

An audit-based occupational health and safety recognition program: Is certification associated with lower firm work-injury rates in Alberta?

Background

In the mid-1990s Alberta initiated the Partnerships in Injury Reduction (PIR) Program, a voluntary program that awards Certificates of Recognition (COR) to employers that have developed an occupational health and safety (OHS) management system and met established standards. PIR operates through the combined efforts of the Workers' Compensation Board of Alberta, the Alberta Ministry of Labour, industry partners, safety associations, employers, and labour groups. It was designed to encourage injury prevention and the development of effective workplace health, safety and disability management systems—and is based on the concept that when employers and workers build effective health and safety systems, the human and financial costs of workplace injuries and illnesses can be reduced. COR-certified firms in Alberta can receive up to a 20% reduction in their workers' compensation premiums if they reduce their claim costs below predicted targets.

Voluntary audit-based certification as a way of recognizing or encouraging effective OHS practices is a common approach of regulators in Canada and internationally. However, there has been little research examining whether these programs lead to improved OHS outcomes. This study aimed to determine:

Based on research presented in:

McLeod C, Macpherson R, Quirke W, Koehoorn M, Aderounmu A. (2018). [Is COR associated with lower firm-level injury rates? An evaluation of the effect of an audit-based occupational health and safety recognition program on firm work-injury rates in Alberta, Canada. Final Report to Alberta Ministry of Labour.](#) Vancouver: Partnership for Work, Health and Safety, University of BC.

1. If COR certification is associated with lower firm-level injury rates, and;
2. If COR audit scores are associated with firm-level injury rates.

Approach

To answer the first question, we combined a “difference-in-differences” (DiD) observational research design with a matching approach. Firms were matched on observable characteristics at baseline (including industry subsector, firm size, industry rate, year) and DiD was statistically modelled to estimate the effect of COR certification on two work-related injury rates (lost time injuries and disabling injuries) for 2001-2015. In addition to matching COR and non-COR firms at baseline, regression models were adjusted for the industry subsector, firm size, industry rate, industry rate adjustment, year, and whether the address of the firm was in Alberta or elsewhere.



Regression modelling was performed to examine the overall impact of COR, and also its impact by time period, industry sector, and firms with a regular COR vs. small employer COR (SECOR).

To answer the second question, the analysis was restricted to COR firms with audit score data between 2006 and 2015. The average audit score in a given year was categorized into five categories (100%, 95-99%, 90-94%, and 80-84%) and regression modelling techniques were used to examine the association between the average audit score category and firm-level lost time and disabling injury rates. The regression models adjusted for industry sector, firm size, industry rate, industry rate adjustment, and year.

What we found—Injury rates

Overall

Certified firms had, on average, a 14% lower lost time injury rate and 3% lower disabling injury rate between 2001 and 2015, compared to non-certified firms.

