WEFA concluded that **the economic gains from a training tax credit could outweigh costs by a 2 to 1 to 4 to 1 ratio.** Based on these factors, DRI-WEFA concludes that an employer tax credit model addresses training needs more than other financing options.

While it is too early to obtain evaluation results of the new Ontario Apprenticeship Training Tax Credit (ATTC) introduced last year, there are at least 18 training tax credit programs in 14 U.S. states. What little empirical evidence of effectiveness exists for these programs is positive (e.g. Michigan).

POLICY RATIONALE

There are several key factors that provide a strong policy and business rationale for a training tax credit program. These include addressing skill shortages, supporting productivity growth, addressing training barriers especially for small businesses, increasing worker opportunities, and increasing training completion rates.

An effectively designed training tax credit also addresses a number of concerns posed by policy-makers, including:

- Stimulating incremental hiring/training activity;
- Reflecting clear public policy goals;
- Minimizing administrative costs;
- Minimizing fiscal risks;
- Boosting industry contributions;
- Responding to emerging training needs

Workplace training represents a good public investment for industry and governments. With 80% of the training on-the-job – in the case of apprenticeship for example – the cost of workplace training has a much lower unit cost for government than institutional-based training. A training tax credit would be a strong public investment in the continuous improvement of the BC workforce for:

- Increasing formal training in critical skill shortages trades and technical occupations;
- Facilitating labour mobility and portability across occupations, sectors and regions of the province;
- Stimulating the demand side of the BC economy, not just the supply side such as in the funding of public post-secondary education seats.
- Setting a positive business climate leading up to 2010 Winter Olympic and Paralympic Games

POLICY GOALS AND PRINCIPLES

Benefits of government assistance to education and training are widely recognized and provided throughout the developed world. The rationale for a proactive policy is based on research that demonstrates large societal benefits of investments in this area. The intended **policy goals** of a training tax credit would be:

- Providing an employer tax incentive to induce companies to hire, train and retain skilled workers.
- Increasing the quantity and quality of industry training in BC.
- Increasing the supply of skilled workers and reducing skill shortages and bottlenecks in BC.
- Decreasing employer training costs.
- Improving company productivity and international competitiveness

Regardless of the training tax credit program design, it will be important to reflect the following **principles**:

- Effectiveness;
- Administratively simple;
- Maximizing benefits;
- Promoting a training culture;
- Addressing training barriers;
- Addressing public policy interests;
- Performance-based;
- Targeting of smaller businesses and key skills;
- Equitable across sectors and regions;
- Designed with input from employers and industries.

Key variables or elements that should be considered when designing a training tax credit program include organization size and type, occupational scope, type of training and types of training expenses, an incremental requirement, duration of the credit, credit value, limits on numbers of employees per company, type of documentation and administration.

TRAINING TAX CREDIT (TTC) MODELS

This report involves estimating the costs of four types of training tax credit (TTC) program models. The key assumptions and variables held constant in the modeling were:

- Organizational eligibility was confined to corporations, proprietors, and partnerships with permanent establishments in BC.
- All sizes of companies were eligible but smaller businesses could obtain a larger credit.
- Companies in all regions and all sectors of the province would be eligible.
- The tax credit would be refundable in all models.
- In three of the four models, the hiring/training must be incremental to existing levels.

Ontario-Like TTC Model – "Model 1"

- Replicates Ontario's program almost 100%.
- One key difference is this model includes in the occupational eligibility all ITA "accredited" and "recognized" training programs – essentially all formal apprenticeship trades in BC. In the Ontario ATTC, certain service trades are not eligible. An Ontario manager contact estimates that this excludes approximately 20% of that province's 72,000 apprenticeships.

Narrower TTC Model – "Model 2"

- Very similar to Ontario's but with one fundamental difference: only new apprentices (i.e. all ITA certified occupations) hired April 1, 2006 or later are eligible for the tax credit. In Ontario, employers were eligible to claim tax credits for all existing and all new apprentices effective May 2004.
- Other design features that could be changed to make it a narrower, less costly program (e.g. a maximum number of apprenticeships eligible for tax credits, a maximum length of the credit per apprentice, percentages of wages and taxable benefits could vary more than in Ontario depending on size of company or other factors).

Direct Costs TTC Model – "Model 3"

- Is not tied to a percentage of wages and benefits; rather, it focuses on "direct" training costs – tuition, instructor costs, development of materials, training facility rental, etc.
- Assumed that the incentive would provide a tax credit for a portion of employer costs for structured on the job or off the job training.
- Costs could be moderated by various factors related to number of credits per company, percentage of credit, maximum credit per employee, etc.

Critical Occupations TTC Model – "Model 4"

- Takes the modeling outside the realm of apprenticeship so that employers who hire and train workers in certain "priority" or "skill shortage" occupations are eligible for a tax credit.
- Assumed that this would involve 5% of the employed BC workforce.
- A method of determining which occupations are eligible would need to be created.

There a number of ways of providing this option and limiting costs by including a maximum number of employees per company, a small portion of costs covered by the credit for all companies or at least for larger ones, etc.

For each of these models, a formula was developed to estimate the costs and economic impacts of each.

ECONOMIC IMPACT

Key results of the proposed training tax credit (TTC) models are as follow:

1. **Tax credit incentives in all models result in a strong increase in the level of training in the economy.**
2. For the two models focused on apprenticeship, TTC investment **stimulates additional apprenticeship enrollment.** Model 1 results in additional enrollment of over 5,000 new apprentices while Model 2 results in approx. 2,400 additional apprentices in the first year of the TTC program.
3. In case of TTC for broader training the **hours of training in the economy increases at the rate of approx. 8.3 hours per $100 of TTC expenditure**. Model 3 results in an increase of approximately 8.5 million hours of additional worker training per year and Model 4 yields approximately 5.9 million hours of additional training per year.
4. **Increased workplace training boosts labour productivity.** Every hour of additional training per employee per year increases labour productivity by approximately 0.4% per annum and results in overall GDP growth per worker from 0.04% to 0.10% per annum.
5. **All models result in a strong increase in GDP growth ranging from $2.6 to $6.2 for every dollar invested in TTCs.** Aggregate GDP impact for various models range from an increase of $97 million to an increase of $660 million per year. These positive impacts may be higher, as government revenue recovery was not offset against the tax credit costs in the calculations.
6. **Stronger general economic growth results in an increase in government tax revenues which would offset part of the cost of tax credits.** Increase in tax revenue of all levels of government (federal, provincial and local) could offset a substantial portion of the tax credit costs (two-thirds or more). This excludes any increase in governments' fee and license and investment income revenue from an expanding economy. To the extent tax credits are all financed by the provincial government, provincial tax revenues alone will pay for more than quarter of the cost of the tax credits.

RECOMMENDATIONS

A strong economic impact should result from such a tax credit, as well as benefit BC's training system, company training cultures, and workers.

The sponsors of this report recommend to the BC Government:

1. **That a Human Resources Investment Tax Credit Program be introduced early in fiscal year 2006/2007.**
2. **That the tax credit takes affect April 2005.**
3. **That the Ontario-like model (Model 1) be adopted initially, and after review, consideration be given to incorporating Model 4 (i.e. adding other critical occupations).**
4. **That the tax credit reflects the policy goals and principles in this submission, including "keeping it simple."**
5. **That key industry stakeholders including the sponsors of this submission be consulted on the implementation of the tax credit.**
6. **That during 2006/2007, the option of expanding the tax credit to other critical occupations (i.e. Model 4) be considered for subsequent years.**
7. **That an industry and government advisory committee be created to oversee the review or evaluation of the tax credit after 2 to 3 years.**

Model 1 is recommended because it is the most inclusive and easiest to administer. It both recognizes both the existing occupational training that employers are doing and would stimulate employers to introduce new training. If the costs and scope of this tax credit are deemed too expensive and broad, the BC Government could consider moderating costs by using a graduated credit formula or by reducing the maximum value of the credit. While Model 2 would incent new hires and training by employers, it could create an unleveled playing field in terms of employers who are already undertaking training. If the BC Government prefers this model, it should only be a starting point, and should be broadened as soon as possible in subsequent years to include Model 1 and Model 4 features.

Regardless, a Human Resources Investment Tax Credit will provide an employer tax incentive to induce companies to hire, train and retain skilled workers. It will increase the quantity and quality of industry training in BC and increase the supply of skilled workers and reducing skill shortages and bottlenecks in BC.

As a result of factors including the BC Government's effective economic and fiscal climate-setting, our province's economy is growing and diversifying. More than ever, a highly skilled workforce is critical to this economic health. A Human Resource Investment Tax Credit will be an effective, well-received addition to the BC Government's education and training policy tool-kit.

A Human Resources Investment Tax Credit will support the BC Government's vision for the province, including two of BC's Great Goals to:

- **Make B.C. the best educated, most literate jurisdiction on the continent.**
- **To create more jobs per capita than anywhere else in Canada.**

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1. PURPOSE AND CONTEXT

> *"Productivity in the industrialized world isn't about getting more from fewer workers. Canada can't compete with China and India and their abundant low-cost pools of labour on producing goods faster and cheaper.*
>
> *Instead, think inputs: Investment in education, skills development, re-training and recruitment of the best and brightest from around the world.*
>
> *Improving Canada's competitive position in the global marketplace is the only way to assure that there will be sufficient revenue to pay for the social benefits Canadians expect."*
>
> (Vancouver Sun Editorial, January 2, 2006)

Purpose – Responding to Economic Growth and Skill Shortages

British Columbia's economy is firing on all cylinders, leading job growth across the country. BC posted Canada's largest job growth during 2005 with an increase of 3.4% over 2004. This is more than double the national average of 1.4% and well above Alberta's growth of 1.8%.

Full-time employment increased by 4.1% and unemployment dropped from 7.2% to 5.9% in 2005, the lowest on record for BC. Employment growth was led by construction (14%), trade (13.3%), information, culture and recreation (13.1%), and educational services (10.9%).

275,000 new jobs have been created in BC since 2001!

In addition to other pressures created by this positive economic climate, industries and employers are increasingly being faced with skill shortages and difficulties in recruiting and retaining skilled workers, particularly in trades and technical jobs. Challenges in finding and keeping human capital are starting to impact the BC economy.

Companies are using innovative approaches to recruiting, developing and keeping their talent. Industry work-based training is one part of this tool kit. In this context, one of the most popular public policy options put forward by employers to stimulate more training of skilled workers is some kind of training tax credit incentive. This option has been advocated by several business and industry groups in BC in recent years.

A training tax credit program is designed to encourage and support employers to invest in employee training. Such a tax credit is may be incremental to existing business and employee income tax deductions, and can be refundable to companies that do not make a profit in a given year.

Surveys and submissions involving such business groups as the BC Chamber of Commerce, BC Construction Association, Canadian Manufacturers & Exporters, Canadian

Federation of Independent Business, Canadian Home Builders' Association of BC, Council of Construction Trade Associations, and others have identified two facts among BC businesses. First, companies are increasingly worried about and struggling with labour shortages; and second, many businesses support a training tax incentive.

