



Veterans Affairs  
Canada

Anciens Combattants  
Canada



---

# **Income Adequacy and Employment Outcomes of the New Veterans Charter**

## **Prepared for the New Veterans Charter Review**

Mary Beth MacLean, MA, Health Economist  
Louise Campbell, BPR, Research Officer  
Research Directorate  
Veterans Affairs Canada  
Charlottetown PE Canada  
E-mail: [research-recherche@vac-acc.gc.ca](mailto:research-recherche@vac-acc.gc.ca)

September 23, 2014

*Research Directorate Technical Report*

© Her Majesty the Queen in Right of Canada, 2014.

ISBN:

V32-266/2016E-PDF  
978-0-660-05309-7

Published by:

Veterans Affairs Canada  
161 Grafton Street  
Charlottetown, Prince Edward Island  
C1A 8M9

Email: [research-recherche@vac-acc.gc.ca](mailto:research-recherche@vac-acc.gc.ca)

Citation:

MacLean MB and Campbell L. Income Adequacy and Employment Outcomes of the New Veterans Charter. Research Directorate, Veterans Affairs Canada, Charlottetown. 23 September 2014: p.35.

## Executive Summary

The New Veterans Charter (NVC) was introduced in 2006. Since then, the disability and financial benefits under the NVC have been under intense scrutiny by Veterans, stakeholders and other individuals. Two goals of the NVC are: to have an adequate income and to participate in the civilian workforce. The objective of this study is to inform disability compensation policy by examining the measurement of income adequacy and employment outcomes, and by discussing implications for measuring and improving the effectiveness of the NVC. Through a review of more than 60 articles, reports and papers, the authors examined income adequacy, employment, and disability compensation systems.

Income adequacy can be measured as income above poverty or some low income threshold. However, it is typically measured as the earnings replacement rate or the extent to which the combination of labour-market earnings and benefits replaced the earnings that the worker would have had if not injured. This replacement rate is generally assessed in one of two ways: comparing pre- and post-injury earnings, or comparing post-injury earnings to uninjured controls. The latter, emphasized in recent studies, more accurately reflects actual earnings loss as it captures earnings trajectories over time. A few of these studies that considered the adequacy of workers' compensation benefits found average earnings replacement rates of at least 90%, and even greater than 100% in cases with the highest impairment ratings. Although an intermediate goal of the NVC is to provide a level of income adequate to meet basic needs, there is no goal related to compensation for loss of earnings such as a prescribed earnings replacement rate.

Studies using uninjured controls to examine earnings replacement rates have identified several factors affecting earnings trajectories. Control groups have not been developed for the 2010 Income Study, though this data was used to compare the earnings of medically and non-medically released Veterans. However, this same data shows that earnings trajectories among Veterans are related to many of the same characteristics used in control group studies, making it possible for the Department to develop control groups for future studies. In addition, measuring income adequacy in this way allows for the examination of labour-market earnings replacement rates, an important employment outcome.

While income adequacy is a goal of many disability compensation schemes, the generosity of benefits can be a financial disincentive undermining employment goals, ultimately impacting the effectiveness and affordability of the program as well as client well-being. A number of studies – national and international, Veteran and general population – have shown a negative connection between more generous benefits and employment outcomes. However, successful employment strategies improve program affordability, income adequacy and, ultimately, well-being. In response, over the last decade, most Organization for Economic Co-operation and Development (OECD) countries have tightened access to benefits while improving employment integration.

In addition to the above financial considerations, policies to improve employment outcomes need to consider workplace, health care and personal systems. A VAC literature review found evidence that “people with mental health conditions can return to work after a prolonged absence,” and that restored health and work are not necessarily sequential. A number of workforce reintegration approaches exist which are discussed. However, a better understanding of these approaches and to what extent they would be effective for CAF Veterans experiencing work disability is needed.

## **Key findings**

***Finding 1:*** Income adequacy is typically measured in terms of what is known as earnings replacement rate. There is no accepted benchmark for the adequacy of income replacement, nor is there a consistent methodology. More recent studies have compared the earnings of injured workers or Veterans to uninjured control groups, thereby more accurately reflecting actual earnings losses over time. Social adequacy – i.e., earnings above poverty or some low income threshold— is also measured in some studies.

***Implication 1:*** In addition to measuring adequacy based on a low income threshold, the Department may want to measure the earnings replacement rate (employment earnings plus benefits) of injured Veterans compared to their uninjured counterparts. This approach would help establish benchmarks for income adequacy and employment outcomes.

***Finding 2:*** Many studies have considered earnings equity by examining the relationship between impairment and earnings replacement. Those in the highest impairment category in some cases had earnings replacement rates well in excess of 100% while those in lower impairment categories had lower replacement rates. This suggests that factors other than impairment may play a role in explaining earnings replacement.

***Implication 2:*** Veterans Affairs may want to study the question of equity by examining the relationship between impairment and earnings replacement rates among NVC clients.

***Finding 3:*** More generous benefits can negatively affect employment integration; however, there is no clear threshold at which this effect comes into play. Many countries have tightened benefits while improving employment integration.

***Implication 3:*** Future changes to the New Veterans Charter should consider putting a greater focus on employment earnings as a means of improving income adequacy. This could be measured through examining the extent to which employment earnings are contributing to earnings replacement rates. This focus on employment earnings would also improve program affordability and the overall well-being of Veterans.

## External Review and Acknowledgements

Dr. Emile Tompa (Phd Economics) provided an external review of this paper. Dr Tompa is a senior scientist at the Institute for Work & Health, associate professor in the Department of Economics at McMaster University, an assistant professor at the Dalla Lana School of Public Health at the University of Toronto, and a mentor with the CIHR Strategic Training Program in Work Disability Prevention, also at the University of Toronto. Tompa is a labour and health economist with a background in aging and retirement issues. His current research agenda is focused on the consequences of disability compensation system design features and other labour market policies and programs for the health of individuals and populations.

The authors would like to thank the following VAC colleagues for providing comments and suggestions: Crystal Garrett-Baird, Pat Aylward and Mary Beth Roach of the New Veterans Charter Review team, Dr. Linda Van Til epidemiologist of the Research Directorate, Mary Rogers, National Rehabilitation Consultant, Service Delivery and Program Management Division and Terry Dunsford and Trevor Nicholson of the Policy Division.

## Sommaire

La Nouvelle Charte des anciens combattants (Nouvelle Charte) est entrée en vigueur en avril 2006. Depuis, les prestations d'invalidité et les avantages financiers offerts en vertu de la Nouvelle Charte font l'objet d'un examen minutieux de la part des vétérans, des intervenants et d'autres particuliers. Obtenir un niveau de revenu adéquat et participer au marché du travail civil sont deux objectifs visés par la Nouvelle Charte. L'objectif de cette étude est de guider l'élaboration des politiques d'indemnisation des invalidités en examinant les mesures du niveau adéquat du revenu et des résultats en matière d'emploi et en discutant des répercussions relatives à la mesure et à l'amélioration de l'efficacité de la Nouvelle Charte. Dans le cadre de la consultation de plus de 60 articles, rapports et autres documents, les auteurs ont examiné le niveau adéquat du revenu, l'emploi et les systèmes d'indemnisation des invalidités.

Le revenu adéquat peut être exprimé comme le revenu au-dessus du niveau de pauvreté ou le revenu supérieur à un certain seuil de faible revenu. Cependant, le revenu adéquat est habituellement mesuré par des taux de remplacement du revenu ou par la mesure dans laquelle une combinaison des gains et des prestations tirés du marché du travail permet de remplacer les revenus qu'aurait gagnés le travailleur s'il n'était pas blessé. Ce taux de remplacement est habituellement évalué selon l'une ou l'autre des deux méthodes suivantes : la comparaison des revenus avant et après la blessure ou la comparaison des revenus de personnes après une blessure avec les revenus de personnes non blessées faisant partie de groupes témoins. La deuxième méthode, privilégiée dans des études récentes, représente plus exactement la perte réelle de revenus puisqu'elle tient compte des projections de revenus au fil des ans. Certaines des études qui se sont penchées sur le caractère adéquat des indemnités pour accidents du travail ont révélé des taux de remplacement du revenu de plus de 90 % et même supérieurs à 100 % dans des cas où les taux de déficience étaient les plus élevés. Même si un des objectifs intermédiaires de la Nouvelle Charte est de fournir un niveau adéquat du revenu pour satisfaire aux besoins fondamentaux, il n'existe aucun objectif lié à l'indemnisation pour perte de revenus, comme un taux de remplacement du revenu prescrit.

Les études ayant utilisé les revenus de personnes non blessées faisant partie de groupes témoins pour examiner les taux de remplacement du revenu ont permis de relever plusieurs facteurs ayant une incidence sur l'évolution des revenus. Aucun groupe témoin n'a été établi pour l'étude sur les revenus de 2010, bien que ces données aient servi à une comparaison entre les revenus avant la libération des vétérans libérés pour raisons médicales et des vétérans libérés pour raisons non médicales. Cependant, ces mêmes données révèlent que l'évolution des revenus chez les vétérans est liée à bon nombre des mêmes caractéristiques utilisées dans les études réalisées auprès de groupes témoins, ce qui permettra au Ministère d'établir des groupes témoins lors d'études futures. De plus, le fait de mesurer le caractère adéquat du revenu selon cette méthode permet d'examiner les taux de remplacement du revenu sur le marché du travail, un important résultat en matière d'emploi.

Même si un niveau adéquat du revenu est un objectif de nombreux modèles d'indemnisation des invalidités, la générosité des prestations peut aller à l'encontre des

objectifs en matière d'emploi, nuisant en fin de compte à l'efficacité et au caractère abordable du programme ainsi qu'au bien-être du client. Un certain nombre d'études – nationales et internationales, portant sur les vétérans et la population générale – ont fait ressortir un lien négatif entre des prestations plus généreuses et les résultats en matière d'emploi. Toutefois, des stratégies fructueuses en matière d'emploi améliorent le caractère abordable des programmes, le niveau adéquat du revenu et, en fin de compte, le bien-être. Par conséquent, au cours des dix dernières années, la plupart des pays de l'Organisation de coopération et de développement économiques (OCDE) ont resserré l'accès aux prestations, tout en améliorant l'intégration en emploi.

Outre les considérations financières susmentionnées, les politiques visant à améliorer les résultats en matière d'emploi doivent tenir compte du milieu du travail, des soins de santé et des systèmes personnels. Une analyse documentaire menée par ACC a révélé que « les gens touchés par des affections mentales peuvent retourner au travail après une longue absence » et que le rétablissement à la santé et le travail ne se suivent pas nécessairement. Il existe quelques approches pour la réinsertion professionnelle dont il est question. Toutefois, il faut arriver à mieux comprendre ces méthodes et dans quelle mesure elles seraient efficaces pour les vétérans des FAC aux prises avec une inaptitude au travail.

