

**MODELS OF ECONOMIC IMPACT IN A
SKILLS SHORTAGE CONTEXT**

A report prepared by the
Ontario Association of Youth Employment Centres
for The Ontario Ministry of Training, Colleges and Universities
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Executive Summary

Youth Employment Centres, like those delivering the provincially-funded Job Connect program, serve a critical role in facilitating dialogue and matching skills between youth looking for work or career advice, and employers who face skill shortages. This work is important in and of itself: it helps young people find their place in their communities and in the work world. Still, it is important to look at the larger impact of this work. What is the economic impact of a Youth Employment Centre? How does placing youth in jobs contribute to the local economy and beyond? How does a service that targets at-risk youth contribute to the economic well-being of the community as a whole? Looking at these questions, a number of researchers have developed economic models to measure the impact of social services. This report draws on this body of literature, analyzing and building on economic impact analyses to develop a model that can be of value to the Ontario government's ministry of Training, Colleges and Universities (MTCU) and its provincially-run Job Connect program.

Job Connect, an employment service designed for people under 30, provides information on careers and occupations, the local job market, training opportunities and job search strategies. The program also supports youth looking for work by helping them identify skills, set goals, and develop training plans. The job development component of the program matches hard-to-employ youth with employers, and covers part of the employers' costs associated with training new employees.

A Youth Employment Centre delivering the Job Connect program can play a critical in community economic development by matching employer needs and unemployed, or underemployed, youth needs.

One of the most pressing needs for employers at the moment is a looming skills shortage. Emerging evidence on the labour market suggests that many industries will face a serious shortage of high-skilled technical and non-technical workers in the coming decades. As the 'Baby Boom' generation retires and the emerging knowledge-based economy continues to demand a more highly skilled workforce, there is a concern that many industries will not find enough workers who have the skills-set to match demand. A positive development is that Canadian youth are generally staying in school much longer, and seeking the higher levels of education that tend to

match the skill requirement for many industries. However, although for certain industries there is a healthy match between employer demands for skills and youth education, not all industries or youth experience such a match. Many skilled trades and technical/managerial jobs are already having a hard time finding enough skilled workers and are predicting that the problem will deepen in the coming decades. Meanwhile, many youth are finding themselves marginalized from the labour market, either because they do not have the required skills or because the skills they do have are not in areas of high demand.

For a certain number of youth and among a certain set of occupations, there is a skills disconnect that could prevent youth from tapping into a potentially large and upcoming supply of good jobs, while preventing employers from hiring the people they need.

With skills shortages as a growing concern for industry, policy-makers and legislators, it can be useful to consider measuring economic impact in a skills shortage context. Trying to measure both these aspects, however, can present a number of challenges ~ particularly for employment centre managers who seek monetary proof of their agency's impact on the economy. The challenge is twofold: firstly, it must be considered whether a Youth Employment Centre is able to offer services that meet skills shortages; secondly, it must be considered which aspects of skills shortages in the labour market are measurable in a way that fits an economic impact analysis.

Connecting Youth to Skills Shortages

When looking at economic impact in a skills shortage context, we must consider the areas in which agencies are most likely to have an impact and the actions they perform that contribute to this impact. In some cases, it may be that there is not a feasible overlap between local employer skills needs and client characteristics. For example if the community's skill shortage is for workers with ten or more years of work experience and with post-graduate education, but Youth Employment Centre clients are largely under 19 and have not finished high school, then the disconnect between employer skills needs and the employment centre's mandate may be too large to be feasibly addressed. In this sense, attempting to address a skills shortage may not be of benefit for the youth who use the service. This analysis suggests, however, that a Youth Employment Centre may be able to seek out certain areas of the labour market where there can

be an overlap, and it is in these areas that an employment centre may have the most success in having economic impact in a skills shortage context.

Economic Impact Analysis

Analyses of economic impact are largely divided into two major streams of methodological approaches: one that is based on econometric analysis and designed to derive a quantitative measure of economic impact, and another that looks at a program's degree of impact more generally on the economy without necessarily deriving monetary measures of outcomes. In many ways these methods are similar, however, the difference between them becomes important when trying to fit the role of skills shortages into the models. Combining elements from selected examples in each methodology, two separate models emerge as most relevant to the Ministry's purposes: one that is econometric and the other based on a plausible analysis of 'what works.' Both models can be applied to an analysis of the economic impact of Youth Employment Centres, with each having a different set of advantages and limitations in their scope and methodology.

There are several examples within each of the two illustrated methodologies. This report highlights a few of these examples to best demonstrate ways to measure both impact on the economy generally and on skills shortages specifically. The illustrated examples measure the impact of programs similar to Job Connect's.

Choosing which of the two models is most applicable to MTCU's and Job Connect's needs will depend upon the specific purpose for looking at economic impact and upon the intended use of the results. In terms of economic impact, the ministry or agency must ask if the intention of the study is to reveal: (a) monetary information that shows more or less precisely the amount of money created or saved from the program, or (b) an understanding of what practices have the greatest impact on the economy generally. In terms of skills shortages, the purpose will be to determine either: (a) whether a program's focus on addressing skills shortages has a direct impact on the economic conditions of its users or, (b) whether the employment centre has an impact on addressing skills shortages in the labour market.

Choosing the econometric methodology will allow for an assessment of rates of return on investment (economic impact choice (a)), but offers much less information on whether the centre is having an impact on reducing labour market skills shortages (skills shortages choice (b)). If

information on both these outcomes are desired, then the best approach would be to apply both models simultaneously.

Econometric Model

For the econometric model, measuring *youth's financial independence before and after program use* is a central measure that would be of value to an econometric model of economic impact analysis. This indicator is aimed to best measure the returns on public investment in the Job Connect program by determining to what extent youth wages increase after using the service and to what extent their reliance on social assistance has decreased. Measuring increases in wages would allow a calculation of public tax revenues saved as a result of helping youth integrate into the labour market. It could also, if applied to an econometric economic impact analysis, approximate the amount of potential public savings from reduced dependence on social assistance and use of publicly funded supports, such as subsidized housing. This model is enhanced with a program evaluation element that allows an assessment of whether taking a skills shortage focus has an impact on youth financial independence.

The 'What Works' Model

The 'what works' model uses four indicators to measure how Job Connect has a potential economic impact in connecting youth to areas of skills shortage. These indicators ask: (1) **is the Job Connect centre monitoring clients' integration into areas of skills shortage**, (2) **is it generating feedback from educators and community stakeholders**, (3) **is it integrated with local labour market needs**, and (4) **are there connections between centres and employers**.¹ This model assesses the degree to which each centre fits the criteria for each question to determine its impact on skills shortages and therefore its economic impact.

Time Frame for Study

The econometric model should test a group when they begin using Job Connect's services and then following-up with the same group afterwards. The skills shortage context requires a somewhat longer time frame for study. However, in order for an economic impact analysis to be reliable, the time-frame for analysis must be short enough that economic impact can be more directly linked to the youth's use of the Job Connect program. Therefore, it is recommended that

¹ Based upon Kitagawa, Kurtis, *Make the Skills Connection: Labour Market Transitions Models that Work*. Toronto: Conference Board of Canada, 2001.

a period of no shorter than three years but no longer than five years be considered for the econometric model. The ‘what works’ model operates more on a one-time study of centres, though it may be beneficial for the ministry to follow-up after three to five years to determine if there is any change in Job Connect’s impact on skills shortages over time.

Applying Both Models

Both models offer different advantages and limitations to studying economic impact in a skills shortage context. Despite their differing approaches, it should be possible to get a sense of a Youth Employment Centre’s degree of economic impact generally, and their impact on youth and their operation within a skills shortage context more specifically. These examples are described to allow the Ministry to chose aspects of the models depending on their aims in studying economic impact. If monetary measures of outcome is desired then the econometric formulas are most applicable, whereas if a sense of how Youth Employment Centres are able to address skills shortages is more desirable then aspects of the ‘what works’ model are more applicable.

It is possible, should an agency or the Ministry decide it wishes to measure outcomes in both these areas, to apply both models simultaneously. A disadvantage to applying both models may be that each analysis could require separate, yet equally intense, research on findings. However, many of the survey questions for each model are similar, asking respondents to list their income, labour market successes, barriers to employment, current skills levels and goals, etc. In this sense, one survey could be developed that would reveal the necessary information for each type of analysis. For the econometric formula to be truly representative it would be best to repeat the survey with the same set of respondents after a period of time. Interim indicators might be developed in the short-term to guide program efforts while longer-term results were compiled.

Introduction

Recently there has been a considerable amount research and conjecture that suggest a major skills shortage in the coming decades. As the ‘Baby Boom’ generation retires and the emerging knowledge-based economy continues to demand a more highly skilled workforce, there is a major concern that many industries will not find enough workers who have the skills-set to match demand. A positive development is that Canadian youth are generally staying in school much longer, and seeking the higher levels of education that tend to match the skill requirement for many industries. However, although for certain industries there is a healthy match between employer demands for skills and youth education, not all industries or youth experience such a match. Many skilled trades and technical/ managerial jobs are already having a hard time finding enough skilled workers and are predicting that the problem will deepen in the coming decades. Meanwhile, many youth are finding themselves marginalized from the labour market, either because they do not have the required skills or because the skills they do have are not in areas of high demand. For a certain number of youth and a certain set of occupations, therefore, there is a skills disconnect that could prevent youth from tapping into a potentially large and upcoming supply of good jobs, while preventing employers from hiring the people they need.

Youth Employment Centres, like those delivering the provincially-funded Job Connect program, can serve a critical role in facilitating dialogue and matching skills between youth looking for work or career advice, and employers who need to fill skill shortages. The economic impact of such a service has the potential to be substantial. Successfully filling this role, however, could present some critical challenges: a program’s success in having an economic impact in this area is very much dependent on its effectiveness in tapping into youth needs *and* employer needs. As a public investment, expenditure on programs should be weighed carefully. As one researcher notes “[in] practical terms, this means identifying models, practices and processes that deliver ‘the greatest bang for the buck’ to end users and clients.”²

In recognition of the need to carefully consider whether programs are indeed having a significant economic impact, many researchers have designed models and established indicators that measure a program or a service’s economic impact. This report draws on this body of

literature, analyzing and building on economic impact analyses from researchers in Canada and the United States to develop a model that can be of value to the Ontario government's Ministry of Training, Colleges and Universities (MTCU). Working with the Ministry, the Ontario Association of Youth Employment Centres (OAYEC) has undertaken this research to consider ways to measure a youth employment centre's economic impact as a means to better understand the socio-economic outcomes of its members' services.

A key consideration in this report relates to skills shortages as a context for the study. Unlike many analyses that are used in this paper, which look at economic impact more generally, this report aims to limit its consideration specifically as it relates to skills shortages. A Youth Employment Centre can have an economic impact in a variety of ways and at multiple levels but, for the purposes of this study, we must consider how an analysis can understand this impact *in the context of skills shortages*.

