

# Return on Apprenticeship Training Investment.

Conference Presentation



Canadian Apprenticeship Forum  
Forum canadien sur l'apprentissage



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# Overall Project Objectives

- To obtain a more thorough understanding of the Return on Apprenticeship Training as it relates to:
  - employers, unions, apprentices, training deliverers, governments and society.
- Part of a multi-phased project:
  - Phase 1: Development of Methodology and Data Collection Tools
  - Phase 2: Cost/Benefits of Apprenticeship for Employers
  - Phase 3: Cost/Benefits of Apprenticeship for Apprentices and Training Institutes
  - Phase 4: Governments & Society



# Phase 1:

## Objectives:

- to develop a set of tools and methodologies to be used to calculate/assess an accurate Return on Training Investment analysis.
- This phase did not carry out any of the analyses. It provided CAF–FCA, and the stakeholders, with the tools and information needed to actually collect the data.



# Phase 1:

## Key Deliverables:

- A review of current research and analysis on the topic.
- Develop the methodological approaches to be used to collect the appropriate data.
- A validation of the recommended approaches amongst stakeholders.
- Develop a set of tools/strategies to support phase 2 work; determining the cost / benefit proposition



# Phase 1

## The Tools:

- **Employers:** Administered Survey Tool that asked for qualitative and quantitative data on costs and benefits.
- **Apprentices:** A pen and paper or online survey tool that asked for qualitative and quantitative data and to be delivered to apprentice while attending “in-school” training
- **Community Colleges and Other Training Delivery Agents:** A case study approach was recommended given the complexities of funding across jurisdictions



# Phase 2

## Data Collection with Employers:

- This phase investigated the return on training investment as it applied to **employers.**
- CAF–FCA ran a pilot study by testing the survey tool with a group of employers which resulted in minor changes to the tool developed in Phase 1
- Data collection was then conducted in 15 trades using the revised survey tool.



# Criteria for Trade Selection for employer survey

- Red Seal Trades
- Representative of a variety of business sizes.
- Cross – sector i.e., service, industrial, construction.
- Inclusive of all areas of the country.



# Criteria for Trade Selection

- Looked at trades that already had some comparative research:
  - Sparks researched machinists, tool and die maker, mould maker in Ontario
  - Kunin researched mechanics, plumbers, machinists in BC
  - Al Fayek researched electrical and piping trades in Alberta.



# Criteria for Trade Selection

- Trades championed within the Board of Directors
- A mix of trades with a perceived high investment in equipment versus a perceived low investment in equipment i.e.: machinist vs. bricklayer?



# Trades Selected

Automotive Service Technician	Tool and Die Maker
Bricklayer	Construction Electrician
Carpenter	Heavy Duty Equipment Mechanic
Cook	Insulator
Industrial Mechanic (millwright)	Mobile Crane Operator
Machinist	Refrigeration and Air Conditioning Mechanic
Motor Vehicle Body Repairer	Sprinkler System Installer
Sheet Metal Worker	



# Methodology

- Through a detailed survey, information regarding wages, charge-out rates, training costs ( i.e. cost of journeyperson time, wastage) and qualitative measures on the benefits of apprenticeship was asked.
- 11,550 employers were contacted, 1,941 (16.8%) qualified for the study



- Automotive Service Technician (Sample size 45);
- Bricklayer (21);
- Carpenter (43);
- Construction Electrician (52);
- Cook (21);
- Heavy Duty Equipment Mechanic (37);
- Industrial Mechanic (Millwright) (23);
- Insulator (21);
- Machinist (33);
- Mobile Crane Operator (16);
- Motor Vehicle Body Repairer (21);
- Refrigeration and Air Conditioning Mechanic (40);
- Sheet Metal Worker (28);
- Sprinkler System Installer (16); and
- Tool and Die Maker (16).



# Cost-Benefit Model

- Model was based on a standard cost–benefit analysis for a single firm that hires apprentices.
- Net benefits (or costs) were calculated per apprentice per year.
- Benefit of apprentices was determined as their value added to their employer



# Cost – Benefit Model

## Cost Components:

- Wages and Benefits
- Opportunity Costs
- Disbursements
- Administration



# Cost - Benefit Model

## Benefit Components:

- Revenue generated by Apprentice – based on total annual chargeable hours of work, charge - out rates etc.
- Tax Credits – where applicable.



# Cost-Benefit Model

## Qualitative Benefits:

- The survey included a series of questions designed to measure the importance of several qualitative benefits of apprenticeship training. These include:
  - Potential reasons for investing in apprenticeship;
  - The benefit of apprenticeship training to journeypersons; and
  - The advantages of employing a homegrown journeyperson.

