

Do train-or-pay schemes really increase training levels?

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- Known as *Loi favorisant le développement et la reconnaissance des compétences de la main-d'oeuvre*
- Key requirement is that workplaces devote one per cent of their payroll toward (structured) training ...
- ... or submit an equivalent amount to the Québec Minister of Revenue
- Nicknamed “1% law”

Implementation of Bill 90

- 1 The law was formally introduced on June 22nd 1995
- 2 On January 1st 1996, all workplaces with payroll over \$1000000 were subject to the law
- 3 On January 1st 1997: all workplaces with payroll over \$500000.
- 4 On January 1st 1998: all workplaces with payroll over \$250000.

- **No data set spans the pre- and post-implementation period!!!!!!!**
- → No formal assessment of the impact of Bill 90 ...
- ... except government reports based on administrative data

This is a common pattern

- 1 It is widely thought that workplaces under-invest in employee training.
- 2 Government around the world have responded by devising policies aimed at promoting firm-sponsored training.
- 3 Rigorous assessments of these policies are virtually absent (Bassanini, Booth, Brunello, Paola and Leuven (BBBPL (2007))).
- 4 *Many investigations provide only descriptive statistics with no counterfactual for the assessment of the policy impact. (BBBPL (2007))*

- 1 Bill 90 is universally hated by employers ...
- 2 On January 12th 2003, as part of the 2003-04 budget, the Quebec government promised a repeal of the 1% law for workplaces with payroll of less than 1 million dollars
- 3 *This raises the possibility of using the Workplace and Employee Survey by Statistics Canada to estimate the impact of the law.*

OPINION

L'échec de la loi du 1 %



**FRANÇOISE
BERTRAND**

Présidente-
directrice générale,
Fédération
des chambres
de commerce
du Québec

Le Québec est le seul endroit en Amérique du Nord à avoir adopté une loi qui oblige les employeurs à investir en formation au moins 1 % de la masse salariale. Cette loi fut adoptée en 1995 parce que les entreprises québécoises n'investissaient pas suffisamment en formation.

montant à la formation doivent verser une cotisation au Fonds de développement et de reconnaissance des compétences de la main-d'œuvre. En 2012, 13 500 employeurs du Québec ont ainsi versé 33 millions de dollars à ce Fonds.

Le Fonds est confié à la Commission des partenaires du marché du travail (CPMT) qui a mis en place des normes, procédures et services administratifs afin d'octroyer aux entreprises et à des organismes à but non lucratif des subventions à des fins de formation. Cette gestion accapare une portion démesurée des énergies de la CPMT,

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Is hate the solution?

Publié le 09 janvier 2015 à 05h00 | Mis à jour le 09 janvier 2015 à 05h00

Loi du 1 % sur la formation professionnelle: un échec, juge le patronat



Les associations patronales rappellent que le Québec est la seule juridiction en Amérique du Nord à avoir adopté une loi obligeant les employeurs à consacrer un pourcentage de leur masse salariale à la formation de la main-d'œuvre.

SHUTTERSTOCK, ELENA11

Refuser l'improvisation, Plaidoyer pour le maintien de la loi du 1 %

mercredi 4 février 2015 - ICÉA



Depuis quelques semaines, plusieurs interventions publiques, provenant essentiellement des milieux patronaux, contestent la pertinence de la loi sur la formation de la main-d'œuvre en emploi, aussi appelé la loi du 1 %. Pour leurs auteurs (comme Martine Hébert, de la FCEI, et Françoise Bertrand, de la FCCQ), le diagnostic est clair : celle loi est un échec et il convient donc de l'abolir. En contrepartie, les entreprises accepteraient d'accueillir davantage de stagiaires. Ces propos appellent plusieurs remarques qui interrogent autant le diagnostic que la proposition alternative.

Texte de Pierre Doray et Félix Simoneau
Centre interuniversitaire de recherche sur la science et la technologie de

l'Université du Québec à Montréal

Is hate the solution?