This evidence has shown skill shortages exist among 30% to 50% of businesses, and that large numbers of employers believe a tax incentive will help them deal with this issue. For example, a very recent survey by the Homeowner Protection Office found in December 2005 that 67% of over 1,000 builders surveyed were experiencing difficulties finding qualified workers; and 54% called for an "employer tax incentive program for training without red tape".

Why is a training tax credit seen as important by employers?

- Studies show training costs and fear of losing employees and the investment in their training is the biggest barrier to work-based training, particularly among small and medium-sized businesses.
- Most business groups maintain that a training tax credit would stimulate more hiring and skills development of workers in short supply, thus enhancing the economy – including increased productivity and competitiveness –increasing government revenues, and benefiting the workforce.
- A training tax credit that is carefully designed and administered in a simple and flexible manner can provide a real incentive to companies to invest in training when they ordinarily would not be able to.
- A training tax credit would reflect in our tax system the importance of human capital investments to our economy – just like research and development, capital investments, equipment and machinery investments do. This is not a "business subsidy". Training tax credits benefit workers, the broader society and the economy – the same as when government subsidizes post-secondary education and training.

While we recognize that other measures by industries, governments and others needed to ensure people available to hire and train, this submission focuses on the benefits and implementation of a tax credit to support more training by businesses.

Business groups calling for a training tax incentive have approached provincial and federal governments with this proposal but have not been able to answer policy makers' questions on:

- How will it work and how much will it cost?
- What will be its impact?
- How do we know it will work?

This report delves deeper into the topic to analyze and consider these questions and to estimate the costs and benefits of a training tax credit in BC. Specifically, the purpose of this paper is for sponsoring business and industry groups to use to present a business case and an economic impact analysis to senior policy-makers.

Potential Contribution to Economic Growth

In its *Training and Development Outlook 2003*, the Conference Board of Canada found that Canadian employers "continue to under-invest" in training and that investments are lower than in previous years. It concluded, "There is no doubt that continued under-investment in learning will adversely affect our productivity and competitiveness." In its *Learning and Development Outlook 2005*, the Conference Board found little improvement in training expenditures. Also, an extensive analysis of the literature led DRI-WEFA – a Canadian economic consulting company – to conclude Canadian industry is under-investing in human resources development.[1]

A recently released Statistics Canada report on human capital investment found that government investment in training and education is three times more important to economic growth as investment in infrastructure. A Statistics Canada official was quoted as saying, "Governments have tended to pay less attention to developing human capital to boost economic growth...They were investing more in physical capital like roads, transportation and tax incentives for companies to buy new technologies, all those sorts of things."[2]

Canada's tax system supports companies who invest in research and development, purchase manufacturing equipment, natural resource exploration, environmentally sustainable practices, etc. It would be entirely consistent with current thinking about the importance of human resources to provide tax incentives for those who invest in our most important capital resource.

Barriers to Training

One of the key barriers to businesses providing training and skill development opportunities for their employees is the direct and indirect costs of these types of

[1] DRI-WEFA. (2002). *Encouraging Workplace Training – Towards a Federal Skills Investment Tax Credit.* Prepared for the Ontario Ministry of Training, College and Universities.
[2] *The Vancouver Sun.* "Skills Training the Best Investment: Study." Wednesday, June 23, 2004, p. D4.

investment and the risk of losing the investment if employees leave. Industry training and apprenticeship is a high-cost investment, particularly for small businesses.

While there are other barriers to employers hiring and training workers, the costs associated with training, lost production, supervisory time and turnover related to work-based training are seen as a big disincentive by employers to participating in industry training.

This factor has been corroborated from recent empirical research such as the Canadian Apprenticeship Forum's national report on access and barriers to apprenticeship and the Centre for the Study of Living Standards' recent review of apprenticeship in Canada.[3] There are other less significant barriers to industry training and there are barriers to individuals (trainees) participating in industry training.

The focus of this report is on increasing incentives to employers participating in industry training. Work needs to be done with regard to reducing barriers to individuals participating in industry training (e.g., awareness, recognition of foreign credentials, financial support, closer to home training, etc.), but these are less challenging and become academic if work is not done on the demand side (i.e., barriers to employers).

In a report for the OECD, Richard Marquardt argued that the costs of apprenticeship are a major factor in the decline of apprenticeship in the 1990s in Canada, as employers invest more than three times the cost for such training as employers in Germany do because of longer training times and higher minimum wages.[4] Among other implications, this places an inordinate burden on small and medium-sized enterprises in BC and Canada.

Policy and Program Options

Based on the BC government's desire to increase the quantity and quality of industry training in BC and based on an understanding of barriers and challenges to employers, the categories of policy and program levers available to policy makers are as follow:

- Decreasing employer costs (e.g., costs can be reduced by decreasing the duration of technical training and/or the overall length of an industry training program);
- Increasing employer financial incentives (e.g., tax credits, small grants, etc.);
- Reducing red tape (i.e., making it easier for employers to sign up and employ a trainee);

[3] Canadian Apprenticeship Forum. *Accessing and Completing Apprenticeship Programs in Canada: Perceptions of Barriers.* Ottawa, 2004; Andrew Sharpe and James Gibson. *The Apprenticeship System in Canada: Trends and Issues*. Ottawa: Centre for the Study of Living Standards, September 2005.
[4] Richard Marquardt. *Labour Market Policies and Programmes Affecting Youth in Canada*. OECD Thematic Paper, Paris, 1998.

- Increasing flexible delivery of technical training (e.g., flexible scheduling of training, shorter durations of technical training, etc.);
- Increasing trainee completion rates (e.g., incentives to employers and trainees, mechanisms for finding new employment for laid off apprentices, more of a role for training providers and industry sector groups;
- Increasing on-the-job training quality (e.g., tools/resources to help supervisors and workplace assessors);
- Increasing employer awareness (e.g., promoting the business case/ROI for industry training and making smaller businesses aware of industry training opportunities and programs such as SSA); and,
- Increasing scope of industry coverage (e.g., approve new training programs in industries and occupations not traditionally covered by apprenticeship).

Some of these policy and program options have been introduced by the BC government and the Industry Training Authority (ITA). Success can be measured through increasing participation of high school students in industry training, the introduction of new more flexible industry developed training programs, and greater involvement and governance by industry groups. While these are commendable results, the missing link in the policy tool kit is financial incentives to address the high cost of industry training.

A Preferred Policy Option

As indicated, one of the most popular new public policy options promoted by several industry sectors and many small and medium-sized employers is some type of provincial and/or national employer tax credit scheme for those companies that invest in formal employee training, including industry training. This has been advocated by groups such as the BC Chamber of Commerce, BC Construction Association, Business Council of BC, Canadian Home Builders' Association of BC, Canadian Manufacturers & Exporters, Canadian Federation of Independent Business, Council of Construction Trade Associations, Vancouver Board of Trade, and other industry organizations. This type of incentive was also the subject of interest during the provincial Select Standing Committee on Finance and Government Services' budget consultation in 2002.

Many businesses indicate that financial resources can be a barrier to hiring and training apprentices and other employees, and that a tax credit measure would be an incentive for them to invest in such human resources development.

2. THE CONCEPT OF A TRAINING TAX CREDIT

> *"Based on the Michigan experience the effects of a training grant on the quality of worker output are sizeable and permanent despite the one-time nature of the MJOB program. Hence, training subsidies for firms are effective. They boost training rather than generating one time windfall profits for recipient firms."*
>
> (DRI-WEFA, *Encouraging Workplace Training*, 2002)

This section provides an overview of what we know about training tax credit programs in other jurisdictions and other types of tax credit programs.

Experiences Elsewhere

Training tax credits exist in Ontario, Quebec, several U.S. states,. Austria, Italy, Luxembourg, Brazil, Chile and Japan. Many of these programs are targeted to some degree at certain types of employees (e.g. youth, retraining existing workers, unemployed) or certain sectors (e.g. manufacturing).

The OECD's Employment Outlook 2003 concluded that an effective use of tax incentives to reduce firms' under-investment in training could be realized if it includes deductions above the normal business expenses and if it is refundable. For example, in Italy and Luxembourg, training expenditures can be postponed up to four and 10 years, respectively, if taxable income is negative.

A number of research studies have shown a net benefit to taxpayers and government of training tax credit schemes. In a 2001 discussion paper, Roslyn Kunin concluded that a, "training tax credit could benefit BC by increasing the level of human capital and speeding the transition to a knowledge-based economy."[5] More recently, in a technical paper for the Ontario government, DRI-WEFA concluded:

> "Based on existing empirical work it can be demonstrated that gains in economic output could outweigh the program costs of a tax credit based training program. These range from a 2 to 1 gain up to 4 to 1 gain to the economy depending on the assumptions made."

While many details (e.g. eligibility, administration, cost-benefit, etc.) would have to be analyzed an employer training tax credit program could be a progressive and effective incentive to stimulate training in skill shortage occupations.

Appendix 1 contains a more detailed analysis of the experience with training tax credit programs in other jurisdictions in and outside of Canada.

[5] See Roslyn Kunin, Ph.D. *The Concept of a Human Resources Investment Tax Credit as a Means to Increase Training in BC*. Prepared for the Industry Training and Apprenticeship Commission, 2001.

Training Tax Credit Design Issues

There are various questions regarding the design of a training tax credit:

- Company eligibility (e.g., size, sector, etc.);
- Type of training that is eligible (e.g., formal and/or informal; internal and/or external);
- Types of expenses that qualify (e.g., direct and/or indirect; wages, trainers, equipment, etc.);
- Training provider eligibility; and,
- Employee eligibility (e.g., apprentice, journeyperson, other).

An important consideration with a training tax credit is that it provides an additional incentive above the normal tax deduction that a company would claim for training costs as part of its business expenses.

Another key factor is whether the tax credit is refundable or non-refundable. A refundable tax credit is one that is not limited by the amount of one's total tax, so that the earned income credit is a refundable credit. This allows smaller businesses with no profits to still benefit from such a tax scheme.

One other design concern is whether or not the hiring and training by a company has to be incremental to its existing workforce in order to be eligible for a tax credit. In economic terms this is referred to as a "dead-weight loss" and should be minimized as much as possible to ensure net economic benefits of tax credits.

A simple training tax credit affords the advantage of being able to build on existing institutional tax arrangements with minimal administrative. However, if the tax credit involves training definitions, variable company eligibility, different types of expenses, etc., it will be more costly to administer and understand by the businesses that could benefit.

Evaluation of Training Financing Options

A number of international and Canadian research reports have reviewed various options for financing industry training or employer investments in employee training. These include DRI-WEFA, Rubenson and Schuetze[6], and a number of OECD reports. Public and

[6] Kjell Rubenson and, Hans G. Schuetze. *Options for financing work-based education and training.* Centre for Policy Studies in Higher Education and Training, University of British Columbia. Vancouver, BC. September, 2000.

private options for funding such skill development can be categorized into employer-based and employee-based models as in Table 1 below.

