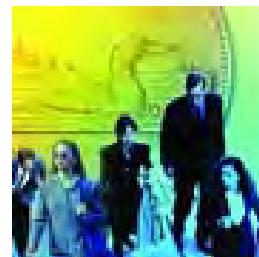


Article

Job-related training of older workers

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Standard symbols for Statistics Canada

The following standard symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0** true zero or a value rounded to zero
- 0^s** value rounded to 0 (zero) where a meaningful distinction exists between true zero and the value rounded
- P** preliminary
- r** revised
- X** suppressed to meet the confidentiality requirements of the *Statistics Act*
- E** use with caution
- F** too unreliable to be published

Highlights

In this issue

■ Job-related training of older workers

- Older workers were significantly less likely to take job-related training than their core-age counterparts. Between July 2007 and June 2008, 32% of workers age 55 to 64 took some training compared to 45% of those age 25 to 54. The age gap persisted even after labour market factors and personal characteristics were taken into consideration.
- Older workers with lower personal income, less than postsecondary education, temporary employment, and sales or service jobs, along with those working in the private sector and goods-producing industries were significantly less likely to participate in training than others the same age.
- The training gap between older and younger workers has narrowed over time as the training rate for older workers more than doubled from 1991 to 2008. The ratio of core-age to older-worker training rates stood at 1.4 in 2008, compared to 2.5 in 1991.
- About 61% of the increase in the training participation rate of older workers was attributed to increases in educational attainment and changes in the types of jobs held by more recent cohorts.

Perspectives

Job-related training of older workers

Jungwee Park

Over their careers, workers may upgrade their skills and knowledge through training to increase promotional opportunities, improve job security or earn higher wages (Kapsalis 1998; Cully et al. 2000). Employers provide training to increase the productivity or performance of workers, achieve organizational goals and invest in workers to succeed in an unpredictable business environment (Belcourt et al. 2000). Given the recent trend towards delayed retirement (Carrière and Galarneau 2011), job-related training may be increasingly important to older workers wishing to continue working, as well as to employers with aging workforces.

In addition to the lengthening of careers, there are several other reasons why training may become more prevalent among older workers. Some studies have cited the training and retention of older workers as responses to possible skill shortages in some industries (Zeytinoglu et al. 2007). Others note that older workers' potentially shorter time in the workforce does not necessarily translate into shorter tenure with a given employer since retention rates are higher among older employees (Robson 2001). In Canada, the lowest job turnover rates have been found among older workers (Picot et al. 2001). Moreover, tenure at new jobs increased more among workers age 55 to 64 than for any other 10-year age group from the late 1980s to the late 1990s.¹ Thus, older employees and their employers may have more time to benefit from or recoup the costs of training than in the past.

Nevertheless, most research finds that the incidence of training declines with age (OECD 2006; Cully et al. 2000). This may be related to perceived barriers to training among older workers. Compared with core-age (25 to 54) workers, a significantly higher proportion of older workers perceived dispositional barriers that were dissuading them from taking job-related

courses or programs. That is, many may not have participated in job training due to lack of confidence, interest or motivation, even if they had wanted or needed to take the training (see *Barriers to training opportunities*).

Although age is included as a dimension of the analysis in many Canadian studies, older workers are rarely the focus of the analysis (Hurst 2008; Zeytinoglu et al. 2007; Underhill 2006; Knighton et al. 2009). When age is used as a characteristic in a model of the incidence or intensity of training, the assumption is that the effects of other characteristics are the same for older and younger workers. Thus an analysis focusing on older workers may yield new insights.

The Access and Support to Education and Training Survey (ASETS), most recently conducted in 2008, provides detailed information on adult education including job-related and employer-supported training (see *Data source and definitions*). This article focuses on the employed adult population who had worked at a job or business at any time between July 2007 and June 2008. Employees age 55 to 64 are the main target group of this analysis. To examine job-related training among older workers in previous years, the 1992 to 2003 cycles of the Adult Education and Training Survey (AETS) are used.

This study attempts to answer the following research questions:

1. Are there differences in the participation rate in job-related training activities between older (55 to 64) and core-age (25 to 54) employees?
2. Are certain older workers more likely to participate in employer-supported job training than others?
3. How has the participation of older workers in employer-supported training changed over time?