TABEAU 1

Principaux indicateurs de l'effort de formation des entreprises québécoises assujetties à la loi sur la formation de la main-d'œuvre, 1996 à 2002

	1996	1997	1998	1999	2000	2001	2002
Entreprises	8 107	16 425	30 429	32 605	34 243	36 120	37 663
Masse salariale (en milliards \$)	52	60,3	79,8	75	74,5	76	80,9
Dépenses de formation (en millions \$)	1 179	894,2	1 084,1	1 165,8	1 165,8	1 134,2	1 186,9
% de la masse salariale investi en formation	2,26 %	1,48 %	1,53 %	1,56 %	1,56 %	1,49 %	1,47 %
% des employeurs ayant investi au moins 1 %	85 %	78 %	74 %	76 %	76,6 %	76,3 %	77,2 %

Données colligées par Revenu Québec à partir du formulaire Sommaire des retenues et des cotisations de l'employeur et publiées selon les années par le Fonds de développement et de reconnaissance des compétences de la main-d'œuvre, Emploi-Québec et la Commission des partenaires du marché du travail.

Is hate the solution?

TABEAU 2

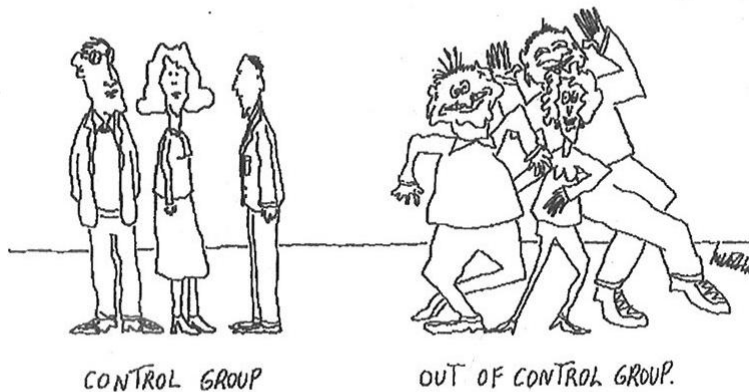
Principaux indicateurs de l'effort de formation des entreprises québécoises assujetties à la loi sur la formation de la main-d'œuvre, 2004 à 2011

	2004	2005	2006	2007	2008	2009	2010	2011
Entreprises	10 832	11 621	11 126	12 358	11 972	12 824	14 895	16 143
Masse salariale (en milliards \$)	64,7	65,7	65	73	65,8	81,3	91,7	102,8
Dépenses de formation (en millions \$)	1 048	909,5	1 014	985	824	945	1 064	1 272
% de la masse salariale investi en formation	1,6 %	1,4 %	1,56 %	1,35 %	1,25 %	1,16 %	1,16 %	1,24 %
% des employeurs ayant investi au moins 1 %	88 %	89 %	88,7 %	89 %	88,5 %	87,8 %	87,8 %	86,2 %

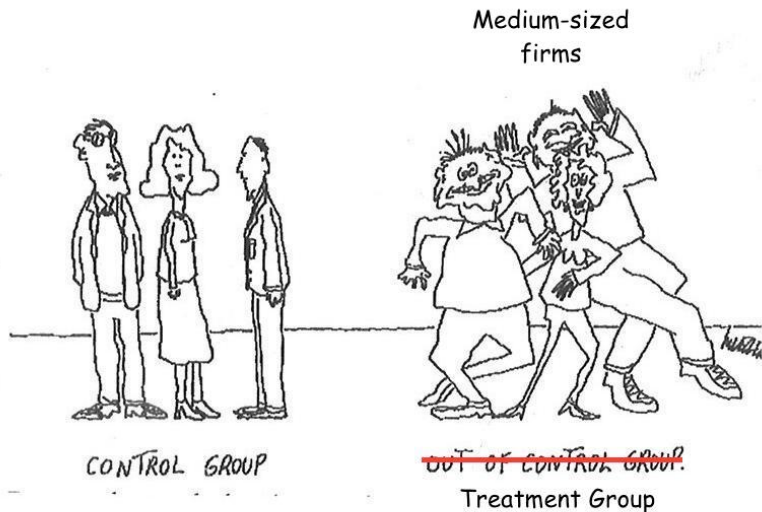
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Empirical strategy







