



Estimating the financial benefits of OHS prevention expenditures: a study of Ontario employers

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Introduction

Employer expenditures on OHS in Ontario are substantial. In the Ontario goods-producing sectors, the average OHS expenditure per employee per year is \$2,400 and in the Ontario service sectors the average expenditure per employee per year is \$850.

The objective of the research study described in this presentation was to apply a rigorous methodology to estimate the financial return to employers from occupational health and safety (OHS) expenditures.

Mustard C, Tompa E, Landsman V, Lay M. What do employers spend to protect the health of workers? Scand J Work Environ Health. 2019 May 1;45(3):308-311.

Background: How did this work begin?

A study of 330 employers in the European Union reported that the average OHS investment per employee per year was more than €1,200 (\$1,800 CDN).

While the EU estimate appeared high, comparable estimates for Ontario employers were not available

To address this gap, we recruited the participation of 350 Ontario employers, selected to represent 18 important economic sectors. Employers worked with us to estimate OHS expenditures on five dimensions:

- Organizational management and supervision
- Staff training in health and safety
- Personal protective equipment
- OHS professional services
- Health and safety share of capital investments

Braunig D, Kohstall T. Calculating the International Return on Prevention for Companies: Costs and Benefits of Investments in Occupational Safety and Health. International Social Security Association. Geneva. 2013. https://ww1.issa.int/sites/default/files/documents/publications/2-ROP-FINAL_en-157255.pdf

An example: manufacturing sector

OHS expenditures in the Ontario manufacturing sector

In the Ontario manufacturing sector, 50 employers estimated OHS expenditures and investments per worker per year on five dimensions



Average total OHS expenditures in the manufacturing sector:
\$1,500 per worker per year

Short communication

Scand J Work Environ Health. 2019;45(3):308–311. doi:10.5271/sjweh.3778

What do employers spend to protect the health of workers?

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Mustard C, Tompa E, Landsman V, Lay M. What do employers spend to protect the health of workers? Scand J Work Environ Health. 2019;45(3):308–311. doi:10.5271/sjweh.3778

Objective This study aimed to estimate firm-level expenditures on occupational health and safety (OHS) for a representative sample of Canadian employers.

Methods A cross-sectional survey of 334 employers with ≥ 20 employees in 18 economic sectors in the Ontario economy. Participants provided information on five dimensions of OHS expenditures: (i) organizational management and supervision; (ii) staff training in health and safety; (iii) personal protective equipment; (iv) professional services and; (v) estimates of the share of new capital investment that could be attributed to improved OHS performance. Expenditures for each of the five dimensions were summed for each organization and divided by the number of employees, resulting in an estimate of OHS expenditure per employee per year.

Results The average OHS expenditure per worker per year was Can\$1303 [95% confidence interval (CI) Can\$1167–1454]. Expenditures were three times higher in the goods-producing sectors (Can\$2417, 95% CI Can\$2026–2809) relative to the service sectors (Can\$847, 95% CI Can\$777–915). The proportion of expenditures allocated to each of the five dimensions was generally consistent across economic sectors: 58% to organizational management and supervision, 22% to staff training in health and safety and 14% to personal protective equipment. On average, $< 5\%$ of OHS expenditures per worker per year were allocated to professional services or estimated as the share of new capital investment attributed to OHS.

Conclusions Employer expenditures on OHS are substantial. The results of this study are consistent with recent European estimates and strengthen understanding of the scale of employer financial expenditures to protect the health of workers.

Key terms Canada; health and safety expenditure; enterprise; injury prevention.

Work-related injury and illness are preventable (1). While the direct and indirect costs of a work-related injury or illness borne by employers can be substantial, the great majority of the costs of work-related injury and illness are borne by workers and society (2). In this context, when a very substantial share of the true costs of a work-related injury or illness are external to the workplace, there is a clear argument for a role of government in influencing employer expenditures on prevention programs. There are three primary means by which public policy can influence employers' investments in occupational health and safety (OHS): establishing workplace health and safety practices,

practices. Regulatory standards and the enforcement of those standards can raise employer OHS investments (3). Work disability insurance premiums can clarify the precise costs of preventable work-related injuries and illness and may provide incentives for organizations to invest in OHS (4). And information and consultation services provided by prevention authorities, OHS product vendors and consultants can increase workplace knowledge of effective OHS policies and practices.

While the costs of work-related injury and illness are well known, there is limited information on what a typical employer spends to control or eliminate the causes of work-related injury and illness. With the participation of a broadly representative sample of > 300 employers of Ontario, Canada, this study estimates

What did we find?

Ontario employers OHS expenditures were broadly equivalent to estimates for EU employers

Employer expenditures on OHS in Ontario are substantial. In the Ontario goods-producing sectors, the average OHS expenditure per employee per year is \$2,400 and in the service sectors the average expenditure per employee per year is \$850.

