

## Article

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*Relations industrielles / Industrial Relations*, vol. 63, n° 1, 2008, p. 5-29.

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DOI: 10.7202/018120ar

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# *Low-Paid Workers and On-the-Job Training in Canada*

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*This paper provides evidence of on-the-job training for low-paid workers in Canada and examines workplace and individual factors associated with their on-the-job training. The study uses Statistics Canada's Workplace and Employee Survey (WES) 2001 data. Results show that less than a quarter of low-paid workers received on-the-job training in 2001 as compared to one third of higher-paid workers. A decomposition of regression models indicated that this substantive gap is statistically significant. With the shrinking labour force, ongoing skills development is needed to enable workers to earn a decent living, fulfill their work-related goals, and contribute to the current and future productivity of their workplaces and the economy. We recommend governments provide support for low-paid workers' on-the-job training.*

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  - Acknowledgements: This study is supported by a grant from the Social Sciences and Humanities Research Council of Canada. The research and analysis are based on data produced by Statistics Canada and accessed at Statistics Canada McMaster Research Data Centre. The opinions expressed do not represent the views of Statistics Canada. An earlier version of this paper was presented at the European Academy of Management 2007 meeting in Paris.

In recent decades a polarization has appeared in the Canadian labour market with some workers having favourable working conditions and others enduring poor working conditions (Betcherman and Lowe, 1997). Income inequality has grown (Moore and Pacey, 2003), and there is growing disparity in hourly wage rates (Johnson and Kuhn, 2004) and benefits coverage (Zeytinoglu and Cooke, 2005). While the real GDP per worker has increased by 22% between 1989 and 2004, real after-tax income per worker increased only 4% over this fifteen-year period (Drummond and Caranci, 2005). There is now a substantial segment of the labour force in jobs that have unfavourable conditions of employment, job insecurity or downward economic mobility (Chaykowski, 2005). The vulnerable workers series of the Canadian Policy Research Networks showed many unfavourable aspects of these workers' work lives and a lack of employment-related social protection (see, for example, Chaykowski, 2005; Saunders, 2003 and 2006; Vallée, 2005).

Many terminologies, such as vulnerable workers (Saunders, 2003), low-paid workers (Chung, 2004; Saunders, 2005), lower-wage at-risk workers (Verma and Mann, 2006), working poor (US Department of Labor, 2005) or low-wage workers (Appelbaum, Bernhardt and Murnane, 2003; Holzer, Lane and Vilhuber, 2004) are used to define workers who are at the poor end of the employment spectrum. While there are some differences in the coverage of these terminologies, they essentially refer to workers who experience economic vulnerability. In this paper we focus on low-paid regular full-time workers. We define these workers as those in regular (continuous) employment contracts, employed for full-time hours and paid less than \$10 per hour (in 2001) which includes all those earning at, or near, the minimum wage. Rather than using the longer but more accurate "low-paid regular full-time workers" terminology, for the rest of the paper we refer to these workers as "low-paid workers." Using 2001 Census data, Chung (2004) found that in 2000 roughly 16% of all full-time employees in Canada received relatively low earnings—less than \$375 per week.

For all workers, learning, particularly job skills training and skills upgrading, is an integral part of maintaining their competitive employability profile (OECD 2006a; Statistics Canada, 1997). However, research suggests that employers in Canada are under-investing in training (Goldenberg, 2006). About a third of Canadian workers are trained on-the-job in Canada (Zeytinoglu and Cooke, 2006), but little is known about the extent of on-the-job training among low-paid workers. A study conducted in the Toronto area shows a low incidence of training among these workers (Verma and Mann, 2006), and as Berg and Frost (2005) show, training is a critical factor for low-paid workers' perceptions of dignity. The vulnerable workers research suggests that low-paid workers do not receive on-the-job training (Saunders, 2006).

The purposes of this paper are to provide evidence of on-the-job training for low-paid workers as compared to higher-paid<sup>1</sup> workers in Canada and to examine workplace and individual factors associated with their on-the-job training. The study uses Statistics Canada's Workplace and Employee Survey (WES) 2001 data. The unit of analysis is the individual worker and data linking employee responses to workplace (i.e. employer) responses are used.

This study is important for two reasons. First, understanding the extent of on-the-job training and factors associated with training of low-paid workers can lead to better informed policies. Such policies can improve workers' performance, enable them to quickly adjust to technological changes, improve earnings, and contribute to their workplaces' productivity. Second, in a competitive, technology-intensive and knowledge-based global economy, skilled human resources are one of the most important factors for a country's success (Statistics Canada, 1997). Investing in continual skills development is crucial not only for workers and employers but also for Canada's development and competitiveness (*Achieving Excellence*, 2002; *Knowledge Matters*, 2002). With a declining working (prime) age population, training to improve employability of workers is more important than ever (OECD, 2006b; Saunders, 2006).

### ***THEORY AND THE CONCEPTUAL FRAMEWORK OF LOW-PAID WORKERS' ON-THE-JOB TRAINING***

In terms of the theory of employer-sponsored training, labour economics research largely uses Becker's (1962, 1964) investment in human capital theory. The investment in human capital can occur via formal training in a structured training environment or can be informal, on-the-job, training. Becker's theory (1964) suggests that a worker should pay for any general training which leads to acquiring new skills and earn higher wages, and the employer should pay only for firm-specific training. As the theory suggests, in competitive markets, workers themselves will have the incentive to improve their general skills because they are the sole beneficiaries of the improvements in their productivity. Based on the theory, there is a strong argument that government regulations and subsidies for training are not necessary (Acemoglu and Pischke 1999a).