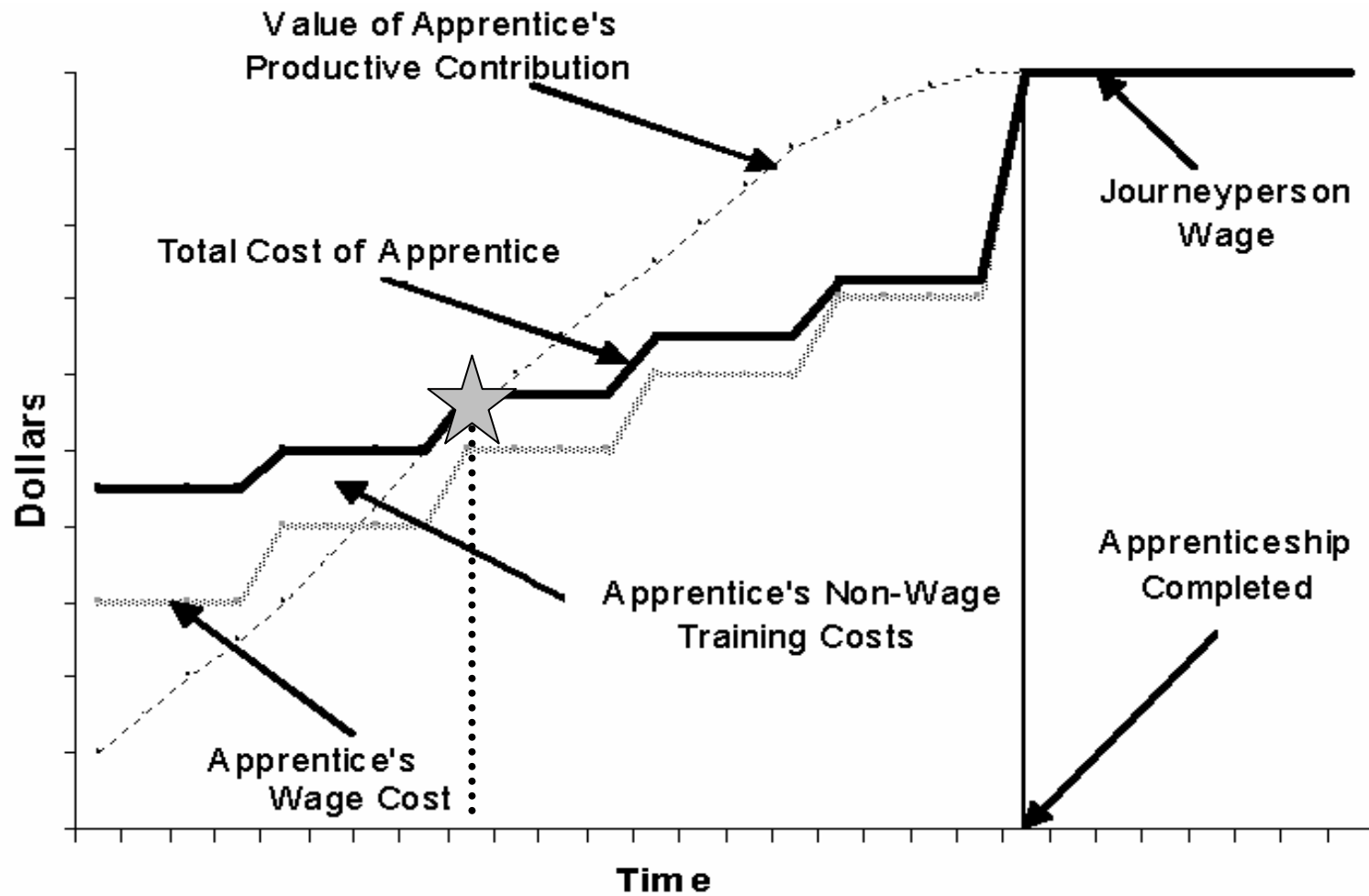


# Cost-Benefit Model

- For each year, the following net benefit calculations were made:
- **Benefit = Charge out rate x Charge out hours**
- **Cost = Wages and benefits + Opportunity costs + Disbursements + Administration costs**
- **Opportunity costs = Journeyperson time + Wastage**
- **Net benefit/cost = Benefit – Cost**



# Hypothetical Model



# Research Findings

- On average, for each \$1 invested in an apprentice, a benefit of \$1.38 accrues to the employer
- All 15 trades studied show an overall net benefit of apprenticeship training.



# Research Findings

- 66.1 % of employers **perceived** that apprentice's productive value exceeds training costs by end of 2'nd year
- The **reality**, apprentices for all 15 trades generate net benefits for employers within a short period of time – 12 /15 trades showed a net benefit after year 1, all but one after year 2.
- In addition, 67.6% **perceived** that their journeyperson derived a benefit from training an apprentice



# Research Findings

- Employers perceived that there was a benefit of employing a journeyperson that was trained as an apprentice.
- Majority of employers across all business sizes and regions perceived a “homegrown” journeyperson as more productive than an externally trained journeyperson.
- 53.6% of employers provide cash disbursements to their apprentices, mostly related to wages during in–school training.