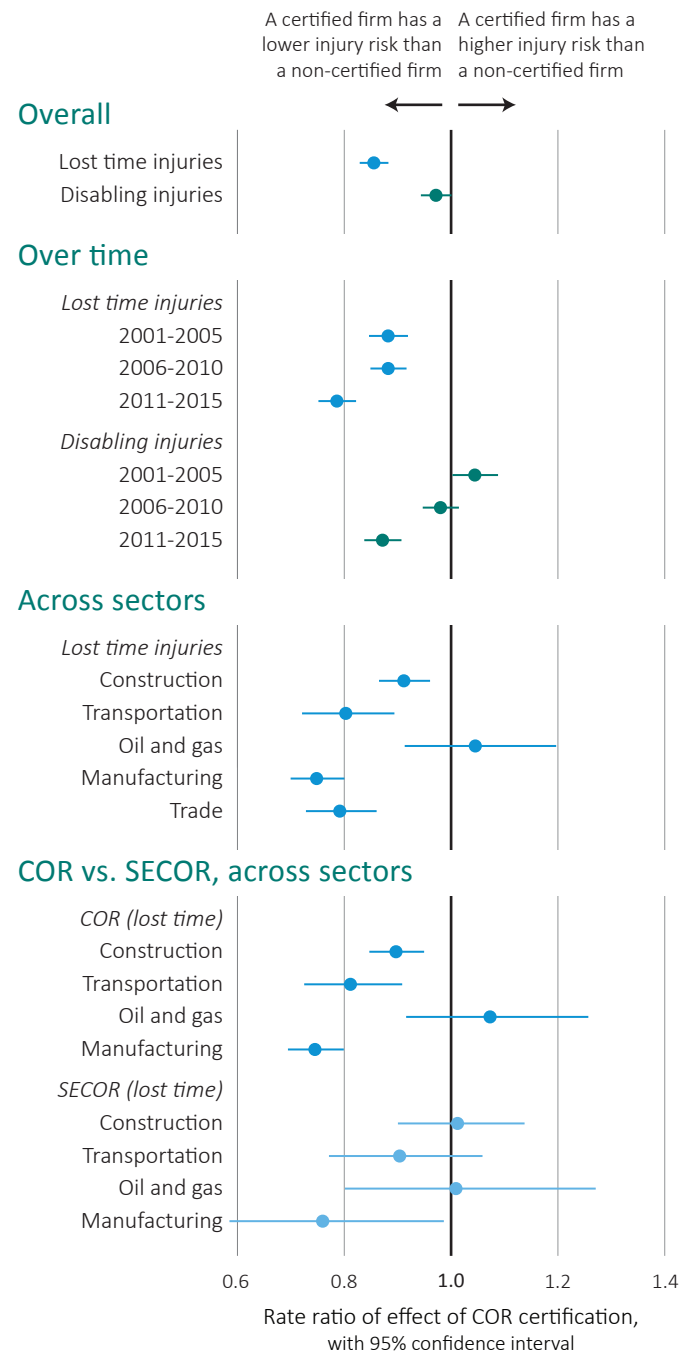
Over time

Certification was associated with a lower lost time and disabling injury rate over time. Lost time injuries decreased by 12% for COR firms in the first two time-periods (2001-2005 and 2006-2010) and by 21% in the most recent period (2011-2015). The rate of disabling injuries increased in 2001-2005 but decreased by 2% in 2006-2010 and 13% in 2011-2015. (See Figure 1.)

What are lost time injuries?

Lost time injuries are occupational injury or disease claims that cause the worker to have time away from work beyond the day of injury. This includes claims receiving reimbursement of full or partial lost wages due to occupational illness or injury, or payment for permanent loss of function.

Figure 1 | Effect of COR certification on injury rates, overall, over time, across sectors, and by COR vs. SECOR



Injury rate estimates below 1.0 indicate that certified firms have lower injury rates than non-certified firms. Where confidence intervals cross 1.0, the difference in the injury rate may be due to chance.

What are disabling injuries?

Disabling injuries include both lost time injuries and non-lost time injuries that required modified duties.

Across sectors and over time

Reductions in the risk of lost time injuries were observed in all industries, except oil and gas, and forestry. Similar reductions were observed for disabling injuries. The greatest effect of COR was observed in manufacturing (25% reduction in lost time injuries, 11% reduction in disabling injuries), trade (21% reduction in lost time injuries, 10% reduction in disabling injuries), and transportation (20% reduction in lost time injuries, 10% reduction in disabling injuries). The reduction in these injury rates was largest in recent years.

COR vs. SECOR

Certification via a regular COR audit (businesses with 10 or more employees) was consistent with findings from the full sample. Certification via a Small Employer Certificate of Recognition (SECOR) audit (up to 10 employees) had little or no effect on reducing lost time and disabling injuries. (See Figure 1.)