To this end, we begin by looking at factors that are contributing to skills shortages in Canada and the ways that they relate to youth employment and youth employment services. Skills shortages are complex because issues can vary depending on the industry or the types of occupations involved. Youth employment issues are equally complex, relating to labour market needs at local and/or regional levels and, for some, to a variety of barriers that may marginalize youth from active participation in the labour market. It is important, therefore, to narrow the analysis by comparing skills shortage trends with trends in youth employment. The first part of this report considers the following questions:

- What are the critical areas of skills shortage?
- What are the critical areas for youth in the labour market?
- How and where do these two sets of critical areas overlap?
- Can youth employment centres concentrate on these aspects to achieve maximum economic impact?

Considering these questions helps our understanding of what measures are of most value to an employment centre when attempting to determine its economic impact, particularly in a skills shortage context. In the second section of this report, we apply this discussion to two economic impact models: one that uses econometric formula to derive a monetary value to

² Kurtis Kitagawa, *Make the Skills Connection: Labour Market Transitions Models that Work* (Toronto, 2001).

measure economic impact, and another that uses evaluations to determine ‘what works’ with respect to economic impact in a skills shortage context. Each offers, through their different methodological approach, a different set of advantages and limitations. With skills shortage as a context, the analysis establishes two models that are based on two separate, but related, areas: (1) the economic impact on the youth using employment centre services and (2) the economic impact on labour market skills shortages, respectively. Depending on the intended goals in looking at economic analysis, the Ministry may choose one model over the other or may choose to apply both. This analysis, by considering the strengths and limitations of each model, intends to provide information that will facilitate this choice. This section describes the applicability, benefits and limitations of each model. Applying both models simultaneously is also an option, though not a requirement for determining economic impact.

It should be noted that the objective in this report is not to determine whether economic impact is positive or negative. Such a study will require a much more in-depth process of surveying and analysis. The objective is to establish measures and indicators that can be applied to an economic impact analysis study. In doing so, the following report lays the groundwork for such an analysis. In the first section, key considerations that link youth employment issues to skills shortages are described. Then, in the second section, these considerations are used as criteria for measurement indicators. Several examples of similar models are illustrated to suggest ways of conducting an economic impact analysis that will be useful to MTCU and Job Connect’s purposes.

We then derive two proposed models: one econometric and one that measures ‘what works’ in having economic impact. For the first proposed model, measuring *youth’s financial independence before and after program use* is a central measure that would be of value to an econometric model of economic impact analysis. This indicator is aimed to best measure the returns on public investment in the Job Connect program by determining to what extent youth wages increase after using the service and to what extent their reliance on social assistance has decreased. Measuring increases in wages would allow a calculation of increase public tax revenue as a result of helping youth integrate into the labour market. It could also, if applied to an econometric economic impact analysis, approximate the amount of potential public savings from

reduced dependence on social assistance and use of publicly funded supports, such as subsidized housing.

The second proposed model uses four indicators to measure the extent to which Job Connect has a potential economic impact in connecting youth to areas of skills shortage. These indicators, based on those of a ‘what works’ example, ask: (1) **is the Job Connect centre monitoring clients’ integration into areas of skills shortage**, (2) **is it generating feedback from educators and community stakeholders**, (3) **is it integrated with local labour market needs**, and (4) **are there connections between centres and employers**.³ This model assesses the degree to which each centre fits the criteria for each question to determine its impact on skills shortages and therefore its economic impact.

³ Based upon Kitagawa, Kurtis, *Make the Skills Connection: Labour Market Transitions Models that Work*. Toronto: Conference Board of Canada, 2001.

PART 1: Skills Shortages and Youth Employment

Throughout the past decade, skills shortage in the labour market has emerged as a topic of considerable discussion, research and debate. Although the literature on skills shortages is not limited to youth employment issues, young people play an important role in the discussion. This chapter aims to explore this connection, first by discussing skills shortages in the labour market, then how these shortages relate to youth employment, and finally, how the two relate to Youth Employment Centre services and programming. This discussion will provide an important basis to understanding how the economic impact of Job Connect services can be measured in a skills shortage context.

1.1 Skills Shortages: A Growing Concern

Over the past several years, more and more industries and sectors have raised an alarm about the potential for a skills shortage. Whereas it was once mostly in the ‘high-tech’ sectors that one worried about shortfalls, lately sectors in both old and new industries have become worried that new workers will not be able to acquire skills fast enough to meet demand. Many studies find that the shift to a ‘new economy’ or a ‘knowledge economy,’ mixed with an aging and soon retiring baby boom generation will lead to skill shortages from between five and twenty years from now.

The ‘New Economy’

In their report on training in the ‘new economy,’ Gordon Betcherman, Kathryn McMullen and Katie Davidman investigate how job requirements and training needs have changed through the development of information technology industries and from technological changes in the workplace.⁴ They relate the potential for skill shortages to a shift toward a knowledge economy, noting that employers in this new economic environment require a higher level of literacy and numeracy across the board and that both new and old sectors are looking for a large number of workers with strong computer and technical skills.⁵ New technology is changing jobs in a variety of industries, meaning that computer and technical skills are becoming important in jobs from services to skilled trades. Researchers point to a larger number of jobs

⁴ Gordon Betcherman, Kathryn McMullen and Katie Davidman, *Training for the New Economy: A Synthesis Report*. (Ottawa, 1998.)

that require a different – often higher – knowledge base than in the past. A Human Resources Development Canada (HRDC) study on Canadian youth in the labour market notes that knowledge-intensive occupations have increased at twice the average rate over other occupations in the past 25 years.⁶

Job growth in knowledge-intensive areas seems to indicate that a new wave of jobs requiring higher levels of education and higher skills sets than in the past will form a large part of the labour market. The concern is that, if the changes continue in coming decades, the shift will put increased stress on labour markets as industry's skills needs increase and new workers have to fill the demand. The Report of the Expert Panel on Skills presented to The Prime Minister's Advisory Council on Science and Technology, which studied skill requirements in the face of technological change, suggests that at least part of the solution is for governments is to invest in labour market analyses that will identify potential shortages before they become a serious problem, thereby helping workers to seek training for certain skills before there is a shortage.⁷

The Baby Boom Retirement

Perhaps a more pressing issue that has implications for both older and newer industries is the upcoming 'Baby Boomer' retirement. Demographic studies indicate that over the next 25 years a large percentage of the Canadian workforce will be approaching retirement age, while the number of new workers entering the labour market will continue to decline. In 1996, more than 28% of people active in the labour market were between the ages of 45 and 64; by 2021, nearly 40% of the workforce will be between 45 and 64 years old, meaning that the number of people retiring from the labour market will be greater than the number of those entering.⁸ Many industries and sectors will have to hire a large number of skilled workers over a short period to replace retirees.

There is evidence that these concerns are taking greater precedence in the minds of employers and industry leaders. The Canadian Labour and Business Centre (CLBC) conducted a leadership study among management and labour leaders to identify what they see as the most

⁵ *Ibid.*, p. 3.

⁶ Forum of Labour Market Ministers, *Profile of Canadian Youth in the Labour Market: Second Annual Report of the Forum of Labour Market Ministers*. (Hull, Québec, 2000), p. 5.

⁷ Expert Panel on Skills, *Stepping Up*, p. 8 to 11.

⁸ Sylvain Schetagne, *Building Bridges Across Generations in the Workplace: A Response to Aging of the Workforce*. (Vancouver, 2001), p. 5.

important issues surrounding the aging workforce.⁹ The study notes that, for both groups, “skills shortages was by far the most commonly cited problem in the replacement of retiring workers.”¹⁰ According to the study, this concern has led both employers and unions to place more focus on recruiting young workers in recent years.

Concern about the aging workforce is not only a consideration in industries that are part of the ‘new economy,’ but is becoming of greater concern in older trades as well. The Construction Sector Council, for example, places considerable focus on upcoming skills shortages in their monthly newsletter. In one article, Bruce Ashton of the Boilermakers National Training Trust Fund notes: “We know that there’s a skills shortage coming up in the next three to five years, so whatever we do now is critical. [...] We want to let young people know this can be an exciting career, in an exciting industry.”¹¹ This newsletter notes that a large percentage of their most skilled workers are approaching retirement and are looking to bring in young workers into the field in advance of those retirements.

1.2 What are the Critical Areas of Skills Shortages?

The combined pressures of technological advances and an aging workforce in many sectors could mean a higher than usual demand for skilled workers in a large range of occupations. The question remains whether this demand will result in skills shortages, and if so, what *types* of skills will be short supply when employers seek to replace retiring workers and adapt their operations to emerging technologies. The following section considers some of the key pressing areas, looking at the types of sectors – as well as the occupations within these sectors – where there may be a shortfall in coming years.

‘Softer’ Skills Versus Technical Skills

The Report of the Expert Panel on Skills’ extensive study of five Canadian industries found no evidence of a current shortage of technically skilled workers. Rather, they found that Canada’s education system is currently keeping pace with employer demands for technical skills. What they did find, however, was that in all five industries of their study (aerospace, automotive,

⁹ Canadian Labour and Business Centre, *Where Did All the Workers Go? The Challenges of the Aging Workforce: Analysis of the Viewpoints 2000 Leadership Survey*. (Victoria, B.C., 2001.)

¹⁰ *Ibid.*, p. 14

biotechnologies, environmental technologies and information and communications technologies industries) there is a persistent shortage of people who combine strong technical skills with *essential skills* (such as communication, writing and teamwork). They also found a shortage of *management skills* (cost control and budgeting.)¹² The report does recommend that because the demand for technical skills will continue to increase, a strong emphasis on technical skills training is still an important aspect to adapting to the knowledge economy, however, they also find that ‘soft skills’ are a main concern in many industries.¹³ They note that employers tend to see these skills, like management or teamwork, as ones that people can only acquire through progressive work experience as opposed to in the education system. In this sense, they are pointing both to skills that should be developed through public education and to those that should be acquired through work experience or on-the-job training.