Empirical strategy

Small and big
firms



CONTROL GROUP

Medium-sized
firms



~~OUT OF CONTROL GROUP.~~

Treatment Group

The Workplace and Employee Survey (WES):

- 1 is representative of workplaces at the national level but also at the provincial level for the biggest provinces (British-Columbia, Ontario and Québec),
- 2 started in 1999, data is available up to 2006,
- 3 contains detailed information on payroll, total number of employees, total number of employees who received training,
- 4 is longitudinal (and linked).

The Workplace and Employee Survey (WES):

Table: Survey Design

Year	Workplaces	Workers
1999	6,322	23,540
2000	6,068	20,167
2001	6,207	20,352
2002	5,818	16,813
2003	6,565	20,834
2004	6,159	16,804
2005	6,693	24,197
2006	6,312	

Of course there are a few problems:

- definition of training might differ between Statistics Canada and Bill 90
- timing of the survey does not match exactly the timing of the changes in Bill 90
- survey is representative of workplaces only in odd years.

Classroom training (Statistics Canada)

All job-related training activities which have pre-determined format, including a pre-defined objective, specific content, and progress may be monitored and/or evaluated. It is most often provided by an instructor who is not an employee of the workplace outside regular work hours.

Structured training (Bill 90)

The law includes detailed information on the type of training that qualifies. Only transferable skill-related structured training that is directly related to the job or that is recognized by other workplaces qualifies. Structured training must impart or improve skills necessary for doing one's job.

On-the-job training (Statistics Canada)

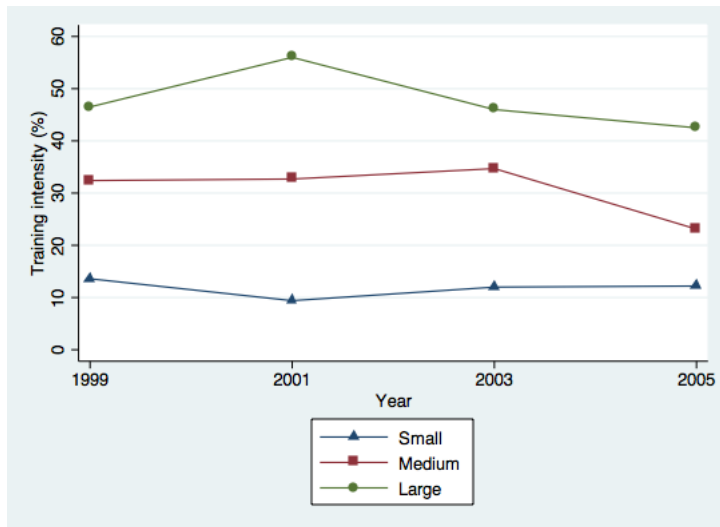
Formally defined as informal training taking place during working hours, and provided by a colleague or a supervisor.

- All variables are defined for the year ending on March 31st.
- This means that the pre-reform year closest to the reform is 2003.
- The post-reform year closest to the reform is 2005.

The story in simple summary statistics

Québec Size	<i>Average prop. for classroom training</i>		
	Small	Medium	Large
1999	13.6	32.4	46.5
2001	9.4	32.7	56.0
2003	12.0	34.7	46.0
2005	12.2	23.1	42.5