## **Principales constatations**

*Constatation n° 1* : Le niveau adéquat du revenu est habituellement mesuré selon ce qui est connu comme étant le taux de remplacement du revenu. Il n'y a pas de point de référence accepté pour le caractère adéquat du remplacement du revenu, pas plus qu'il n'y a de méthodologie uniforme. Des études plus récentes ont comparé les revenus d'employés ou vétérans blessés avec les revenus de personnes non blessées faisant partie de groupes témoins, ce qui reflète plus précisément les pertes de revenus réelles au fil du temps. L'adéquation sociale – c.-à-d. un revenu au-dessus du seuil de la pauvreté ou un seuil de faible revenu – est également mesurée dans le cadre de certaines études.

*Incidence n° 1* : En plus de mesurer le caractère adéquat du revenu en fonction d'un seuil de faible revenu, le Ministère peut souhaiter mesurer le taux de remplacement du revenu (revenus d'emploi plus les prestations) de vétérans blessés comparativement à leurs homologues non blessés. Une telle approche permettrait d'établir des points de référence pour mesurer le niveau adéquat du revenu et les résultats en matière d'emploi.

*Constatation n° 2* : De nombreuses études se sont penchées sur la valeur nette des revenus en examinant la relation entre la déficience et le taux de remplacement du revenu. Dans certains cas, les taux de remplacement du revenu des personnes qui appartenaient à la catégorie ayant les cotes de déficience les plus élevées étaient de beaucoup supérieurs à 100 % alors que les taux de remplacement du revenu de celles qui appartenaient à la catégorie ayant des cotes de déficience moins élevées étaient inférieurs. Cela porte à croire que des facteurs autres que la déficience peuvent contribuer à expliquer les taux de remplacement du revenu.

*Incidence n° 2* : Anciens Combattants Canada pourrait étudier la question d'équité en examinant la relation entre la déficience et le taux de remplacement du revenu chez les clients de la Nouvelle Charte.

*Constatation n° 3* : Des prestations plus avantageuses peuvent avoir une incidence négative sur l'intégration en emploi; cependant, il n'y a pas de seuil bien défini à partir duquel cet effet entre en jeu. De nombreux pays ont resserré l'accès aux prestations, tout en améliorant l'intégration en emploi.

*Incidence n° 3* : Au moment d'apporter de futures modifications à la Nouvelle Charte des anciens combattants, il faudrait envisager de mettre davantage l'accent sur les revenus d'emploi en tant que moyen d'améliorer le caractère adéquat du revenu, lequel pourrait être mesuré en examinant la mesure dans laquelle les revenus d'emploi entrent en jeu pour déterminer les taux de remplacement du revenu. Cet accent mis sur les revenus d'emploi permettrait également d'améliorer le caractère rentable des programmes et le bien-être général des vétérans.

## **Examen indépendant et remerciements**

M. Emile Tompa (Ph. D. en économie) a effectué un examen indépendant de cet article. M. Tompa est scientifique principal à l'Institut de recherche sur le travail et la santé, professeur agrégé au département d'économie de l'Université McMaster, professeur adjoint à la Dalla Lana School of Public Health de l'Université de Toronto, et mentor auprès du CIHR Strategic Training Program in Work Disability Prevention, également à l'Université de Toronto. M. Tompa est économiste du travail et de la santé qui se spécialise dans les questions de vieillissement et de retraite. Ses recherches actuelles portent sur les conséquences des caractéristiques des régimes d'indemnités d'incapacité et sur d'autres politiques et programmes sur le marché du travail sur la santé des personnes et des populations.

Les auteurs souhaitent remercier leurs collègues suivants d'ACC pour leurs commentaires et leurs suggestions : Crystal Garrett-Baird, Pat Aylward et Mary Beth Roach de l'équipe chargée de l'examen de la Nouvelle Charte des anciens combattants, la D<sup>re</sup> Linda Van Til, épidémiologiste à la Direction de la recherche, Mary Rogers, conseillère en réadaptation, Direction générale de gestion des programmes et de la prestation de services ainsi que Terry Dunsford et Trevor Nicholson, de la Direction générale des politiques.



## Table of Contents

Executive Summary .....	2
External Review and Acknowledgements .....	5
Sommaire .....	6
Examen indépendant et remerciements .....	8
1.0 Introduction .....	10
1.1 Objective .....	11
2.0 Method .....	11
3.0 Results .....	12
3.1 Income Adequacy .....	12
3.1.1 Measurement and Findings .....	12
3.1.2 Factors Affecting Earnings .....	16
3.2 Employment .....	18
3.2.1 Financial Disincentives to Employment .....	18
3.2.2 Improving Employment Outcomes .....	24
4.0 Discussion .....	29
5.0 References .....	30

## 1.0 Introduction

In the late 1990s and early 2000s it became increasingly clear that the *Pension Act* was becoming progressively unaffordable and, despite rising costs, the needs of Canadian Armed Forces (CAF) Veterans were not being adequately addressed (Veterans Affairs Canada-Canadian Forces Advisory Council 2004). Disability pensions were seen as insufficient for those unable to work, there was no separation of economic and non-economic loss, and there was no focus on workforce reintegration and well-being. The *Canadian Forces Members and Veterans Reestablishment and Compensation Act* (New Veterans Charter [NVC]), which came into force in 2006, was intended to shift the focus from one of disability to one of “well-being.”

Two NVC goals are reviewed in this study: 1) to ensure adequate income for disabled Veterans; and 2) to encourage disabled veteran participation in the civilian workforce. However, the means to evaluating successful achievement of these goals of the NVC programs are limited. Currently achievement is assessed through the Re-establishment Survey, conducted each year since 2007-08. The survey examines clients at intake and exit from the program for monitoring performance of the Rehabilitation and Career Transition Services programs. The study design does not follow clients after program completion and therefore does not examine ongoing labour-force attachment and income. The NVC Evaluation (VAC, 2011), conducted by Audit and Evaluation in 2010, noted several measurement limitations, including: no baseline established prior to implementation, lack of a control group, and low response rate for the Re-establishment Survey (less than 50%).

Prompted by this current lack of effective measurement of outcomes, as well as recent questions regarding the effectiveness of disability compensation, the NVC review team asked the Research Directorate to examine concepts relevant to two NVC goals; specifically, that Canadian Armed Forces Veterans:

- **Income goal:** have a level of income adequate to meet basic needs as a result of enhanced employment opportunities facilitated by Career Transition Services and access to Rehabilitation services.
- **Employment goal:** actively participate in the civilian workforce as a result of accessing employment-related supports in the form of Rehabilitation services, Vocational Assistance, training and Career Transition Services.

While the Life After Service Studies program of research has looked at income and employment, it cannot attribute employment outcomes with program participation. For example, the Re-establishment Survey and the 2010 Survey on Transition to Civilian Life (STCL) (Thompson *et al*, 2011) include many standard employment and income measures, but they lack both a control group and follow-up after program completion. Further, the 2010 Income Study (MacLean *et al*, 2011b) was longitudinal allowing for follow-up post participation in NVC programs but did not collect health status measures and covered less than two years post-NVC implementation. Follow-up of a STCL control and study group and adding more years of income data to the Income Study

record linkage would provide a higher level of evidence on the effectiveness of the Rehabilitation program (MacLean, VanTil and Banman, 2011a).

In light of the “well-being” intention of the NVC, the Research Directorate has subsequently developed the Veterans’ Well-being Conceptual Framework (Thompson *et al*, 2013), which depicts well-being as being defined by a number of factors including health, disability and the determinants of health. Relevant to this study, the framework situates income and employment within the concept of well-being.

Income and employment are separate determinants of health. Therefore, addressing income alone does not recognize the contribution of employment to individual well-being. While healthy people are more likely to be employed, employment also improves health. Further, employment increases status, power and independence and can be a source of social support and recognition from others (Ross and Mirowsky, 1995).

## 1.1 Objective

The objective of this study is to inform disability compensation policy related to NVC by examining the concepts of income adequacy and employment, and by discussing implications for measuring and improving the effectiveness of the NVC.

## 2.0 Method

More than 60 papers, articles and reports were reviewed, covering the concepts identified in the objective above. These sources were largely identified through a thorough search of the VAC Research Directorate’s extensive Reference Database and a query through Google Scholar, an effective way to find relevant work across the world of scholarly research. This review excluded studies conducted prior to 2000.

Of particular note are studies from the Institute for Work and Health (IWH) and the RAND Center for Health and Safety in the Workplace as well as its federally funded National Defense Research Institute. IWH, a Canadian independent not-for-profit organization conducts and shares research that protects and improves the health of working people. The RAND Corporation is an American nonprofit institution that helps improve policy and decision-making through research and analysis.

Findings from a number of Life After Service Studies (VAC and DND) were also used in this review, as well as new analyses of factors affecting earnings post-release, drawing from tables provided by Statistics Canada for the 2010 Income Study.

## 3.0 Results

Study results are presented under the headings: income adequacy (including measurement and control factors for measuring earnings losses), and employment (including financial disincentives and ways to improve employment outcomes). For ease of reference, the sources (with findings) are provided in chronological order at the conclusion of the relevant section, with a full list provided at the end of the report.

### 3.1 Income Adequacy

This section addresses one of the desired NVC goals; i.e., to ensure a level of income adequate to meet basic needs as a result of enhanced employment opportunities facilitated by transition services and access to rehabilitation services.

Disability compensation can compensation for both economic and non-economic loss. Economic loss includes loss of earnings and non-wage compensation such as benefits, medical and rehabilitation costs, non-work losses (e.g., housework, child care). Non-economic loss includes "pain and suffering" and loss of quality of life. Income adequacy is typically measured through an assessment of loss of earnings. According to Hunt (2004), approaches to determining income adequacy include reference to personal injury or courts awards (which often include economic and non-economic losses), loss of earnings, and low income. This section discusses income adequacy through an examination of how it is measured as well as control factors used in measuring earnings losses.

#### 3.1.1 Measurement and Findings

A key objective of workers' compensation programs is to provide adequate compensation for lost earnings to people who experience work-related injury or illness. Income adequacy in workers' compensation is generally measured in terms of replacement of earnings losses. There are two common approaches for measuring earnings loss: comparing pre- and post-injury earnings or comparing post-injury earnings to uninjured controls. The latter, emphasized in recent studies, more accurately reflects actual earnings loss as it captures earnings trajectories over time. Labour-market earnings generally increase rapidly in early years of labour-force participation, level off while employees are in their late 40s and early 50s, and decrease in later years with retirement (Tomba *et al*, 2010).