The evidence contradicts the predictions of Becker's theory on training (Acemoglu and Pischke, 1998, 1999a) and suggests that the theory is more a way of understanding the investment in human capital in its pure form

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1. We use higher-paid rather than high-paid since this group includes those earning marginally above \$10 to the highest hourly rate workers.

than a description of what can be observed in practice (Ahlstrand, Bassi and McMurrer, 2003). Acemoglu (1997) and Acemoglu and Pischke's (1998, 1999a and b) theory of training presents that when the current employer, relative to other employers, has superior information regarding its employees' abilities, this information provides a monopsony power and encourages the employer to provide and pay for training, even if the skills are general. Workers do not pay for the general training received. Labour market regulations and institutions and their impact on the structure of wages play a significant role in employers' willingness to provide and pay for training. Referring to the institutional structure of the German labour market with its protections for dismissal, strong union movement and supporting apprenticeship system, Acemoglu and Pischke's theory shows that in non-competitive labour markets wages are compressed, encouraging employers to invest in general training. This situation contrasts with the U.S. labour market where the incidence of employer provided general training is limited and the labour movement and regulatory protections are weak. Acemoglu and Pischke (1999a) argue that the best way to increase productivity in a given profession is likely to be via on-the-job training that builds upon a strong general purpose education achieved through formal schooling.

The topic of on-the-job training is also of interest to human resources management researchers, but that literature focuses on how workers learn and there is no theory to guide our analysis. The practice in the field shows that employers train for three purposes: to increase the productivity or the performance of workers, to achieve organizational goals, and to invest in workers to succeed in the unpredictable and turbulent business environment (Belcourt, Wright and Saks, 2000).

Our study is based on the foundations of Acemoglu (1997) and Acemoglu and Pischke's (1998, 1999a and b) training theory in labour economics along with empirical research findings in labour economics and practice-based knowledge in human resources. We examine training experiences of low-paid and higher-paid workers and the determinants of their on-the-job training. Next we compare low-paid and higher-paid workers with respect to their likelihood of receiving on-the-job training. Based on the theory and existing research, we expect workers in low-paid jobs to have less opportunity for on-the-job training as compared to workers in higher-paid jobs.

There are a number of workplace and individual factors that, independently and collectively, influence an employer's tendency to provide on-the-job training. Workplace characteristics studied here are the size of the workplace, innovation introduced in the workplace, and the industry. In terms of size, although research shows that large workplaces are more

likely to provide formal training than smaller workplaces (Chaykowski and Slotsve, 2003; Turcotte, Léonard and Montmarquette, 2003), training research shows that those employed in small workplaces are more likely to receive on-the-job training relative to the reference group of large workplaces (Zeytinoglu and Cooke, 2006). Bernier (2005) suggests that for her sample of small and medium size businesses such decisions do not only depend on the managers themselves but are also influenced or even constrained by the characteristics of their institutional environment. In terms of on-the-job training and innovation introduced in the workplace, studies (Chowhan, 2005; Zeytinoglu and Cooke, 2006) are presenting a positive association with innovation and on-the-job training. In terms of the effects of industry on training, research shows that on-the-job training accounts for a significant share of training in the manufacturing industries (Turcotte, Léonard and Montmarquette, 2003).

The individual characteristics studied here as possible determinants of on-the-job training are collective agreement coverage, age, gender, immigrant status, education, occupation, full-time work experience, marital status, and presence of dependent children. Recent Canadian evidence shows a positive effect of unionization on training (Livingstone and Raykov, 2005). An OECD (2006b) study shows that the incidence of training declines with age, though Turcotte, Léonard and Montmarquette (2003) found that the probability of taking on-the-job training is not significantly associated with age. Research results are mixed for gender and training. While some show that women receive less training than men (OECD, 2006a; Sussman, 2002), others report women to participate more than men in all types of training including on-the-job training (Simpson and Stroh, 2002). Recent immigrants, who are also predominantly visible minorities, face more labour market difficulties than earlier immigrants and Canadian-born workers (Picot, Hou and Coulombe, 2007; Picot and Sweetman, 2005), including low training (OECD, 2006a). Lin and Tremblay's (2003) literature review shows that on-the-job training is positively associated with education level and those with a university degree or higher are more likely to receive on-the-job training than workers with a college degree or lower, though Turcotte, Léonard and Montmarquette (2003) found no significant effect of education on on-the-job training. In terms of occupation, managers, professionals and technical workers are more likely to take classroom training than on-the-job training while business and sales staff and unskilled production workers receive on-the-job training rather than formal training in a classroom environment (Lin and Tremblay, 2003; Turcotte, Léonard and Montmarquette, 2003). Administrative staff takes either classroom or on-the-job training (Turcotte, Léonard and Montmarquette, 2003). On-the-job training is high in the initial years of employment and gradually declines as tenure increases (Lin and Tremblay, 2003). In terms of the

effects of dependent children on training, a recent study showed that family responsibilities or lack of child care were barriers for job-related training for almost 20 percent of workers and this was more significant among women and those aged 25 to 44—the group most often responsible for child care or household tasks (Sussman, 2002).

## ***METHODOLOGY***

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### ***Data***

This paper uses Statistics Canada's Workplace and Employee Survey (WES) 2001 employee micro data linked to workplace (i.e. employer) micro data. WES draws its employer sample from the Business Register maintained by the Business Register Division of Statistics Canada. The employee sample is provided by the surveyed employers. WES surveys firms of all sizes and in all industries, with the exception of employers in public administration; crop production and animal production; fishing, hunting and trapping; private households; religious organizations; and employers in Yukon, Nunavut and Northwest Territories (WES Compendium, 2003). The advantage of the WES is that it links employer and employee responses of the surveyed sample. It provides more accurate estimates of the effect of particular firm and worker characteristics and gives an indication of how the attributes of the employees and firms' activities jointly affect training decisions (Lin and Tremblay, 2003). The 2001 WES has data on 20,377 employees from 6,223 workplaces, with a response rate of 88% and 91% respectively (for more on sampling and sample design, see WES Compendium, 2003). For this study the data is separated into low-paid and higher-paid sub-samples among the weighted 8.8 million workers with a regular (continuous) full-time job.