The Expert Panel breaks the types of skills in demand into five basic categories:

1. **Essential Skills:** composed of reading, writing, calculating skills and the ability to operate basic computer applications. This also includes a number of other basic skills like: ability to think, to solve problems, learn independently, basic communication skills and the ability to work cooperatively with others.
2. **Technical Skills:** meaning applied knowledge of specialized tasks that may be particular to a single occupation or industry or in a range of industries.
3. **Management Skills:** including organizational skills such as planning, marketing and evaluation. Also the ability to manage people, capital, budgets applying to a broad range of sectors.
4. **Leadership Skills:** including ability to motivate and assist others, to take risks and plan/implement a ‘vision.’
5. **Contextual Skills:** meaning the ability to adapt to and operate within a variety of work settings, which includes the ability to work well in culturally diverse environments. In this category, they also include workplace-specific skills and the ability to work in the sector’s or occupation’s particular context.¹⁴

¹¹ Construction Sector Council, “Pipeline Construction... Setting the Standard for Safety,” *CSC Dimensions*, 1(1), October 2002: 3

¹² *Ibid.*, p. 25

¹³ *Ibid.*, p. 25

¹⁴ Source: Expert Panel, “Different Types of Skills,” *Stepping up*, p. 14

Skills shortages are already happening in many industries and range in a number of sectors. The Conference Board of Canada (CboC) surveyed employers to determine which occupations were in the highest demand. They list them as follows:

- Engineers (all types, includes IT-specific)
- Accountants
- Salespersons
- Insurance underwriters, claims adjusters
- Nurses
- Heavy equipment operators
- Geologists/geophysicists
- Project managers
- Human resource professionals
- Millwrights (industrial mechanics)
- Electricians (industrial)
- Building trades
- Steel and iron trades
- Automotive trades
- Welders¹⁵

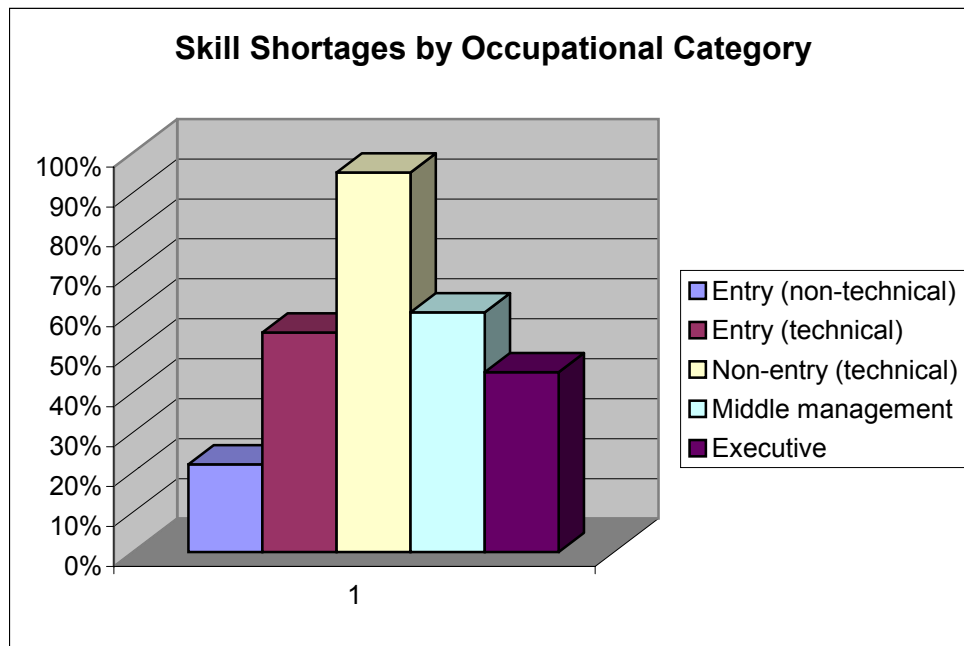
It is important to note that half of the above listed occupations are within the skilled trades. Replacing retiring workers is a particular concern in these occupations. For example, the Canadian Steel Trade and Employment Congress predicts that one-third of the steel workforce and 45% of all steel-related tradespeople will retire in the next five years. Labour leaders who were part of the CBLC survey on the aging workforce also note that skills shortages could present a serious problem in the skilled trades. New workers, who lack adequate training and skills, could face additional occupational health and safety risks and make for a less well-compensated workforce. They may also lack the necessary skills to ensure products adequately meet safety codes. Managers also note that a high turn-over could mean a loss of corporate memory at the management and leadership levels.¹⁶

The CBoC's research echoes this concern, noting that 95% of their survey respondents are experiencing a skills shortage of *experienced* workers, meaning that the problem is not simply that of not finding enough workers to fill jobs, but finding workers who have enough experience and skill to take over from leaving workers. Skills shortages appear in a variety of categories,

¹⁵ Conference Board of Canada, *Performance and Potential 2000-2001*, p. 57.

¹⁶ CLBC, *Where Did All the Workers Go?*, p. 14

including non-technical entry positions, however it is in the non-entry technical positions that skills shortages are most acute.



source: The Conference Board of Canada

Will There be a Skills Shortage?

According to classical economic theory, labour markets should be able to adapt to change as supply and demand eventually level out. The idea is that ‘if you need them, they will come,’ meaning that young people looking for work will seek the necessary training for job openings, while employers will find ways to encourage recruitment and retention and, usually, train their workforce to meet their needs. If this is the case, why then should we place so much emphasis on the problem?

With this question in mind, some analysts have questioned whether skills shortage is as acute a problem as industry leaders and researchers suggest.¹⁷ The Expert Panel notes, for example, that very few employers they interviewed had increased wages in an attempt to retain or attract skilled workers, leading them to question whether the reported skills shortages were as

¹⁷ Also see Graham Lowe, *The Quality of Work: A People-Centred Agenda*. (Oxford, 2000) and Andrew Jackson, David Robinson, Bob Baldwin and Cindy Wiggins, *Falling Behind: The State of Working Canada, 2000*. (Ottawa, 2000) for a more detailed critique of whether there will be a skills shortage in the Canadian labour market.

serious as reported.¹⁸ Yet, their research does point to some areas that appear to be facing shortages. They suggest that each industry is perhaps faced with different concerns related to skills shortage that employers do not attribute to wage levels. For example, they note that industry officials in the skilled trades, which offer relatively high wages, feel their skills shortage relates more to an ‘image problem’ than to wages and benefits. With this in mind, the industry focuses recruitment strategies more on ‘selling’ the trades to youth, their parents and their teachers.¹⁹ Although, as noted above, there are areas that are currently reporting some skills shortages, the majority note that they are currently able to keep at pace with demand. Their more serious concern is whether they are seeing only the beginning of a longer-term and increasing trend.²⁰ As noted above, the Expert Panel also finds no evidence of a current shortage of technical skills in any of the industries of its study.

The Expert Panel’s difficulty with pinpointing evidence of the extent of skills shortages is consistent in much of the literature. Yet, there appears to be widespread concern among industry and labour leaders, as well as labour market analysts, that suggest skills shortages will be a major problem in coming years. A possible explanation for this inconsistency may lie in the demographic changes at the root of many skills shortage concerns. As noted above, it is projected that in the year 2021 retirements could seriously outweigh the number of entries into the labour market. However, there are a number of changes that could occur that may mean that not all positions vacated through retirement will need an immediate replacement. In some cases, technologies could change such that businesses would require fewer skilled workers. For some sectors, such as the construction industry, demand for skilled workers is highly dependent on the state of the economy, making it difficult to predict exact workforce needs years into the future.

This unpredictability does not mean that the problem should be ignored, or that there can be no effective system-wide response. With the greatest potential for skills shortages being in *non-entry* technical positions, preparing for skills shortages will involve not only training workers, but ensuring that they have adequate work experience. Addressing a skills shortage becomes, then, part of a longer-term strategy. Although shortages may only become acute several years into

¹⁸ Expert Panel on Skills, *Stepping Up*, p. 28

¹⁹ *Ibid.*, p. 28

²⁰ Derwin Sangster, “Critical Skills in Five Canadian Industries: A Summary Report on Sectoral Interviews,” *Report of the Expert Panel on Skills*. Ottawa, 1999.

the future, it is necessary to begin to prepare for the problem in advance in order to ensure that, when baby boomers retire in large numbers, the replacement workforce has several years of training and experience behind them. Therefore, addressing skills shortages becomes part of a *preventative* strategy in light of a plausible disconnect between future worker skills and future employer needs. This long-term planning aspect becomes especially relevant when considering ways to measure economic impact in a skills shortage context. It presents a significant challenge in an economic impact analysis that will be a key focus in the second section of this report.

1.3 What are the Critical Areas for Youth in the Labour Market?

By and large, youth are already responding to the demands of the new economy ~ the young generation is, overall, more highly educated than any in the past. Still, there is a potential for some disconnect. Many youth are on the right track to meet employer needs by pursuing quality technical training or higher education, but others are not acquiring these skills. As well, some fields are more successful in attracting youth than others. A third issue is that there are often barriers for youth that prevent them from making the critical first steps into the labour market where they can acquire many of the ‘softer’ skills (management and essential skills) that are also part of the skills shortage. Situating the problems that youth face in modern labour markets in relation to the discussion of skills shortages can help reveal some of the strategies and challenges to preparing a new generation of workers for future labour markets.

Youth Employment

Youth unemployment has been high in Canada for several decades. The latest results from Statistics Canada show that while unemployment decreased by 0.4% to 6.3% for adult men²¹, it increased by 0.4% for youths to 13.7% in January 2003.²² Youth participation rates have also dropped in the past twelve years. Although there is some indication that youth participation rates may currently be increasing slightly, there has been a trend toward fewer youths between 15 and 24 who are active in the labour market.²³ The following section considers

²¹ This report finds adult women’s unemployment rates unchanged in the same period, a result of job growth for women being off-set by losses in part-time jobs.

²² Statistics Canada, *Labour Force Survey* (January 2003)

²³ Forum of Labour Market Ministers, *Profile of Youth in the Labour Market*, p. 14

some of the complexities of these trends to consider some of the key critical areas for youth in the labour market.

Youth and Education

Youth's low participation rate may be an indication that the majority of young people are responding labour market conditions by staying in school longer: most analysts account the overall drop in employment participation rates for people under 25 to the higher numbers of youths who pursue post-secondary education.²⁴ For a large number of youth, late entry into the labour market is not necessarily a negative development if this is a result of staying in school longer. These youth, who have a higher level of education and a greater degree of investment in their 'human capital,' tend to perform well in the labour market. Although anecdotal and research evidence suggest that many of these youth can have difficulty making an initial step into the labour market, finding their skills underutilized in the first years after graduation, the majority do eventually tend to be successful in the labour market and usually receive higher incomes in the longer term.²⁵

'At Risk' Youth

A more serious concern is the group of young people who are neither studying nor working full-time. In 1999, about 10 percent of youth 15 to 19 were in this group.²⁶ These youth tend to have low levels of education and suffer long periods of unemployment. They are also much less likely to succeed in the labour market in their adulthood. Part of this group is made up of male teens who leave school when the labour market improves to find quick-entry work.²⁷ Returning to school after leaving to find work is often difficult and many find themselves trapped in jobs with little opportunity for advancement. Betcherman, McMullen and Davidman predict that, with high demand for knowledge workers, the new economy will see an increased disparity between the educated and less educated. They worry that this will create an underclass of people who, because of low levels of education, find themselves consistently in low paying, 'bad' jobs.²⁸

There are also systematic barriers that disadvantage some youth from pursuing higher education or post-secondary training and from breaking into the labour market. Poverty, racism

²⁴ *Ibid.*, p. 14

²⁵ Jackson et al, *Falling Behind*, p. 26

²⁶ Forum of Labour Market Ministers, *Profile of Youth in the Labour Market*, p. 17

²⁷ *Ibid.*, p. 17

and gender-specific issues – such as single motherhood – can present serious barriers. These social aspects should not be ignored when looking at youth employment. Youth who cannot afford higher education, for example, could find themselves excluded from higher skilled – and better paying – jobs.