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Barriers to training opportunities

The 2008 ASETS asked respondents whether there was any training that they had wanted to take but did not take, and whether there was any training they had needed to take but did not take. Having either the need or the desire to take training can be considered a proxy for being willing or ready to engage in a training activity (Knighton et al. 2009). In this section, older workers in the preceding two groups are combined to examine perceived barriers to job training. The reasons for not participating in training are also discussed.

Three main types of barriers to participation in job-related training have been identified: situational, institutional and dispositional (Sussman 2002). Situational barriers arise from one's situation in life at a given time—too busy at work, financial constraints, family responsibilities or lack of child care, and language or health problems. Institutional barriers consist of established practices and procedures that exclude or discourage participation, such as high tuition fees, entrance requirements, limited course offerings and courses offered at inconvenient times or locations. Dispositional barriers involve attitudes and opinions towards learning, as well as perceptions of oneself as a learner (Cross 1981).

Compared with the younger working population, older employees were less likely to perceive the presence of barriers to training access. About 19% of female and 13% of male employees age 55 to 64 perceived barriers to job training (Table 1). These rates were lower than those of core-age groups: 33% for women and 29% for men.

Among older workers who did not receive any job training despite their need or desire, situational-type barriers were the most frequently reported reasons for not taking a course or pro-

Table 1 Training barriers perceived by older employees

	Age 55 to 64		Age 25 to 54	
	Men	Women	Men	Women
	%			
Barriers perceived	13*	19*	29	33
Types of barriers				
Situational barriers	41*	49*	66	74
Conflict with work schedule	19*	20*	33	31
Family responsibilities	10*	15*	24	38
Need to work	24*	24*	33	31
Too expensive	7 ^{E*}	13*	20	29
Couldn't get a loan	F	F	2	3
Health reasons	2 ^E	5 ^E	1 ^E	4
Institutional barriers	15*	19*	26	28
Couldn't find the information	3 ^E	3 ^{E*}	4	4
Lack prerequisites	2 ^E	2 ^E	4 ^E	4
No employer support	6 ^{E*}	5 ^{E*}	9	9
Inconvenient time	9 ^E	12*	12	16
Inconvenient place	5 ^E	7 ^{E*}	7	11
Dispositional barriers	35*	27*	22	20
Not sure it is worth it	13	8	10	8
No confidence/interest/motivation	24*	21*	15	14
Other	33*	29*	20	15

* significantly different from age 25 to 54 at the 5% level

Note: Multiple answers were allowed.

Source: Statistics Canada, Access and Support to Education and Training Survey, 2008.

gram. Scheduling issues were reported by 1 in 5 and work that was too demanding was reported by almost 1 in 4. However, the proportions of situational and institutional barriers reported by older workers were significantly lower than those reported by younger employees.

On the other hand, dispositional barriers were more prevalent among older workers than core-age workers. Among older men and women, 35% and 27%, respectively, perceived dispositional barriers compared with 22% and 20% among core-age men and women, respectively. In particular, lack of confidence, interest, or motivation were reported to be important barriers to older workers' job training.

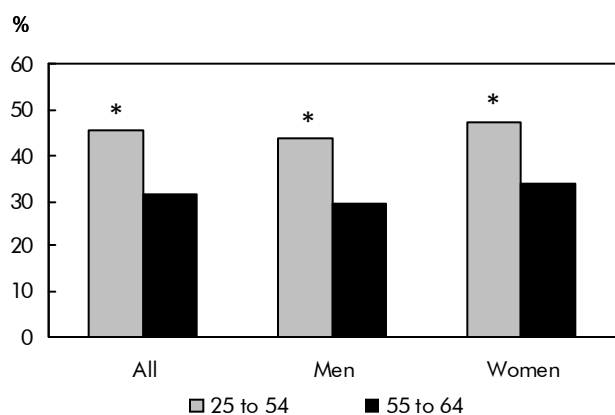
Finally, a relatively high proportion of older workers (33% for men and 29% for women) selected "other" as the reason for barriers. There were thus other barriers perceived by many older employees that were not included in the survey response categories.