Table 1
Summary of Evaluation of Training Financing Models

Employee Training Financing Models	Responsiveness to Industry	Administrative Efficiency	Participation	Control Over Program Size
Employer-Based Models				
Training/Payroll Tax		✓		✓
Levy-Grant Scheme				✓
Sectoral Training Funds				✓
Employer Tax Credits	✓	✓	✓	✓
Wage Subsidies			✓	
Training Vouchers	✓		✓	
Employee-Based Models				
Individual Self-Financing		✓		
RILAs			✓	

Source: DRI-WEFA, *Encouraging Workplace Training – Towards a Federal Skills Investment Tax Credit*, Prepared for Ontario Ministry of Training, Colleges and Universities, 2002.

DRI-WEFA analyzed these options – borrowing from the work of Drs. Rubenson and Schuetze from UBC in 2000 and from others – against the following criteria:

- Responsiveness to industry – Can the program be structured to meet the needs of specific industries?
- Administrative efficiency – Can the program be delivered without imposing significant new administrative costs on the agencies responsible for its delivery?
- Participation – Will firms find the program easy to access and therefore participate?
- Control over program size – Are the potential direct or tax loss costs of the program predictable?

Based on these factors, the DRI-WEFA analysis concludes that an employer tax credit financing model addresses these criteria more than other financing options: “Employer tax credits would go a long way toward overcoming the market failure described earlier in this report.”

3. THE RATIONALE FOR A BC TRAINING TAX CREDIT PROGRAM

> *"The first is some type of cost relief for training, be it a tax incentive similar to that in Ontario, or some other such incentive. Many employers in the province train workers, but they later lose them to competing employers who may not. A financial incentive to train workers would lighten the impact for employers and be viewed as a positive step."*
>
> (Business Council of BC, Industrial Relations Bulletin, Nov. 22, 2005)

Key Policy and Business Factors

There are several key factors that when combined provide a strong policy and business rationale for a training tax credit program. These include the following considerations:

- ***Skill shortages*** – Skill shortages and other bottlenecks – particularly in trades and technical occupations – are increasingly prevalent across most industries in BC. They threaten to delay construction projects and push costs up significantly, and stifle the extent or pace of growth among resource, manufacturing, service companies and industries. Part of the solution is hiring and training more workers.

- ***Productivity and international competitiveness*** – The Fraser Institute recently showed that Canada ranked 18th in average labour productivity growth between 1995 and 2004. In addition to new equipment and technology, human capital development and investments is a key factor in improving productivity and international competitiveness compared to other jurisdictions and companies.

- ***Training barriers*** – As indicated earlier, one of the most significant barriers to employee training is the cost of training. Measures to reduce or offset employer training costs will stimulate more companies to train.

- ***Small businesses*** – Small businesses are particularly vulnerable to training cost barriers and yet are seen as the engine of the BC economy. Many recent reports have called for measures to help SMEs invest in more training.

- ***Worker opportunities*** – Hiring and training new employees obviously benefits workers and will provide more employment and advancement opportunities for British Columbians.

- ***Quality and intensity of training*** – Financial training incentives like a tax credit will enable companies to put more effort into employee training and thereby increase the quality and extent of training. This is particularly relevant with BC's new industry training model that emphasizes competency-based training and other quality indicators that make training more costly.

- ***Retention*** – A training tax credit should help more companies to retain trainees and skilled workers for whom they have already investing training funds, and could actually be designed to provide an incentive towards completion of and/or certification in an occupation.

One small business owner said it well:

> "I think that with the productivity loss by a carpenter/trainer/supervisor and the reduced charge-out rate for the trainee as related to hourly cost to the employer, training costs a least $5 per hour per trainee. $5 is lower than actual costs but a good working figure. That's about $2,400 per year as a low estimate. $1,500 or more per year per trainee would be a useful incentive and support for small businesses that need to train employees."

Addressing Policy-Maker Concerns

Another approach to providing a rationale for a training tax credit is to address a number of questions or concerns posed by policy-makers when they are faced with a request for a training tax credit incentive.

Incremental hiring and/or training activity

One way to designing a training tax credit that stimulates incremental hiring and/or training is by only making the hiring and training of only new employees eligible for a credit. This would be unlike Ontario's Apprenticeship Training Tax Credit (ATTC) because all employers of eligible apprentices including existing employees can receive a credit.

According to economics, the implementation of a training tax credit will reduce the marginal cost of training below the marginal gain in profits. In response, profit-maximizing companies will increase investments in training. This will continue until the marginal cost of training is again brought in line with the marginal gain in profit. This is explained in another way in a European research report:

> "For the employer's decision to invest in training, the difference between marginal expected benefits and marginal training costs is relevant. As a consequence, in order to avoid large dead-weight losses the subsidy component of a policy package must seek to compensate only the gap between marginal costs and marginal private benefits that may arise at the socially desirable investment level, leaving to employers the responsibility of financing the rest. Any subsidy that does not change the employer marginal costs and benefits will not modify his investment decisions, but end up in financing the training that would have been done

> anyway. Tax deduction and grant schemes respecting this principle are likely to produce efficient results."[7]

Anecdotally, some people have suggested that Ontario wanted to keep its ATTC simple and allowed all apprenticeships in the specified trades including existing ones to be eligible for tax credits because the ATTC designers were concerned that companies would lay off and rehire apprentices to get around an incremental requirement.

A BC training tax credit could safeguard against this to prevent or significantly minimize such abuse.

Clear public policy goals

A training tax credit program can possess clear public policy goals related to key occupations, reduced skill shortages in these occupations, a stronger training culture, and increased GDP and tax recovery contributions. Later sections of this report suggest what could be policy goals for a training tax credit.

Not sure if training tax credits are proven to be effective

While there is a shortage of evaluation data on training tax credit programs, anecdotal evidence from Ontario, the U.S. and European countries is that tax credits do increase employer investment and participation in employee training.

In a Canadian Federation of Independent Business survey of 680 SMEs, 50% indicated that tax credits would motivate them to provide more training. Anecdotally, members of many of the business and industry associations that support a training tax credit have indicated such a public policy instrument would definitely entice them to hire new and/or more trainees and skilled workers.

Number of apprentices and employers are already way up

According to recent ITA figures, the number of apprentices and employers involved in industry training is rising. This is good news, however these numbers are not necessarily keeping up with industry demand for skills in certain key industries and projects, and there is no assurance that such training growth can keep up with skill vacancies without support to employers.

Too costly / Reduced tax revenue / Administrative costs

In reviewing various tax credit models and considering options for BC, we are confident that a training tax credit program can be implemented in a way that it involves minimal paperwork and other costs to businesses and minimal time to review and process and audit by government agencies. "Keep it simple" will be a key principle reflected in the tax credit models proposed.

[7] A. Bassanini, A. Booth, G. Brunello, M. De Paola and E. Leuven, *Workplace Training in Europe*, Institute for the Study of Labour, Bonn, Germany, June 2005, p. 170

How to avert financial risks?

Financial risks can be limited by the design of the tax credit. For example, occupational eligibility, percentage of training costs credited, duration of the credit, etc. can limit the cost of reduced government tax revenue. Also, some jurisdictions, such as Arizona, have put caps on the tax credits so that if demand rises above the cap in a given tax year, the tax credit is reduced.

Where is the industry contribution?

BC private sector employers spend substantial funds on employee training. In 2005, the Conference Board of Canada estimated that the average company spent $914 per employee on training or 1.75% of payroll. This excludes informal training which represents a substantial cost especially for small businesses. In 2003, the Canadian Federation of Independent Business estimated that SMEs spent an average of 111.4 hours per year on informal training for each new employee, versus 21.4 hours on formal training.

In 2001, Paul Gallagher and Marvin Lamoureaux estimated in a report on work-related learning that private sector employers spent between $230 million and $800 million on employee work-related learning in 1998/99.[8]

We know that in terms of apprenticeship training, 80% of the training occurs on-the-job and represents significant costs – well over $100,000 for some 4-year apprenticeships – in supervisory time, reduced productivity, tools and equipment, and other costs.

Training investments are also reflected in other ways. Industry associations and employer members contribute to training costs through the development and delivery of employee training, individual employers offer tuition reimbursement programs, and unionized employers contribute through collective agreements (e.g. average of 32 cents per hour among construction contractors).

Industry is stepping up to the plate already!

Questions about SME capacity to take trainees

Typically, most employers of apprentices or trainees are small and medium sized enterprises. Growth in apprenticeship in recent years has been driven by smaller companies. Based on anecdotal information, small business organizations and small business members of industry associations have suggested SMEs can take on more trainees if industry training programs are flexible, relevant and responsive to employer needs.

[8] Paul Gallagher and Marvin Lamoureaux, *Exploring Investment in Work-Related Learning in British Columbia*, August 2001.

Inflexibility of a training tax credit to respond to new needs

The growth of new emerging occupations in BC is an important factor in a knowledge-based economy, however, not addressing shortages in construction, manufacturing and heavy industries is equally important. There a few ways that emerging needs can be addressed regarding the estimation of costs and impacts of various tax credit models.

It would involve either tax credits for certain priority apprenticeship trades; or tax credits for a broader range of strategic occupations beyond apprenticeable trades. Another way of addressing this is like in Ontario where the ATTC guidelines indicate, "newly developed trades will be eligible if approved by the Minister of Finance." In other words, if the ITA and industries pursue the development of trades in new emerging areas, these could also be eligible for a tax credit and thereby reflect a responsive tax credit model.

Subsidy to business

What is a "business subsidy"? In 2001 when the BC Liberal government was elected, it promised and delivered on eliminating several business subsidy programs. At the time, it defined business subsidy, as "a government program or activity that transfers a benefit to an individual for-profit business, or a selected group of businesses, beyond what would normally be provided by the marketplace." This was a laudable goal and commitment.

BC and Canada provide a number of tax credit programs for businesses in BC including mining exploration, film and television production and scientific research and experimentation, etc. In the September 2005 Budget Speech, the BC government announced a new tax incentive, effective January 2006, for the commercialization of life science patents to support BC biotechnology research and development.

We are saying there are justifiable reasons including market failures/imperfections, competition from other jurisdictions, or other strategic reasons to provide tax relief to businesses. Employee training is one of these. With the growing importance of human capital to the BC and Canadian economies, why should something so fundamentally critical not be reflected in corporate tax system?

There are a number of tax credit programs already exist in BC (expenditures in 2004/05):

- Venture Capital Tax Credit ($24 million)
- Employee Venture Capital Tax Credit ($5 million)
- Film and Video Tax Credit ($27 million)
- Production Services Tax Credit ($43 million)
- Scientific Research and Experimental Development Tax Credit ($95 million)
- Mining Exploration Tax Credit ($3 million)

Expenditures on these programs in 2004/05 were $197 million. The federal government offered more than $3 billion in tax reductions and credits in the same year, for example, the Scientific Research and Experimental Development Investment Tax Credit ($1.915 billion), the Labour-Sponsored Venture Capital Corporation Credit ($200) and the Canadian Film or Video Production Tax Credit ($215 million).