In Canada, most workers compensation programs have recognized that the percentage of bodily impairment is not always a good measure of loss of earnings. In response, those programs have moved to compensation based on loss of earnings capacity with most also providing a non-economic loss award. The Institute for Work and Health (Tomba *et al*, 2010), using a control group approach, examined labour-force earnings and the earnings replacement rate among injured workers 10 years post-injury. They found that the earnings replacement rate, after taxes, for permanently disabled claimants was at least 90% on average for every category of physical impairment, with the highest replacement rate (124%) among those with the highest impairment rating. However, there was much

variation within each impairment rating category; e.g., many in the lower impairment category had replacement rates below 75%. The authors conclude that contextual factors such as age, transferable skills and labour-market conditions impact earnings capacity and suggest that particular attention be paid to the adequacy of earnings replacement among those with low levels of impairment.

A 2011 RAND report (Seabury et al, 2011) examined the impact of earlier reforms by measuring the loss replacement rate, defined as the fraction of labour-market earnings loss that was replaced by workers' compensation. Comparing injured claimants to uninjured controls, they found that despite the return-to-work gains observed, the adequacy of benefits decreased and the replacement rates fell from 50% to 37%. The authors concluded that an increase in benefits would be necessary to return replacement rates to previous levels, and discussed how to balance such an increase with incentives that promote return to work.

Among Veterans, three RAND reports have measured adequacy in terms of earnings loss and compensation for this loss. All three used comparisons of disabled Veterans to control groups of non-disabled Veterans. A 2005 RAND report (Budden and Kapur) compared earnings loss and compensation of disability pensioners and found that the United States Veterans Affairs (USVA) disability compensation, which was designed based on civilian earnings losses, was higher than the earnings losses at each disability rating level and particularly for greater disability ratings. However, when offsets and tax-exempt status was taken into account some groups had losses. For example, among non-medical pensioners, there were small economic losses for those with disabilities in the 10 to 40 percent range but earnings gains of 16 to 70 percent for ratings from 50 to 100 percent.

A more recent RAND study (Heaton *et al*, 2012) examined USVA disability compensation among Operation Enduring Freedom/Operation Iraqi Freedom Veterans. They estimated earnings loss replacement rates for active force members ranged from 98% for the least seriously injured to 154% among the most serious casualties. The authors argue that compensation above 100% may be appropriate in certain circumstances, including to encourage calculated risk-taking which is desirable in certain occupations (e.g., policing, firefighting, military service).

A third RAND study (Buddin *et al*, 2012) examined the earnings of all Veterans who left the military in fiscal years 1993 to 2004 and found that disability compensation was generally higher than the actual earnings losses for each rating level, particularly those at the highest rating, and across most types of Veterans. For example, among enlisted males, VA compensation was 47% greater than earnings losses for a 40% rating, compared to 76% greater for the highest rating group (80-100%). The authors' noted that perhaps disabled Veterans' payments compensate for quality of life (QOL) over and above the earnings losses associated with their injuries, however they were not convinced that the payments meaningfully reflected QOL losses. They recommended that government and program managers should better define the goals and objectives of disability compensation.

Other measures, such as low income, poverty and income levels, appear in Veteran studies of income adequacy. These measures reflect social adequacy concerns rather than earnings loss replacement. London, Heflin and Wilmoth (2011) found a higher poverty rate among disabled non-Veteran households (33%) compared to disabled-Veteran households (13%) in the US. However, Fulton *et al* (2009) found that disabled Veterans in the US had lower incomes relative to persons without disabilities and to non-Veterans who reported the same number of disabilities.

The 2010 Income Study (MacLean *et al*, 2011b) of Canadian Armed Forces Veterans found that while disability benefit clients experience a larger decline in income than other Veterans, their rates of low income are lower. Post-release, Veterans on average (first three years) experience a 10% decline in income and 15% experienced low income. Looking at disability benefit clients and other Veterans separately, disability benefit clients experienced a 20% decline in income compared to 5% for other Veterans. However, a smaller proportion of disability benefit clients experienced low income at least once post-release (11%) compared to other Veterans (17%). These comparisons, however, do not control for differences in these population such as age or education.

Using data from the 2010 Income Study (MacLean *et al*, 2011b) and the Survey on Transition to Civilian Life (Thompson *et al*, 2011), MacLean *et al* (2011c) examined various measures of income adequacy: satisfaction with financial situation, low income, continuity of income, and earnings potential. They found that medically-released Veterans did not recover their pre-release level of income while the incomes of non-medically released Veterans eventually exceeded their pre-release incomes. While medically-released Veterans were just as likely to experience low income as non-medically released Veterans, they were less satisfied with their financial situation. The findings suggest that satisfaction with financial situation may be more related to loss of continuity of income and/or lost earnings potential than being in a low-income situation. Similar to Buddin and Han (2012) above, MacLean *et al* (2011c) recommend clarification of goals related to income adequacy.

Table 1: Income adequacy measurement and findings

Author, Pub date	Type of Study	Key Findings
Buddin and Kapur, 2005	<b>VETERAN</b> -2003 Survey of Retired Military augmented with personnel information from military records and disability information from the VA. <u>Measures</u> : Earnings loss (control group)	VA disability compensation for each disability rating is higher than the corresponding earnings loss. When offsets and tax-exempt adjustments are accounted for the results show that retirees with disability ratings of less than 50 percent receive slightly less than their earnings losses whereas retirees with larger disabilities are overcompensated.
Fulton <i>et al</i> , 2009	<b>VETERAN</b> -Studied 1.8 million working-age adults ages 18 to 64 (Veterans and non-Veterans). Regression analysis with personal income modeled as a function of demographics, education, geographical and Veteran-related. <u>Measures</u> : Level of income compared to general population	Disabled Veterans who have multiple categories of disabilities do not receive income on par with society or with disabled non-Veterans reporting the same number of disabilities. Disabled Veteran status had a large and negative effect on personal income, especially as the number of disabilities increased.



Author, Pub date	Type of Study	Key Findings
Tompa <i>et al</i> , 2010	Data linkage between workers' compensation claims data in Ontario and British Columbia and Statistics Canada earnings data. <u>Measures</u> : Earnings loss (control group)	Earnings replacement rate (earnings plus disability compensation/control group earnings) was at least 90 per cent on average for every category of physical impairment (at least 90% for lowest to 124% for the highest impairment category) under each of the three workers' compensation systems studied. Within each category of impairment, there was much variation in both post-injury earnings and earnings replacement rates.
MacLean <i>et al</i> , 2011(b)	<b>VETERAN</b> -Regular Force population released from 1998 to 2007 (n=36,638); linked DND administrative data with Statistics Canada general family tax records. <u>Measures</u> : Total income loss (pre-post release), low income (post-release).	Post-release, Veterans on average (first 3 years) experience a 10% decline in income and 15% experienced low income. Disability benefit clients experienced a 20% decline in income compared to 5% for other Veterans. A smaller proportion of disability benefit clients experienced low income at least once post-release (11%) than other Veterans (17%).
Seabury <i>et al</i> , 2011	Using workers' compensation administrative data, matched injured workers to uninjured (control) workers to estimate the impact of a disabling injury on post-injury employment outcomes. <u>Measures</u> : Earnings loss (control group)	Replacement rates declined from 40%-45% prior to reforms to about 35% after reforms, but would have been worse had employment rates not increased. Permanently disabled workers in California are returning to work in larger numbers since the 2004 reforms, which included employer incentives to rehire injured workers. Benefits to permanently disabled workers have declined by 26% since the reforms.
London, Heflin and Wilmoth, 2011	<b>VETERAN</b> -Examination of interrelationships between work-related disability, Veteran, and poverty statuses using data from the 1992-2004 panels of the Survey of Income and Program Participation. <u>Measures</u> : Social adequacy	Households with non-disabled Veterans have a lower likelihood of poverty, but that advantage is severely eroded when the Veteran or another family member has a work-limiting disability. Nevertheless, all Veteran households have substantially lower odds of poverty than disabled non-Veteran households, which have the highest poverty rate. Interaction of Veteran and disability statuses contribute to substantial variability in household-level poverty.
MacLean <i>et al</i> , 2011(c)	<b>VETERAN</b> - Based on Life After Services Studies data (MacLean <i>et al</i> , 2011b), Thompson <i>et al</i> , 2011), examined medical and non-medical Regular Force releases 1998 to 2007. <u>Measures</u> : Income and earnings loss (pre-post), low income and satisfaction with financial situation post-release	Medically-released Veterans did not recover their pre-release level of income over the entire period. In contrast, the incomes of the non-medically released Veterans were close to 100% of the pre-release level initially and reached as high as approximately 110%. Medically-released Veterans were much less likely to be satisfied with their financial situation than non-medically released Veterans. There was no significant difference in the low income rates between medical and non-medical releases.
Heaton <i>et al</i> , 2012	<b>VETERAN/MEMBER</b> -Linked US Defence, Veterans Affairs and Social Security data to examine injury, labour-market earnings, and disability compensation; 700,000 service members deployed to Iraq and Afghanistan (2001-2006) and their spouses. <u>Measures</u> : Earnings loss (control group)	Earnings losses attributable to injury increase with injury severity and, on average, disability payments more than compensate for these lost earnings. Due to disability compensation, the income of service members with serious or very serious injuries is on average about 36 percent higher four years following deployment than it would have been had they not been injured. Earnings replacement rate (earnings plus disability compensation /control group earnings) for active duty members in the 4 <sup>th</sup> year post-deployment of 98% (referred for follow-up) to 154% (very serious casualty) on average.
Buddin and Han, 2012	<b>VETERAN</b> -Tracked civilian earnings and labour-force participation for up to 12 years, for cohort leaving the military	The earnings losses for most active duty veterans with SCDs are much smaller than the disability compensation provided by the VA or the corresponding component of DoD retirement pay. For example, veterans with a

Author, Pub date	Type of Study	Key Findings
	between FY 1993 and 2004 to compare labour-market success of Veterans with and without service-connected disabilities (SCDs) <u>Measures:</u> Earnings loss (control group)	30-percent disability are better off financially than other similar veterans with no SCD. The “extra” payments increase with disability ratings and are higher for enlisted veterans than for veteran officers. The disability compensation is generally higher than the actual earnings losses for each rating level and across most types of veterans.