Regional Labour Markets

Work prospects for youth can also vary according to the nature of local labour markets. Regions throughout the province and country are experiencing different levels of economic growth. The result is that some areas must struggle to retain youth, or to have them return to their region after pursuing their education. In Northern Ontario, for example, the most pressing problem related to skills shortage is that the youth who seek skills training in the south or in other areas of the country largely do not return to the area once they have completed their studies. The result is that those who stay tend to have less technical training.²⁹ Alternatively, in Toronto, there is high competition for many skilled occupations, creating a difficult environment for youth seeking entry-level technical work.³⁰

Getting Work Experience

In some cases, the problem is not attracting youth to pursue occupations in areas of skills shortage, but rather our coming barriers that prevent them from breaking into workplaces where they can acquire on-the-job experience. Newing and Grant, in their analysis of youth employment policy, note that young people are frequently passed up for entry jobs or for promotion within occupations. They argue that young workers do have the necessary basic and technical skills to meet demand. In some cases, they note, skills shortage refers to seniority issues – length of time with the company, long-term work experience – meaning that young people are overlooked during recruitment. This, they note, not only disadvantages youth, but may contribute to the potential for future shortages in non-entry positions in the future.³¹ Betcherman, Leckie and McMullen expand upon this point in their analysis of employer barriers to training. They find that, though there is little evidence that there are significant barriers that prevent employers from

²⁸ Betcherman, McMullen and Davidman, *Training for the New Economy*. p. 7.

²⁹ Business Council on National Issues, “Magnetic North: Powering Canada’s Growth” Canada Global Leadership Initiative Working Paper. (Toronto, 2000), p. 15

³⁰ Jeffery G Reitz, “Immigrant Skill Utilization in the Canadian Labour Market: Implications of Human Capital Research,” *Journal of International Migration and Integration* (forthcoming?), 2001

hiring young people and providing the training they will need to move up within the organization, there is a tendency in many industries to hire already trained and experienced workers.³² The result could be a generation of workers who lack long-term work experience and on-the-job training that could be, according to the Expert Panel, a critical part of the skills shortage.

1.4 Making the Connection: Areas of Overlap

It will be necessary, if the Ministry wishes to demonstrate economic impact of the Job Connect program in a skills shortage context, to consider the areas in which they are most likely to have an impact and the actions they perform that contribute to this impact. Local analysis of the following questions can help determine what these areas are: (1) considering the local labour market, what are critical areas of skills shortages? (2) Considering client characteristics, what are critical areas where youth need help in the labour market? (3) Is there a potential overlap in these two areas? These questions should inform a discussion as to whether it is feasible for a Youth Employment Centre to attempt to address skills shortages.

In some cases, it may be that there is not a feasible overlap between local employer skills needs and client characteristics. For example if the community's skill shortage is for workers with ten or more years of work experience and with post-graduate education, but Youth Employment Centre clients are largely under 19 who have dropped out of high school, then the disconnect between employer skills needs and the employment centre's mandate may be too large to be feasibly addressed. In this sense, attempting to address a skills shortage may not be of benefit for the youth who use the service. The above analysis suggests, however, that a Youth Employment Centre may be able to seek out certain areas of the labour market where there can be an overlap, and it is in these areas that an employment centre may have the most success in having economic impact.

³¹ David Newing, and Michael Grant, "Wanted: Fresh Thinking on Youth Employment," *Employment Policy Options* (Ottawa, 1999) p. 225

³² Gordon Betcherman, Norm Leckie and Kathryn McMullen, "Barriers to Employer Sponsored Training Programs in Canada" *Canadian Policy Research Network Study*, 1997, p. 5

The Role of a Youth Employment Centre

As the next section reveals, there are several ways of analyzing economic impact. However, if the goal of a Youth Employment Centre is to fill a skills shortage, then any economic impact analysis becomes complicated by the questions above: i.e. whether there is an overlap between Youth Employment Centre clients and skills shortage needs. The question then becomes whether, or in what circumstances, a skills shortage goal enhances or reduces the economic impact of a Youth Employment Centre's actions.

Part 2: Economic Impact Analysis

There are a number of economic impact models that come out of the literature that can be applied to MTCU's and Job Connect's purposes. It becomes evident in reading the literature that there are several ways to measure a social program's economic impact. Each method of analysis can take different program-specific aspects into consideration. This section aims to outline these models, recommend indicators for each that can be used for the Ministry's purposes, and discuss their advantages and limitations in relation to a skills shortage context.

2.1 Economic Impact Literature: Two Approaches

Analyses of economic impact are largely divided into two major streams of methodological approaches: one that is based on econometric analysis and designed to derive a quantitative measure of economic impact, and another that operates on an alternative level, looking at a program's degree of impact more generally on the economy without necessarily deriving monetary measures of outcomes. There are several examples within each of the two methodologies. This report highlights a few of these examples below that best illustrate how each methodology has been applied to measuring programs similar to Job Connect. Combining elements from selected examples in each methodology, two separate models emerge as most relevant to the Ministry's purposes: one econometric and the other based on a plausible analysis of 'what works.' Both models can be applied to an analysis of the economic impact of Youth Employment Centres, with each having a different set of advantages and limitations in their scope and methodology.

Model 1: The Econometric Approach

The first recommended model derives a monetary figure that compares the amount of returns from investment. At the same time, it uses regression analysis to compare Youth Employment Centre operations that address skills shortages. It is an analysis partly based on a 'return-on-investment' formula, to be discussed below, and on 'best practices' measures. This model, based on an econometric methodology, would provide a *monetizable* measure of economic impact, while being applied to a skills shortage context. It measures how program services and economic conditions that relate to skill shortages have an impact on youth income.

Model 2: The ‘What Works’ Approach

The second model looks at economic impact through a theoretical analysis of how a centre creates smoother labour market transitions for youth using the service. It would allow for an assessment of whether a Youth Employment Centre is addressing labour market skills shortages and serving youth, employer and community needs. The approach is more theoretical because it does not derive monetary figures to show economic impact, but instead gauges impact through a range of indicators showing how a Youth Employment Centre meets conditions that affect labour market skills shortages and that have a plausible impact on the economy.

Choosing a Model

Choosing which of the two models is most applicable to MTCU’s and Job Connect’s needs will depend upon their purposes for looking at economic impact and upon their intended use of the results. In the literature, methodological choice tends to be based upon an initial decision as to the purposes of the results. In looking at economic impact *and* at a skills shortage context, the ministry will need to determine which aspects of these two large concepts they are most interested in evaluating and how they see the two concepts relating in their analysis.

In terms of economic impact, MTCU must ask if the intention of the study is to reveal:

- a) statistical information on how socio-economic returns relate to investment in the program, or
- b) an understanding of what practices have the greatest impact on different aspects of the economy.

In terms of skills shortages, the purpose will be to determine either:

- a) whether a program’s focus on addressing skills shortages has a direct impact on the economic conditions of its users or,
- b) whether the employment centre has an impact on addressing skills shortages in the labour market.

As will be discussed in greater detail below, if choices (a) are preferred, then the econometric approach is most applicable, whereas choices (b) are best revealed with the ‘what works’ approach.

Limitations

Unfortunately, the key limitation to these approaches is that it would be difficult to combine these desired aims. In other words, choosing the econometric methodology will allow

for an assessment of rates of return on investment (economic impact choice (a)), but offers much less information on whether the centre is having an impact on reducing labour market skills shortages (skills shortages choice (b)). If information on both these outcomes are desired, then the best approach would be to apply both models simultaneously but separately. The choice between methodologies can be summarized in the chart below.

The following section describes each methodology in detail, illustrating selected examples of each model and offering a recommended application of each approach to MTCU’s and Job Connect’s purposes.

Methodology	Economic impact model	Skills Shortage Context	Type of results	Limitation
Econometric model	Impact on youth using service and returns on public investment (increased tax revenue and decreased social assistance expenditure), etc.	Economic impact on the individual	Empirical evidence to indicate impact	Difficult to assess impact on skills shortages in the labour market
‘What Works’ model	Impact on youth, employers, and community. Provides an evaluation of whether a centre has an impact in addressing skills shortages	Impact on labour market(s)	Plausible factors that have an impact on skills shortages in the labour market	Difficult to quantify results

2.2 Econometric Methodology: A Detailed Analysis

There are several approaches to measuring program impact that fall within the econometric methodology. The most relevant for *economic* impact relate in some way to a ‘return-on-investment’ formula. Another formula that uses statistical analysis to study program evaluation can also effectively be applied to enhance the study to incorporate an analysis of economic impact in a skills shortage context. This section first outlines both these formula, then combines their reasoning to formulate a recommended model that MTCU and Job Connect could use to measure economic impact in a skills shortage context.

Measuring Outcomes

Many studies measure the economic returns or socio-economic value creation of social programs, preventative initiatives and not-for-profit organizations to show economic impact.³³ These models are often based on corporate ‘return-on-investment’ models in which a company’s spending is compared to its financial returns to measure economic gains. When applied to a not-for-profit or social program, analysts have modified the formula in order to compare spending on a social program against economic returns in society. The philosophy behind these strategies can vary slightly: some use the model to determine whether there is a direct financial return from investment in social programs; others use the model to determine if investment in a social program is cost-effective in the long-run. What they have in common is that they both attempt to apply scientific statistical analysis to measure the costs of a program against returns.

Economic Returns

‘Returns,’ for the purpose of this model, are those that can be translated into monetary values to measure the program’s impact on those it intends to serve. For a program that helps the disadvantaged in society, for example, a model would measure the extent to which public money spent on the program results in savings in other areas of social spending. For example, does one

³³ See, for example, Sophie Lam, *Individual Development Accounts in Canada: A Return on Investment Demonstration Model* (Toronto, 1998); Roberts Enterprise Development Fund, *SROI Methodology Paper: Analyzing the Value of Social Purpose Enterprise Within a Social Return on Investment Framework*. (San Francisco, CA, 2001); B.J. Richmond, *Economic Impact of Community-Based Training: Social Audit Report of Five Ontario Sites* (Toronto, 1996); Dana Peterman, “Measuring the Economic Benefits of Community College Attendance Using Community College, Unemployment Insurance, and State Agency Data.” *ERIC Digest*, (1999); and Gina Browne et al., “When the bough breaks: Provider-initiated comprehensive care is more effective and less expensive for sole-support parents on social assistance,” *Social Science and Medicine*, 53 (12), Dec. 2001: 1697-710

dollar of public expenditure on training result in more than one dollar of savings on reduced social assistance expenditure? Public expenditures are deducted from these returns to calculate net public savings as a result of the program.

Three Example Models

In order to fully explore this model and its potential application, three examples are summarized, each offering beneficial aspects to the Ministry's purposes. Taking into consideration the advantages and limitations of these models, we discuss the approach's application in a skills shortage context.

2.2.1 Robert Enterprise Social Return on Investment Model

The Robert Enterprise Development Fund (REDF) has developed a social return on investment (SROI) formula with the purpose of showing *a monetizable return on an investment in a social program or enterprise*. They note that 'in the same way that for-profit investors look to more than one indicator when assessing the performance of a corporation, philanthropic investors may now make funding decisions based on an intelligent mix of business, social impact, and socio-economic return measures.'³⁴ Their indicators are based on the dollar value aspects of a social program. This allows for a consideration of value creation in society by measuring reduced rates of social service use and increased contribution to income taxes among the program's targeted group. They note that this formula is especially useful for any program that is involved in providing employment for those presently receiving public support and that divert individuals away from public systems and toward private markets.³⁵

Primary Indicators

Their two key indicators of value creation are 1) *public savings*, in terms of reduced use of welfare programs, community clinics, housing services, health services, correctional institutions or similar social programs among service users over a one-year period; and 2) *public income*, in terms of general wage increases or financial improvement among program users, resulting in increased income tax returns for the state.³⁶ REDF provides sample questionnaires that assess

³⁴ Roberts Enterprise Development Fund, *Guide to Reading the SROI Reports*. San Francisco, CA, 2001, p. 1, 2.