There are also other BC government programs that provide forms of assistance to employers for hiring welfare recipients, persons with disabilities and Aboriginal people. There are tax measures that benefit certain industries such the Hotel Tax to fund Tourism BC and marketing support for the industry.

Income Tax Treatment of Training

The *Income Tax Act* allows for employers to expense the costs of training their employees, in the year in which they are incurred (i.e. a business expense) as part of calculating taxable income.

Deductible training costs include tuition and course fees, the cost of instructors and training consultants, wages paid to workers while in training, travel and accommodation for training purposes, and training materials. Training equipment is usually treated as a capital expenditure and therefore is not fully deductible during the period in which it is purchased.

This tax treatment of training costs by employers was not established to encourage training; it treats training as an expense, a cost of doing business as part of the production of income. The implication of this is that it perpetuates a view that training is an expense and not an investment. To change this perspective and increase employer investment in training, the introduction of a refundable training tax credit to businesses that is incremental to normal training expense deductions, would emphasize to businesses that training is an important investment with future benefits.

Governments, in the interests of the greater public good, need to encourage employers to invest in training. This would stimulate more training in key occupations while not imposing administratively burdensome red tape on private sector decision-making.

A Good Public Investment

Workplace training represents a good public investment for industry and governments.

With 80% of the training on-the-job – in the case of apprenticeship for example – the cost of workplace training has a much lower unit cost for government than institutional-based training. Workplace training has broad benefits to the BC economy with a "multiplier" affect:

> "We estimate that the returns for firms providing training are quite high, our lower bound being of 17% and our preferred estimate being 24%. Such high returns suggest that company job training is a sound investment for firms and for the economy as a whole, possibly yielding higher returns than either investments in physical capital or investments in schooling." Rita Almeida and Pedro Carneiro, *The Return to the Firm Investment in Human Capital*, Institute for the Study of Labour, Bonn, January 2006.

A training tax credit would be a public investment in the continuous improvement of the BC workforce. It would:

- Stimulate formal training in critical skill shortages trades and technical occupations;
- Facilitate labour mobility and portability across occupations, sectors and regions of the province;
- Be easier to administer by government through the tax system than through other mechanisms for training incentives; and,
- Stimulate the demand side of the BC economy, not just the supply side such as in the funding of public post-secondary education seats.
- Be an innovative measure by the BC government to add to its goal of setting a positive business climate leading up to 2010 Winter Olympic and Paralympic Games

4. DESIGN OF A BC TRAINING TAX CREDIT PROGRAM

> *"Employers are having difficulty finding employees that have the appropriate mix of knowledge, skills, experience, and attitude/work ethic. As a result, many of them are hiring based primarily on attitude and are engaging in on-the-job training to bring their employees up to a skill level at which they can function well in their positions. In many cases, small firms lack the capacity to train their employees on the job."*
>
> Community Futures Development Association of BC, *The BC Skills Force Initiative: Final Report*, September 2005, p. viii)

Public Policy Goals for a Training Tax Credit

Benefits of government assistance to education and training is widely recognized and practiced throughout the developed world. The rationale for a proactive policy is based on research that demonstrates large societal benefits to investment in this area. The rationale for a public policy for financial support includes:

- Benefits of education and training go beyond those to individuals and flow to the larger economy and functioning of civilized society;
- Employee mobility is a deterrent to optimal investment in training by employers;
- Because of lack of strong capital base and often high cost of private equity capital particularly for small and medium size businesses, individual businesses are not willing to undertake the risky investment in a high level of training when the benefits of investment may well accrue to a competitor.

The intended policy goals of a training tax credit would be:

- Providing an employer tax incentive to induce companies to hire, train and retain skilled workers.
- Increasing the quantity and quality of industry training in BC.
- Increasing the supply of skilled workers and reducing skill shortages and bottlenecks in BC.
- Decreasing employer training costs.
- Improving company productivity and international competitiveness

Principles for a Training Tax Credit

DRI-WEFA recommended to the Ontario government an administratively simple training tax credit because:

- It would not impose significant paperwork requirements on businesses in terms of documenting their training activities.
- It would not distinguish between various forms of training (e.g. formal/informal, internal/external, topics of training, etc.).
- It would not require employers to track levels of training from year to year in order to show incrementality.
- It would not require employers to develop and submit documentation showing the training supports the firm's business goals.
- It would involve a simple credit rate structure and calculation.

They went on to offer some "guiding principles" of a training tax credit program:

- TTC benefits should accrue to Canadian taxpayers as much as possible.
- The needs of small business should be given consideration.

- The TTC should encourage firms to increase their existing training efforts.
- The TTC should help attract foreign direct investment to Canada.
- The TTC should do all this while being relatively simple to administer and leave little room for abuse.
- The TTC should be responsive to changing needs in the labour market.

Regardless of the training tax credit program design, it will be important to reflect the following principles:

Effectiveness – The program needs to be effective in terms of inducing employers to hire and train skilled workers and increasing the supply of skilled workers.

Maximizing benefits – The program should maximize the benefits to employers, workers, industry sectors, and the BC economy.

Promoting a training culture – The program by increasing the overall industry training activity in the province should in the long term promote the sustainability of a training culture in individual companies and sectors.

Addressing training barriers – The program should address key barriers to employers hiring and training skilled workers, particularly the barrier of the high cost of training tradespersons.

Addressing public policy interests – The program should reflect public policy benefits – given taxpayers' revenue would be used – such as contributing to the provincial and regional economies and increasing employment and training opportunities for British Columbians. Also, reducing bottlenecks and skill shortages related to key BC projects, commodities, products and services is important to public interest.

Performance-based – The program could – as long as it does not make for too complex a design – be performance-based in that the tax incentives could vary depending on the extent of hiring, training and retention. For example, a portion of a training tax credit could be tied to completion of training and/or occupational/trade certification.

Targeting of smaller businesses and key skills – The program could give greater incentives for hiring and training by small businesses and/or in certain high priority skill areas.

Equitable across sectors and regions – Companies in all sectors and regions should be able to participate in the program.

Designed with input from employers and industries – Government should design the program with input from employers and industries before being implemented.

Tax Credit Program Design Elements

Key variables or elements that should be considered when designing a training tax credit program:

1. Eligibility for assistance. Should it be limited to private companies or include non-profits and quasi-public sector organizations? Should it only include Canadian companies or companies with a permanent Canadian establishment?
2. Organization size – Should only companies with a certain number of employees or size or payroll be eligible? If all companies are included should the tax credit be graduated by size?
3. Regions – Should companies in certain regions not be eligible or receive less of a tax credit?
4. Sectors – Should companies in certain sectors not be eligible or receive less of a credit?
5. Occupations – Should certain occupations be eligible for a credit or should it be all occupations?

6. Type of training – What kind of training should be eligible for a credit? Can it be on-the-job or only formal off-site courses?
7. Types of training expenses – What kinds of employer costs should be eligible for a credit? Wages? Only direct training costs? Travel and accommodation?
8. Types of training supplier costs – If formal training is involved, is training delivered by any supplier and paid for by an employer eligible for a credit?
9. Incremental requirement – Does the training have to be incremental to what already exists? Would it have to only occur because of the tax credit?
10. Duration of credit – For what period of training is the employer eligible for a credit?
11. Time period of program – For how long is the tax credit program in place?
12. Credit value – Should there be a maximum credit value per employer and/or per employee trained?
13. Number of employees per company – Should there be a limit on maximum number of employees for which an employer receives a credit each year?
14. Refundable credit – Is the tax credit refundable in cases where a business has no net profit from which to deduct taxes, and if the employer chooses, can they carry forward a tax credit to subsequent years?
15. Documentation and administration – What kind(s) of documentation does the employer have to submit to receive a tax credit? What are the administrative procedures for employers and government?

Table 2 below outlines four training tax credit models. For some of the above variables, we have held the variable constant and in other cases we have changed them. As indicated below we can change any of these variables and relatively quickly calculate different models or different versions of these models.

The key assumptions and variables held constant in the modeling were:

- Organizational eligibility is confined to corporations, proprietors, and partnerships with permanent establishments in BC.
- All sizes of companies were eligible but smaller businesses could obtain a larger credit.
- Companies in all regions and all sectors of the province would be eligible.
- The tax credit would be refundable in all models.

In three of the four models, the hiring/training must be incremental to existing levels.

All other variables were modified somewhat in all or some of the models.

Table 2
Definition of Training Tax Credit Scope

Program Element	TTC PROGRAM SCENARIO/OPTION				
	Ontario ATTC	Model 1 Ontario-Like TTC	Model 2 Narrower TTC	Model 3 Direct Training Costs TTC	Model 3 Critical Occupation TTC
Which organizations are eligible for assistance?	Corporations, proprietors, partnerships with permanent establishments in Ontario	Corporations, proprietors, partnerships with permanent establishments in BC	Corporations, proprietors, partnerships with permanent establishments in BC	Corporations, proprietors, partnerships with permanent establishments in BC	Corporations, proprietors, partnerships with permanent establishments in BC
Size (# of ees, payroll, etc.) differential?	25% to 30% depending on total salary and wages in previous year	25% to 30% depending on total salary and wages in previous year	25% to 30% depending on total salary and wages in previous year	n/a	n/a
Regions	All	All	All	All	All
Sectors	All	All	All	All	All
Occupations	Qualifying skilled trade, all registered apprenticeships except most service trades (includes new approved trades)	All registered industry training program (all Accredited and Recognized Industry Training Programs)	All Accredited and some Recognized Industry Training Programs	All occupations	Skill shortage or priority occupations
Type of training	Registered apprenticeship training	Registered apprenticeship training	Registered apprenticeship training	Job-related structured on-the-job/off-the-job training	Priority occupations (to be defined)
Type of training expenses	Salaries, wages and taxable benefits	Salaries, wages and taxable benefits	Salaries, wages and taxable benefits	Direct training costs	Salaries, wages and taxable benefits
Type of training supplier costs	n/a	n/a	n/a	Public training training providers and accredited private training providers	n/a
Incrementality requirement?	No	No	A new hire starting April 2006	Increased documented training costs	A new hire starting April 2006
Duration of credit	First 36 months of an apprenticeship	First 36 months of an apprenticeship	First 36 months of an apprenticeship	n/a	Maximum credit per employee per year
Time period of program	May 18, 2004 – January 1, 2011	April 2006 to TBD	April 2006 to TBD	April 2006 TBD	April 2006 to TBD
Credit $ limits	Up to 30% of eligible expenditure up to $5,000 per apprentice, up to $15,000	Up to 30% of eligible expenditure up to $5,000 per apprentice, up to $15,000	Up to 30% of eligible expenditure up to $5,000 per apprentice, up to $10,000 or $15,000?	25% of direct training costs up to a maximum of $125 for all employees in the private sector	25% of wages to maximum of $1,500 per year for 5% of private sector employees in occupations with most critical shortages
Limit on # of apprentices per company	No	No	No	Up to 3 employees per year	Up to 5 employees or $5,000 maximum per year
Refundable credit	Yes	Yes	Yes	Yes	Yes
Documentation	Training/apprenticeship agreement	Industry Training Agreement	Industry Training Agreement	Receipts for direct training costs	Documentation of on-the-job training

As a starting point in building a training tax credit program model, we reviewed the Ontario Apprenticeship Training Tax Credit program, the only scheme of its kind in Canada. The program is also unique in North America, as all American state programs provide tax incentives for direct training costs.