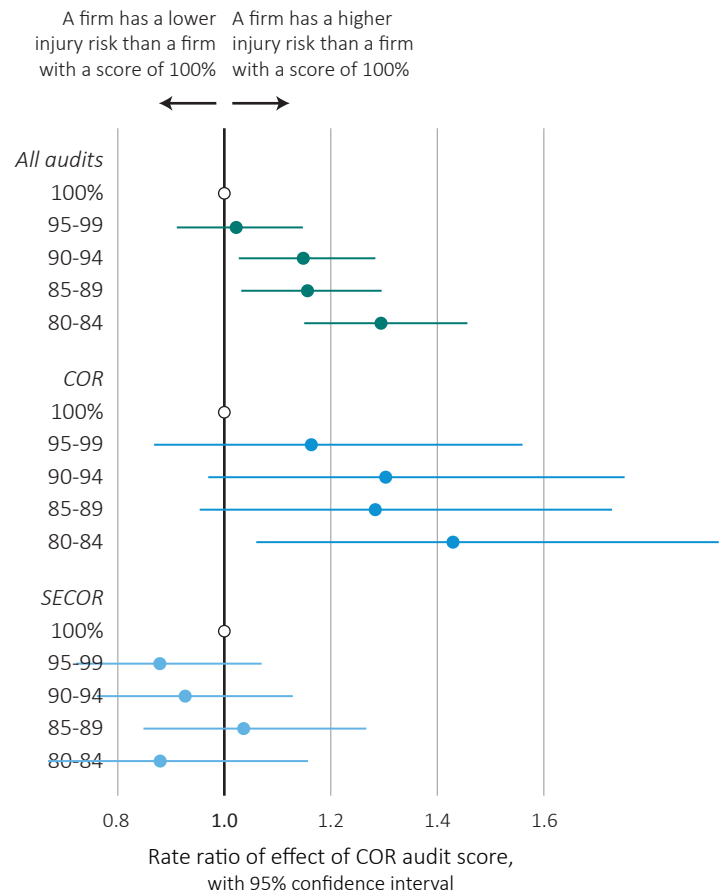
What we found—Audit scores

Audit scores were highly skewed towards 100% and this was driven by SECOR-certified firms. For both lost time and disabling injuries, injury rates increase as audit scores decrease. (See Figure 2). This association is seen overall for all COR and for the three largest certifying partners: Alberta Construction Safety Association (ACSA); Energy Safety Canada (ESC), and Alberta Association for Safety Partnerships (AASP).

What this means

COR program certification is associated with lower injury rates, particularly in the manufacturing, trade and transportation sectors and in the years 2011 to 2015. Our interpretation of this finding is that the COR audit process is effective at identifying firms

Figure 2 | Effect of COR audit score on the lost time injury rate in certified firms, for all audits, COR audits, and SECOR audits, 2006-2015



Injury rate estimates above 1.0 indicate that certified firms with an audit score in the stated range have higher injury rates than certified firms with an audit score of 100. Where confidence intervals cross 1.0, the difference in the injury rate may be due to chance.

with lower work injury risk; however, caution should be exercised in inferring that the certification itself caused any reduction in injury risk. While the difference-in-difference evaluation design attempts to account for pre-certification differences in injury risk between certified and non-certified firms, we cannot rule out that certification served as a marker for existing OHS practices (or other factors) that drove changes in injury risk once a firm became certified.

The implications of our study are threefold:

1. The difference in COR effectiveness on lost time and disabling injuries indicates that a broader range of work injury measures need to be examined, including the effect on overall work injuries as well as component injuries such as medical aid only through to fatalities;
2. We found no association of SECOR certification or audit score on firm injuries. This finding, coupled with similar research in British Columbia (on the distribution of audit scores among small firms and via internal auditing), indicates that OHS management systems certification is not effective in all circumstances and that validity of the audit may vary by audit and auditor type. Improvements to the COR program could focus on these areas; and
3. Our study found that COR certification was effective when comparing COR-certified firms to similar non-certified firms. These findings may not generalize to firms with different characteristics, sectors or jurisdictions. The effectiveness of COR certification may be context- and firm-dependent and relate to quality of the audit, auditor and certification process, as well as the ability of a firm to adopt OHS policies and practices.

More information

Please contact Chris McLeod, Partnership for Work, Health and Safety Co-Director, at chris.mcleod@ubc.ca with questions about the methods, results, or interpretation of this evaluation, or to request a copy of the full report. General enquiries should be directed to Suhail Marino, Partnership for Work, Health and Safety Director of Privacy and Operations, at suhail.marino@ubc.ca.