### ***Variables***

The dependent variable is the "incidence of on-the-job training." Respondents were asked "in the last 12 months, have you received any informal training related to your job (that is, on-the-job training)?" (coded as 1 = Yes, 0 = No). Workplace size refers to the number of workers on the company payroll in the last pay period, and is in four categories: "Very small" (workplaces with less than 30 workers), "Small" (workplaces with 30-99 workers), "Medium" (workplaces with 100-499 workers), and "Large" (workplaces with 500 or more workers). "Innovation introduced in the workplace" is a variable created by summing responses to four questions: "Between April 1<sup>st</sup> last year and March 31<sup>st</sup> this year, has this workplace introduced new goods or services? Improved goods or services?"

New processes? Improved processes?” Those who said yes to all four are coded as 4 = very high level innovators, those who said yes to three are coded as 3 = high level innovators, those with yes to two are 2 = middle level innovators, those with yes to one are 1 = low level innovators, and those said no to all are 0 = non-innovators. Industry is coded into three as “Primary sector” (forestry or mining), “Manufacturing and related sector” (manufacturing and related, construction, transportation, warehousing, wholesale, communication or other utilities), and “Service sector” (retail trade and consumer services, finance and insurance, real estate, rental and leasing, business services, education and health services, or information and cultural industries).

“Collective agreement coverage” is a dummy dichotomous variable with positive responses to “in [my] current job, I am a member of a union or covered by a collective bargaining agreement” coded as 1. Worker age is coded into three categories as “Younger” if under 25 years of age, “Middle age” if between 25 and 50, and “Older” if over 50 years. For “Gender”, female is coded as 1 and male as 0. Immigrant status is coded as “Canadian-born” for those who are not immigrants, “Earlier immigrant” for those immigrated before 1996, and “Recent immigrant” for those who immigrated since the start of 1996. The latter are those who have been in Canada for at least five years at the time of the survey. For the education level attained, those who have only completed high school or with less than high school education are coded as 1 = “Lower education” and those with some post secondary degree, certificate, diploma or university degree or higher are coded as 0 = “Higher education.” Occupation is coded into three categories: manager or professional, lower white collar worker (marketing/sales or clerical/administrative), and blue collar worker (technical, trades or production worker with no trade). Tenure is presented as full-time work experience (in years) and full-time experience squared. For marital status, single, separated, divorced or widowed are coded as 1 under the heading “single,” and married or those in a common-law relationship are coded as 0. “Dependent children” variable is a dummy variable with 1 = have dependent children.

### *Analysis*

Data analysis consists of descriptive statistics, correlations, multivariate regression analyses and a decomposition of the regression results. First, univariate statistics are provided among a sample of all regular full-time workers. Afterwards, comparable statistics are shown separately for low-paid and higher-paid regular full-time workers. Next, bivariate correlations are investigated between all variables. Due to space limitations, the correlation table is not presented but is available from the authors upon



request. We then examine the associations between on-the-job training and workplace and individual characteristics among low-paid and higher-paid workers separately via multivariate logistic regression analysis. The general model estimated is:

$$\ln\left(\frac{P_i}{1-P_i}\right) = X_i\beta + \varepsilon_i \quad (1a)$$

where  $P$  is the probability of receiving on-the-job training,  $X$  represents the determinants of training,  $\beta$  is the vector of logit coefficients,  $\varepsilon$  is a random error, and  $i$  denotes the individual employee. The decomposition discussion below follows the Yun (2004) presentation:

$$Y = F(X\beta) \quad (1b)$$

where equations (1a) and (1b) are equivalent expressions.

For both low-paid and higher-paid workers, we present the odds ratios, regression coefficients, and bootstrapped standard errors for each variable, as well as the Wald chi-square as an indicator of model fit. In logistic regression, odds ratios provide a meaningful indication of the statistical relationship with the dependent variable. For example, an odds ratio that is closer to zero than to one is a reasonably strong indicator that those exhibiting certain characteristics are relatively unlikely to receive on-the-job training. It is important to note that an odds ratio and regression coefficient contain the same information on the relationship between the dependent variable and the independent variables (Menard, 2001) with one showing the probabilities and the other presenting the direction of association. In our discussions of the effect of the independent variables, we use odds ratios since they are easier to interpret in logistic regression.

Next we compare low-paid and higher-paid workers with respect to their probability of receiving on-the-job training. To compare low-paid to higher-paid workers, two models are estimated, the first using the higher-paid workers (H) sample ( $n_H$ ) and the second using the low-paid workers (L) sample ( $n_L$ ). These estimates are then used to derive predicted probabilities using different combinations of estimates and data. There are four combinations: 1) probability of on-the-job training for higher-paid workers, 2) probability of on-the-job training for low-paid workers, 3) probability of on-the-job training for higher-paid workers, if the coefficients are equal to the low-paid workers' coefficients, and 4) probability of on-the-job training for low-paid workers, if the coefficients are equal to the higher-paid workers' coefficients. These combinations, corresponding to equations 2a–2d, are used in the decomposition discussed below:

$$\hat{Y}_{HH} = F(X_H \hat{\beta}_H) \quad (2a)$$

$$\hat{Y}_{LL} = F(X_L \hat{\beta}_L) \quad (2b)$$

$$\hat{Y}_{HL} = F(X_H \hat{\beta}_L) \quad (2c)$$

$$\hat{Y}_{LH} = F(X_L \hat{\beta}_H) \quad (2d)$$

All of the analyses have been generated using weighted micro data accessed at Statistics Canada Research Data Centre at McMaster. The analyses use the recommended WES mean bootstrap weights via the file developed by Chowhan and Buckley (2005) and Piérard, Buckley and Chowhan (2004). All presented descriptive statistics are weighted as recommended by Statistics Canada (see WES Compendium, 2003).