³⁵ REDF, *SROI Methodology Paper: Analyzing the Value of Social Purpose Enterprise Within a Social Return on Investment Framework*, p. 15.

³⁶ REDF, *Guide to Reading SROI Reports*, p. 6

income levels and a large variety of changes in social assistance dependency before and after program use over a one-year period.³⁷

These indicators of social returns are compared to the amount invested to establish value creation from the program being measured. This information is applied to an Index of Return formula in order to determine if there is at least one dollar of value created for each dollar invested. The Index of Return formula is calculated as follows:

$$\begin{array}{r} \text{INDEX OF} \\ \text{RETURN} \end{array} = \frac{\text{VALUE CREATED IN THE FUTURE}}{\text{INVESTMENT TO DATE}}^{38}$$

An index of less than one would mean negative value creation, meaning that returns from a program are, in monetary terms, less than the amount invested. REDF notes that this may not necessarily mean that investment is not worthwhile. They note that in this case, analysts may wish to consider *intangible* benefits that could still show that investment in a program provides social/economic benefit. This is a common practice in social return on investment analysis. For example, New Brunswick's HRDC-sponsored Job Corps employment program incorporated intangibles into their economic analysis for this reason. Finding that they could not show that tangible returns outweighed investment in the program, researchers factored intangible benefits to bring the index to greater than one. They included, for example, survey information that showed that the majority of users reported that they and their communities benefited directly from the program.³⁹ As REDF notes, it is not uncommon for social programs to find values of less than one upon first analysis if using only monetary – or tangible – aspects.

³⁷ See appendix for sample questionnaire

³⁸ *Ibid.*, p. 2

³⁹ Human Resources Development Canada, *Interim Impact and Interim Cost-Benefit/Cost-Effectiveness Evaluation: Final Report*. Prepared for NB Job Corps Evaluation Committee Evaluation and Data Development Strategic Policy. November 1996

Advantages to the SROI Model

The advantage of the SROI model is that it derives a monetary figure to show socio-economic impact. The two key indicators are based on monetary measures and can be collected through a randomized survey of program users. The results, therefore, provide quantitative evidence as to whether a program is having an impact on the financial situation of program users and assesses the level of impact on the larger economic environment. REDF acknowledges that this method will not capture all the social and economic spin-offs and benefits of a program, but emphasizes that it can at least give investors a general sense of a social program's economic impact. It also allows program funders to use statistical economic analysis to indicate if there is a positive return from their investment in terms of socio-economic well-being, reduced public spending costs and increased public revenue.

Social Return on Investment Indicators:

- ❑ Change in income before and after program use
- ❑ Change in social assistance use before and after program use

Applying the Model to Youth Employment Services

Like social programs tested in the Roberts Enterprise model, a Youth Employment Centre aims to increase self-sufficiency and income by helping youth make a smooth transition into the labour market. Therefore, looking at welfare dependency rates among youth and wage differentials before and after using the program would be a beneficial way to measure the impact of Job Connect. In applying the 'return on investment' formula, an analysis could provide a valuable measure of a Youth Employment Centre's economic impact by evaluating change in the financial situations of a randomized sample of youth using the service.

2.2.2 Returns on Prevention Programs: McMaster University's Health Sciences Model

Gina Browne and other researchers at McMaster University's Health Sciences department have taken a similar model to show that financial gains and societal benefits off-set government expenditure on preventative health and social services.⁴⁰ This model is similar to the Roberts Enterprise's SROI model because it compares public expenditures on preventative public services

⁴⁰ Browne, Gina, Carolyn Byrne, Jacqueline Roberts, Amiram Gafni, and Susan Whittaker, "When the bough breaks: Provider-initiated comprehensive care is more effective and less expensive for sole-support parents on social assistance," *Social Science and Medicine*, 53 (12), Dec. 2001: 1697-710.

to reductions in other long-term and more costly health and social services. Thereby they determine whether investment in preventative programs (like recreation and child care programs, health promotion, job training, and counseling services) results in a significant reduction in social assistance spending. This study looked specifically at the economic impact of providing a comprehensive health and social care package to sole-support parents. It is interesting to note that this analysis studies economic impact on the household or family unit rather looking at a program's impact solely on the individual using the service.

Their analysis was based on a five-year study of a randomized sample groups of sole-support families who were receiving social assistance at the beginning of the study. They found that the preventative package directly resulted in either getting people off social assistance or drastically reducing their need to use social assistance programs. They applied the percentage of their sample group that exited social assistance (as a result of the tested preventative package) to the number of sole-support families living on social assistance in the region (Hamilton-Wentworth/Halton) to determine an approximate number of people who could be expected to exit social assistance if the package was offered generally. They then multiplied this number by the amount spent per person on social assistance per year, factoring a certain amount for dropout rates and deducting the cost of the preventative package. They found that annual social assistance net savings would amount to between \$2.9 million and \$4.9 million per year.⁴¹

Primary Indicators

Like the SROI formula, the advantage of this model is that it allows for a dollar-figure measure of economic impact by comparing expenditure to results. Although Browne et al. use complex indicators within their analysis to determine physical and mental health benefits from their suggested care package, the primary indicator – reduced social assistance use – is similar to REDF's model's indicators. Because this model is designed to capture the economic impact of preventative programs, Browne et al.'s formula, adds a dimension of regression analysis to enhance its analysis. It establishes a correlation between non-monetized program contributions (for example, the impact of exercise on mental health) to a monetizable outcome: reduced social assistance dependence.

⁴¹ *Ibid.*, p. 1708.

Advantages to the Model

Gina Browne et al's analysis makes an important addition to the return-on-investment analysis because it considers a variety of tangible and intangible aspects in a way that is designed to capture the economic impact of preventative programs. It combines a longer period of study with a regression analysis that evaluates the spin-off economic benefits of poverty-prevention services. The formula accounts for a wide-range of public expenditures associated with the cost of poverty, from dependence on social assistance as a result of mental illness to increased health services and educational costs for children with mood and health disorders associated with being raised in unstable, poverty-stricken households. These projected public costs are factored with program returns (immediate decreases in public expenditure) to account for returns on investment. This model also uses a longer period of study – five years instead of one – in order to capture a variety of the programs aspects that, in the end, contribute to the clients' economic well-being.

Applying the Model

This aspect of the model is valuable to the Ministry's purposes because it provides a practical example of applying the social-return-on-investment model to the Canadian context. This provides some important considerations with relation to Canadian social spending on health and post-secondary education. Browne et al's model also adds the important aspect of measuring a preventative service's economic impact which can be useful in a skills shortage context. The longer period of study also provides a valuable example for the Ministry's purposes. Using a five-year time frame, with the intention of capturing the economic benefits of preventative measures, could allow for a more complete assessment of how Job Connect meeting the demands of a skills shortage.

2.2.3 Program Evaluation Formula: Does addressing a skills shortage have an impact?

There is an example of a similar model that, like the return-on-investment formula, can show whether economic returns are greater than investment, but primarily focuses on determining how program characteristics affect client financial independence. The U.S. based Manpower Demonstration Research Corporation (MDRC) developed a formula to measure the

performance, or impact, of welfare-to-work programs as a way of assessing program effectiveness.⁴² Although the primary objective of this model was not confined to measuring economic impact, the types of indicators they use and their measured outcomes are nevertheless similar to the ‘return-on-investment’ models described above. They note that the setting for their evaluation is to:

(1) determine whether the programs being studied increased client employment and earnings, and decreased their welfare receipt compared to a control group of persons who were not offered program services; (2) compare the benefits and costs of the programs; and (3) study how the programs were implemented, the problems they confronted, and how these challenges were addressed.⁴³

This setting is placed within their primary objective, which is to determine to what extent different factors qualify or enhance a welfare-to-work program’s impact in different locations.

Primary and Qualifying Indicators

This analysis begins by assuming that there are at least four main qualifiers that affect a program’s performance: *program management, program services, economic environment and client characteristics*. They then measure the impact of these elements using one key indicator, *the level of earnings among service users over a two-year period*, to determine impact.⁴⁴ They hypothesize that their four qualifiers are most likely to have a direct impact on client labour market and welfare outcomes, assessing each separately to inform program offices on how local labour market, client and program characteristics affect their performance. Using regression analysis, these qualifying indicators are applied to a series of equations to derive separate empirical evidence that correlates of each aspect to client earnings.

Each of these four qualifying indicators contain a variety of elements that are designed to explore the range of possible policies and socio-economic conditions that can affect a welfare-to-work program’s performance and impact. It is therefore useful to explain each indicator in detail.

1. **Program Management:** For this indicator, MDRC relates client outcomes to how programs are managed, specifically looking at management focus and goals. They sub-

⁴² Bloom, Howard S., Carolyn J. Hill, and James Riccio, “Modeling the Performance of Welfare-to-Work Programs: The Effects of Program Management and Services, Economic Environment, and Client Characteristics,” *Working Papers on Research Methodology* (Chicago, 2001).

⁴³ *Ibid.*, p. 25

⁴⁴ *Ibid.*, p. 2-6.

divide this measurement into six categories of program management: (1) the degree of focus on ‘quick job entry’ versus ‘human capital development’ strategies that concentrate on long-term labour market integration; (2) the degree of personalized attention given to clients; (3) the closeness of client monitoring; (4) degree of consistency among frontline staff in applying agency policy; (5) degree of consistency among staff supervisors in applying policy; and (6) staff caseload size.⁴⁵

2. **Program Services:** This indicator analyzes three program services separately: (1) job search assistance; (2) basic education provided to clients through the program; and (3) vocational training.⁴⁶
3. **Economic Environment:** In order to test whether a program’s effectiveness was likely to be better where unemployment rates were higher (“looser labour markets”) or in areas where it is lower (“tighter labour markets”), the third qualifying indicator factors local economic conditions into their analysis formula.⁴⁷
4. **Client Characteristics:** Finally, the analysis considers potential barriers to employment or levels of employability among service users. The study examines the relationships between program impacts on future earnings and the following client characteristics: education level, recent past employment and earnings experience, recent past welfare receipt, age, race/ethnicity, and number and age of children.⁴⁸

The model consists of a hierarchical formula of regression analysis based on randomized sampling. They analyze each sample office separately to measure the effects of varying local office policies, community economic conditions and client characteristics on program impact.⁴⁹ The objective of the model

Advantages to the Model

Applying the model with the program evaluation enhancement to the SROI formula, might allow for a better understanding of whether gearing an employment centre’s goals toward addressing skills shortages has an economic impact, meaning whether this focus creates a greater change in youth financial independence than if the centres did not focus on skills shortages. The advantage of this model is that it could provide a scientific analysis that informs centre operators which aspects of skills development has the greatest impact, or has any impact at all, on youth labour market integration. It would also allow for a comparative analysis between centres to

⁴⁵ *Ibid.*, p. 10-13

⁴⁶ *Ibid.*, p. 12-14

⁴⁷ *Ibid.*, p. 14, 15

⁴⁸ *Ibid.*, p. 15-17

⁴⁹ See appendix for a detailed outline of the equations for the hierarchical analysis formula.

determine which practices are the most effective. Perhaps most importantly, the model is designed to incorporate socio-economic factors that can present challenges to a program's success rate in affecting user income. For example, MDRC finds that program-induced earnings are greater in areas with lower unemployment rates.⁵⁰ Similarly, this formula could determine if an area's particular labour market conditions, perhaps in particular relating to skills shortages or more generally relating to local employment rates, limit or add to a Job Connect centre's economic impact. In this way, adding qualifying indicators to the return-on-investment formula can incorporate a number of economic factors from different levels of society to allow for some consideration of factors that differ by region or community. Yet, in the end, the measurement is still based on financial independence at the individual level to assess overall economic impact.