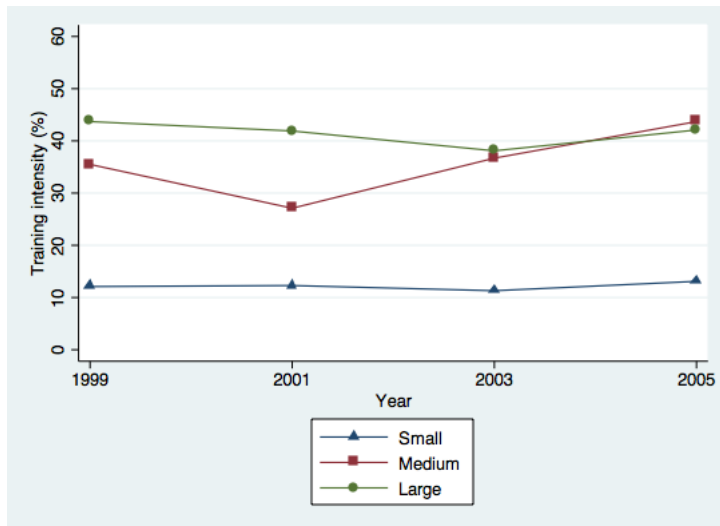
The story in simple summary statistics



The story in simple summary statistics

Québec Size	<i>Average prop. for on-the-job training</i>		
	Small	Medium	Large
1999	12.1	35.5	43.7
2001	12.3	27.1	41.9
2003	11.3	36.7	38.1
2005	13.1	43.7	42.1

The story in simple summary statistics



Double-differences regression model

$$\begin{aligned} P_{jt}^k &= \beta_0 + \beta_1 D_{jt}^{\text{YEAR}=2001} + \beta_2 D_{jt}^{\text{YEAR}=2003} + \beta_3 D_{jt}^{\text{YEAR}=2005} \\ &+ \gamma_1 D_{jt}^{\text{SIZE}=MEDIUM} + \gamma_2 D_{jt}^{\text{SIZE}=LARGE} \\ &+ \tau (D_{jt}^{\text{YEAR}=2005} \cdot D_{jt}^{\text{SIZE}=MEDIUM}) + \epsilon_{jt} \end{aligned}$$

A formal test of the substitution hypothesis - DD Results

TABLE 3. Double-differences regression results

Dependent variable:	Average proportion of employees receiving classroom training				Average proportion of employees receiving on-the-job training			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Year indicators</i>								
Year=1999		-	-	-		-	-	-
Year=2001		-0.018 (0.030)	-0.023 (0.028)	-0.024 (0.028)		-0.011 (0.024)	-0.016 (0.023)	-0.016 (0.023)
Year=2003		0.008 (0.029)	-0.007 (0.027)	-0.008 (0.027)		-0.001 (0.027)	-0.016 (0.025)	-0.015 (0.025)
Year=2005		-0.013 (0.032)	-0.036 (0.031)	-0.014 (0.036)		0.031 (0.029)	0.010 (0.026)	0.002 (0.031)
<i>Workplace size indicators</i>								
Small			-	-			-	-
Medium			0.190*** (0.024)	0.215*** (0.028)			0.207*** (0.023)	0.198*** (0.027)
Large			0.357*** (0.029)	0.355*** (0.029)			0.290*** (0.021)	0.291*** (0.022)
<i>Treatment indicator</i>								
MED * Year=2005				-0.099** (0.049)				0.037 (0.060)
Constant	0.187*** (0.011)	0.193*** (0.022)	0.134*** (0.024)	0.129*** (0.024)	0.190*** (0.010)	0.185*** (0.016)	0.128*** (0.015)	0.129*** (0.015)
#OBS	5088	5088	5088	5088	5088	5088	5088	5088
R-squared	0.00	0.00	0.07	0.07	0.00	0.00	0.08	0.08

WES 1999, 2001, 2003 & 2005

Bootstrapped standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%

A formal test of the substitution hypothesis - DD Results

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Year=1999	-	-	-	-	-	-	-	-
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Small	-	-	-	-	-	-	-	-
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Year=2003	0.008 (0.029)	-0.007 (0.027)	-0.008 (0.027)	-0.008 (0.027)	-0.001 (0.027)	-0.016 (0.025)	-0.015 (0.025)	-0.015 (0.025)
Year=2005	-0.013 (0.032)	-0.036 (0.031)	-0.014 (0.036)	-0.014 (0.036)	0.031 (0.029)	0.010 (0.026)	0.002 (0.031)	0.002 (0.031)
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A formal test of the substitution hypothesis - DD Results