### *Limitations of the Study*

Although this study clarifies the relationship between low-paid workers and incidence of on-the-job training, a few potential limitations are worth noting. First, while the incidence of (i.e. received) on-the-job training is important, ideally this would be supplemented by other measures, such as training quality or intensity, which are not included in this study.

Second, although we define incidence of training to be the same as receiving training, it is likely that a small number of workers were offered, but declined, training. Thus, selection bias exists if the characteristics of those declining training are different, on average, from other workers. There is also selection bias if there is some unidentified reason why workers receive training aside from their wage level and the set of control variables. While we did not adjust for selection bias, we included a large number of job, industry, and individual characteristics to minimize the likelihood of overlooking an influential variable. (Interested parties are recommended to see Turcotte, Léonard and Montmarquette, 2003 for an example of adjusting for selection bias in a training study.)

Third, it is important to note that the results imply that low-paid workers have lower incidence of on-the-job training. However, it is also likely that workers with insufficient training are more likely to be low-paid since they are less attractive candidates for higher-paying jobs. Thus, the incidence of training potentially affects wages and wages potentially affect the incidence of training. Moreover, it is reasonable to expect that other factors not in the model could affect wages and access to training simultaneously.

One of the themes that emerges from the reviewed literature is that in today's labour market, particularly with respect to relatively vulnerable workers, employers determine who does or does not receive training. This

implies that employers' strategies potentially impact training access. Thus, fourth, a potential limitation of our study is that the data does not allow us to control for firms' strategy/policy effects regarding the allocation of on-the-job training.

Last, in a cross-sectional study such as this, we are unable to determine causation even when strong statistical relationships between variables are detected. Notwithstanding these limitations, the results provide evidence for policy-makers.

### *Sample Characteristics*

Descriptive statistics of all variables are presented in Table 1. Since the statistics in Table 1 are based on regular full-time workers employed in business locations registered in the Business Register, they differ from the Canadian labour market. For example, employees in public administration are not included. In addition, in our study, regular part-time, casual or on-call, term and seasonal employees are not included.

Of the sample included in the study, about two-fifths are employed in very small workplaces. The remainder are fairly evenly split between small, medium, and large workplaces, albeit with fewer in the latter. Similarly, about two-fifths of Canadian workers are employed in non-innovating workplaces. At the other extreme, almost one quarter is employed by a very high innovator. The remaining third of workers are found within low, middle, or high level innovator groups. In terms of industry, about two-fifths work in the manufacturing or related sector, three-fifths work in the service sector, and only a few are employed in the primary sector.

About a quarter of regular full-time workers are covered by a collective agreement. Three-quarters of workers are categorized as middle aged, with about one in ten being younger and one in five considered to be older. Slightly fewer than half are female. About 80% of regular full-time workers in our study are Canadian-born, close to one in five are earlier immigrants, and only about 3% are recent immigrants. Less than one third of workers have lower education, with the remainder having attained a higher level. Twenty-nine percent are in managerial/professional jobs, about one in five is in a lower white collar job, and more than half of workers are in a blue collar occupation. The average full-time work experience exceeds 17 years. More than two thirds are either married or in a common-law relationship. Fewer than half have dependent children.

TABLE 1  
Descriptive Statistics of All Variables

<i>Proportions/ Means</i>	<i>All Workers</i>	<i>Only Low-Paid</i>	<i>Only Higher-Paid</i>
Low-waged	14.0	100.0	0.0
Higher-waged	86.0	0.0	100.0
(Received) On-the-job training	31.6	22.1	33.2
Size of the workplace:			
Very small workplace	39.3	58.4	36.2
Small workplace	23.9	27.2	23.4
Medium workplace	21.0	11.7	22.5
Large workplace	15.8	2.7	17.9
Innovation in the workplace:			
Non-innovator	38.0	46.2	36.7
Low level innovator	9.5	10.1	9.4
Middle level innovator	17.6	18.3	17.4
High level innovator	10.9	8.0	11.4
Very high level innovator	24.0	17.4	25.1
Industry:			
Primary sector	1.8	0.1	2.1
Manufacturing & related sector	38.4	22.5	41.0
Service sector	59.8	77.3	56.9
Collective agreement coverage	24.1	8.9	26.6
Age:			
Younger	8.8	25.8	6.0
Middle	72.9	59.9	75.0
Older	18.3	14.3	18.9
Gender (i.e. female)	46.4	58.0	44.5
Immigrant Status:			
Canadian-born (not immigrant)	79.1	79.4	79.0
Earlier Immigrant	18.3	16.9	18.6
Recent Immigrant	2.6	3.7	2.4
Education:			
Lower education	30.6	54.3	26.8
Higher education	69.4	45.7	73.2
Occupation:			
Manager/Professional	29.2	6.6	32.9
Lower white collar	18.8	30.5	16.9
Blue collar	52.0	62.8	50.2
Full-time work experience*	17.3	12.5	18.1
Full-time work exp. squared*	410.4	270.1	433.3
Marital Status:			
Married/Common-law	69.5	55.1	71.9
Single	30.5	44.9	28.1
(Have) Dependent children	47.6	36.6	49.4
Weighted sample size	8,765,247	1,229,549	7,535,699

Sample: All regular full-time workers.

Note: \* indicates the mean value, rather than proportion.