Ontario Model

The Ontario Apprenticeship Training Tax Credit Program includes the following elements:

- All corporations, proprietors, partnerships with permanent establishments in Ontario are eligible
- Companies claim a credit of up to 25% to 30% depending on total wages and benefits in the previous year (25% for $600,000 or more, 30% for $400,000 or less, and 26-29% if between $400,000 and $600,000)
- All regions
- All sectors
- All registered apprenticeships except most service trades[9]
- All registered apprenticeship on-the-job training
- Salaries, wages and taxable benefits (reported on apprentice T4)
- No incremental requirement – covers all existing and new apprentices as of May 2005
- Credit available during first 36 months of an apprenticeship
- In effect May 18, 2004 – January 1, 2011
- Up to 30% of eligible expenditure up to $5,000 per apprentice, up to $15,000 per year
- No limit on number of apprentices per company
- Refundable tax credit
- Documentation includes training/apprenticeship agreement and 2-page income tax schedule

Using the Ontario ATTC as a comparison, we have developed four training tax credit modeling options for BC. These are also each summarized in precedingTable 2.

[9] According to Ontario information from 2004, there were 137 apprenticeship trades in that province, of which 34 were in the service sector. Only 6 of these are eligible under the ATTC; they are all technology/IT trades.

Ontario-Like TTC Model – "Model 1"

This model replicates Ontario's program almost 100%. One key difference is this model includes in the occupational eligibility all ITA "accredited" and "recognized" training programs – essentially all formal apprenticeship trades in BC. In the Ontario ATTC, certain service trades are not eligible. An Ontario manager contact estimates that this excludes approximately 20% of that province's 72,000 apprenticeships. Model 1 here does not exclude any apprenticeships; otherwise, all Ontario features are included in the program design for this model.

A derivation of this model would be to start the program April 2006 but, like Ontario's, have it take affect the previous tax year so that employers who hire and train apprentices starting April 2005 are eligible for credits.

Narrower TTC Model – "Model 2"

Model 2 is very similar to Ontario's ATTC but with one fundamental difference. Only new apprenticeships hired April 1, 2006 or later are eligible for the tax credit. In Ontario, employers were eligible to start claiming tax credits for all existing and all new apprentices effective May 2004. This would include all ITA certified occupations.

There are other design features of Model 2 that could be changed to make it a narrower program. For example, there could be a maximum number of apprenticeships eligible for tax credits. Ontario has no limit – a company could have 10 apprentices and claim a maximum credit of $50,000 in one year.

Another example could be the maximum length of the credit per apprentice. In the Ontario program, it is up to the first 36 months of an apprenticeship. This could be limited to 2 years in a BC program, or there could be a graduated credit for 36 months (e.g. up to $5,000 in year 1, up to $3,000 in year 2, etc.).

Also, the percentages of wages and taxable benefits could vary (more than in Ontario) depending on size of company or some other factor. This could make the tax credit program narrower in scope and limit government costs.

Direct Costs TTC Model – "Model 3"

In Model 3, the tax credit is not tied to a percentage of wages and benefits; rather, it focuses on "direct" training costs – tuition, instructor costs, development of materials, training facility rental, etc.

We have assumed, for purposes of this model, that the incentive would provide a tax credit for a portion of employer costs for structured on the job or off the job training.

The costs of such an option could be moderated by various factors related to number of credits per company, percentage of credit, maximum credit per employee, etc.

Critical Occupations TTC Model – "Model 4"

Model 4 takes the modeling outside the realm of apprenticeship or industry training so that employers who hire and train workers in certain "priority" or "skill shortage" occupations (i.e. not just apprentices or industry training trainees) are eligible for a tax credit. In our modeling, we assumed that this would involve 5% of the employed BC workforce. We are not proposing here what the method of determining which occupations would be eligible; however, this could be done if it was desirable.

The purpose in using this model is for illustrative and comparative purposes. We do not see 5% as the optimum or necessary level of participation – the point is that government with input from industry would identify the most strategic occupations where recruitment and training are needed. Also, the best available objective labour market information could be used to determinate critical occupations.

There a number of ways of providing this option and limiting costs by including a maximum number of employees per company, a small portion of costs covered by the credit for all companies or at least for larger ones, etc.

For each of these models, we developed formula to estimate the costs and economic impacts of each. Now that a modeling framework has been created, after feedback from the industry groups, we can go back and make adjustments in program design in a given model and/or in assumptions and quickly recalculate costs and impacts.

Other Options

As indicated earlier, each of the design of each of these models can be modified in each case. For example, regardless of which option among Models, 1, 2 and 4, the training tax credit could be graduated so that the maximum amount of the value per trainee goes down each year. Another possibility would be to reduce the maximum credit value, which would moderate costs to government; however, care would need to be taken to not reduce the credit to the extent it is no longer an incentive.

Another possibility would be to tie part of the training tax credit to completion of a training program, reinforcing more of an outcomes-based approach. However, the policies and procedures in enforcing this can become complex and difficult.

5. TRAINING TAX CREDIT ECONOMIC IMPACT MODEL

The DRI-WEFA paper prepared for the Ontario Ministry of Training, Colleges and Universities, proposes national tax credit options ranging from $450 million to $1.4 billion in annual costs nationally. This is based on a take up of 10% to 30% of private sector employees and a tax credit of $350 per employee.

Based on a take-up of 1% of the employed workforce in BC, and a tax credit of 20% of wages and $2,000 in training costs per employee, Roslyn Kunin estimated in 2001 that the cost of a training tax credit would be over $23 million based on a take up of 1% of the BC employed workforce; and that this would be recouped in 6 years through increased personal income tax payments.

The model developed and utilized for assessing the economic impact of government assistance to training follows the general approach employed by DRI-WEFA study for the Ontario government and is based on the following research:

- Public financial assistance to private firms for training significantly increases the level of training undertaken by the industry;
- Increase in worker training directly increases labour quality and productivity growth in the economy;
- Increase in labour quality contributes to higher economic growth.

Costs and Impacts of Ontario's ATTC Program

In the last budget documents, Ontario included $95 million for the cost of the ATTC program. A senior official indicated Ontario is projecting 72,200 apprenticeships in 2005/06. Another official indicated that eligible (non-service trades) apprenticeships are approximately 80% of total apprenticeships. A tax department official suggested employer take up of the tax credit may be estimated at about 80%. Based on these numbers and assumptions, we have estimated the Ontario ATTC to cost $3,500 per apprenticeship. The calculations for this are shown in the Model 1 estimate.

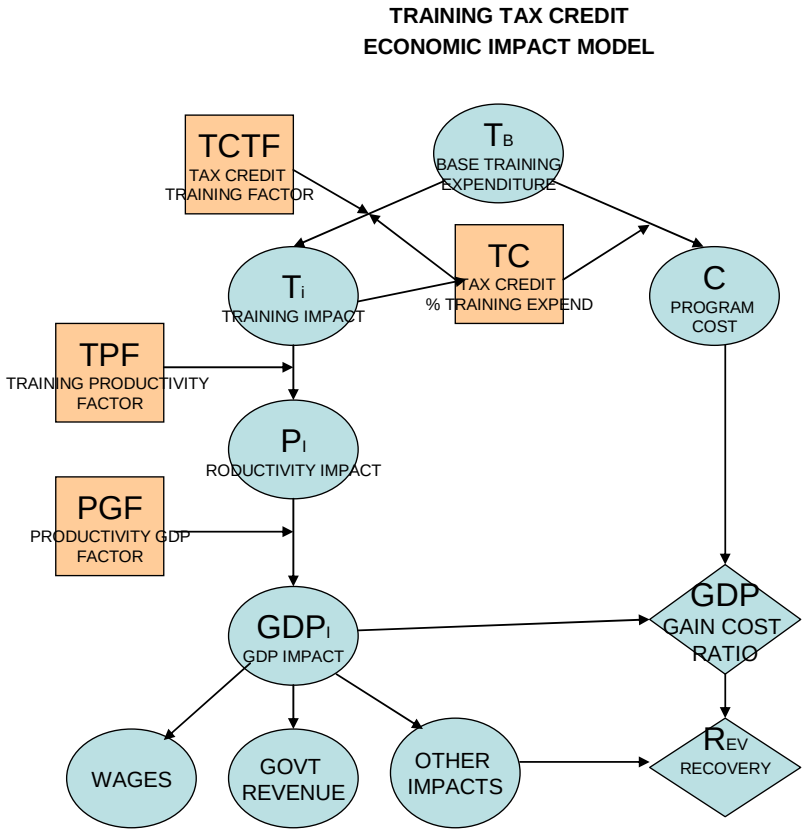
Extrapolating Ontario's numbers for BC, assuming the same program and estimates, the training tax credit cost in BC in 2006/07 would be about $39.42 million. This is based on the fact the ITA projects 30,000 apprentices in 2006/07. So assuming everything is equal, since the Ontario to BC apprenticeship ratio would be 2.41 (72,200/30,000), the BC cost would be $39.42 million. However, we know right away, it would not be equal because BC would not exclude service trades; however, it could exclude some of the ITA "recognized" trades that are in very low demand or dormant.

Model Data and Assumptions

The economic impact model used for estimate the benefits of each of the four tax credit models is similar to the one employed by DRI-WEFA study for the Ontario government.

The model formula is illustrated in Figure 1 below. A detailed text description of the formula is provided in Appendix 2.

Figure 1



Model Results

As described earlier, four proposed models for training tax credit assistance to industry were examined. Key results of the proposed training tax credit (TTC) models are as follow:

1. Tax credit incentives in all models result in a strong increase in the level of training in the economy.
2. For the two models focused on apprenticeship, TTC investment stimulate additional apprenticeship enrollment. Model 1 results in additional enrollment of over 5,000 new apprentices while Model 2 results in approx. 2,400 additional apprentices in the first year of the TTC program.

3. In the case of TTCs for broader training the hours of training in the economy increases at the rate of approximately 8.3 hours per $100 of TTC expenditure. Model 3 results in an increase of approximately 8.5 million hours of additional worker training per year and Model 4 yields approximately 5.9 million hours of additional training per year.
4. Increased labour training boosts labour productivity. Every hour of additional training per employee per year increases labour productivity by approx. 0.4% per annum and results in overall GDP growth per worker from 0.04% to 0.10% per annum.
5. All models result in a strong increase in GDP growth ranging from $2.6 to $6.2 for every dollar invested in TTCs. Aggregate GDP impact for various models range from an increase of $97 million to an increase of $660 million per year. These positive impacts may be higher, as government revenue recovery was not offset against the tax credit costs in the calculations.
6. Stronger general economic growth results in an increase in government tax revenues which would offset part of the cost of tax credits. Increase in tax revenue of all levels of government (federal, provincial and local) could offset a substantial portion of the tax credit costs (two-thirds or more). This excludes any increase in governments' fee and license and investment income revenue from an expanding economy. To the extent tax credits are all financed by the provincial government, provincial tax revenues alone will pay for more than quarter of the cost of the tax credits.