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WES 1999, 2001, 2003 & 2005

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A formal test of the substitution hypothesis

TABLE 1
SAMPLE SIZES BY PAYROLL CATEGORIES

Gross Payroll		Quebec		Ontario	
		%	#	%	#
> \$1,000,000	(large)	8.3	2,721	10.6	3,302
> \$ 250,000 & < \$1,000,000	(medium)	21.0	961	23.1	1,137
< \$250,000	(small)	70.7	1,406	66.3	1,435
Total		100.0	5,088	100.0	5,874

SOURCE: Workplace and Employee Survey (1999, 2001, 2003, 2005)
#, number of sampled workplaces; %, weighted population represented.

A formal test of the substitution hypothesis

SUMMARY STATISTICS FOR TRAINING INTENSITIES

Québec Size	Average Proportion of Employees Receiving Classroom Training			Ontario Size	Average Proportion of Employees Receiving Classroom Training		
	Small	Medium	Large		Small	Medium	Large
1999	13.6	32.4	46.5	1999	16.1	23.9	37.1
2001	9.4	32.7	56.0	2001	16.8	25.0	37.4
2003	12.0	34.7	46.0	2003	12.1	32.8	39.7
2005	12.2	23.1	42.5	2005	17.6	30.2	33.2

A formal test of the substitution hypothesis

Québec Size	Average Proportion of Employees Receiving On-the-Job Training			Ontario Size	Average Proportion of Employees Receiving On-the-Job Training		
	Small	Medium	Large		Small	Medium	Large
1999	12.1	35.5	43.7	1999	33.1	32.4	40.5
2001	12.3	27.1	41.9	2001	33.5	34.0	47.3
2003	11.3	36.7	38.1	2003	30.9	42.5	36.9
2005	13.1	43.7	42.1	2005	36.2	39.2	48.2

SOURCE: Workplace and Employee Survey (1999, 2001, 2003, 2005)

Triple-difference regression model

$$\begin{aligned} P_{jpt}^k &= \delta ONT_{jpt} + \beta YEAR_{jpt} + \gamma SIZE_{jpt} + \\ &+ \theta_1 QC_{jpt} \cdot REF_{jpt} + \theta_2 REF_{jpt} \cdot MED_{jpt} + \\ &+ \theta_3 QC_{jpt} \cdot MED_{jpt} + \\ &+ \tau QC_{jpt} \cdot REF_{jpt} \cdot MED_{jpt} + \\ &+ \epsilon_{jpt} \end{aligned}$$

A formal test of the substitution hypothesis - DDD Results

TABLE 4. Triple-differences regression results

Dependent variable:	Average proportion of employees receiving classroom training			Average proportion of employees receiving on-the-job training				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Province indicators</i>								
Ontario	0.019 (0.017)	0.019 (0.017)	0.010 (0.017)	0.006 (0.018)	0.163*** (0.018)	0.163*** (0.018)	0.157*** (0.018)	0.163*** (0.019)
<i>Year indicators</i>								
Year=1999		-	-	-		-	-	-
Year=2001		0.002 (0.027)	-0.006 (0.026)	-0.006 (0.026)		0.004 (0.029)	-0.001 (0.029)	-0.001 (0.029)
Year=2003		-0.000 (0.021)	-0.011 (0.021)	-0.011 (0.021)		0.003 (0.029)	-0.004 (0.029)	-0.004 (0.029)
Year=2005		0.020 (0.023)	0.001 (0.022)	0.007 (0.022)		0.042 (0.028)	0.030 (0.028)	0.021 (0.030)
<i>Workplace size indicators</i>								
Small			-	-			-	-
Medium			0.148*** (0.021)	0.155*** (0.022)			0.099*** (0.021)	0.089*** (0.023)
Large			0.252*** (0.020)	0.252*** (0.020)			0.163*** (0.020)	0.164*** (0.020)
<i>Treatment indicator</i>								
MED * QC * Year=2005				-0.071* (0.041)				0.109** (0.054)
Constant	0.187*** (0.011)	0.182*** (0.019)	0.139*** (0.019)	0.140*** (0.019)	0.190*** (0.010)	0.178*** (0.018)	0.150*** (0.018)	0.148*** (0.018)
#OBS	10962	10962	10962	10962	10962	10962	10962	10962
R-squared	0.00	0.00	0.05	0.05	0.02	0.02	0.03	0.03