## ***RESULTS***

### ***Descriptive Statistics of On-the-Job Training***

As shown in Table 1, the proportion of low-paid regular full-time workers in Canada is 14%, while 86% are higher-paid. Among all regular full-time workers, 32% receive on-the-job training. Among low-paid workers, however, the proportion drops to 22%. That contrasts with 33% among higher-paid workers. Although not shown in a table, the bivariate correlation between the receipt of on-the-job training and being low-paid is  $-.08$ , which is significant at the  $p < .01$  level. In the following section, we examine whether this finding remains when controlling for other factors.

### ***Regression Results of On-the-Job Training among Low-Paid Workers***

As shown in Table 2, very few of the variables included in our study are significantly associated with on-the-job training among low-paid workers. Relative to middle-aged workers, younger workers are less likely to receive on-the-job training when controlling for other factors, although the gap is significant only at  $p < .10$ . At that same weak significance, full-time work experience is negatively associated with on-the-job training among low-paid workers. Those who are higher educated are almost twice as likely to receive on-the-job training among low-paid workers. None of the other variables reach the threshold of statistical significance.

### ***Regression Results of On-the-Job Training among Higher-Paid Workers***

As shown in Table 3, several variables included in our study are significantly associated with on-the-job training among higher-paid workers. Relative to those in a very small workplace, workers in a small or large workplace are significantly more likely to receive on-the-job training. Those in more innovative workplaces are also significantly more likely to receive on-the-job training. Those with collective agreement coverage are less likely to receive on-the-job training. Relative to middle-aged workers, younger workers are more likely while older workers are less likely to receive on-the-job training. Higher educated workers are more likely to receive on-the-job training compared to lower-educated workers in this higher-paid sample. Relative to blue-collar workers, those in managerial/professional jobs are significantly more likely to receive on-the-job training. However, there is no significant difference between lower white-collar and blue-collar workers in terms of receiving on-the-job training within the higher-paid sample. Albeit at a weak level of significance (i.e.  $p < .10$ ), recent immigrants are

TABLE 2  
**Associations with On-the-Job Training among Low-paid Workers**  
 (Logistic regression)

	<i>Odds Ratio</i>	<i>Reg. Coeff.</i>	<i>(BS Std. Error)</i>
Workplace Size [Very small workplace]			
Small workplace	0.747	-0.292	(0.291)
Medium workplace	1.020	0.020	(0.364)
Large workplace	0.765	-0.268	(0.657)
Innovation in the workplace	1.007	0.007	(0.086)
Industry [Manufacturing & related]			
Primary sector	1.014	0.014	(1.447)
Service sector	1.471	0.386	(0.272)
Collective agreement coverage	1.396	0.333	(0.342)
Age [Middle]			
Younger	0.461	-0.774	(0.416)*
Older	0.436	-0.830	(0.604)
Gender (i.e. female)	0.805	-0.217	(0.263)
Immigration status [Canadian-born]			
Earlier immigrant	0.671	-0.399	(0.420)
Recent immigrant	0.460	-0.777	(0.556)
Education [Lower Education]			
Higher education	1.869	0.625	(0.274)**
Occupation [Blue collar]			
Manager/Professional	1.121	0.114	(0.437)
Lower white collar	1.233	0.209	(0.309)
Full-time work experience	0.931	-0.071	(0.038)*
Full-time work experience squared	1.001	0.001	(0.001)
Marital status [Married/Common-law]			
Single	1.638	0.493	(0.299)
(Have) Dependent children	0.814	-0.206	(0.359)
Constant		-1.073	(0.506)**
Number of Observations	1,314		
Wald Chi-Square	30.020		
Prob > Wald	0.052		
Pseudo R-Square	0.075		

Significance levels: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

Excluded reference categories are shown in brackets, where appropriate.

Sample: Regular full-time workers earning under \$10/hour.

more likely to receive on-the-job training as compared to Canadian-born workers. Those with higher (full-time) work experience are more likely to receive on-the-job training, though at a weak level of significance. Other variables show no significant association with on-the-job training within the higher-paid sample.

TABLE 3  
**Associations with On-the-Job Training among Higher-paid Workers**  
 (Logistic regression)

	<i>Odds Ratio</i>	<i>Reg. Coeff.</i>	<i>(BS Std. Error)</i>
Workplace Size [Very small workplace]			
Small workplace	1.292	0.256	(0.115)**
Medium workplace	1.110	0.104	(0.113)
Large workplace	1.464	0.381	(0.147)**
Innovation in the workplace	1.107	0.101	(0.025)***
Industry [Manufacturing & related]			
Primary sector	1.072	0.069	(0.136)
Service sector	1.161	0.149	(0.097)
Collective agreement coverage	0.805	-0.217	(0.083)***
Age [Middle]			
Younger	1.794	0.584	(0.154)***
Older	0.623	-0.474	(0.136)***
Gender (i.e. female)	1.070	0.068	(0.076)
Immigration status [Canadian-born]			
Earlier immigrant	1.087	0.084	(0.105)
Recent immigrant	1.799	0.587	(0.310)*
Education [Lower Education]			
Higher education	1.497	0.404	(0.092)***
Occupation [Blue collar]			
Manager/Professional	1.361	0.308	(0.099)***
Lower white collar	1.112	0.106	(0.118)
Full-time work experience	1.022	0.022	(0.012)*
Full-time work experience squared	1.000	0.000	(0.000)
Marital status [Married/Common-law]			
Single	1.011	0.011	(0.094)
(Have) Dependent children	0.769	-0.263	(0.090)
Constant		-1.582	(0.160)***
Number of Observations	14,981		
Wald Chi-Square	158.100		
Prob > Wald	0.000		
Pseudo R-Square	0.038		

Significance levels: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

Excluded reference categories are shown in brackets, where appropriate.

Sample: Regular full-time workers earning at least \$10/hour.