Applying the Model

MDRC's approach to studying program effectiveness in a return-on-investment context may offer some important insights for MTCU's and Job Connect's purposes in trying to assess the economic impact of employment centres in a skills shortage context. If the model were to be adopted in the same way that MDRC developed the formula, the ministry could establish similar indicators that qualify two overriding measures: *the level of change in Job Connect users' income* and *change in social assistance dependence among users within a one to two year time span*. The qualifying indicators could be similar to MDRC's, but more geared toward gauging issues related to skills shortages. These indicators could be: (1) Job Connect services for youth that are geared toward skills development, such as helping youth register in Level 1 apprenticeships; (2) Job Connect community and employer outreach, including the level of engagement with employers; (3) economic environment, including local unemployment levels and proximity to industries facing skills shortages; and (4) client characteristics, including skills levels.

2.2.4 The Econometric Models and a Skills Shortage Context

Using *change in income* and *change in social assistance use* as indicators, expenditure on a Youth Employment Centre could be compared to the amount of potential returns from helping youth to make a transition into the labour market. It is important to measure change in social assistance dependence among users because, were this measured, it would allow the analysis to

⁵⁰ *Ibid.*, p. 1

capture the potential economic returns from reduced public spending on social services for youth who were unable to integrate into the labour market before using the program. This indicator could allow MTCU to better capture the level of economic impact on ‘at risk’ youth. Because not all youth who use an employment centre start off on social assistance, and may not have received social assistance with or without the service, it is also important to measure change in youth income as a result of the program. Combining these two indicators may give the best impression of Job Connect’s economic impact.

Limitations

Two key limitations to this model are that (1) it is designed to operate on a short timeframe that may not capture the economic advantages of training youth in preparation for a skills shortage; (2) this model makes it difficult to show correlations between increased income among users and success in addressing a skills shortage.

The Robert Enterprise emphasizes the importance of studying change in income and social assistance dependence over a relatively short time-period, usually one or two years. This is because the longer the period of study, the harder it is to link changes to any one cause. However, as noted above, addressing a skills shortages may mean preparing several years in advance, encouraging youth to seek training, apprenticeship or entry level work today so that their skills will be at par with demand in five or more years time. This model would not capture the economic value of this work. The contradiction may be particularly relevant when focusing on ‘at risk’ youth: for example, measuring income or social assistance use would not capture the benefit of encouraging a youth to return to high-school after dropping out to find short term work. A further complication is that this model may be able to establish that a Youth Employment Centre has a positive impact on youth wages while not showing whether this is because they are entering fields that face a skills shortage. In other words, with the focus on change in income and social assistance use, the indicators do not directly reveal the level of change in skills shortages.

These aspects could present serious limitations that may on the one hand prevent an analysis from deriving important information about economic impact in a skills shortage context, and on the other, ignore the most important ways that a youth employment centre could address skills shortages.

Applying the Econometric Model in a Skills Shortage Context

Although these are significant limitations to this model's use for MTCU's and Job Connect's purposes, the basis and aims of the SROI model do offer some important information as to how to measure program socio-economic benefits against its costs. Through program evaluation with the addition of a regression analysis like the MDRC formula, the return-on-investment model can be enhanced in a way that may better incorporate the skills shortage context. By applying regression analysis to measure whether taking a skills shortage focus is correlated to youth financial independence, an economic impact analysis could show, in monetizable terms, how the amount invested in the program contributes (or does not contribute) to economic value creation in society while also considering the economic impact of a skills shortage policy focus within Job Connect.

In any model it will be difficult to truly assess whether a service like Job Connect is having a *direct* impact on skills shortages; this is particularly the case when trying to derive evidence of *economic* impact. By considering the short-term impact of office-level decisions on skills development and engaging employer skills needs, the analysis could narrow the scope and time frame of an analysis in a skills shortage context. It would allow for (1) a quantifiable indicator of impact in a skills shortage context by measuring if skills-related program decisions have an impact on youth incomes and integration into the labour market; (2) a per office or per community assessment of economic and client characteristics.

These aspects could best be assessed by incorporating the indicators that come out of the three above examples. Therefore it is recommended that change in financial independence indicators (change in income and change in social assistance use) be used as an overall measure of public savings. This indicator, if applied, could derive a monetary value to compare to the total amount invested in the program. Amount invested should incorporate the total amount of public investment in the program (direct and indirect funding, resources and so on) over the same time period as the returns are measured. In order to account for operations within a skills shortage context, a program evaluation aspect should consider ways that Job Connect may address skills shortages. These would be: (1) Job Connect services for youth that are geared toward skills development, such as helping youth register in Level 1 apprenticeships; (2) Job Connect community and employer dialogue, including the level of engagement with employers; (3)

economic environment, including local unemployment levels and proximity to industries facing skills shortages; and (4) client characteristics, including skills levels.

Indicators:

Primary indicators

- **Youth financial independence (income and reduced social assistance)**

Qualifying indicators

- **Client education and training**
- **Community outreach**
- **Economic environment**
- **Client-Characteristics**

It should be noted that although the suggested qualifiers can give some indication as to the role of a skills shortage focus on economic impact, it will still be difficult to isolate whether changes in youth incomes are *directly* related to labour market skills shortages. For example, measuring the results of a focus on skills training in an employment centre may have a positive effect for youth income because, as documented in the literature, increased training or education tends to increase income potential.

This may not directly relate to whether the centre is addressing a skills shortage. However, it can be hypothesized that the indicators will reveal some connection to labour market skills needs.

In order to account for some of the particulars of skills shortages it will be necessary to add a few key modifications to MDRC's formula. The time span should be expanded, as in Gina Browne et al's formula, to a five year study to best capture some of the long-term and preventative aspects to addressing skills shortages. As well, seeing youth return to school should be considered as part of preventative expenditure that may contribute to future financial independence.

This model and these measures, therefore, aim to answer the question: does taking a skills shortage focus benefit the youth using the service. It would allow for differences in local labour market conditions and client characteristics that may help determine whether this is a focus that works best for the Job Connect program, its individual centres and their clients. A model like this one may provide the best model for *quantifying* the skills shortage context in an economic impact analysis. As will be discussed below, other models do offer a means to discuss the impact of employment centres on skills shortages in the labour market, though through a less quantitative analysis.

2.3 The ‘What Works’ Approach

Many examples in the literature aim to analyze economic impact without defining their results in monetizable terms. These can generally be classified as belonging to a theoretical approach to studying economic impact. Within this approach, several analyses aim to discover ‘what works’ for a program to have significant economic impact. This section first discusses the body of this research, its approach and findings, and some of the advantages and limitations to applying the methodology. Second, we focus on one example of a model that’s aim is similar to the Ministry’s. This model seeks to measure the impact of labour market transition models in a skills shortage context. Finally, the information arising from this example and the body of research in the methodology is applied to suggest indicators that will be useful to the Ministry’s and the employment centres’ analysis of economic impact.

Measuring Outcomes

Many examples of this type analysis measure service outcomes to determine if a program has an impact on the economy as a whole. This method can give a good indication of program impact at several levels of the economic environment. These studies tend to base their analysis on a number of assumptions about a program’s economic goals, using several indicators to capture a variety of areas in which the service or program has an impact. In this way, the concept of ‘economic goal’ replaces the empirical measure used in the econometric methodology. For example, they may begin by determining that addressing skills shortages in the labour market has an important economic impact. They then attempt to measure to what degree and in what areas the service has an impact on addressing the shortages. Therefore, this model is not based on deriving dollar figures to determine economic impact, but focuses instead on the degree of change in the economy. These studies often define outcomes as ‘what works,’ without necessarily quantifying their results.

What is An ‘Economic Return?’

It is important to note that ‘economy’ can be defined very broadly or very narrowly. In the return-on-investment formula, the focus is on a micro-economic formula that looks at monetary returns or change to evaluate economic impact – defining ‘economic’ in a more narrow sense to individual or public financial gains or losses. However, another way to look at economic return is to look at aspects that contribute to the workings of the economy as a whole. Arguably,

everything related to labour market issues, from addressing skills shortages to helping kids make career choices, falls within an economic realm: the spin-offs are eventually going to relate to wage rates, spending potential, public expenditure, cash flows in society and so on, all of which affect the economy. For example: what is the economic impact of hope? For a young person, having hope that they can find good work could be a pivotal quality that helps them succeed in the labour market. This could have a large economic impact. Hope, however, does not fit easily into an econometric formula.

Types of Outcomes

Aspects like these, though they eventually contribute to economic development, can take time to reveal themselves concretely in terms of financial returns. They therefore become much more difficult to measure or to relate to any one cause. It is for this reason that the ‘what works’ models are based on certain assumptions of economic impact. This does not necessarily undermine the validity of measuring economic impact in this way. If it can be proven that certain developments have economic worth, then it is justifiable to look at aspects that contribute to these developments to determine the level of impact. Because this type of evaluation is not limited to aspects that are monetizable it allows for an analysis of some larger and longer-term aspects like skills shortages in the labour market. It must be expected, however, that results may not provide the same level *numerical* proof of impact. Instead they tend to provide plausible indications of where impact may be positive or negative.

Use of Evidence

The use of empirical evidence in this approach can vary. There is a wealth of statistical evidence, collected by Statistics Canada, labour market transitions analysts and researchers and employment centres, that indicate youth employment rates and characteristics, and various contributors to economic development. Many studies that use the ‘what works’ approach rely on this evidence to determine economic impact to varying degrees. The challenge in developing these studies is to make a correlation between the empirical data and the program being measured.

2.3.1 The Model

In order to demonstrate practical application of this model, as well as explore its advantages and limitations, the following section summarizes one example that takes this approach to its analysis. The Conference Board of Canada's analysis of labour market transition models that work provides an applicable example of a system of indicators that will be most useful to the MTCU. Using examples from this model, we can derive four indicators that can be applied to the Ministry's purposes.

“Labour Market Transitions Models that Work.”⁵¹

The Conference Board of Canada's analysis on the most effective labour market transitions models in one example of a 'what works' model that uses randomized surveying to measure the economic impact of employment services. Entitled *Make the Skills Connection: Labour Market Transitions Models that Work*, Kitagawa's report looks specifically at organizations or initiatives that ease labour market transitions in a skills shortage context. The Conference Board seeks to identify employment or social service centres that use practices and processes that have significant economic impact. This analysis looks mostly at employment centres, but also considers how educational programs, volunteer organizations or Aboriginal Friendship Centres can help youth make a transition from school to work while addressing skills shortages.