### 3.1.2 Factors Affecting Earnings

Recent studies have compared the earnings trajectories of injured worker (or veteran) earnings to uninjured control earnings, with controls identified through a matching process designed to identify controls with similar earnings potential as the injured workers/veterans. This approach allows for a more accurate measure of earnings losses than simply comparing injured worker earnings to their pre-injury earnings. Tompa *et al* (2010) selected up to 10 controls for each claimant in three workers compensation programs, based on a number of characteristics, including pre-injury earnings, gender, age, and province of residence. A recent RAND study (Heaton *et al*, 2012) examined the incomes of military personnel deployed to Iraq and Afghanistan from 2001 to 2006. Another RAND study (Buddin and Han, 2012), which examined post-military incomes of Veterans who left the military from 1993 to 2004, included many of the same factors as in the post-deployment study and also included factors relevant to Veterans transitioning to civilian life such as the reason for release and civilian experience. Of the control factors used in these studies, some were similar and some were unique; the findings are compared in Table 2.

Table 2: Control factors in measuring earnings losses – selected studies

Characteristic	IWH-Tompa <i>et al</i> , 2010 (post-injury)	RAND-Heaton <i>et al</i> 2012 (post-deployment)	RAND-Buddin and Han, 2012 (post-military)
Study Population	Injured workers	Still-serving personnel or Veterans	Veterans
Age	Age at injury	Age at end of deployment	Age at separation
Race	No	White, black, Hispanic, other	White, black, Hispanic, other
Education	No	No high school, high school, some college, bachelor's degree, graduate degree	No high school, high school, some college, bachelor's degree, graduate degree
Gender	Male, female	Male, female	Male, female
Residence	Province	State	No
Year	Injury year	Deployment end date	Separation year (1994 to 2004)
Occupation	No	36 categories	No, tested combat occupation but was not significant
Pre Earnings	Wage and salary	Pay grade pre-deployment	Pay grade
Health	Disability assessment % (1-5, 6-10, 11-20, 21-50, >50)	Treatment or reported medical problems, self-rated pre-deployment health	Disability assessment % (10, 20, 30, 40, 50, 60-70, 80-100)



<b>Characteristic</b>	<b>IWH-Tompa <i>et al</i>, 2010 (post-injury)</b>	<b>RAND-Heaton <i>et al</i> 2012 (post-deployment)</b>	<b>RAND-Buddin and Han, 2012 (post-military)</b>
Aptitude	No	Test scores	Test scores
Promotion tempo	n.a.	No	Yes
Rank	n.a.	Included with pay grade, see pre-earnings	Officer, enlisted
Release Reason	n.a.	No	Disability retirement and separation
Civilian experience	n.a.	No	Years since separation
Deployment	n.a.	Study group included only Iran or Afghanistan deployment	Iran or Afghanistan tour
Service Branch	n.a.	Army, Air Force, Navy, Marine Corp	Army, Air Force, Navy, Marine Corp

n.a. Not available or not applicable

The 2010 Income Study (MacLean *et al*, 2011b) of Canadian Armed Forces Veterans found that both income trajectories and post-release income levels are related to many of these same characteristics. Female Veterans; Veterans with high school or less; those that lived in Atlantic Canada, Manitoba, British Columbia or the Yukon; and those released medically or at retirement age experienced both the greatest declines and the lowest levels of earnings post-release. Older Veterans (aged 40 plus) experienced greater than average declines in earnings while earnings levels were lower among younger (15-24) and older (50+) Veterans. Those released at higher ranks, at retirement age or from the Air Force experienced greater than average earnings declines while those at lower ranks, involuntarily released or released from the Army and Navy had lower levels of earnings.

Table 3: Factors affecting earnings, 2010 Income Study

<b>Characteristic</b>	<b>MacLean <i>et al</i> (2011) Pre- and Post-Release Earnings decline greater than average of -42%</b>	<b>MacLean <i>et al</i> (2011) Post-Release Earnings less than average of \$35,500</b>
<b>Study Population</b>	Canadian Armed Forces Regular Force Veterans who released 1998-2007	
Age at Release	40+	15-24 and 50+
Race	n.a.	n.a.
Education	high school, less than high school	high school, less than high school
Gender	females	females
Residence in 2007	Atlantic provinces, Manitoba, BC, Yukon	Atlantic provinces, Manitoba, BC, Yukon
Year	2002, 2003, 2004*	2003, 2004*
Occupation	n.a.	n.a.
Pre Earnings	n.a.	n.a.
Health	n.a.	n.a.

Characteristic	MacLean <i>et al</i> (2011)	MacLean <i>et al</i> (2011)
Rank	senior officers, seniors NCMs, junior NCMs	Junior NCMs, recruits, privates, cadets
Release Reason	medical, retirement age	medical, involuntary
Service Branch	Air Force	Army, Navy

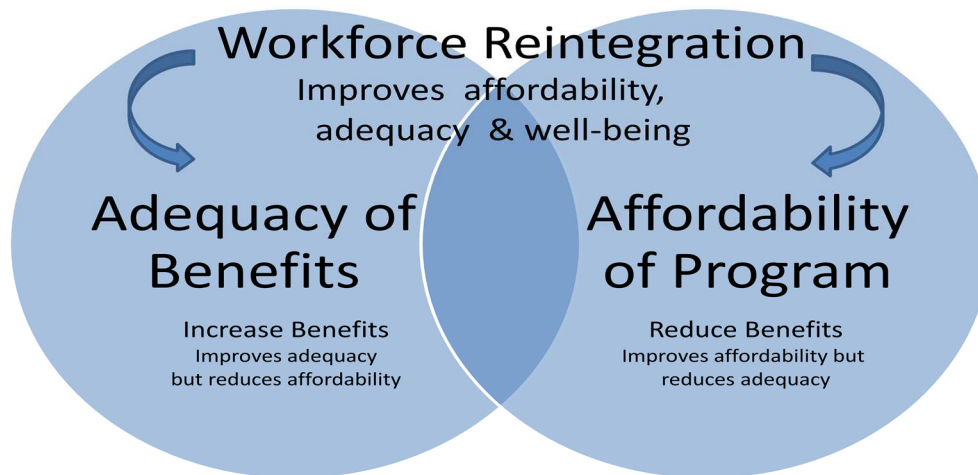
n.a. not available

\*2005 to 2007 not available

## 3.2 Employment

Two widely accepted measures of disability compensation system effectiveness are adequacy of benefits and affordability of the system (Seabury et al, 2011). Generally speaking, *adequacy* is measured by the extent to which indemnity benefits compensate for an appropriate amount of earnings lost from a work injury. *Affordability* reflects the extent to which compensation benefits, including the delivery costs, affect the cost to insurers/employers. Striking a balance between the two is a key policy challenge since reducing benefits can improve affordability but may compromise adequacy and, conversely, increasing benefits can improve adequacy but can undermine employment outcomes and ultimately impact affordability (see Figure 2 for a representation of these issues). Increased employment of beneficiaries can improve program affordability (by reducing the need for benefits), income adequacy and well-being.

Figure 2: Adequacy and affordability balance



### 3.2.1 Financial Disincentives to Employment

One way to improve income adequacy is to increase benefits; however, evidence suggests that more generous benefits may lead to dependence and undermine workforce reintegration goals. A 2003 Organisation for Economic Cooperation and Development (OECD) policy brief cited that in most countries, people who enter disability-related programs remain there until retirement. The brief proposed a number of reforms to move disability policy closer to the philosophy of successful unemployment programs,

including an emphasis on putting people to work, introducing a culture of mutual obligations and giving a more important role to employers.

Over the last decade, most countries have tightened access to benefits while improving employment integration programs. This approach is in line with evidence suggesting that a more generous disability policy is associated with higher numbers of beneficiaries, and more comprehensive employment and rehabilitation programs are associated with lower reciprocity rates (OECD, 2009). In other words, more generous compensation in the absence of an effective rehabilitation program can lead to reduced workplace reintegration. In a similar vein, O'Donnell *et al* (2010) and Gabbe *et al* (2007) found that those who received compensation compared to those who did not receive compensation as the result of a motor vehicle accident had worse employment outcomes.

A systematic review of all empirical studies from five OECD countries (Barr *et al*, 2010) found that eight of 11 studies reported that benefit levels had a significant negative association with employment. The most robust study demonstrated a small but significant negative association. The authors note, however, there was insufficient evidence of a high enough quality to determine the extent of that effect.

In Sweden, higher disability compensation has been found to increase the length of time on sickness benefits (Engström and Eriksen, 2002). Burns (2008) examined the effectiveness of Individual Placement and Support (IPS) in Europe (where welfare benefits are typically more generous than in Canada and the US), and found that rates of workforce reintegration were lower there. Also in Europe, Staubli (2011) studied the effect of a large-scale policy change in the Austrian disability insurance program, which tightened eligibility for men above a certain age, and found a decline in disability enrolment and an increase in employment. However, the changes had a spillover effect into unemployment benefits and sickness insurance benefits. Marie and Vall Castello (2012) examined the employment effects of an increase in the amount of disability pensions that is granted to individuals aged 55 or above receiving a partial disability pension in Spain. The DI system in Spain allows these claimants to combine the receipt of benefits with income from employment. They concluded that employment of DI recipients would have been 8% higher if they had not received the benefit increase. While most examinations of disability vs. labour supply relate to developed countries, Mitra (2009) looked at evidence from South Africa, finding that reduced stringency in that country's Disability Grant program did not affect the labour-market behaviour of older females, but led to a reduction in the participation of older males.

A number of studies focused specifically on the US Social Security Administration (SSA) Disability Insurance (DI) program. One DI-related study (Gruber, 2000) looked to Canada for answers, by comparing experiences between the Canada Pension Plan (which raised its benefits by 36 per cent in 1987) and the Quebec Pension Plan (which remained constant), and found a large labour supply effect of the benefits increase. Bound *et al* (2010) found that DI expansion of eligibility likely did not precipitate the drop in employment among men with work limitations. Chen and van de Klaauw (2005) also found that during the 1990s, the labour-force participation rate of DI beneficiaries would have been at most 20 percentage points higher had none received benefits. In an

August 2012 study, Maestas *et al* found that among 23% of applicants on the margin of program entry, employment would have been 28 percentage points higher had they not received benefits. A 2011 study (von Wachter *et al*) shows evidence that younger rejected male DI applicants exhibit substantial labour-market attachment.

In Canada, the Institute for Work and Health (Tomba, 2013) examined the impact of the 1998 Ontario workers' compensation legislation – which involved reduced wage replacement benefits, increased responsibility on workers and employers for the return-to-work process, and a new Labour-Market Re-entry program – and found these changes have apparently encouraged a greater focus on work re-engagement. The IWH is currently conducting a review of financial incentives for work reintegration.