Table 3 below shows a summary of the results for each model.

Table 3
Proposed Training Tax Credit Models – Costs and Benefits (2006/07)

Model/Variable	MODEL 1 Ontario-Like TTC	MODEL 2 Narrower Apprenticeship TTC	MODEL 3 Direct Training Costs TTC	MODEL 4 Critical Occupations TTC
Description	TTC equal to 25% wages up to max of $5,000 per year for apprentices in the first three years	TTC equal to 25% of wages to a maximum of $5,000 for apprentices enrolling from 2006/07 only	TTC equal to 25% of direct training costs up to a maximum of $250 for all employees in the private sector	TTC equal to 25% of wages to maximum of $1,500 per year for 5% of private sector employees in occupations with most critical shortages
Total projected number of employees in 06/07 without tax credit	30,000	30,000	1,700,000	85,000
With tax credit	35,052	32,367	1,700,000	85,000

Table 3 (cont'd)
Proposed Training Tax Credit Models – Costs and Benefits (2006/07)

Model/Variable	MODEL 1 Ontario-Like TTC	MODEL 2 Narrower Apprenticeship TTC	MODEL 3 Direct Training Costs TTC	MODEL 4 Critical Occupations TTC
Projected eligible number of employees without tax credit	No. apprentices 23, 480	No. apprentices 11,000	Hours of Training 42,500,000	Hours of Training 42,500,000
Additional new apprentices/hours of training due to tax credit	5,052	2.367	8,466,000	5,926,200
Participation rate	80%	80%	30%	70%
Average value of TTC per eligible employee	$3,500	$3,500	$200	$1,200
Estimated Cost of TTC	$79.9 million	$ 37.4 million	$ 106.3 million	$ 71.4 million
GDP Impact	$206 to $496 million	$97 to $232 million	$274 to $660 million	$184 to $443 million
GDP Gain/Cost Ratio	2.6 to 6.2	2.6 to 6.2	2.6 to 6.2	2.6 to 6.2

Detailed results of the costs and impacts for each model are contained in Appendix 3. Detailed calculations of the costs and impacts of each of the models are provided in Appendix 4.

Administrative Costs

According to anecdotal information, Ontario estimated the administrative costs of its ATTC program of 10% and it is assumed the $95 million in its budget documents include administrative costs. That would mean a cost of $9.5 million.

Our estimate is that it would cost $1 to $2 million to administer a simple training tax credit (i.e. up to $1 million for a Model 2 program and up to $2 million for a Model 1

program). This is based on the number of incremental apprenticeships generated by a tax incentive relative to Ontario's (i.e. approximately 2,400 in Model 2 and 5,000 in Model 1, compared to an estimated 27,400 in Ontario).

Our estimate is it would cost well under $1 million to administer a simple training tax credit program in BC.

It is estimated that training tax credits that follow Models 3 and 4 would be significantly more costly to administer because of a) a higher unit cost of reviewing tax credit schedules to check for direct training costs and doing selected audits (Model 3); and b) much higher volumes of companies claiming a tax credit (Models 3 and 4). As a result, Model 3 would be the most costly tax credit program to administer. A rough estimate is up to $5 million for Model 4 and up to $10-$15 million for Model 3.

6. RECOMMENDATIONS

> *"Canada's international position in relation to the priority placed on employee training has slipped from 12th to 20th, indicating that our global position in innovation may be at risk."*
>
> *"An essential driver in promoting an innovative workforce and fostering increased overall productivity is achieving high levels of workforce training and organizational learning."*
>
> (Conference Board of Canada, Learning and Development Outlook 2005, pp. i-ii)

A Human Resources Investment Tax Credit will help small and medium-sized enterprises in BC to be effective contributors to a quality workforce and strong economy.

Other literature and the analysis and estimates contained in this report show a strong economic impact should result from such a tax credit, as well as benefit BC's training system, company training cultures, and workers.

The sponsors of this report recommend to the Government of British Columbia:

1. **That a Human Resources Investment Tax Credit Program be introduced early in fiscal year 2006/2007.**
2. **That the tax credit take affect April 2005.**
3. **That the Ontario-like model (Model 1) be adopted initially, and after review, consideration be given to incorporating Model 4 (i.e. adding other critical occupations).**
4. **That the tax credit reflect the policy goals and principles in this submission, including "keeping it simple."**
5. **That key industry stakeholders including the sponsors of this submission be consulted on the implementation of the tax credit.**
6. **That during 2006/2007, the option of expanding the tax credit to other critical occupations (i.e. Model 4) be considered for subsequent years.**
7. **That an industry and government advisory committee be created to oversee the review or evaluation of the tax credit after 2 to 3 years.**

We recommend Model 1 (Ontario-like tax credit) because it is the most inclusive and easiest to administer. It recognizes both the existing occupational training that employers are doing and would stimulate employers to introduce new training.

If the costs and scope of this tax credit are deemed too expensive and broad, the BC Government could consider moderating costs by using a graduated credit formula (i.e. the credit decreases each year) or by reducing the maximum value of the credit to below $5,000.

While Model 2 would incent new hires and training by employers, it could create an unleveled playing field in terms of employers who are already undertaking training. If the BC Government prefers this model, it should only be a starting point, and should be broadened as soon as possible in subsequent years to include Model 1 and Model 4 features.

Regardless of the nuances of the program design, a BC Human Resources Investment Tax Credit will:

- Provide an employer tax incentive to induce companies to hire, train and retain skilled workers.
- Increase the quantity and quality of industry training in BC.
- Increase the supply of skilled workers and reducing skill shortages and bottlenecks in BC.
- Decrease employer training costs.
- Improve company productivity and international competitiveness

As a result of factors including the BC Government's effective economic and fiscal climate-setting, our province's economy is growing and diversifying. More than ever, a highly skilled workforce is critical to this economic health. A Human Resource Investment Tax Credit will be an effective and well-received addition to the BC Government's education and training policy tool-kit.

A Human Resources Investment Tax Credit is consistent with and will support the BC Government's vision for the province, including two of BC's Great Goals:

Make B.C. the best educated, most literate jurisdiction on the continent.

To create more jobs per capita than anywhere else in Canada.

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APPENDIX 1 – REVIEW OF TRAINING TAX CREDITS IN OTHER JURISDICTIONS

Quebec

Quebec introduced its On-the-Job Training Tax Credit in 1991, and it now applies only to apprentices and thus is small program in terms of scope of impact. Quebec most recently extended the program to December 31, 2005. No formal evaluation of the program or indications of its effectiveness could be found, however, in its 2001 Budget, the Quebec government indicated it was extending the program in view of the program's success. In its 2004 Budget, the government increased the tax credit for companies in remote regions and maximum hourly wage that an eligible employer may consider for purposes of determining the tax credit. Accordingly, the measure is now applicable to qualified training periods beginning before January 1, 2006.

The 2001 Budget also improved the tax credit program by extending qualifying on-the-job training periods for eligible trainees from 20 weeks to 32 weeks for the same employer.

In addition, the training period will not have to be followed by a period of classroom studies, but rather by a formal evaluation of the training period, prepared by the person responsible for the individual's education program with the recognized educational institution. These improvements are applicable to training commencing after March 29, 2001. The 2003-04 Quebec Budget doubled the amount of the tax credit for on-the-job training done in a remote resource region.

Quebec also has a 1% Training Investment training tax. Its *Act to Foster the Development of Manpower Training*, which was passed in 1995, is intended to improve the qualifications, skills and performance of workers through continuing education. Employers whose total payroll is $1 million or more must invest at least 1% of the total payroll in employee training. The Act applies to large organizations only. One Quebec researcher has observed that, "that medium businesses prefer sometimes to give the 1% to the government because the training reporting process is complicated and takes too much time." Apparently, the Act is under revision because 70% of the businesses avoid having to pay the tax.

These two measures – the on the job tax credit and the training tax – are part of the same Act: companies receive a tax credit if they spend the money for the training employees; they pay the tax if they do not do the training or if they do not report it annually.

Ontario's Apprenticeship Training Tax Credit Program

In May 2004 the Government of Ontario introduced a new Apprenticeship Training Tax Credit (ATTC) Program. This tax credit is designed to encourage employers to hire and train apprentices in certain skilled trades by refunding 25 per cent of salaries and wages

paid to an eligible apprentice. The tax credit would increase to 30 per cent for small businesses with payrolls not exceeding $400,000.

Employers qualify for up to $5,000 per year per eligible apprentice. The maximum credit would be $15,000 over the first 36 months of an apprenticeship. Businesses are eligible for the refundable tax credit on wages and salaries paid after May 18, 2004 to eligible apprentices during the first 36 months of the apprenticeship. Eligible apprentices would be in a qualifying skilled trade and hired before January 1, 2008.
The priority is focused on construction, industrial and motive power trades, but a few service trades are also eligible.

Currently employers can obtain a 10 per cent refundable tax credit (15 per cent for small businesses) on salaries and wages paid to students or apprentices under the Co-operative Education Tax Credit. CETC will continue to be available for co-op students but it cannot be used for apprentices after the ATTC was introduced.

The ATTC is administered by the Ontario Ministry of Finance as part of the provincial income tax paid by companies. The Ontario government will consult with stakeholders to review the effectiveness of the tax credit prior to December 31, 2007.

Two facts on the Ontario tax credit design are apparent. First, the Ontario program is a relatively administratively simple program design based on a maximum percentage of apprentice wages/salaries. There are no complexities such as type of training, type of training provider, etc. Second, the maximum of $5,000 per apprentice per year should be reached by most employers of apprentices given that a full-time, full-year employee making $10.25 per hour would reach that ceiling. Even allowing for part-year employment, many employers of apprentices will reach the maximum in the first or second year. Last year Ontario indicated a budget of $95 million for the ATTC.

BC Film and Television Tax Credit

There is a training tax credit component of the BC Film and Television Tax Credit. Under this program, an eligible company can receive a training credit for film or video production for the lesser of the following amounts: a) 30% of the amount paid by the corporation to BC-based individuals for periods during which they were trainees in approved training programs related to the production; or b) 3% of the corporations qualified BC labour expenditure.

The BC Film and Television Tax Credit is administered by BC Film, an arms-length not profit society which receives most of its funding from the BC government.

An approved training program is one that:

- Provides training in film and television production activities;
- Is designated by the certifying authority; and,

- Is provided under the *Industry Training and Apprenticeship Act* (now the *Industry Training Authority Act*), instituted by a trade union recognized under the Labour Relations Code, established by a society incorporated for the advancement of the film and television production industry, or provided by a recognized educational institution.