WES 1999, 2001, 2003 & 2005

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Year=2001		0.002 (0.027)	-0.006 (0.026)	-0.006 (0.026)		0.004 (0.029)	-0.001 (0.029)	-0.001 (0.029)
Year=2003		-0.000 (0.021)	-0.011 (0.021)	-0.011 (0.021)		0.003 (0.029)	-0.004 (0.029)	-0.004 (0.029)
Year=2005		0.020 (0.023)	0.001 (0.022)	0.007 (0.022)		0.042 (0.028)	0.030 (0.028)	0.021 (0.030)
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<i>Treatment indicator</i>								
MED * QC * Year=2005				-0.071* (0.041)				0.109** (0.054)
Constant	0.187*** (0.011)	0.182*** (0.019)	0.139*** (0.019)	0.140*** (0.019)	0.190*** (0.010)	0.178*** (0.018)	0.150*** (0.018)	0.148*** (0.018)
#OBS	10962	10962	10962	10962	10962	10962	10962	10962
R-squared	0.00	0.00	0.05	0.05	0.02	0.02	0.03	0.03

WES 1999, 2001, 2003 & 2005

Bootstrapped standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%

A formal test of the substitution hypothesis - DDD Results

TABLE 4. Triple-differences regression results

Dependent variable:	Average proportion of employees receiving classroom training				Average proportion of employees receiving on-the-job training			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Province indicators</i>								
Ontario	0.019 (0.017)	0.019 (0.017)	0.010 (0.017)	0.006 (0.018)	0.163*** (0.018)	0.163*** (0.018)	0.157*** (0.018)	0.163*** (0.019)
<i>Year indicators</i>								
Year=1999		-	-	-		-	-	-
Year=2001		0.002 (0.027)	-0.006 (0.026)	-0.006 (0.026)		0.004 (0.029)	-0.001 (0.029)	-0.001 (0.029)
Year=2003		-0.000 (0.021)	-0.011 (0.021)	-0.011 (0.021)		0.003 (0.029)	-0.004 (0.029)	-0.004 (0.029)
Year=2005		0.020 (0.023)	0.001 (0.022)	0.007 (0.022)		0.042 (0.028)	0.030 (0.028)	0.021 (0.030)
<i>Workplace size indicators</i>								
Small			-	-			-	-
Medium			0.148*** (0.021)	0.155*** (0.022)			0.099*** (0.021)	0.089*** (0.023)
Large			0.252*** (0.020)	0.252*** (0.020)			0.163*** (0.020)	0.164*** (0.020)
<i>Treatment indicator</i>								
MED * QC * Year=2005				-0.071* (0.041)				0.109** (0.054)
Constant	0.187*** (0.011)	0.182*** (0.019)	0.139*** (0.019)	0.140*** (0.019)	0.190*** (0.010)	0.178*** (0.018)	0.150*** (0.018)	0.148*** (0.018)
#OBS	10962	10962	10962	10962	10962	10962	10962	10962
R-squared	0.00	0.00	0.05	0.05	0.02	0.02	0.03	0.03

WES 1999, 2001, 2003 & 2005

Bootstrapped standard errors in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%

- 1 Bill 90 was not as successful as previously thought in raising investments in training.
- 2 Bill 90 caused workplaces to substitute between formal classroom training and informal on-the-job training.
- 3 It remains to be seen what kind of impact (if any) Bill 90 has on workplace productivity.