For more details:

<https://www.sjweh.fi/article/3778>

The current study...

Given the substantial employer expenditures on OHS in Ontario, is it possible to estimate the financial benefits to employers from these expenditures?

Do employers with strong OHS performance realize **intangible financial benefits** (improved employee retention and morale, improved production quality and strengthened corporate reputation). If so, what is the financial value of these intangible benefits?

Mustard CA, Yanar B. Estimating the financial benefits of employers' occupational health and safety expenditures. *Safety Science*, Volume 159, 2023. <https://doi.org/10.1016/j.ssci.2022.106008>.



What does previous research report?

ISSA study, Bräunig & Kohstall (2013): 300 EU employers
€2.20 in financial benefits for each €1.00 invested in prevention

Huang et al. (2011): 400 US employers
Median estimate of \$2.00 in financial benefits for each \$1.00 invested in prevention

Ikpe et al. (2012): 80 UK construction contractors
£3.00 in financial benefits for each £1.00 invested in prevention
(this study includes intangible financial benefits)

Braunig D, Kohstall T. (2013) Calculating the International Return on Prevention for Companies: Costs and Benefits of Investments in Occupational Safety and Health. International Social Security Association. Geneva.

Huang, Y. H., Leamon, T. B., Courtney, T. K., Chen, P. Y., & DeArmond, S. (2011). A comparison of workplace safety perceptions among financial decision-makers of medium-vs. large-size companies. *Accident Analysis & Prevention*, 43(1), 1-10.

Ikpe, E., Hammon, F., & Oloke, D. (2012). Cost-benefit analysis for accident prevention in construction projects. *Journal of Construction Engineering and Management*, 138(8), 991-998.

What did we find?

The employers we spoke with agreed that intangible financial benefits were real (benefits attributed to employee morale/satisfaction, production quality and corporate reputation). Although uncertain how to value intangible benefits, employers felt these benefits were at least equal to tangible financial benefits.

Applying the assumption that intangible financial benefits were equal to tangible financial benefits, the average return on investment of \$1.00 in occupational health and safety was:

\$1.24 for 289 manufacturing employers,
\$2.14 for 56 transportation employers
\$1.34 for 88 construction employers.

Methods (1)

There were three phases in the study workplan.

1. Establish an accurate estimate of the average direct cost of a lost-time worker's compensation claim, in collaboration with representatives of the WSIB.
2. Identify employers with more than 100 FTEs that had a low incidence of work-related injury and illness in three economic sectors; construction, transportation and manufacturing, using administrative records of work-related injury and illness reported to the Ontario Workplace Safety & Insurance Board,
3. Apply a set of plausible assumptions to estimate the financial benefits of occupational health and safety expenditures in this sample of employers with strong OHS performance.

Methods (2)

Phase 3 of the workplan involved 4 steps:

- 1) assigning an estimate of occupational health and safety expenditures to each employer,
- 2) calculating tangible financial benefits for each employer, estimated as the direct and indirect costs of lost-time claims that were prevented by the employer's strong OHS performance,
- 3) applying a plausible assumption of the financial value of intangible financial benefits associated with improved employee morale and satisfaction, improved production quality and strengthened corporate reputation arising from the employer's strong OHS performance and
- 4) calculating the financial return on the employer's OHS expenditures, estimated as the ratio of the sum of tangible and intangible financial benefits to expenditures on occupational health and safety.

Step 1

\$1,515

per worker per year

OHS expenditures in the manufacturing sector

50 employers estimated OHS expenditures and investments

\$3,625

per worker per year

OHS expenditures in the construction sector

30 employers estimated OHS expenditures and investments

\$1,325

per worker per year

OHS expenditures in the transportation sector

17 employers estimated OHS expenditures and investments

Step 2

Manufacturer with approximately 380 employees

	2013	2014	2015	2016	2017	2018	Total
Employment (WSIB FTE)	366	418	416	378	380	329	
Lost time claims / 100 FTE. RG374	1.22	1.33	1.13	1.22	1.25	1.5	
Expected LT claims	4.46	5.55	4.70	4.61	4.75	4.93	29
Observed LT claims	1	4	2	1	0	2	10

The prevention of 3.16 lost-time claims per year represents a **tangible financial benefit of \$970 per worker per year**