# Trade by Trade Results

Trade	Duration of Apprenticeship (Years) <sup>1</sup>	Costs <sup>2</sup> (\$)	Benefits <sup>3</sup> (\$)	Net Benefit <sup>4</sup> (\$)	Benefit -Cost Ratio <sup>5</sup>
			Excl. Tax Credits	Excl. Tax Credits	Excl. Tax Credits
Automotive Service Technician	4	219,354	327,835	108,481	1.49
Bricklayer	4	202,530	270,729	68,200	1.34
Carpenter	4	192,080	214,207	22,127	1.12
Construction Electrician	5	275,424	338,040	62,616	1.23
Cook	3	77,601	119,703	42,102	1.54
Heavy Duty Equipment Mechanic	4	208,231	304,247	96,016	1.46
Industrial Mechanic (Millwright)	4	246,061	298,493	52,432	1.21
Insulator	4	202,149	267,441	65,292	1.32



# Trade by Trade Results

Trade	Duration of Apprenticeship (Years) <sup>1</sup>	Costs <sup>2</sup> (\$)	Benefits <sup>3</sup> (\$)	Net Benefit <sup>4</sup> (\$)	Benefit-Cost Ratio <sup>5</sup>
			Excl. Tax Credits	Excl. Tax Credits	Excl. Tax Credits
Machinist	4	184,956	283,669	98,713	1.53
Mobile Crane Operator	4	248,068	256,318	8,250	1.03
Motor Vehicle Body Repairer	4	180,647	295,281	114,634	1.63
Refrigeration and Air Conditioning Mechanic	4	242,960	319,084	76,124	1.31
Sheet Metal Worker	4	251,698	300,017	48,320	1.19
Sprinkler System Installer	4	206,153	338,933	132,780	1.64
Tool and Die Maker	4	173,469	290,473	117,004	1.67
Average	4	207,425	281,631	74,206	1.38



# Example: Cost-Benefit Results – AST (46)

	Year 1	Year 2	Year 3	Year 4	Total
<b>Benefits</b>					
<b>Charge-Out Revenue</b>	\$ 64,837.90	\$ 75,989.22	\$ 89,331.18	\$ 90,252.98	\$ 320,411.29
<b>Costs</b>					
<b>Wages and Benefits</b>	\$ 26,202.01	\$ 29,701.29	\$ 33,778.90	\$ 41,780.23	\$ 131,462.43
<b>Journeyman Time</b>	\$ 22,402.83	\$ 16,617.37	\$ 11,178.58	\$ 7,976.02	\$ 58,174.79
<b>Wastage</b>	\$ 5,446.65	\$ 2,699.24	\$ 1,552.81	\$ 1,419.50	\$ 11,118.20
<b>Disbursements</b>	\$ 1,073.22	\$ 969.58	\$ 735.54	\$ 578.40	\$ 3,356.74
<b>Administration</b>	\$ 3,453.80	\$ 3,453.80	\$ 3,453.80	\$ 3,453.80	\$ 13,815.20
<b>Total</b>	\$ 58,578.51	\$ 53,441.28	\$ 50,699.62	\$ 55,207.95	\$ 217,927.36
<b>Net Benefit</b>	\$ 6,259.39	\$ 22,547.94	\$ 38,631.56	\$ 35,045.03	\$ 102,483.93



# Validation Roundtables

## Roundtables were held in:

- Halifax Automotive Service Technicians
- Regina Construction Electrician
- Vancouver Refrigeration and Air Conditioning Mechanic
- Edmonton Industrial Mechanic
- Ottawa Economists



# Findings from Roundtables

- Employers confirmed cost–benefit results are accurate although there are regional differences.
- Employers agree that apprentices generate a net return to their organization.
- Economist roundtable supported the methodology, and noted the breadth of study exceeds that of previous research.



# Next Steps

- To complete Phase 2 work the committee is developing a Communications and Marketing strategy in order to share the key components of the study.



## Phase 3

- CAF–FCA also surveyed apprentices in Community colleges – the data has not been analyzed
- Further work is planned to assess cost/benefit for all other stakeholder groups
  - Apprentices in private training institutions
  - Case studies of colleges and private trainers
- A proposal for the continued study of the return on training investment of apprenticeship for apprentices (private training institutions) and training deliverers has been submitted to HRSDC for approval.



# Next Steps

- There is also a plan to create a cost / benefit analysis “tool” that employers and industry associations can use to calculate their own cost / benefit analysis.
- This tool will be developed by CAF–FCA and distributed widely.
- There is an interest in expanding the cost/benefit data that exists for employers involved in apprenticeship training.



# Questions Arising from the Research

- Are there significant differences in the net cost of training an apprentice in a larger organization versus a small business?
- What are some of the regional differences that impact the return on training investment?
- What are some of the trade related differences that may impact the return on training investment?
- What are some trade specific monetary and non-monetary benefits that contribute to the bottom line?



# Apprenticeship Training is a great investment