Older workers had lower participation in job-related training

Job-related training activities can be divided into "courses" and "programs" related to a current or future job. Courses encompass structured learning activities which include workshops, private lessons, and

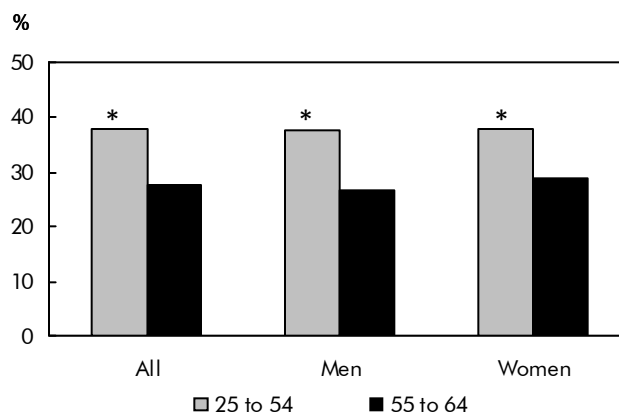
other guided on-the-job training, but do not lead to a formal education credential. Job-related programs, on the other hand, involve education leading to formal credentials (Knighton et al. 2009). In this analysis, job-related training includes both types of activities—courses and programs (see *Data source and definitions*).²

Chart A Older workers had lower participation in job training activities than core-age workers



* significantly different from those age 55 to 64 at the 5% level
Source: Statistics Canada, Access and Support to Education and Training Survey, 2008.

Chart B Older workers had lower participation in employer-supported training than core-age workers



* significantly different from those age 55 to 64 at the 5% level
Source: Statistics Canada, Access and Support to Education and Training Survey, 2008.

Overall, younger employees reported receiving more job-related training than older employees (Chart A). Between July 2007 and June 2008, 45% of workers age 25 to 54 took at least one job-related course or program compared to 32% of those age 55 to 64.

Similar trends were observed for employer-supported training:³ 38% of core-age workers received employer-supported training compared to 28% of older workers (Chart B). These age-based differentials were consistent among both men and women.⁴

Using standard models that control for sociodemographic and labour market factors,⁵ the differences in participation in job-training activities and employer-supported training between older and younger employees remained significant. For example, older male workers were one-half as likely to receive employer-supported training as their core-age counterparts (Table 2).

Older participants took similar number of courses and programs

The intensity of job training is measured by the number of hours spent in training and the number of courses/programs taken. Among those who participated in job-training activities, there was a significant difference between older and younger participants in the hours spent on courses but not on the hours spent in training programs. On average, older male course participants

Table 2 Adjusted odds ratios for participating in job-related training

	Job-training activities			Employer-supported training		
	All	Men	Women	All	Men	Women
	odds ratio					
Age						
25 to 54 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00
55 to 59	0.60*	0.50*	0.71*	0.66*	0.55*	0.77*
60 to 64	0.52*	0.53*	0.48*	0.58*	0.54*	0.63*

* significantly different from the reference group (ref.) at the 5% level
Source: Statistics Canada, Access and Support to Education and Training Survey, 2008.

Data source and definitions

The main data source for this article is the Access and Support to Education and Training Survey (ASETS). ASETS is a new survey of 72,000 households and is a combination of three previously conducted surveys: the Survey of Approaches to Educational Planning, the Post-Secondary Education Participation Survey, and the Adult Education and Training Survey (Statistics Canada 2008). Data collection took place between June and October 2008. Most survey questions refer to activities undertaken between July 2007 and June 2008. Information collected in this survey includes the incidence and intensity of adults' participation in job-related training, a profile of employer support, and barriers preventing individuals from participating in training they want or need to take. The survey also contains information on labour market and other personal characteristics.

This study includes individuals age 25 to 64 for analysis, with a sample size of 16,900, representing a population of 18.3 million (the sample size of employees is 11,300). The sample size of individuals age 55 to 64 is 4,900 (2,300 employees), representing a population of 3.9 million.