Indicators

In studying program policies and outcomes, this study determined that centres that make the strongest connection between youth and employers have the most success in easing labour market transitions. To determine their capability and success in making these connections – that is to determine 'what works' – there are four key indicators to determine which programs have the greatest impact. These are:

1. **client centred:** This aspect points to processes that ensure program officer accountability for helping clients achieve outcomes;
2. **partnership focused:** This indicator looks at the level of broad community-based partnerships between the centres and local employers. Kitagawa notes that true partnerships provide mutual benefit to each partner and enable organizations to do more collectively than they could individually.

⁵¹ Kitagawa, Kurtis, *Make the Skills Connection: Labour Market Transitions Models that Work* (Toronto, 2001).

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3. **community based:** This aspect considers a centre's level of community integration, working within their particular culture or local labour market conditions to achieve results.
 4. **employer friendly:** This final indicator acknowledges the importance of employment centre engagement with local employers. It considers how employers and youth centres work together to create communication links for youth looking for work and for local labour market needs.

The author notes:

Labour market transitions models are most effective when they incorporate strong processes and drive towards clear outcomes. When a model is client centred, built on partnerships, community based and employer friendly, it has a better chance of achieving what it is intended to achieve.⁵²

These indicators are then applied to desired outcomes: *skills development, employment, and helping clients achieve greater degrees of independence*. The centres that met the greatest number of aspects associated with the four indicators also had the highest degree of the above outcomes. The data was collected through interviews with centre operators, asking a series of questions designed to tease out to what degree they meet indicator requirements. These questions included aspects such as: Are they client-centred? Do they provide follow-up services? Do they address barriers? Are clients integrated easily into the next stage of transition process? And can their model be replicated elsewhere?⁵³

To this end, these detailed surveys were used to establish to what degree a program met the first four indicators and their success in achieving the desired outcomes. Those that most thoroughly met the indicators also had the most success in (1) increasing the skills of their clients, (2) increasing employment among the youth and (3) helping the youth achieve greater degrees of independence. Therefore, the valuable correlatives show 'what works' when trying to both help youth and meet employer skill needs from the youth as employees. The broadly-based indicators allow for a fluid assessment of a variety of centres, pointing to practices that best meet the indicators and achieve the desired outcomes. For example, the study found that the Saskatchewan Indian Institute of Technologies' Construction Career Development Project was an

⁵² *Ibid.*, p. 4

⁵³ *Ibid.*, p. 7, see appendix for full listing of Kitagawa's sample questionnaires.

effective model with a significant economic impact on addressing skills shortages. This program's economic impact is assessed according to the following major outcomes and impacts:

- Aboriginal youth believe in themselves, have a sense of purpose and work towards their goals
- Aboriginal youth build personal skills portfolios
- Aboriginal youth receive certified training that can be transferred to apprenticeship
- Aboriginal youth break the 'colour barrier' and get jobs in the construction sector
- Employers and the community adopt more inclusive attitudes toward Aboriginal youth not because they have to, but because they value their contributions
- When Aboriginal youth leave the institute, they do so with a job, or an employer to see, or they find work within a week
- 3047 jobs are found every month all year round
- 80 clients are trained each winter so they can get better jobs in the following spring.⁵⁴

This analysis lists outcomes for other 'labour market transitions models that work' that are similar, but unique to each centre. Outcomes and impacts are characterized as evidence that each centre meets the indicators in a way that achieves the central three desired outcomes that contribute to economic impact in a skills shortage context.

Advantages

There are a number of advantages to this model. Firstly, it allows for a more direct assessment of how the employment centre is having an impact on skills shortages. Unlike the econometric models, this method allows for consideration of plausible program economic impact on large labour market trends. Although it does not provide a quantitative figure that specifically measures the degree of impact on skills shortages, its questions can incorporate aspects that point to ways that the service connects or does not connect youth to employer skill shortages.

⁵⁴ *Ibid.*, p. 17

Determining a centre's impact in this context gives a sense of its economic impact on skills shortages in the labour market.

It also allows for an analysis at a number of levels of society to achieve a more holistic impression of economic impact. Because its focus is on making connections between the program, the youth, employers and community, this model considers the economic impact at the individual, industry and community level. Using the Conference Board model's idea of two levels of indicators allows a consideration of how a centre is connecting with industry and the community, while still placing a strong focus on the youth through his desired outcomes indicators.

Another important advantage is that this model largely considers *current* impact and degree of success in achieving outcomes. The result is that, unlike the econometric formula, the randomized survey may only need to be conducted once to determine economic impact. Instead of measuring degree of change over a five year period, this model looks at current successes to draw conclusion of economic impact that the current impact would have future impact on skills shortages is the unstated but quite plausible assumption. In this sense, it also avoids the problem of trying to match the study time frame with the emergence of critical skills shortages. Instead, it projects that increasing youth skills and creating connections with employers will diminish the likelihood of skills shortages in that community.

Limitations

As noted above, this model will not provide conclusive evidence that *monetary* return is greater than the amount invested. For MTCU's and Job Connect's purposes, it would require first assuming that addressing skills shortage has economic impact and that achieving this goal is a sufficient return on the amount of money invested in the program. Therefore, measuring the degree to which a centre is able to address skills shortages becomes proof of its economic impact and its degree of success. This means that outcomes are more loosely defined and harder to pinpoint. Whereas the econometric formula may allow for one or two key quantifiable figures that point to whether economic impact is positive or negative, this model would largely only allow for sense if economic impact is significant: as a yes or no. Depending on the intended uses for the results, this may not prove to be enough information on the level of economic impact.

Applying the Model

The CBoC's model, because it is also looking at employment services in a skills shortage context, can be almost directly applied to the Ministry's purposes. The central valuable measure is the level of facilitated connection between employers and youth through the Youth Employment Centre. Four *process indicators* that relate to the desired outcomes or impacts can give a indication of how each centre operates in bringing youth into areas of skills shortages, thereby contributing to economic impact in this context. These could be largely the same as the Conference Board's, with some modifications to cater them to Job Connect's mandate: evaluating the centre's level and the success of the program in terms of its:

1. **Client-centred policies** asking is the Job Connect centre monitoring clients' integration into areas of skills shortage;
2. **Ability to create stakeholder partnerships** asking if the centre is generating feedback from educators and community stakeholders;
3. **Integration with the community** asking if it is integrated with local labour market needs; and
4. **Dialogue and connections with employers** looking at connections between centres and employers.

There are also three *outcome indicators* that should be applied to this analysis:

1. **Youth skills development as a result of program use,**
2. **Youth employability after program use;** and
3. **Youth financial independence or security.**

These outcome indicators can help assess the degree of impact on the youth using the service and their likelihood of fill positions of skills shortage as a result of the program.

The model should assess the degree to which centres meet the above four process indicators and outcomes indicators to determine their level of economic impact in a skills shortage context. This study can be undertaken though client evaluation surveys conducted at across several offices.

Part 3: Model Applications: Recommendations and Conclusions

The economic impact models aim their analysis at answering two preliminary questions related to economic impact and skills shortages. The first question, related to economic impact, asks whether results are intended to show, in monetary values, whether Job Connect creates value (or returns) that is greater than the amount invested in the program. The second question, related to skills shortages, asks whether results are intended to reveal if Job Connect has a significant economic impact in addressing skills shortages in the labour market. Because of the nature of the two illustrated methodological approaches, a single study will likely not capture the required information to answer both these questions.

3.1 Model Applications

The econometric model focuses its analysis on a program's direct economic impact on the clients' financial situation. By adding aspects of program evaluation, the Ministry could conduct its economic impact analysis which considers how a skills shortages focus contributes to youth financial independence. These additional aspects would place the analysis in a skills shortage context by asking the question 'does taking a skills shortage focus have an economic impact on clients, thereby creating economic value that outweighs investment?' This study may provide strong information on the extent of monetary returns from investment and may also have considerations in a skills shortage context, but may not directly show if Job Connect is having an impact on addressing skills shortages in the labour market.

The 'what works' model focuses on measuring the link between youth and areas of skills shortages. Assuming that successfully helping employers prevent or prepare for a skills shortage has a significant economic impact, this model would measure the extent to which Job Connect centres meet pre-established criteria for a Youth Employment Centre to help address skills shortages. This model would consider whether Job Connect centres are having an economic impact on skills shortages at the local level, asking 'does Job Connect operate in a way that links youth to areas of skills shortage in the labour market, thereby having an overall economic impact by addressing this need?' In this way, this model may provide information on the extent to which Job Connect contributes to alleviating skills shortages in each centre's locale, but not directly

indicate the amount of dollars saved or specific amount of monetary value created in society as a result of the program.

3.2 Formulating a Model for MTCU's Purposes

In combining a study of economic impact with a skills shortage context, the Ministry should consider some key aspect when adapting the above examples to its analysis of Job Connect. As explained in the first section of this report, there are four key questions that can inform this analysis: (1) what are the critical areas of skills shortage? (2) What are the critical areas for youth in the labour market? (3) Is there an overlap in these areas? and (4) Is it feasible for a Youth Employment Centre to concentrate on these elements to achieve economic impact in this context? It is important to see the suggested economic impact analysis models as a part of these larger questions; the suggested indicators for both models are based on considerations from these questions to help place the economic impact analysis in the context of a Youth Employment Centre's capabilities.

What are the critical areas of skills shortage?

As noted in the first section, there are many types of skills that form part of current and potential skill shortages. In order for a Youth Employment Centre to have an impact in this area, it will be important for them to have an understanding of where these shortages lie in their local context. For this reason, the econometric model includes qualifying indicators that measure the level of labour market integration. This indicator should reveal the degree to which a Job Connect centre is communicating with employers and the local community on skills needs. Likewise, the 'what works' model measures a centre's success in monitoring candidates, generating feedback from employers and assessing local labour market needs. These are all intended to reveal if a Youth Employment Centre is acquiring on-going information on local employer needs in order to measure how they operate in a skills shortage context. These indicators are important because understanding where skills shortages lie, or may potentially lie in years to come, will be critical in order for Job Connect to help link youth with these shortages, thereby having an economic impact in this context.

What are the critical areas for youth in the labour market?

Job Connect, working with youth between 16 and 24 who are not in school and not in work, has a mandate to help youth find and maintain employment. With a strong focus on helping ‘at risk’ youth, Job Connect centres must operate within some of the most critical areas for youth in the labour market as a central focus to their operations. As noted above, there may not necessarily be a natural fit between employer needs with regards to a skills shortage and the client-base and mandate of the Youth Employment Centre. For this reason, the qualifying indicator that considers client characteristics in the econometric model is intended to take into consideration youth needs and potential barriers that may qualify a Youth Employment Centre’s success in addressing a skills shortage. It is also possible that the ‘client-centred’ indicator the ‘what works’ model, could also act as an aspect that qualifies impact in this context. It should also be noted that where skills shortages are in entry-level positions, Job Connect can have an impact. However, where shortages require seniority, years of training, etc. Job Connect can anticipate and prepare in ways that meet future shortages in these areas.