### *Decomposition of Logistic Regression Results*

To test whether workers in low-paid jobs have less opportunity for on-the-job training as compared to workers in higher-paid jobs, we conduct logistic regression decomposition, following the techniques developed by

Oaxaca (1973), Gomulka and Stern (1990), Picot and Myles (1996), Oaxaca and Ransom (1999), Yun (2004), and Fairlie (2005).

Referring to equations 2a–2d (presented above), the predicted probability for each of these equations is calculated by using the two portions of the data (the higher-paid and low-paid workers samples). This approach differs from the more commonly used method of analysis, which defines a base set of characteristics and then measures the probability of an event. This commonly used method is restrictive, because it does not take into consideration the non-linearity of the marginal effects. Using the two portions of the data is more general and takes full advantage of the data rather than being restricted to arbitrarily chosen “base employee” (Chowhan, 2005).<sup>2</sup>

The mean difference between higher-paid and low-paid employees is calculated as follows (Yun, 2004):

$$\bar{Y}_{HH} - \bar{Y}_{LL} = \left[ \overline{F(X_H \hat{\beta}_H)} - \overline{F(X_L \hat{\beta}_H)} \right] + \left[ \overline{F(X_L \hat{\beta}_H)} - \overline{F(X_L \hat{\beta}_L)} \right] \quad (3)$$

where the average probability of the binary outcomes can be described as:

$$\bar{Y}_{HH} = \frac{1}{n_H} \sum_{i=1}^{n_H} F(X_{H,i} \hat{\beta}_H) = \overline{F(X_H \hat{\beta}_H)} \quad (4a)$$

$$\bar{Y}_{LL} = \frac{1}{n_L} \sum_{i=1}^{n_L} F(X_{L,i} \hat{\beta}_L) = \overline{F(X_L \hat{\beta}_L)} \quad (4b)$$

$$\bar{Y}_{HL} = \frac{1}{n_H} \sum_{i=1}^{n_H} F(X_{H,i} \hat{\beta}_L) = \overline{F(X_H \hat{\beta}_L)} \quad (4c)$$

$$\bar{Y}_{LH} = \frac{1}{n_L} \sum_{i=1}^{n_L} F(X_{L,i} \hat{\beta}_H) = \overline{F(X_L \hat{\beta}_H)} \quad (4d)$$

To decompose the total effect  $\bar{Y}_{HH} - \bar{Y}_{LL}$ , the change between higher-paid and low-paid workers is evaluated by looking at the summation of the component endowment  $\left[ \overline{F(X_H \hat{\beta}_H)} - \overline{F(X_L \hat{\beta}_H)} \right]$  and coefficient effects  $\left[ \overline{F(X_L \hat{\beta}_H)} - \overline{F(X_L \hat{\beta}_L)} \right]$ . The endowment effect is the differences in the average predicted outcome due to the different observable characteristics (given the estimated coefficients). The coefficient effect is the difference in the

2. This analysis has not measured the contributions of any single variables, and no sequential replacement techniques have been applied to estimate the endowment and coefficient effects of individual variables. Thus, the decomposition is free from path dependency.



outcome due to differences in behaviour (or the estimated coefficients given individual characteristics) of the groups (Oaxaca, 1973).

The decomposition measure is not unique to the expression in equation (3). The decomposition can also be expressed as follows:

$$\widehat{Y}_{HH} - \widehat{Y}_{LL} = \left[ \overline{F(X_H \widehat{\beta}_H)} - \overline{F(X_H \widehat{\beta}_L)} \right] + \left[ \overline{F(X_H \widehat{\beta}_L)} - \overline{F(X_L \widehat{\beta}_L)} \right] \quad (5)$$

Notice that the first portion of the expression is the coefficient effect and the second portion is the endowment effect. These two expressions do not produce identical results; however, most research using these decomposition techniques presents both results and the average of the two.

The differences in the decisions/choices to train higher-paid workers relative to low-paid workers are approximated by the coefficient effect after the endowment effect is subtracted from the overall total of higher-paid and low-paid worker difference in the probability of on-the-job training. The large coefficient effect indicates the significant importance of behaviour differences of higher-paid relative to low-paid workers (see Table 4). The endowment effect is not substantially different from zero indicating that the individual characteristics of the workers do not affect their likelihood of training.

Standard errors have been directly calculated for these decomposition effects of average predicted on-the-job training incidence for both the endowment and coefficient effects, again using the 100 mean bootstrap weights provided with the WES data. Standard errors are not calculated for the mean effects. Therefore, conclusions can be made about the individual endowment and coefficient effects from Table 4, but the mean effects have to be tentative, although given the combined significance of both coefficient effects this is suggestive of a significant mean coefficient effect. The individual endowment effects have mixed results with equations (4a–4d) yielding a significant effect of .0139 and equations (4c–4b) giving an insignificant effect of –0.0053: thus, the significance of the combined mean effect is uncertain.

The decomposition of higher-paid and low-paid workers demonstrates that a gap exists between these workers in the level of on-the-job training they receive. The factors influencing the gap are not the endowments of the workers, but the behaviour (decisions/choices) of the workplaces and workers in the higher-paid and low-paid worker groups.

TABLE 4  
**Decomposition of High and Low Paid Workers  
 on the Job Training Differential**

<i>Component</i>	<i>Effect</i>	<i>Bootstrap Standard Error</i>	<i>p-Value</i>	<i>5<sup>th</sup> Percentile</i>	<i>95<sup>th</sup> Percentile</i>
Endowment Effect: equations (4a-4d)	0.0139	0.00583	0.0190	0.0023	0.0255
Endowment Effect: equations (4c-4b)	-0.0053	0.00835	0.5230	-0.0219	0.0112
Mean Endowment Effect	0.0043	--	--	--	--
Coefficient Effect: equations (4d-4b)	0.0973	0.00917	0.0000	0.0791	0.1156
Coefficient Effect: equations (4a-4c)	0.1166	0.00240	0.0000	0.1118	0.1213
Mean Coefficient Effect	0.1070	--	--	--	--
Total Effect: equations (4a-4b)	0.1112	0.00821	0.0000	0.0949	0.1275

Significance levels: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

Sample: All regular full-time workers.