The BC labour expenditure is calculated based on:

- Salary or wages, if paid by the corporation to BC-based individuals during the year or within 60 days after the end of the year and directly attributable to the production; and
- Remuneration for services rendered to:
  - Individuals, partnerships and personal services corporations for services rendered by BC-based individuals for the production; and
  - Proprietorships, partnerships and taxable Canadian corporations for services rendered for the production by their employees.

Tax expenditures from the Film and Television Tax Credit and the Production Services Tax Credits totaled $70 million in 2004/05 but it is not known how much is associated with the training credit.

On January 20th of this year, the Honourable Carole Taylor, Minister of Finance, announced that the BC Film and Television Tax Credit will be extended two years to provide stability for the industry in the short term and allow time for government to do a proper review of the program.

United States

Many of the state training tax credit programs focus on credits for direct training costs and on particular target companies and/or workers (e.g. information technology or manufacturing companies, youth, disadvantaged workers, etc.). Table 4 below provides of summary of some of the 18 training state tax credit programs reviewed by the Ontario government before it introduced its training tax credit.

A detailed summary of the following 18 tax credit programs in 14 US states is available upon request:

- Alabama: Alabama Enterprise Zone Act and Basic Skills Education Credit
- Arizona: Information Technology Training Tax Credit
- Arkansas: Youth Apprenticeship Training Program and Youth Apprenticeship/ Work-Based Learning Program
- Connecticut: Manufacturing Apprenticeship Tax Credit
- Georgia: Georgia Retraining Tax Credit
- Illinois: Training Expense Credit
- Kansas: Training and Education Tax Credit

Table 4
Characteristics of Sample U.S. State Training Tax Credit Programs

State	Tax Credit Rate	Limit Per Employee	Small Business	Refundable Credit?
Ohio	Eligible training costs (e.g. wages during training, instructors, tuition, travel, training supplies and media, training equipment, etc.)	$100,000 per company per year or an average of $1,000 per eligible employee trained, up to $100,000 or 50% of the average of the eligible training costs paid or incurred by the taxpayer during the 3 calendar years immediately preceding the tax year for which the credit is claimed I don't quite follow this	Annually, at least 25% of the $20 million in program funds must be given to non-manufacturing corporations having fewer than 500 employees	No, but it can be carried forward 3 years
Arizona	100% of information technology training expenses	$1,500 per employee per tax year	No	No, but it can be carried forward 5 years
Georgia	50% of cost of approved program	$500 per employee per approved program; not more than 50% of income tax liability per year per firm	No	No, but it can be carried forward for 3 years
Michigan	50% of wage-related costs and 100% of classroom instruction costs	$2,000 Single Business Tax Credit	No	Do not know
Rhode Island	Credit is to 50% of qualifying expenses	$5,000 per employee over 3 years; only $1,000 of the $5,000 credit can be based on employee's wages; 50% of the credit is allowed in the taxable year it occurs and the balance in the following tax year	No	No

Adapted from: DRI-WEFA, *Encouraging Workplace Training – Towards a Federal Skills Investment Tax Credit*, Prepared for Ontario Ministry of Training, Colleges and Universities, 2002.

- Kentucky: Skills Training Investment Credit
- Michigan: Apprenticeship Tax Credit
- Mississippi: Basic Skills Training or Retraining Tax Credit
- Missouri: Skills Development Tax Credit Program
- North Carolina: Credit for Worker Training
- Ohio: Ohio Training Tax Credit Program
- Rhode Island: Rhode Island Jobs Training Tax Credit, Employer Apprenticeship Tax Credit and Adult Education Tax Credit

Of U.S. tax credit programs reviewed by the Ontario government, none included recent evaluations. In its review of training tax credits for the Ontario government, DRI-WEFA makes the point that "Ontario competes directly for capital, human resources, jobs and market share with a number of North American jurisdictions. Many have training tax

credit programs in place." In reviewing alternative training financing options, DRI-WEFA rated employer tax credits the highest according to responsiveness to industry, administrative efficiency, participation, and control over program size. Alternative training options that did not rate as highly included: training/payroll tax, levy-grant, sectoral training fund, wage subsidy, voucher, self-financing and income contingent loans.

One interesting aspect of a state tax credit to mitigate risk was in Arizona's Information Technology Skills Training tax credit program there is not aspect mentioned in this statement. The Arizona government will not certify tax credits in any calendar year that exceed $5 million (US) – if what exceeds $5 M. If total credits are more than $5 million, the state will reduce the amount of each credit proportionately.

Other Jurisdictions

Training tax credit incentives exist in Europe (e.g. Austria, Italy and Luxembourg), South America (e.g. Brazil and Chile), and Japan. In Japan, for example, its national government recently introduced a new tax credit for training expenses in 2005 up to 10% of a company's corporate tax.

There was not enough time to review these examples more closely at this time.

APPENDIX 2 – ECONOMIC IMPACT MODEL FORMULA

The definitions and assumptions of the formula used for the four models reviewed in this paper are as follow:

TB Base level of training in the sector or the economy as per the scenario, hours per employee per year

TC Training tax credit $ per employee per year

N Number of employees in the sector or the economy

R Participation rate in the tax credit program / uptake from the industry

C Total Program Cost per year
N x R x TC

TCTF Tax Credit Training Factor
Hours of training per year per employee/$100 Tax Credit per employee per year
8.3 hours This estimate is based on a survey of Michigan firms on the who received government assistance for a portion of training cost and adjusted for exchange rate and purchasing power changes by DRI*WEFA and the authors[10].

TS Training Stimulation Factor
Number of hours of incremental training per year per eligible employee
TC x R x TCTF

TN New Higher Level of Training stimulated due to Tax Credit assistance per eligible employee; Note: in case of apprenticeship, additional apprentices due to the stimulation effect of tax credits are also eligible for Tax Credit assistance , hence division by (1-Ts/TB)
TB / (1-TS/TB)

TI Training Impact: net additional hours of training due to Tax Credit assistance
(TN – TB)

TPF Training Productivity Factor
% Labour Productivity Growth / Hours of Training per year per employee
0.40%, the estimate is based on a study of Irish firms by Barret and O'Connell and DRI*WEFA[11]

[10] Holzer (1989) survey of Michigan firms adjusted by DRI*WEFA to 2000; adjusted by authors to 2005/06 for change in purchasing power.
[11] Barrett and O'Connell and DRI*WEFA, from a study of Irish firms 1993-95.

PGF Productivity-GDP Growth Factor
%GDP Growth / %Labour Quality Growth
This is a measure of contribution of improvements in labour quality or training to the overall GDP growth in the economy
Gu and Ho[12] found that improvements in labour quality contributes 8.9% to overall economic growth over the long term (1961-95) but the contribution of labour productivity is accelerating over time; it was 25.7% in the most recent period (1988-95); we assume the long term average as the lower end of the range of benefits from improving labour quality and the most recent period as the upper end.

PI Productivity Impact
TI x TPF x (eligible employees/total employees in the economy)

GDPI GDP Impact
PGF x PI

REV Increase in government tax revenue collection from GDP impact
Average tax rate per $ of GDP x GDPI

REVP Provincial government revenue increase
Average provincial tax rate per $ of GDP x GDPI

GDP Gain / Cost Ratio
GDPI / C

REV Recovery
REV / C

Provincial REV Recovery
REVP / C

[12] Gu and Ho (2001), a study of labour quality growth rate in Canada.

APPENDIX 3 – COSTS AND IMPACTS FOR EACH TRAINING MODEL

Model 1 – Ontario-Like TTC

Description
TTC equal to 25% wages up to max of $5,000 per year for apprentices in the first three year of the program prorated by number of days employed / 365 days

Number of Apprentices in BC in 06/07
2005/06 year end 28,000
2006/07 year end 32,000

Projected average for fiscal 2006/07 = 30,000 without training tax credit initiative

N
Number of Apprentices in the first three years of the program (have not completed Level 1 or have completed Level 1 or Level 2) in the absence of TTC = 30,000 x 81.6% based on last year's proportions – assumed 1000 of new trainees who may not be unemployed = 23,480

TC
Training tax credit $ per employee per year
Assumption – $3,500 based on Ontario's experience and likely employment hours for a typical apprentice in BC. The Ontario program appears to be based on the following assumptions:

Total apprenticeships in 2005/06 = 72,200
Minus most service trades (20% or 14,440) = 57,760
Minus employer take up rate (20% or 11,552) = 46,208
Minus apprenticeships beyond 36 months (25% or 11,552) = 34,656
Minus partial year start (May 18) (12% or 4,159) = 30,497
Minus apprenticeship attrition (20% so average for the year 10% or 3,050) = 27,447
So average TTC cost = $95 million/27,447 = $3461
This corresponds to 175 paid days of employment out of total 250 days of full time employment. Given, majority of apprentices do not get paid for approximately 6 weeks when in training and the incidence of part time employment, this appears to be a reasonable assumption.

R
Participation rate in the tax credit program / uptake from the industry
Assumption 80%

NN
Total number of new apprentices enrolled due to stimulation of tax credit
5,052

NT
Total Projected average number of apprentices in 2006/07 with Tax Credit in place
= 30,000 + 5,052
= 35,052

C
Total Program Cost per year
= (23,480+5,052) x 3,500
= $79.9 million

GDPI
GDP Impact ($ million)
$206 to $496

REV
Increase in government tax revenue collection from GDP impact ($ million)
$ 54 to $ 130

REVP
Provincial government revenue increase ($ million)
$22 to $53

GDP Gain / Cost Ratio
2.58 to 6.21

Total Governments Revenue Recovery
68% to 163% of the cost of the tax credit

Provincial Revenue Recovery
27% to 68% of the cost of the tax credit

Model 2 – Narrower Apprenticeship TTC	
Description TTC equal to 25% of wages to a maximum of $5,000 for apprentices enrolling from 2006/07 only prorated by number of days employed / 365 days **Number of Apprentices in BC in 06/07** As in Model 1 **TC** Training tax credit $ per employee per year Assumption = $3,500 **N** Eligible Number of employees/apprentices in the sector or the economy without TTC New enrollment of 12,000 – Estimated 1,000 not employed = 11,000 **R** Participation rate in the tax credit program / uptake from the industry Assumption 80% **NN** Total number of new apprentices enrolled due to stimulation of tax credit 2.367	**C** Total Program Cost per year $37.4 million **GDPI** GDP Impact ($ million) $97 to $232 **REV** Increase in government tax revenue collection from GDP impact ($ million) $25 to $61 **REVP** Provincial government revenue increase ($ million) $10 to $25 **GDP Gain / Cost Ratio** = 2.58 to 6.21 **Governments Revenue Recovery** 27% to 68% of the cost of the tax credit