Is there an overlap in these areas?

In engaging in dialogue with employers and the community, a Youth Employment Centre may be able to make initial assessments as to the potential areas of overlap in order to concentrate their efforts in these areas. Successfully integrating client needs with labour market needs in areas of skills shortages could significantly contribute to Job Connect’s potential economic impact in this context. The suggested models of economic impact analysis may also help reveal whether there is a significant overlap between the critical areas of skills shortage and youth employment. An analysis that reveals poor or negative economic impact in a skills shortage context may indicate that there is not enough of an overlap for a Youth Employment Centre to fill gaps and foster independence.

Is it feasible for Job Connect to achieve economic impact in this context?

This final question combines the three above questions. It may be determined that there is a match between some critical areas of skill shortages and youth employment, and that Youth Employment Centres create a significant economic impact in this context. In this case the analysis may reveal that it is not only feasible, but beneficial, for Job Connect to work to address skills shortages. On the other hand, the opposite may be revealed and it may be the case that it is

not feasible for centres to link their current mandate to helping meet skills shortage needs. These results may also vary according to a Youth Employment Centre's location or local labour market needs. For this reason, the models are intended to assess each site separately according to their local client characteristics and labour market or economic environment.

3.3 Other Recommendations for Model Implementation

Random Assignment

In the case of both models, the Ministry should conduct randomized assignment surveying of Job Connect clients as research for an economic impact analysis. It will be important to pay particular attention to ensuring that the sample is sufficiently random and representative of client users. A sample group should be chosen from centres in different regions and across a large number of offices to account for regional and office variations. Warburton and Warburton, in their article on measuring government training programs for the C.D. Howe Institute, note that random assignment is an important aspect to ensuring that evaluation results are reliable indicators of a program's impact.⁵⁵ However, they caution that random assignment surveys do not provide a complete picture of a program's full impact because it cannot capture its impact on those who are not receiving the service, even though they may benefit from the program indirectly. Also, they note that clients who know they are being surveyed on how they are affected by a program may be more sensitized to the service's impacts. This may cause the tested group to perceive greater results than those who are not tested. Thirdly, they caution that too much focus on the random assignment study, if the evaluation is not implemented properly, could result in creating a systematic bias toward the tested group. Finally they warn that the follow-up survey group may not have the same reliability if those who participate in the follow-up are primarily those who benefited from the program.⁵⁶

Time Frame for Study

As noted above, the econometric model will require testing a group when they begin using Job Connect's services and then following-up with the same group afterwards. The skills shortage context requires a somewhat longer time frame for study. However, in order for an economic

⁵⁵ Warburton, William P. and Rebecca N. Warburton, "Measuring the Performance of Government Training Programs." *C.D. Howe Institute Commentary*, No. 165, June 2002.

impact analysis to be reliable, the time-frame for analysis must be short enough that economic impact can be more directly linked to the youth's use of the Job Connect program. Therefore, it is recommended that a period of no shorter than three years but no longer than five years be considered for the econometric model. The 'what works' model operates more on a one-time study of centres, though it may be beneficial for the ministry to follow-up after three to five years to determine if there is any change in Job Connect's impact on skills shortages over time.

Applying Both Models

The above models each offer different advantages and limitations to studying economic impact in a skills shortage context. Despite their differing approaches, it should be possible to get a sense of a Youth Employment Centre's degree of economic impact generally, and their impact on youth and their operation within a skills shortage context more specifically. These examples are described to allow the Ministry to choose aspects of the models depending on their aims in studying economic impact. If monetary measures of outcome is desired then the econometric formulas are most applicable, whereas if a sense of how Youth Employment Centres are able to address skills shortages is more desirable then aspects of the 'what works' model are more applicable.

It is possible, should the Ministry decide it wishes to measure outcomes in both the above areas, to apply both models simultaneously. A disadvantage to applying both models may be that each analysis could require separate, yet equally intense, research on findings. However, many of the survey questions for each model are similar, asking respondents to list their income, labour market successes, barriers to employment, current skills levels and goals, etc. In this sense, one survey could be developed that would reveal the necessary information for each type of analysis. For the econometric formula, however, it would be necessary to repeat the survey with the same set of respondents after a period of time. Interim indicators might be developed in the short term to guide program efforts while longer-term results were compiled. As there are no substantial barriers to implementing both approaches, and as both econometric and 'what works' models contribute to an understanding of economic impact in a skills shortage context, it is recommended that MTCU adopt aspects of both models to assess Job Connect's impact.

⁵⁶ *Ibid.*, p. 9, 10.

For Future Study

This report opens several points for future research. The purpose of this analysis was to determine measures that would be of value in assessing Job Connect's impact. It is recommended that future research be devoted to the practical application of these models. A second point for future research would be to consider if addressing a skills shortage is of benefit to youth employment issues. It may be the case that youth who find their skills underutilized in the labour market could benefit from targeted outreach to connect them with areas of skills shortages. It may, on the other hand, prove that the youth who need the most help in breaking into the labour market are not well suited to fill areas of skills shortage. They may, instead, benefit from programs that seek to match their interests with employability - meaning to help them enter the labour market generally ~ rather than into areas of skills shortages ~ areas that may not match their interests or abilities. This consideration may provide a critical area for future research on how Youth Employment Centres can operate in a skills shortage context.

APPENDIX 1

Source: Bloom, Howard S., Carolyn J. Hill, and James Riccio, "Modeling the Performance of Welfare-to-Work Programs: The Effects of Program Management and Services, Economic Environment, and Client Characteristics," Working Papers on Research Methodology. Chicago: Manpower Demonstration Research Corporation, 2001, p. 21 - 23.

Hierarchical Regression Analysis: Program Evaluation

Level One

$$Y_{ji} = \alpha_j + \beta_j P_{ji} + \sum_k \delta_k CC_{kji} + \sum_k \mu_k CC_{kji} P_{ji} + k_j RA_{ji} + \gamma_{ji}$$

Where client characteristics are grand-centred and:

- Y_{ji} = total two-year follow-up earnings for sample member i from office j
- P_{ji} = one if sample member i from office j is a program group member and zero otherwise
- CC_{kji} = client characteristics k for sample member i from office j
- RA_{ji} = a zero/one indicator variable to distinguish members of two sample cohorts at office j that were subject to different random assignment ratios
- α_j = mean two-year follow-up earnings at office j for the typical control group member from the full study sample
- β_j = the program impact at office j for the typical program group member from the full study sample
- δ_k = a regression coefficient indicating how mean two year follow-up earnings vary with client characteristics
- μ_k = a regression coefficient indicating how impacts vary with client characteristics k
- k_j = the regression adjusted difference in mean follow-up earnings for control
- γ_{ji} = a random error term for sample member i from local office j

"Equation I specifies the outcome Y_k (total earning for the two-year post-enrollment follow-up period) for each sample member as a function of a zero/one indicator variable indicating membership in the program group or control group (random assignment status), plus a series of client characteristics, a series of

interactions between random assignment status and client characteristics, and a zero/one indicator variable indicating membership in one of two random assignment cohorts at each local office.

“The coefficient β_j represents the conditional program impact for office j; the coefficients δ_k represent the effects of client characteristics on control group mean outcomes; the coefficients μ_k represent the effects of client characteristics on program impacts; the coefficient k_j represent the difference between conditional mean outcomes for the two random assignment cohorts at office j.

“Because all client characteristics were grand mean centred (they were measured as deviations from their mean for the full sample of 69,399 program and control group members), the values for β_j represent the program impact for the typical member of the full study sample (the sample member with full-sample mean values for all client characteristics.)

Level Two

Conditional Program Impact by Office:

$$\beta_j = \beta_o + \sum \pi_m PM_{mj} + \sum N_n PS_{nj} + PEE_j + \mu_j$$

- β_j = the conditional program impact at local office j for a typical program group member from the full study sample
- PM_{mj} = program management variable m for local office j
- PS_{nj} = program service variable for local office j
- EE_j = the economic environment variable for local office j
- β_o = the grand mean program impact for a typical program group member from the full study sample
- π_m = the effect of program management feature m on program impacts
- N_n = the effect of program service n on program impacts
- P = the effects of the economic environment on program impacts
- μ_j = a random component of the program impact for office j

“Equation 2 specifies the conditional program impact on mean two-year post-enrollment earnings β_j for each local program office as a function of a series of program management variables plus a series of program service variables and a local economic environment variable. The coefficients π_m , N_n and P represent the corresponding effects of these program characteristics on program impacts and are

the primary coefficients of interest in the present analysis. Because all independent variables in the equation were grand mean centered (they were measured as deviations from the mean value for all 59 local offices in the sample), β_o represents the grand mean impact for the typical sample member from the typical sample office.”

Control Group Conditional Mean Outcomes by Office (Level 3)

$$a_j = a_o + \lambda EE_j + v_j$$

where the economic environment variable is grand-mean centred and:

- a_j = the conditional control group mean earnings at local office j for a typical member of the full study sample
- EE_j = the value of the economic environment variable for local office j
- a_o = the grand mean conditional control group earnings for a typical member of the full study sample
- λ = the effect of the economic environment on control group earnings
- v_j = a random component of the conditional control group mean earnings for office j

“Equation 3 specifies the conditional control group mean outcomes a_j for each office (that is, control group earnings) as a function of the local economic environment. Allowing the conditional control group mean outcomes to vary across offices creates a different counterfactual for each office. This is a necessary step so that the local program office impacts (modeled in equation 2) are accurate and meaningful.

“The coefficient λ in Equation 3 represents the effect of the local economic environment on control group outcomes. Because the economic environment variable is grand-mean centred, the coefficient a_o represents the mean outcome for the typical control group member for the typical program office.”

APPENDIX 2

Source: Kurtis Kitagawa, *Make the Skills Connection: Labour Market Transitions Models that Work*. Toronto: Conference Board of Canada, 2001, p. 7

QUESTIONS TEMPLATE

Part 1 (for the interviewer): *Criteria that emerged from the research for what constitutes an effective labour market transitions practice/process.*

- Has a client focus
 - Is holistic
 - Adopts a case management approach
- Assesses experience, skills and knowledge upon entry
 - Identifies skills/skill gaps
- Provides credentials/certification at the end
 - Uses Prior Learning Assessment and Recognition (PLAR) to recognize previous experience
- Builds linkages to the workplace/further training linked to jobs/employment
 - Provides connections to jobs/employment
- Provides follow-up coaching and development support
- Develops individualized training plans
- Evaluates progress
 - Tracks Clients
 - Monitors positive impacts
- Facilitates labour market mobility
- Leverages comparative advantage
- Builds capacity
 - Within community
 - In growth industry
- Co-ordinates resources for clients
 - Eliminates red tape, duplication, passing the buck
- Addresses barriers
 - Puts people on a level ground
 - Creates a setting for openness/integration/exchange
- Integrates easily into the next stage of the transitions process
- Can be replicated in other jurisdictions
- Is scalable/customizable/adaptable; plugs into current framework of activities
- Is sustainable/self-renewing/evergreen
- Engages and motivates partners and individuals
- Builds understanding of the workplace
- Helps workplace create conditions favourable to learning
- Is accessible
 - Bridges rural/urban divide

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