### ***DISCUSSION AND IMPLICATIONS OF FINDINGS***

In this study we examined the extent of on-the-job training among low-paid and higher-paid workers and workplace and individual factors associated with their on-the-job training. Results showed that, as expected, workers in low-paid jobs have less opportunity for on-the-job training as compared to workers in higher-paid jobs. About 22% of low-paid workers receive on-the-job training while 33% of higher-paid workers receive on-the-job training.

Consistent with the literature on training (Lin and Tremblay, 2003), our results focusing on low-paid workers show that those who are higher educated are more likely to receive on-the-job training. Younger, less experienced workers in low-paid jobs are less likely to receive on-the-job training, consistent with the OECD findings (2006b) and Lin and Tremblay's (2003) literature reviews, though contrary to Turcotte, Léonard and Montmarquette (2003) findings. None of the other workplace and individual variables reached the threshold of statistical significance for low-paid workers' on-the-job training.

Among higher-paid workers, however, several variables were significantly associated with on-the-job training. Relative to those in a very small workplace, higher-paid workers in a small or large workplace

are significantly more likely to receive on-the-job training, as are those in more innovative workplaces. These findings are consistent with the literature on training (see, for example, Chaykowski and Slotsve, 2003 and Turcotte, Léonard and Montmarquette, 2003). Among higher-paid workers those who are higher educated or those in managerial/professional jobs are more likely to receive on-the-job training, consistent with earlier findings (Lin and Tremblay, 2003). Our results show that higher-paid workers with collective agreement coverage are less likely to receive on-the-job training. In terms of age, relative to the middle-age reference group, younger workers are more likely to receive on-the-job training while older workers are less likely, results similar to OECD findings (2006b). Among the variables in the two regression models, education appears to be the most significant.

Results from the logistic regression decomposition between higher-paid and low-paid workers indicate that, as expected, the gap in on-the-job training received is not due to the low-paid workers' endowment relative to higher-paid workers, but it is behavioural and depends on the workplace's decision/choice to offer and workers' decision/choice to accept training. This outcome suggests policy approaches should focus on workplace and employee decision-making.

Overall, the results are consistent with the emerging literature showing that working conditions in Canada are polarized (e.g., Betcherman and Lowe, 1997; Moore and Pacey, 2003; Johnson and Kuhn, 2004; Zeytinoglu and Cooke, 2005), and that training is not distributed equitably among workers (OECD, 2006a; Saunders, 2006). The low level of on-the-job training provided to low-paid workers creates an opportunity cost for the Canadian economy given well-documented benefits that accrue from training to the society as well as the individual (Goldenberg, 2006; OECD 2006a; Statistics Canada, 1997). Given the identified gap in training between low-paid workers and higher-paid workers, the question remains whether there can be a role for public programs to close the gap in training between workers grouped by wage-level, if workplaces and employees do not take action independently (or without an appropriate incentive structure).

For governments facing scarce resources and considering support for on-the-job training, we suggest targeting the intervention on the training choices of low-paid workers and the workplaces that hire them. Targeting the low-paid worker group and providing workplaces and employees incentives to offer and accept training, respectively, with further incentives to reward training performance will lead to the direct effect of improved human capital and increased productivity. Some effort toward targeting low-paid workers is already in progress: for example, in Ontario the government started the process by initiating an academic upgrading programme for "adults in low-wage low-skill employment" (Government of Ontario,

2006). This program will enable these workers to attain Ontario Secondary School Diploma equivalent certification. We encourage governments in Canada to initiate targeted programs and support them on an ongoing basis. However, we would go further and suggest that the common element should be incentives to encourage training and continued lifelong learning with focused performance rewards.

Benefits of on-the-job training will not only accrue to the individual. Externalities may be generated resulting in government support contributing not only to the human capital of low-paid workers but also to their communities. Concurring with Lalonde (1995), we believe that the social return to a society where financial support is provided for on-the-job training will likely exceed the private benefit/cost ratio to the firms. While the traditional cost/benefit research shows government intervention provides modest benefits to participants (Leigh, 1995), this is because we get what we pay for and the indirect effects of training programs on non-participants are not considered well (Heckman, Lalonde and Smith, 1999). Similar to Heckman, Lalonde and Smith (1999) and Lalonde's (1995) discussion, we believe that the social benefit of training programs for low-paid workers is not only to trained individuals but also to their families, community and the society. The indirect effect of training low-paid workers can be improved social health, i.e. improved standard of living, lower crime rate in the society, and improved individual and community security and well-being (Warburton and Warburton, 2002), along with workers' feeling of dignity (Berg and Frost, 2005).

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## RÉSUMÉ

### **La formation en cours d'emploi au Canada : le cas des travailleurs à faible rémunération**

Les données statistiques sur les travailleurs vulnérables recueillies par les Réseaux canadiens de recherche en politiques publiques font voir bien des aspects défavorables de la vie de travail des travailleurs faiblement rémunérés et le manque de protection sociale liée à un emploi (voir, par exemple, Chaykowski, 2005; Saunders, 2003 et 2006; Vallée, 2005). Cet essai s'intéresse avant tout aux travailleurs permanents à plein temps et faiblement rémunérés. Dans notre mire, se trouvent ces travailleurs qui sont couverts par des contrats de travail à durée indéterminée, engagés à plein temps et payés moins de 10 \$ l'heure en 2001, ce qui inclut ceux qui gagnent le salaire minimum ou légèrement plus. Le but de ce travail consiste à documenter la nature de la formation offerte en entreprise aux travailleurs à faible rémunération en la comparant avec celle offerte aux travailleurs bien rémunérés au Canada et à circonscrire les facteurs tant individuels que ceux liés au milieu de travail associés à la formation en cours d'emploi. L'étude retient les données de l'Enquête sur le milieu de