A number of Veteran-specific studies examine the disability compensation-workforce participation relationship. In the US, Autor and Duggan (2007) reviewed studies which were conducted over a period of 15 years to distinguish income from substitution effects (loss of benefits, implicit tax on work) in disability insurance. They found initial evidence that the increase in unearned income resulting from a 2001 expansion of the VA Disability Compensation Program's medical eligibility criteria substantially reduced labour-force participation among Vietnam-era Veterans.

Greenberg and Rosenheck (2007) found no global effect of compensation on labour-force participation but found an effect after a certain payment level (\$800/month). In the most recent Veteran compensation study, Tsai and Rosenheck (2013) found that high impairment ratings (of 50% or more), but not all levels of VA disability compensation, create disincentives for employment. They concluded that education and vocational rehabilitation interventions, as well as economic work incentives, may be needed to maximize employment among Veterans with disabilities.

In addition to the above studies which focused on the broader population receiving disability compensation, Drew *et al* (2001) examined labour-force participation among injured Veterans engaged in a rehabilitation program. They found that those receiving disability benefits worked fewer hours in compensated work therapy each week, earned less income, had a higher dropout rate, and were less likely to be competitively employed at discharge.

Several studies have attempted to explain mechanisms related to financial disincentives. MacDonald-Wilson *et al* (2003) found fear of loss of health benefits to be a significant return to work barrier among persons with a psychiatric disability, their service provider, and family members. Burns *et al* (2008) suggested a possible 'benefits trap' whereby there is a reluctance to return to work and thereby risk benefits that have been built up over years. Greenberg and Rosenheck (2007) found that Veterans who also received benefits from the Social Security Administration or welfare payments were less likely to be employed, potentially because employment earnings above a certain level in these programs may result in the loss of monetary benefits and health insurance, which is unlike USVA compensation.

While these studies have shown increased benefits can lead to financial disincentives to work, only two have identified a threshold at which this occurs. As noted above, Greenberg and Rosenheck (2007) found that in a national sample of US Veterans, the likelihood of disability income payments impacting employment only took effect at payment levels of more than \$800 per month. In a similar study of Veterans, Tsai and Rosenheck (2013) found this threshold was at higher disability ratings (50% or more). However, it is unclear how these measures relate to pre-injury earnings levels and therefore the policy implications for VAC are unclear.

Table 4: Sources relating to financial disincentives

Author, Pub date	About the study	Key Findings
Gruber, 2000	Used CPP policy change in relation to the QPP constant to estimate labour supply elasticity for older persons with respect to DI benefits.	Found a large effect of benefits on the labour supply of older workers. Central estimates imply the elasticity of labour-force non-participation with respect to benefits levels is 0.28-0.36. To determine if this rate is big or small, he compared against two benchmarks, concluding that changes in DI alone cannot explain the dramatic time-series trend among older men in the 1970s.
Drew <i>et al</i> , 2001	<b>VETERAN</b> -Admin data for 22,515 individuals who participated in the Veterans Health Administration compensated work therapy program, 1993 -1998.	Participants who were receiving disability benefits worked fewer hours in compensated work therapy each week, earned less income, had a higher dropout rate, and were less likely to be competitively employed at discharge. The amount of compensation and the type of program were modestly but significantly associated with participation in compensated work therapy and with outcome.
Engström and Eriksen, 2002	Regression modeling of a sample of sick-registered unemployed (n=280) in the county of Värmland, Sweden.	Economic incentives- i.e. ,differences in benefit levels - help in explaining sickness duration.
MacDonald-Wilson <i>et al</i> , 2003	Persons with a psychiatric disability, service providers, and family members. Parallel surveys and multiple and recruitment strategies were used.	Loss of health insurance was the greatest concern of all groups; this and other concerns were perceived as serious barriers to returning to work. There were differences in the perceptions of the three groups about the importance of disincentives to work and differences among consumers by demographic characteristics.
OECD, 2003	Reviewed research from 20 countries re disability-related programs.	In most countries, people who enter disability-related programs remain there until retirement. Propose reforms: recognize status of disability independent of the work and income situation, emphasize putting people to work, restructure benefit systems, introduce culture of mutual obligations, require a concerted effort to find a job if able to work, give a more important role to employers.
Chen S and van der Klaauw W, 2005	Comparison group and regressing discontinuity methods, to estimate the DI program impact on a subset of applicants.	During the 1990s, the labour-force participation rate of DI beneficiaries would have been at most 20 percentage points higher had none received benefits. Also found even smaller labour supply responses for subset of “marginal” applicants whose disability determination is based on vocational factors.
Autor and Duggan, 2007	<b>VETERAN</b> -Review of studies conducted over a 15-year period to distinguish income from substitution effects in disability insurance.	Increase in unearned income resulting from 2001 expansions to the VA Disability Compensation (VDC) program (expanded medical eligibility criteria) substantially reduced labour-force participation among Vietnam-era Veterans. Given that the VDC does not itself affect the incentive to work, as do means-tested programs, these findings highlight the possibility that income effects on labour supply may be sizeable for near-elderly adults in moderate to poor health.

Author, Pub date	About the study	Key Findings
Greenberg and Rosenheck, 2007	<b>VETERAN</b> -National sample of US veterans.	Veterans Affairs disability income payments had no globally detrimental effect on labour-force participation, i.e., likelihood of employment was reduced only at payment levels of more than \$800 per month. While unearned income from other sources had no substantial negative effect on labour-force participation, Veterans who received benefits from the social security or welfare payments were less likely to be employed (employment earnings above a certain level in some programs may result in the loss of monetary benefits and health insurance).
Gabbe <i>et al</i> , 2007	Prospective cohort study within two adult Level 1 trauma centres in Victoria, Australia.	Patients covered by the no-fault compensation system for transport-related injuries in Victoria had worse employment outcomes than non-compensable patients.
Burns, 2008	312 individuals with psychotic illness randomly allocated to individual placement and support versus train-and-place vocational rehabilitation	European welfare benefits vary considerably both in their levels and in the mechanisms to access them, they are generally quite generous; there may be perceived or real financial disincentives to return to work, the so called “benefits trap.” Individual placement and support (IPS) doubles the access to work of people with psychotic illnesses, without any evidence of increased relapse. Its effectiveness is not independent of external circumstances, particularly local unemployment rates. IPS was more effective than the vocational services for all vocational outcomes.
Mitra, 2009	Used data from South Africa’s Labour Force Survey, a nationally representative household survey to examine the effects of more lenient Disability Grant (DG) decisions on labour-force participation.	Results differ across labour-market outcomes and by gender. More lenient DG decisions, resulting from a policy change devolving decisions to the provinces, may not have affected the labour-market behavior of older women, but may have led to a reduced participation of older men.
OECD, 2009	Micro-panel data (Australia, Germany, Switzerland and UK), analyzed for the impact of health status on the probability of receiving a disability benefit; and aggregate data on beneficiaries to capture trends over time and differences across countries.	Pathways onto disability benefits, persistence in those benefits, and outflow routes vary greatly across countries. Most countries have tightened access to benefits in the last decade while improving employment integration. This development is promising because the study’s analysis reveals that a more generous disability policy is associated with higher numbers of beneficiaries while more comprehensive employment and rehabilitation programmes are associated with lower reciprocity rates.
Barr <i>et al</i> , 2010	Systematic review of empirical studies from five OECD countries from 1970 to 2009, investigating effects of changes in eligibility requirements or level of disability benefits on employment of disabled people.	Eight out of 11 studies reported that benefit levels had a significant negative association with employment. The most robust study had a small but significant negative association. While there was evidence indicating that benefit level was negatively associated with employment, there was insignificant evidence of a high enough quality to determine the extent of that effect.
Bound <i>et al</i> , 2010	Decomposed total employment changes for three categories: Social Security Disability	Found that DI expansion of eligibility did not likely explain the drop in employment among men with work limitations. During the early 1990s, under an extreme assumption about the employment potential of beneficiaries, the growth in DI can



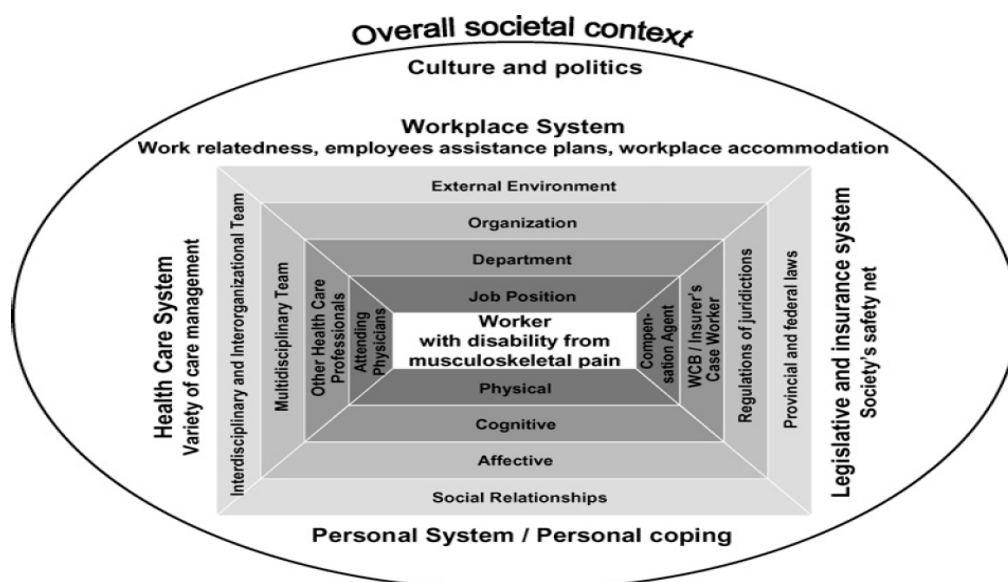
Author, Pub date	About the study	Key Findings
	Insurance (DI) beneficiaries, denied applicants and non-applicants.	fully explain the employment decline for men. For the period after the mid-1990s, DI was found to have little role in explaining the continuing employment decline for men with work limitations.
O'Donnell <i>et al</i> , 2010	Descriptive study on the effect of access to motor vehicle accident compensation on recovery outcomes.	Those who received compensation as the result of a motor vehicle accident were less likely to have returned to work at 12 months.
Staubli, 2011	Difference-in-difference regression on administrative data for the universe of Austrian private-sector employees.	A substantial and statistically significant decline in disability enrolment and an increase in employment. Spillover effects from a policy change, which tightened eligibility for men above a certain age, include a higher share receiving unemployment benefits and a higher share receiving sickness insurance benefits.
von Wachter <i>et al</i> , 2011	Based on a large, high-quality longitudinal database on DI application and receipt from 1981-1999, as well as earnings before and after application spanning 1978-2006.	Younger rejected male DI applicants exhibit substantial workforce attachment, as do applicants with low-mortality impairments, such as back pain and mental health problems. , exhibit substantial labour.
Maestas <i>et al</i> , 2012	Used new administrative data to match applications to disability examiners, and exploited variation in examiners' allowance rates as an instrument for benefit receipt.	Among 23% of applicants on the margin of program entry, employment would have been 28 percentage points higher had they not received benefits. This effect is heterogenous, ranging from no effect for those with more severe impairments to 50 percentage points for entrants with relatively less severe impairments.
Marie and Vall Castello, 2012	Estimated impact of a 36% benefit increase, which is only available to individuals age 55 or over, using a regressing noncontinuity approach.	The DI benefit increase accelerates the entry rate of individuals aged 55 or older. Excluding this group, the benefit increase decreases the employment probability by 8%. The observed DI generosity elasticity on labour-market participation is mostly due to income effects, since benefit receipt is not work contingent in the DI system.
Tompa <i>et al</i> , 2013	Within Ontario workers compensation programs, compared claimants (1986, 1992, 1998) with uninjured controls, focusing on evidence of programmatic impact on earnings recovery.	Injured workers from the post-1998 Loss of Earnings program appear to fare better than claimants from the pre-1990 Permanent Disability program. Across all programs, older claimants fare more poorly, and women fare worse than men.
Tsai and Rosenheck, 2013	<b>VETERAN</b> -Data on a total of 4,787 Veterans from the 2010 National Survey of Veterans. Multinomial logistic regressions to compare employed Veterans with two groups that were not employed.	Education and vocational rehab interventions, as well as economic work incentives, may be needed to maximize employment among Veterans with disabilities. Those who received no VA disability compensation or who were service-connected 50 % or more were more likely to be unemployed and not looking for employment than Veterans who were not at all or less than 50% service-connected, suggesting high but not all levels of VA disability compensation create disincentives for employment.