Step 3 & 4

Manufacturer with approximately 380 employees

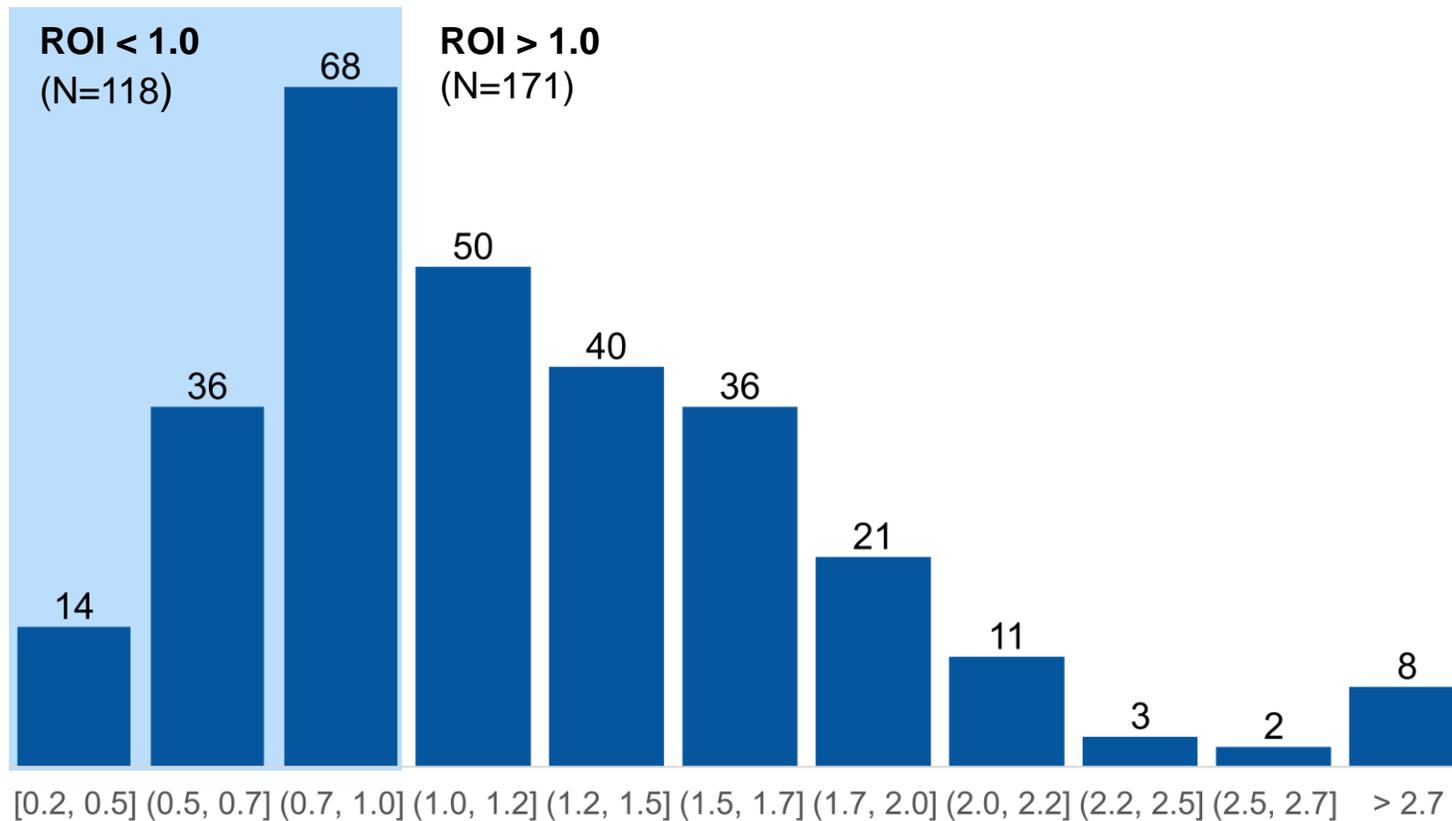
OHS Expenditures (\$ per worker per year)	\$1,959
Financial Benefits (\$ per worker per year)	
Tangible Benefits (averted direct and indirect costs)	\$970
Intangible Benefits: estimated by consensus Consolidating benefits attributed to employee morale/satisfaction, production quality and corporate reputation	\$1,165
Total Financial Benefits (\$ per worker per year)	\$2,135
Return on Investment	1.10

Manufacturing (289 employers)

Estimated financial return on OHS prevention expenditures

Average OHS expenditure per worker per year: \$1,515

Intangible financial benefit assumption: Intangible equal to Tangible (1:1)