travail et les employés de Statistique Canada de 2001. L'unité d'analyse est le travailleur individuel et les données retenues sont celles qui relient les réponses des salariés à celles des employeurs. Notre étude se base sur les fondements de la théorie de la formation en économie du travail d'Acemoglu (1977) et d'Acemoglu et Pischke (1988, 1999a, 1999b) et sur des conclusions de recherches empiriques en économie du travail et en gestion des ressources humaines. Nous analysons les liens entre la formation en cours d'emploi et les caractéristiques des individus et des milieux de travail chez les travailleurs faiblement rémunérés et ceux qui bénéficient d'une rémunération élevée, cela séparément et à l'aide de la technique de l'analyse de régression logistique multivariée. Par la suite, nous comparons les deux populations de travailleurs quant à la probabilité de se voir offrir de la formation en cours d'emploi. Afin de savoir si les travailleurs moins bien rémunérés ont moins d'occasions de formation de ce type que les travailleurs mieux rémunérés, nous procédons à une ventilation de la régression logistique (Oaxaca, 1973; Picot et Myles, 1996; Fairlie, 2005). La probabilité estimée pour chacune des équations est calculée en retenant les deux parties des données (les échantillons des bien rémunérés et des faiblement rémunérés).

Les résultats montrent que la proportion des travailleurs permanents à temps plein à faible rémunération dans l'enquête de 2001 mentionnée plus haut atteint 14 %, alors que les travailleurs bien rémunérés comptent pour 86 %. Parmi les travailleurs permanents à plein temps, 32 % reçoivent de la formation en cours d'emploi et cette proportion diminue à 22 % chez les moins bien rémunérés. Cette donnée contraste avec celle des travailleurs bien rémunérés qui s'établit à 33 %. Les résultats de la régression montrent que chez les moins bien rémunérés, les travailleurs plus jeunes et ceux qui présentent une expérience de travail plein temps sont moins susceptibles de recevoir de la formation en cours d'emploi, alors que ceux qui ont un niveau de scolarité plus élevé le sont presque deux fois plus. Chez les travailleurs bien rémunérés, ceux qui détiennent des emplois dans des milieux de travail restreints ou bien très vastes, des milieux de travail innovateurs, possédant un niveau élevé de scolarité, étant plus jeunes, se retrouvant dans des occupations de professionnels et de gestionnaires, bénéficiant d'une riche expérience de travail plein temps et ceux qui sont des immigrants récents sont les plus susceptibles de se voir offrir de la formation en cours d'emploi. Par ailleurs, parmi ces travailleurs bien rémunérés, ceux couverts par une convention collective et les plus âgés sont moins susceptibles de recevoir de la formation.

Les résultats obtenus de la ventilation de la régression entre les travailleurs bien rémunérés et ceux qui le sont moins bien indiquent que l'écart au plan de la formation en cours d'emploi reçue n'est pas attribuable

aux aptitudes naturelles des travailleurs à faible rémunération par rapport à celles des autres travailleurs, mais le phénomène est d'ordre comportemental et dépend des décisions et des choix de formation offerts par les directions et des décisions d'acceptation et des choix effectués par les travailleurs eux-mêmes. Les conclusions invitent à des approches de politique qui se centreraient sur les milieux de travail et sur la prise de décision par les salariés. Étant donné l'écart identifié au plan de la formation entre les travailleurs moins bien rémunérés et ceux qui bénéficient d'une rémunération plus élevée, il faut se demander si des politiques publiques pourraient aider à réduire cet écart entre les deux groupes de travailleurs, si les employés et les entreprises ne prennent pas d'initiative autrement (ou bien en l'absence d'un encadrement approprié et incitatif). Aux gouvernements qui font face à des ressources rares et qui s'apprêtent à offrir un appui à la formation en entreprise, nous suggérons de cibler leurs interventions sur les choix de formation chez les travailleurs moins bien rémunérés et dans les entreprises qui les engagent. En ciblant ces travailleurs et en offrant aux entreprises et aux salariés des incitations à offrir de la formation et à l'accepter, en y ajoutant également des incitations qui viendraient récompenser le rendement de la formation, cela aurait un effet direct sur l'amélioration des personnes et sur la productivité. Il se fait actuellement un certain effort en ce sens, par exemple, en Ontario, où existe un programme de rattrapage scolaire pour les adultes dans des emplois offrant de bas salaires et exigeant peu de compétences (Gouvernement de l'Ontario, 2006). Nous suggérons aussi d'encourager la formation et l'apprentissage durant toute la vie, associés à des récompenses ciblées sur le rendement. Alors, les bénéfices de la formation en cours d'emploi ne profiteraient pas seulement à la personne. Des avantages secondaires (ou externes) pourraient être générés, qui découleraient de l'appui du gouvernement en contribuant non seulement au capital humain des travailleurs moins bien rémunérés mais également à leur communauté. En corroborant Lalonde (1995), nous pensons que le rendement social, dans une société où un support financier est fourni en matière de formation en cours d'emploi, excéderait le ratio coûts/bénéfices privés aux entreprises. Dans la même foulée que les conclusions des études faites par Heckman, Lalonde et Smith (1999) et par Lalonde (1995), nous croyons que les avantages sociaux des programmes de formation offerts aux travailleurs faiblement rémunérés vont aux individus formés, à leur famille, à leur communauté et à la société. L'effet indirect de cette formation pourrait aussi se traduire par un bien-être et une santé améliorés (Warburton et Warburton, 2002), et un sentiment de dignité chez les travailleurs (Berg et Frost, 2005).