### 3.2.2 Improving Employment Outcomes

The second NVC goal examined in this report relates to active participation in the civilian workforce as the result of engagement in employment-related supports, such as Rehabilitation services, Vocational Assistance, training and Career Transition Services. Since workforce participation contributes to positive employment outcomes and improved well-being, the study examines this concept as it applies to both Veteran and general populations.

A model originally developed to describe the factors that bear on return-to-work of persons with musculoskeletal disorders organizes these factors into four broad categories, namely personal, health care, workplace, and compensation (legislative and insurance) systems (Loisel, 2005). See Figure 3 below for details.

Figure 3: Prevention of Work Disability



This model was adapted to examine workforce reintegration of Veterans with mental disorders (VanTil *et al*, 2010) by defining the four systems as: workplace system (military service to civilian work); personal system (Veteran with mental disorder); health care system, including Operational Stress Injury clinics; and compensation system (VAC legislation and programs). Given that VAC clients are not returning to the same (military) workplace but rather entering the civilian workforce over which it has no control, the Department must focus primarily on the latter three systems when addressing barriers to workforce reintegration. VanTil *et al* (2010) conducted a systematic and comprehensive search of the literature on employment and mental disorders and found that “people with mental health conditions can return to work after a prolonged absence,” and that reduction of symptoms is not required prior to seeking



work; i.e., that health and work are not necessarily sequential. The authors note that while people who suffer from severe mental disorders experience high rates of unemployment (> 75%), Supported Employment (SE) programs have achieved more than 60% competitive employment.

Strong and growing evidence touts the effectiveness of SE, an approach which does not treat health and work as sequential. Evidence suggests that SE helps clients obtain community-based competitive employment. The most widely researched SE model is Individual Placement and Support (IPS), which is designed on the following principles: (1) eligibility based on consumer choice and zero exclusion philosophy; (2) SE integrated with mental health treatment; (3) attention focused on consumer preferences; (4) competitive employment as the goal, (5) job search that is rapid from the start, (6) follow-along supports that are continuous and time-unlimited, and (7) benefits counseling that is systematically offered, informing the clients about social security and other financial concerns (Corbière, 2010).

A number of American studies focused on SE (Bond *et al*, 2001; Bond, 2004; Bond *et al*, 2007 (a); Bond *et al*, 2007 (b); Bond *et al*, 2008; Bond *et al*, 2012). Overall, these reports found that the effectiveness of SE appears to be generalizable across a broad range of client characteristics and community settings (Bond *et al*, 2001), and particularly when delivered in a high-fidelity manner (Bond 2004). SE was found to be more effective when compared with a diversified placement approach (emphasizing work readiness) (Bond 2007 (a)) and, finally, in comparing IPS in the United States with other countries, Bond *et al* (2012) found that IPS may adapt well to other settings, as long as high-fidelity to the model is achieved. In his European study, Bond (2008) found that IPS doubles the access to work of people with psychotic illnesses, without any evidence of increased relapse.

In Canada, SE programs began to increase in number in the 2000s. Since then, research has focused on the fidelity/quality of these programs (Corbière *et al*, 2010), barriers to work, and tools to measure these concepts (Corbière *et al*, 2011). The VAC Research Directorate and Dr. Marc Corbière, University of Sherbrooke, identified and adapted a workforce re-integration instrument – Barriers to Employment Coping Efficacy Scale - Veteran version [BECES-V] – to help detect military Veteran barriers to workforce re-integration (Thompson *et al*, 2011 (a)). A pilot is underway in five OSI clinics to validate the BECES-V in a military Veteran population.

Other approaches to workforce reintegration include: (1) medical management-based approaches, including reducing delays in receiving care, controlling who provides care and influencing the type and nature of care; (2) incentive-based approaches, including a tiered benefit system (i.e., higher compensation for workers who do not receive an employment offer and penalties for employers that do not rehire injured workers); and direct subsidies or penalties and; (3) accommodation-based approaches, including allowing workers to reduce hours or follow a modified work schedule and allowing the worker to transition to a different job in the same firm (Seabury *et al*, 2011).

Tompa et al (2013) pointed to various personal characteristics that impact earnings replacement rates, as depicted earlier in Table 3. The Institute study revealed that some older workers may regard disability compensation as a form of early retirement benefits and consequently choose to leave the labour-force, others may face barriers imposed by employers' unwillingness to retain older disabled workers.

With respect to Veterans, in 2004 the USVA began to disseminate and implement SE nationally at 21 selected sites. Since this time, studies have evaluated the dissemination of SE (Resnick and Rosenheck, 2007 and 2009) and have shown the effectiveness of this approach for Veterans with PTSD (Davis *et al*, 2012). While most closely associated with reintegration for those with mental illness, SE has also proven effective for Veterans with spinal cord injuries (Ottomanelli *et al*, 2012). The largest barrier to implementing SE is the required culture shift, i.e., the need to focus on ability rather than disability. Pogada *et al* (2012) cited “paternalistic-uninformed concerns about the ability of persons with serious mental illness to be gainfully employed and a lack of organizational structures and leadership to promote and integrate the supported employment program” as common implementation barriers.

Table 5: Sources relating to improving employment outcomes

Author, Yr. Published	About the Study	Key Findings
Bond <i>et al</i> , 2001	Review of findings and limitations, as per current research.	Emerging evidence base on SE is clear and consistent with improved employment outcomes across many different types of settings and populations. Further, most SE approaches described in the literature converge on a set of critical components.
Bond, 2004	Reviewed 12 studies drawn from two types of rigorous research designs.	Increased evidence of the effectiveness of SE; a striking contrast to the literature on other types of vocational programs for consumers with severe mental illness.
Loisel, 2005	A literature review and collection of expert opinion on the current evidence for work disability prevention, and barriers to evidence implementation.	Some clinical interventions (advice to return to modified work and graded activity programs) and some non-clinical interventions (at a service and policy/community level but not at a practice level) are effective in reducing work absenteeism. Implementing evidence in work disability is challenging because recommendations are often imprecise and not yet practical for immediate use, many barriers exist, and many stakeholders are involved.
Bond <i>et al</i> , 2007 (a)	Compared 535 Social Security Administration disability beneficiaries with 131 non-beneficiaries, with three employment measures (job acquisition, weeks worked, job tenure)	Beneficiaries receiving SE had better employment outcomes than those receiving other vocational services; similar results were found for non-beneficiaries. Overall, non-beneficiaries had better employment outcomes than beneficiaries.
Bond <i>et al</i> , 2007 (b)	Compared individual placement and support (IPS) and diversified placement approach (DPA) for individuals with severe mental illness (n=187).	Over two years, IPS (75%) had significantly better competitive employment outcomes than DPA (34%).
Resnick and Rosenheck, 2007	<b>VETERAN</b> -A study of the factors that promote successful program implementation through an	The national VA initiative illustrates key elements required by such initiatives: attention to all levels of the organization, especially top leadership; clear program objectives; investment in training by experienced experts; creation of an open learning

Author, Yr. Published	About the Study	Key Findings
	evaluation of the effectiveness and cost-effectiveness of two levels of training in the evidence-based practice of SE at the USVA.	community through multiple media; and performance measurement with regular feedback at both the program and client level.
Bond <i>et al</i> , 2008	Literature review of 11 randomized control trials of high-fidelity IPS programs, examining employment rates, days to first job, annualized weeks worked, job tenure.	Consistent with earlier reviews. The number, consistency, and effect sizes of studies of evidence-based SE establish it as one of the most robust interventions available for persons with severe mental illness.
Burns, 2008	312 individuals with psychotic illness randomly allocated to individual placement and support versus train-and-place vocational rehabilitation	Individual placement and support (IPS) doubles the access to work of people with psychotic illnesses, without any evidence of increased relapse. Its effectiveness is not independent of external circumstances, particularly local unemployment rates. IPS was more effective than the vocational services for all vocational outcomes.
Resnick and Rosenheck, 2009	<b>VETERAN</b> -Describe an effort to implement SE at 166 Veterans programs.	A two-stage process for developing a cadre of internal trainers is necessary to fully realize the broad national mental health changes envisioned.
Corbiere <i>et al</i> , 2010	Assessment of the implementation of SE services, involving 23 SE programs in three Canadian provinces.	Cluster analyses revealed six profiles of SE programs that varied from high to low level of fidelity with a stronger focus on a particular component, and reflected the reality of service delivery settings. Future investigations are warranted to evaluate relationships between the levels of implementation of SE components and work outcomes while considering individual characteristics of people registered in SE programs.
Corbière <i>et al</i> , 2011	A prospective study of 281 people with severe mental disorders, testing two conceptual models of work integration: the model of job acquisition for people with mental illness adapted from the Theory of Planned Behaviour (TPB); and the extended TPB including clinical, psychosocial, and work-related variables.	Results suggest that employment specialists can be guided in their interventions by the concepts found in the extended model of work integration since most of these are modifiable, such as perceived barriers to employment, self-efficacy, and self-esteem. Findings revealed that both models presented good fit indices. In total, individual factors predicted 26% of the variance in job search behaviours (behavioural actions). However, client characteristics explained only 8% of variance in work outcomes, suggesting that environmental variables (e.g., stigma towards mental disorders) play an important role in predicting job acquisition. About 56% (N = 157) of our sample obtained competitive employment.
Thompson <i>et al</i> , 2011(a)	<b>VETERAN</b> -Modification of the BECES (Barriers to Employment and Coping Efficacy Scales) tool for military personnel transitioning to civilian life.	Resulted in an initial version of BECES for Veterans (BECES-V), to undergo testing and development.
Seabury <i>et al</i> , 2011	California workers compensation. Earnings losses were estimated by comparing the earnings in the post-injury period of an uninjured control group. Due to limited data on post-injury losses a statistical model was used to forecast the five-year earning losses to injured	Report identifies other approaches to workforce integration, including (1) medical management-based approaches, including reducing delays in receiving care, controlling who provides care and influencing the type and nature of care; (2) incentive-based approaches, including a tiered benefit system (i.e., higher compensation for workers who do not receive an employment offer and penalties for employers that do not hire injured workers); and direct subsidies or penalties and; (3) accommodation-based approaches, including allowing workers to reduce hours or follow a modified work schedule and allowing the worker to transition to a different job in the same firm.