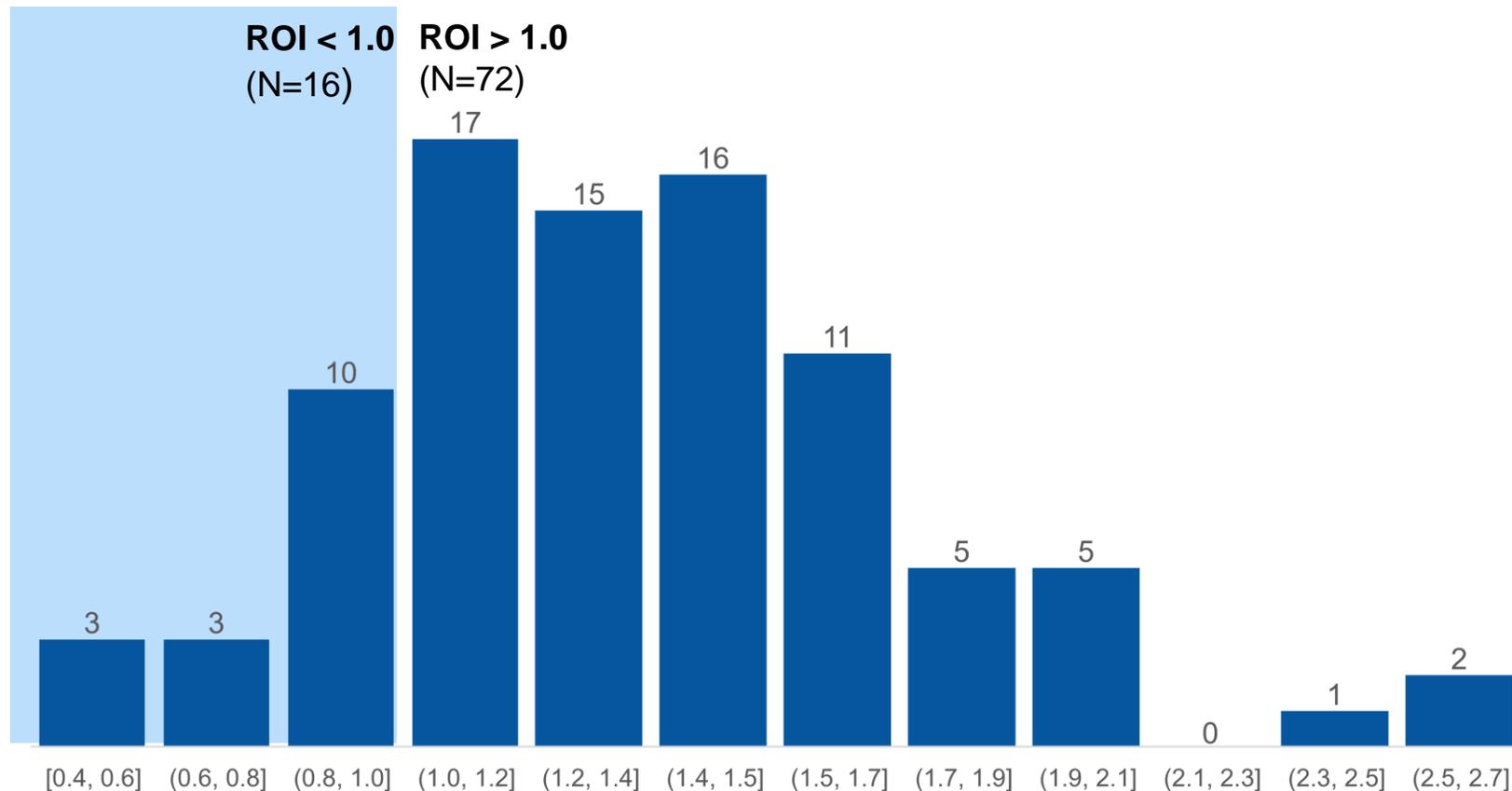


Construction (88 employers)

Estimated financial return on OHS prevention expenditures

Average OHS expenditure per worker per year: \$3,625

Intangible financial benefit assumption: Intangible equal to Tangible (1:1)



Summary of Findings

Applying the assumption that intangible financial benefits were equal in value to tangible financial benefits, the study found the following.

The average return on investment of \$1.00 in occupational health and safety was:
\$1.24 for 289 manufacturing employers,
\$2.14 for 56 transportation employers
\$1.34 for 88 construction employers.

There was variation around these average return on investment values; 138 employers (32% of the sample) had an estimated return on investment less than \$1.00, and 295 employers (68% of the sample) having a return on investment estimate greater than \$1.00.

Some limitations....

The benefit-to-expenditure ratios calculated for large Ontario employers with leading practices in OHS may not be generalizable to all employers.

The study methods do not provide insight into the typical time interval required for OHS expenditures to result in consistent improvements in OHS outcomes.

The methods applied have the potential for measurement error in estimating firm-level OHS expenditures and investments and in estimating the direct and indirect costs of work-related injury and illness.

Conclusions

This study has applied a rigorous methodology to develop estimates of the financial return to employers arising from their expenditures and investments in occupational health and safety.

Consistent with previous research in this field, this study finds the financial return on occupational health and safety prevention expenditures to be positive for a sample of large Ontario employers with strong occupational health and safety performance.

The estimates of average financial return among large Ontario employers in three important economic sectors are moderate, in the range of \$1.24 to \$2.14 for each \$1.00 invested in health and safety.

These estimates are consistent with the range of estimates available from research in this field over the past decade.

Thank you

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