Model 3 – Direct Costs TTC	
Description TTC equal to 25% of direct training costs up to a maximum of $250 for all employees in the private sector **Total number of employees in BC** Projected 2006/07 2,160,000 **Total number of employees in the private sector** Projected 2006/07 1,700,000 **TC** Training tax credit $ per employee per year Assumption 25% x direct training cost to max $1,000 training cost per employee; maximum $250; assume average at $200 **N** Eligible Number of employees - all in the private sector Projected to 2006/07 1,700,000 **R** Participation rate in the tax credit program / uptake from the industry Assumption – 30% DRI*WEFA Ontario study assumes a range from 20% to 50%	**C** Total Program Cost per year $ 102.0 million **TN** Total number of new training hours due to stimulation of tax credit 8,466,000 **GDPI** GDP Impact ($ million) $263 to 634 **REV** Increase in government tax revenue collection from GDP impact ($ million) $69 to 166 **REVP** Provincial government revenue increase ($ million) $ 28 to 67 **GDP Gain / Cost Ratio** 2.58 to 6.11 as in Model 1 **Governments REV Recovery / Program Cost** 27% to 68% of the cost of the tax credit

Model 4 – Critical Occupations TTC

Description
TTC equal to 25% of wages to maximum of $1,500 per year for 5% of private sector employees in occupations with most critical shortages

Total number of employees in BC
Projected 2006/07 2,160,000

Total number of employees in the private sector
Projected 2006/07 1,700,000

TC
Training tax credit $ per employee per year
Assumption 25% x wages to max $1,500
$1,200

N
Eligible Number of employees in the private sector 5% Critical occupations
Projected to 2006/07 85,000

R
Participation rate in the tax credit program / uptake from the industry
Assumption – 80%

C
Total Program Cost per year
$ 71.4 million

TN
Total number of additional training hours generated due to stimulation of tax credit

5,926,200

GDPI
GDP Impact ($ million)
$184 to 443

REV
Increase in government tax revenue collection from GDP impact ($ million)
$48 to 116

REVP
Provincial government revenue increase ($ million)
$20 to 47

GDP Gain / Cost Ratio
2.58 to 6.11 as in Model 1

Governments REV Recovery/Cost ratio
27% to 68% of the cost of the tax credit

APPENDIX 4 – ACTUAL MODEL CALCULATIONS

Model 1: Ontario-Like TTC

BC GDP at market prices ($ million)

2003	$145,948
2004	$157,241
2006/07 Projected	$188,689

Government Sector Total Taxes in BC

2003	$38,238

Total Government Sector Tax Rate in BC as % of GDP

26.2%

BC Provincial Government total tax revenue

2003	$15,494

BC Provincial Government Tax Rate as % of GDP

10.6%

Total number of employees in BC

Projected 2006/07	2,160,000

Number of Apprentices in BC in 06/07

30,000 2005/06End 28,000 2006/07End 32,000

Number of Apprentices have not completed Level 1 or have completed Level 1 or Level 2

*0.816 -1000 not employed 23,480

TB Base level of training in the sector or the economy as per the scenario, hours per employee per year

Assumption=175*7.5 1,313

TC **Training tax credit $ per employee per year**

Assumption $3,500

N Eligible Number of employees in the sector or the economy

23,480

R **Participation rate in the tax credit program / uptake from the industry**

Assumption 80%

C **Total Program Cost per year**

$9,889,825

TCTF **Tax Credit Training Factor - Hours of training/$100 of tax credit assistance**

Assumption 8.30

Ts **Training Stimulation Factor - Number of hours of training stimulated due to tax credit assistance per eligible employee**

232.4

T_N	**New higher level of training per eligible employee due to Tax Credit assistance** **$= T_B/(1-T_s/T_B)$** Note: additional stimulated training is also eligible for tax credit and will generate further training, hence division by (1-Ts/TB) 1594.90
T_I	**Training Impact- Additional training hours per eligible employee stimulated due to tax credit** $=T_N - T_B$ 282.40
n	**Additional new apprentices enrolled per eligible employee due to stimulation of tax credit** 0.22
N_N	**Total number of new apprentices enrolled due to stimulation of tax credit** 5,052
TPF Assumption	**Training Productivity Factor** 0.4%
PGF Assumption	**Productivity-GDP Growth Factor** 8.9% to 25.7%
P_I	**Productivity Impact** = T_I x TPF x (eligible employees/total employees in the economy) 0.012
GDP_I	**GDP Impact ($ million)** $206 to $496

REV	**Increase in government tax revenue collection from GDP impact ($ million)**		
	$54	to	$130
REVP	**Provincial government revenue increase ($ million)**		
	$22	to	$53
GDP Gain / Cost Ratio			
	2.58	to	6.21
REV Recovery			
	68%	to	163%
Provincial REV Recovery			
	27%	to	66%

Model 2: Narrower Apprenticeship TTC[13]

BC GDP at market prices ($ million)

2003	$145,948
2004	$157,241
2006/07 Projected	$188,689

Government Sector Total Taxes in BC

2003	$38,238

Total Government Sector Tax Rate in BC as % of GDP

26.2%

BC Provincial Government total tax revenue

2003	$15,494

[13] Costs refer to the first year of implementation only.

BC Provincial Government Sector Tax Rate as % of GDP

10.6%

Total number of employees in BC

Projected 2006/07 2,160,000

Number of Apprentices in BC in 06/07

30,000 2005/06End 28,000 2006/07End 32,000

Number of Apprentices who have not completed Level 1 or have completed Level 1 or Level 2

24,480

T_B	**Base level of training in the sector or the economy as per the scenario, hours per employee per year**
Assumption=175	1,313
TC	**Average training tax credit $ per eligible employee per year**
Assumption	$3,500
N	**Eligible Number of employees in the sector or the economy**
New enrollment-Not employed	11,000
R	**Participation rate in the tax credit program / uptake from the industry**
Assumption	80%

C	**Total Program Cost per year** $7,427,090
TCTF Assumption	**Tax Credit Training Factor - Hours of training/$100 of tax credit assistance** 8.30
Ts	**Training Stimulation Factor -** Number of hours of training/new apprenticeships stimulated due to tax credit assistance per eligible employee 232.4
T_N	**New higher level of training per eligible employee due to Tax Credit assistance** **$= T_B/(1-Ts/T_B)$** Note: additional stimulated training is also eligible for tax credit and will generate further training, hence division by (1-Ts/TB) 1594.90
T_I	**Training Impact- Additional training hours per eligible employee stimulated due to tax credit** $=T_N - T_B$ 282.40
n	**Additional new apprentices enrolled per eligible employee due to stimulation of tax credit** 0.22
N_N	**Total number of new apprentices enrolled due to stimulation of tax credit** 2,367
TPF Assumption	**Training Productivity Factor** 0.4%

PGF	**Productivity-GDP Growth Factor**		
Assumption	8.9%	to	25.7%
P_I	**Productivity Impact**		
	= T_I x TPF x (eligible employees/total employees in the economy)		
	0.006		
GDP_I	**GDP Impact ($ million)**		
	$97	to	$232
REV	**Increase in government tax revenue collection from GDP impact ($ million)**		
	$25	to	$61
REV_P	**Provincial government revenue increase ($ million)**		
	$10	to	$25
GDP Gain / Cost Ratio			
	2.58	to	6.21
REV Recovery			
	68%	to	163%
Provincial REV Recovery			
	27%	to	66%

Model 3: Direct Cost TTC

BC GDP at market prices ($ million)

2003	$145,948
2004	$157,241
2006/07 Projected	$188,689

Government Sector Total Taxes in BC

2003	$38,238

Total Government Sector Tax Rate in BC as % of GDP

26.2%

BC Provincial Government total tax and fee revenue

2003	$15,494

BC Provincial Government Sector Tax Rate as % of GDP

10.6%

Total number of employees in BC

Projected 2006/07	2,160,000

Total number of employees in the private sector

Projected 2006/07	1,700,000

T_B Assumption=$1000/20	**Base level of training in the sector or the economy as per the scenario, hours per employee per year** 50
TC Assumption 25%xdirect training cost to max $250	**Training tax credit $ per employee per year** $200
N Projected to 2006/07	**Eligible Number of employees - all in the private sector** 1,700,000
R Assumption	**Participation rate in the tax credit program / uptake from the industry** 30%
C	**Total Program Cost per year** $102,000,000
TCTF Assumption	**Tax Credit Training Factor - Hours of training/$100 of tax credit assistance** 8.30
Ts	**Training Stimulation Factor -** Number of hours of training stimulated due to tax credit assistance per eligible employee 5.0
TN	**Total number of new training hours due to stimulation of tax credit** 8,466,000

TPF	**Training Productivity Factor**		
Assumption	0.4%		
PGF	**Productivity-GDP Growth Factor**		
Assumption	8.9%	to	25.7%
P_I	**Productivity Impact**		
	= Ts*TPF*PGF		
	0.016		
GDP_I	**GDP Impact ($ million)**		
	$263	to	$634
REV	**Increase in government tax revenue collection from GDP impact ($ million)**		
	$69	to	$166
REV_P	**Provincial government revenue increase ($ million)**		
	$28	to	$67
GDP Gain / Cost Ratio			
	2.58	to	6.21
REV Recovery			
	68%	to	163%
Provincial REV Recovery			
	27%	to	66%

Model 4: Critical Occupation TTC

BC GDP at market prices ($ million)	
2003	$145,948
2004	$157,241
2006/07 Projected	$188,689
Government Sector Total Taxes in BC	
2003	$38,238
Total Government Sector Tax Rate in BC as % of GDP	
	26.2%
BC Provincial Government total tax and fee revenue	
2003	$15,494
BC Provincial Government Sector Tax Rate as % of GDP	
	10.6%
Total number of employees in BC	
Projected 2006/07	2,160,000
Total number of employees in the private sector	
Projected 2006/07	1,700,000
T_B	**Base level of training in the sector or the economy as per the scenario, hours per employee per year**
Assumption=$1000/20	50

TC Assumption 25%xwages to max $1,500 $500	**Training tax credit $ per employee per year** $1,200
N Projected to 2006/07	**Eligible Number of employees in the private sector 5% Critical occupations** 85,000
R Assumption	**Participation rate in the tax credit program / uptake from the industry** 70%
C	**Total Program Cost per year** $71,400,000
TCTF Assumption	**Tax Credit Training Factor - Hours of training/$100 of tax credit assistance** 8.30
Ts	**Training Stimulation Factor -** 69.7
TN	**Total number of new training hours due to stimulation of tax credit** 5,926,200
TPF Assumption	**Training Productivity Factor** 0.4%
PGF Assumption	**Productivity-GDP Growth Factor** 8.9% to 25.7%

P_I	**Productivity Impact**		
	0.011		
GDP_I	**GDP Impact ($ million)**		
	$184	to	$443
REV	**Increase in government tax revenue collection from GDP impact ($ million)**		
	$48	to	$116
REV_P	**Provincial government revenue increase ($ million)**		
	$20	to	$47
GDP Gain / Cost Ratio			
	2.58	to	6.21
REV Recovery			
	68%	to	163%
Provincial REV Recovery			
	27%	to	66%