Author, Yr. Published	About the Study	Key Findings
	workers.	
Davis <i>et al</i> , 2012	<b>VETERAN</b> -Unemployed Veterans with PTSD were randomly assigned to either IPS or a VHA Vocational Rehabilitation Program (VRP) treatment as usual.	Veterans with PTSD who received IPS were 2.7 times more likely to gain competitive employment than those who received VRP. Because work is central to recovery, these results should assist stakeholders in planning improved services for veterans with PTSD.
Ottomanelli <i>et al</i> , 2012	<b>VETERAN</b> - Veterans were randomly assigned to the SE condition or the treatment as usual (TAU) condition. At interventional sites, subjects were randomized to SE (n=81) or treatment as usual (TAU-IS, n=76). At observational sites, 44 subjects were enrolled in a non-randomized TAU condition (TAU-OS).	SE, a well-prescribed method of integrated vocational care, was superior to usual practices in improving employment outcomes for Veterans with spinal cord injuries. Subjects in the SE group were 2.5 times more likely than the TAU-intervention group and 11.4 times more likely than the TAU-observation group to obtain competitive employment.
Pogada <i>et al</i> , 2012	<b>VETERAN</b> -Interviews were conducted over two years at six VA medical centers involved in implementing SE, involving both a qualitative analysis and a data-driven approach to examining perceived SE implementation barriers.	Paternalistic-uninformed concerns about the ability of persons with serious mental illness to be gainfully employed and a lack of organizational structures and leadership to promote and integrate the SE program were common implementation barriers. During implementation, organizations would likely benefit from a formalized educational process of teams involved in the care of SE clients and from leadership buy-in to the program and promotion of its significance.
Bond <i>et al</i> , 2012	Compared 15 randomized control trials of IPS programs; 9 in US, 15 outside US, examining employment rate, days to first job, weeks worked during follow-up, and hours worked.	Overall competitive employment rate for IPS clients in US studies was higher than in non-US studies. The consistently positive competitive employment outcomes strongly favouring IPS over other comparison programs suggest it may transport well into new settings as long as programs achieve high fidelity.
Tompa <i>et al</i> , 2013	Examined three Ontario workers compensation programs (pre-1990-post-1998).	Injured workers in older age brackets fared worse than those in younger age brackets. Older injured workers are much more likely to transition out of the labour market compared to concurrent uninjured workers of the same ages, and also compared to younger injured workers. Suggests that a barrier may result from employers' unwillingness to retain older disabled workers.
MacLean <i>et al</i> , 2013	<b>VETERAN</b> -Using data from survey as described in Thompson <i>et al</i> , 2011.	Overall prevalence of difficult adjustment to civilian life was 25%, with variation from 11% to 85% for selected characteristics. Post-military adjustment to civilian life appears to be multi-dimensional suggesting the need for multidisciplinary collaboration between health care providers and agencies to improve transition from military to civilian life. Many potential risk and protective factors were identified which can inform outreach strategies and screening activities as well as further research.

Author, Yr. Published	About the Study	Key Findings
Van Til <i>et al</i> , 2013	Literature review identified 5,195 articles, including 81 in-scope studies with quantitative measures of employment for populations with well-described mental disorders.	People with mental health conditions can return to work after a prolonged absence. Such absence does not require a reduction of symptoms prior to seeking work. There is no clear consensus on which factors are associated with work among people with mental disorders.

## 4.0 Discussion

This study found that while social adequacy— i.e., poverty or low income – is the focus in some studies, income adequacy is typically assessed through loss of earnings (economic loss) and the degree to which benefits plus employment earnings compensate for this loss. More recent studies have compared the earnings of injured workers or Veterans to uninjured control groups, thereby more accurately reflecting actual earnings loss by capturing earnings trajectories over time. While, there is no accepted benchmark for earnings replacement, nor is there a consistent methodology for measuring this construct, the extent to which the NVC suite of programs compensates for lost earnings through the combination of benefits and improved employment earnings among injured Veterans is unknown. In addition to measuring low income, the Department may want to measure the earnings replacement rate of injured Veterans compared to their uninjured counterparts. This approach would establish benchmarks for assessing income adequacy and employment outcomes.

Since it was first introduced in 2006, the disability and financial benefits of the New Veterans Charter have been under great scrutiny. The perception has often been that the NVC benefits are not adequate in comparison to the benefits provided under the *Pension Act*. This concern about adequacy of benefits has been mainly focused on severely disabled Veterans. Many studies have considered equity by examining the relationship between impairment and earnings replacement. Those in the highest impairment category in some cases had earnings replacement rates well in excess of 100% while those in lower impairment categories had lower replacement rates. This suggests that factors other than impairment play a role in explaining earnings replacement rate. Veterans Affairs is examining equity by examining the relationship between impairment and earnings replacement rates among clients.

Despite pressure to increase financial benefits as a means to improve income adequacy, some evidence suggests that more generous benefits may foster dependence and undermine workforce reintegration goals. Income adequacy can be improved through effective workforce reintegration strategies which can also improve program affordability and well-being. Compensation, however, is only one of four main systems that bear on workforce disability. Given that VAC clients are not returning to the military but rather entering the civilian workforce, the Department is further challenged to consider personal, health care, and workplace factors that are barriers to workforce

reintegration in their policy development. Specifically related to personal factors, plans are underway to validate the BECES-V (Barriers to Employment and Coping Efficacy Scales) in Occupational Stress Injury clinics in Canada. This tool was developed for civilians with mental health conditions and was adapted for use with Veterans. It focuses on perceived barriers and promoting self-efficacy (“ability” rather than “disability”).

A number of workforce reintegration approaches exist which have been outlined. However, a better understanding of these approaches and to what extent they would be effective for CAF Veterans experiencing work disability is needed. For example, while supported employment is an evidence-based approach to address work disability among those with severe mental illnesses, the majority of CAF Veterans are in receipt of disability benefits for physical health conditions such as musculoskeletal conditions. Also prior to examining alternative approaches the vocational rehabilitation practice at VAC may first need to be examined. The VAC vocational rehabilitation approach is comprehensive (addressing medical, psychological and social barriers) and includes funding for education and training leading to preparation for alternate occupations, case management core functions are consistent with those of other settings (Thompson and MacLean, 2009) and standardized vocational assessments conducted by the vocational rehabilitation contractor focus on capacity to work and identifying a suitable gainful occupational goal. However, only about one-quarter of those participating in the Rehabilitation program are referred to vocational rehabilitation and as the goal of the program is improved employability the longer-term employment outcomes are unknown.

## 5.0 References

Autor DH and Duggan MG. (2007). Distinguishing Income from Substitution Effects in Disability Insurance. AEA Papers and Proceedings, 2007, 96(2), 119-124.

Barr B, Clayton S, Whitehead M, Thielen K, Burstrom B, Nylén L and Dahl E. (2010). To What Extent Have Relaxed Eligibility Requirements and Increased Generosity of Disability Benefits Acted as Disincentives for Employment? A Systematic Review of Evidence from Countries with Well-Developed Welfare Systems. J Epidemiol Community Health, 2010, 64, 1106-1114.

Bond GR, Becker DR, Drake RE, Rapp CA, Meisler N, Lehman AF, Bell MD, Blyer CR. (2001). Implementing Supported Employment as an Evidence-Based Practice. Psychiatric Services, 2001, 52(3), 313-322.

Bond GR. (2004). Supported Employment: Evidence for an Evidence-Based Practice. Psychiatric Rehabilitation Journal, 2004, 27(4), 345-359.



Bond GR, Xie H, Drake RE. (2007a). Can SSDI and SSI Beneficiaries with Mental Illness Benefit from Evidence-Based Supported Employment? *Psychiatric Services*, November 2007, 58(11), 1412-1420.

Bond GR, Dincin J and Fraser VV. (2007b). A Randomized Controlled Trial Comparing Two Vocational Models for Persons with Severe Mental Illness. *Journal of Consulting and Clinical Psychology*, 2007, 75(6), 968-982.

Bond GR, Drake RE and Becker DR. (2008). An Update on Randomized Controlled Trials of Evidence-Based Supported Employment. *Psychiatric Rehabilitation Journal*, 2008, 31(4), 280-290.

Bond GR, Drake RE and Becker DR. (2012). Generalizability of the Individual Placement and Support (IPS) Model of Supported Employment Outside the US. *World Psychiatry*, 2012, 11, 32-39.

Bound J, Lindner S, and Waidman T. (2010). Reconciling Findings on the Employment Effect of Disability Insurance. University of Michigan Retirement Research Center, Working Paper WP 2010-239.

Buddin R, Kapur K. (2005). An Analysis of Military Disability Compensation. RAND National Defense Research Institute, 2005.

Buddin R and Han B. (2012) Is Military Disability Compensation Adequate to Offset Civilian Earnings Losses from Service-Connected Disabilities? RAND National Defense Research Institute, 2012.

Burns T, White, SJ and Catty J. (2008). Individual Placement and Support in Europe: The EQOLISE Trial, *International Review of Psychiatry*, 2008, 20(6), 498-502.

Chen S and van der Klaauw W. (2005). The work disincentive effects of the disability insurance program in the 1990s, *Journal of Econometrics*, 2005, 142, 757-784.

Corbière M, Lanctot N, Lecomte T, Latimer E, Goering P, Kirsh B., et al. (2010). A Pan-Canadian Evaluation of Supported Employment Programs Dedicated to People with Severe Mental Disorders. *Community Mental Health Journal*, 2010, 46(1), 44-55.

Corbière M, Zaniboni S, Lecomte T, Bond G, Gilles PY, Lesage A, et al. (2011). Job Acquisition for People with Severe Mental Illness Enrolled in Supported Employment Programs: A Theoretically Grounded Empirical Study. *Journal of Occupational Rehabilitation*, 2011, 21(3), 342-354.

Davis LL, Leon AC, Toscano R, Drebing C E, Ward LC, Parker PE. (2012). A Randomized Controlled Trial of Supported Employment among Veterans with Posttraumatic Stress Disorder. *Psychiatric Services*, 63(5), 464-470.

Drew D, Drebing CE, Van Ormer A, Losardo M, Krebs C, Penk W, Rosenheck, RA (2001). Effects of Disability Compensation on Participation in and Outcomes of Vocational Rehabilitation, *Psychiatric Services*, 2001, 52(11), 1479-1484.

Engström LG and Eriksen T. (2002). Can differences in benefit levels explain duration and outcome of sickness absence? *Disability and Rehabilitation*, 2002; 24(14), 713- 718.

Fulton LV, Belote JM, Brooks MS and Coppola MN. (2009). A Comparison of Disabled Veteran and Nonveteran Income: Time to Revise the Law? *Journal of Disability Policy Studies*, 2009, 20(3), 184-191.

Gabbe BJ, Cameron PA, Williamson OD, Edwards ER, Graves SE, Richardson MD. (2007). *The Medical Journal of Australia*, 2007, 187(1), 14-17.

Greenberg GA and Rosenheck RA. (2007). Compensation of Veterans with Psychiatric or Substance Abuse Disorders and Employment and Earnings. *Military Medicine*, 2007, 172(2): 162-168.

Gruber J. (2000). Disability Insurance Benefits and Labor Supply. *Journal of Political Economy*, 2000, 108(61), 1162-1183.

Heaton P, Loughran DS and Miller AR. (2012). *Compensating Wounded Warriors: An Analysis of Injury, Labor Market Earnings, and Disability Compensation Among Veterans of the Iraq and Afghanistan Wars*. RAND National Defense Research Institute, 2012.

Hunt, HA. (2004) *Adequacy of Earnings Replacement in Workers' Compensation Programs*, H. Allan Hunt, Editor, December 2004.

Loisel P, Buchbinder R, Hazard R, Keller R, Scheel I, VanTulder M, and Webster B (2005). Prevention of Work Disability due to Musculoskeletal Disorders: The Challenge of Implementing Evidence. *J Occupational Rehabilitation*, 2005, 15(4), 507-524.

London AS, Heflin CM and Wilmoth JM. (2011). Work-Related Disability, Veteran Status, and Poverty: Implications for Family Well-Being. *Journal of Poverty*, 2011, 5(3).

Maestas N, Mullen K and Strand A. (2012). Does Disability Insurance Receipt Discourage Work? Using Examiner Assignment to Estimate Causal Effects of SSDI Receipt. University of Michigan Retirement Research Center, Working Paper WP 2010-241. [ssrn.com/abstract=2143210](https://ssrn.com/abstract=2143210)

MacDonald-Wilson KL, Rogers ES, Ellison ML, Lyass A. (2003). A Study of the Social Security Work Incentives and Their Relation to Perceived Barriers to Work Among Persons with Psychiatric Disorder. *Rehabilitation Psychology*, 2003, Vol. 48, No. 4, 301-309.



MacLean MB, Van Til L and Banman M. (2011a). VAC's Rehabilitation Program: Data Collection Requirements. Research Directorate Discussion Paper, February, 2011.

MacLean MB, Van Til L, Thompson JM, Poirier A, Sweet J, Adams J, Sudom K, Campbell C, Murphy B, Dionne C and Pedlar D (2011b). Income Study: Regular Force Veteran Report: Veterans Affairs Canada, 2011.

MacLean MB, Sweet J and Poirier A. (2011c). Income Adequacy: Comparing Pre- and Post- Military Incomes of Medical and Non-Medical Releases. Life After Service Studies (LASS) Secondary Analysis (2011 Series - Release 5), Veterans Affairs Canada, Research Directorate, June 2011.

MacLean MB, Van Til L, Thompson JM, Sweet J, Poirier A, Sudom K, and Pedlar D (2013). Post-Military Adjustment to Civilian Life: Potential Risk and Protective Factors. Scheduled for publication in Physical Therapy Journal, Fall 2013.

MacLean MB, Van Til L, Kriger D, Sweet J, Poirier A and Pedlar D. (2013). Well-Being of Canadian Armed Forces Veterans: Canadian Community Health Survey 2003. Research Directorate Technical Report, Veterans Affairs Canada, May 2013.

Marie O and Vall Castello J. (2012). Measuring the (Income) Effect of Disability Insurance Generosity on Labour Market Participation. Journal of Public Economics, 96, 2012, 198-210.

Maestas N, Mullen K and Strand A. (2012). Does Disability Insurance Receipt Discourage Work? Using Examiner Assignment to Estimate Causal Effects of SSDI Receipt. Michigan Retirement Research Center, 2012, Working Paper 2010-241.

Marie O and Vall Castello J. (2012). Measuring the (income) effect of disability insurance generosity on labour market participation, Journal of Public Economics, 2012, 96, 198–210.

Mitra S. (2009). Disability Screening and Labor Supply: Evidence from South Africa. American Economic Review: Papers and Proceedings 2009, 99:2, 512-516.

O'Donnell M, Creamer MC, McFarlane AC, Silove D and Bryant RA (2010). Does access to compensation have an impact on recovery outcomes after injury? Medical Journal of Australia, 2010, 192(6), 328-333.

OECD Policy Brief. (2003). Disability Programmes in Need of Reform, March 2003.

OECD Employment Outlook. (2009). Chapter 4: Pathways Onto (and Off) Disability Benefits: Assessing the Role of Policy and Individual Circumstances, 2009.

Ottomanelli L, Goetz LL, Suris A, McGeough C, Sinnott PL and Toscano R. (2012). Effectiveness of Supported Employment for veterans with spinal cord injuries: Results from a randomized multisite study. *Archives of Physical Medicine and Rehabilitation*, 2012, 93(5), 740-747.

Pogoda TK, Cramer IE, Rosenheck RA and Resnick SG. (2011). Qualitative Analysis of Barriers to Implementation of Supported Employment in the Department of Veterans Affairs. *Psychiatric Services*, 2011, 62(11), 1289-1295.

Resnick SG and Rosenheck RA. (2007). Dissemination of Supported Employment in Department of Veterans Affairs. *Journal of Rehabilitation Research and Development*, 2007, 44(6), 867-877.

Resnick SG and Rosenheck RA. (2009). Scaling up the Dissemination of Evidence-based Mental Health Practice to Large Systems and Long-term Time Frames. *Psychiatric Services*, 2009, 60(5), 682-685.

Ross CE and Mirowsky J. (1995). Does Employment Affect Health? *Journal of Health and Social Behavior*, Vol. 36, No. 3 (September 1995), pp. 230-243.

Seabury SA, Reville RT, Williamson S, McLaren CF, Gailey AH Wilke E and Neuhauser FW. (2011). *Workers' Compensation Reform and Return to Work: The California Experience*. RAND Centre for Health and Safety in the Workplace, 2011.

Settersten RA Jr. (2006). When Nations Call: How Wartime Military Service Matters for the Life Course and Aging. *Research on Aging*, Vol 28, No.1, January 2006, 12-36.

Staubli S. (2011). The impact of stricter criteria for disability insurance on labor force participation. *Journal of Public Economics*, 95, 1223-1235.

Thompson JM, MacLean MB, and Pedlar D (2009). Literature Review of Case Management – Basis for Further Research. Veterans Affairs Canada. Research Directorate Technical Report, Charlottetown. 2009 Feb 12; 46p.

Thompson JM, Corbière M, VanTil M, Pranger T, Shields N, Wong M, Basque C and Van Til L. (2011a). BECES-V: Modification of the BECES tool (Barriers to Employment and Coping Efficacy Scales) for Veterans with Mental Health Problems Reintegrating in the Workforce. Veterans Affairs Canada, Charlottetown, Prince Edward Island, and CAPRIT (Action Centre for Prevention and Rehabilitation of Work Disability), School of Rehabilitation, Université de Sherbrooke, Longueuil, Quebec. VAC Research Directorate Technical Report. 20 June 2011;10 p.

Thompson JM, MacLean MB, Van Til L, Sudom K, Sweet J, Poirier A, Adams J, Horton V, Campbell C and Pedlar D. (2011b). Survey on Transition to Civilian Life: Report on Regular Force Veterans. Research Directorate, Veterans Affairs Canada, Charlottetown, and Director General Military Personnel Research and Analysis, Department of National Defence, Ottawa. 04 January 2011;103 p.

Thompson JM, Banman M, Jaeger H, Landry C, Wedge M, MacLean MB, Pranger T, Van Til L. (2013). Veterans' Well-Being Conceptual Framework. Veterans Affairs Canada, Charlottetown, Research Directorate Technical Report.

Tompa E, Scott-Marshall H, Fang M. and Mustard C. (2010). Comparative Benefits Adequacy and Equity of Three Canadian Workers' Compensation Programs for Long-term Disability. Working Paper # 350. Toronto, ON: Institute for Work and Health.

Tompa E, Hogg-Johnson S, and Amick B. (2013). Work Disability Trajectories and Claim Duration in Ontario under Three Workers' Compensation Legislations. WSIB#09012, Institute for Work and Health.

Tsai J and Rosenheck RA. (2013). Examination of Veterans Affairs Disability Compensation as a Disincentive for Employment in a Population Based Sample of Veterans Under age 65. J Occup Rehabil, January 29, 2013.

Van Til L, Fikretoglu D, Pranger T, Patten S, Wang J, Wong M, Zamorski M, Loisel P, Corbière M, Shields N, Thompson J and Pedlar D. (2013). Work Reintegration for Veterans with Mental Disorders: A Systematic Literature Review to Inform Research. Phys Ther. 2013, 93(9):1163-74.

Veterans Affairs Canada (2011), New Veterans Charter: Phase III Evaluation, January 2011.

Von Wachter T, Song J and Manchester J. (2011). Trends in Employment and Earnings of Allowed and Rejected Applicants to the Social Security Disability Insurance Program. American Economic Review 101, 2011, 3308-3329.