Sample sizes for earlier cycles of AETS are as follows:

- AETS 1992 32,200 (age 55 to 64, N=5,200)
- AETS 1994 29,500 (4,900)
- AETS 1998 23,700 (3,800)
- AETS 2003 24,200 (4,900).

Given the complex nature of the survey design, bootstrap estimation was used to derive the variances for odds ratios and percentages.

Job-related training activities are activities pursued for the development or upgrading of skills for use in present or future employment rather than personal interest or other non-employment-related reasons. Training activities can be courses and workshops not leading to a formal education credential, or activities (programs) provided in formal systems of education leading to a formal education credential, including primary-level and secondary-level education, and postsecondary education like university and college diplomas and degrees.

Employer-supported job training is a job-related training activity supported by the employer. Employer support consists of one or more of the following: providing the training, paying for the training (either directly or by reimbursing the employee), allowing a flexible work schedule to accommodate training, and providing transportation to and from the training location. ASETS collected information on employer support for one randomly selected training activity rather than all training activities. AETS cycles were based on all training activities that were taken. In 2003 and 2008, questions on employer support were asked only to respondents who had participated in education or training relating to a current or future job (job-related training); earlier cycles asked a range of questions about participation in any education or training activity, regardless of whether it was job-related.

Employee is based on the concept of class of worker. Among individuals who worked at a job or business at any time during the year prior to the survey, those who worked as employees at public-sector or private-sector workplaces were considered employees. The self-employed and those working in a family business without pay were excluded from the analysis.

Occupation was coded into three groups:

- white collar (occupations in management; business, finance and administrative; natural and applied sciences; health; social science, education, government service and religion; art, culture, recreation and sport)
- sales and service
- blue collar (trades, transport and equipment operators; primary industry; processing, manufacturing and utilities).

Industry was divided into two categories:

- goods-producing industries comprising agriculture, forestry, fishing, mining, oil and gas; utilities; construction; manufacturing
- service industries comprising trade; transportation and warehousing; finance and insurance; real estate, rental and leasing; professional, scientific and technical services; education; health care and social assistance; arts, entertainment and recreation; accommodation and food services; public administration.

spent 34 hours on courses compared to 58 hours for younger males (Table 3). However, the average number of courses and programs taken by the two age groups was almost identical.

Overall, older employees tend to take courses of shorter duration than their younger counterparts. Other measures of intensity were similar for the two groups, despite clear differences in the incidence of training.

Personal income and education are factors linked to training participation

Multivariate logistic regression models were estimated to examine how sociodemographic and labour market factors are associated with employer-supported training of older workers. The first set of models included sociodemographic variables and job characteristics. These models tested the effects of terms

Table 3 Intensity of job-training activities among participants

	Men		Women	
	25 to 54	55 to 64	25 to 54	55 to 64
Courses¹				
Average hours	58.0*	33.9	42.6*	31.8
Average number	2.6	2.6	2.7	2.8
Programs²				
Average hours	499.0	430.1	397.1	266.3
Average number	1.1	1.2	1.2	1.3

* significantly different from those age 55 to 64 at the 5% level

1. Refers to courses and workshops not leading to a formal education credentials.

2. Refers to activities in formal systems of education leading to formal credentials.

Source: Statistics Canada, Access and Support to Education and Training Survey, 2008.

of employment, occupation, working hours, unionization, and job tenure while controlling for sociodemographic factors.

In the second set of models, workplace characteristics—a public-sector versus private-sector indicator, firm size and industry—were substituted for job characteristics.

A third set of models included job characteristics, workplace characteristics and sociodemographic factors.⁶ Since these analyses were based on cross-sectional data, neither causality nor the ordering of events can be inferred.

Among older workers, income and education were significant correlates of training. Compared with men and women with personal annual income of \$100,000 or more, those with less than \$50,000 per year were significantly less likely to receive employer-supported training (Table 4). That is, those in high-paying jobs tend to have more job-training opportunities, which could be due to greater skill demands in their work.

When controls were in place for demographic, job and workplace characteristics, older female employees with postsecondary education were significantly more likely to receive employer-supported training than those with lower levels of education. Similar correlations were found for older male employees in the first two models, but the regression findings were no longer statistically significant when workplace and job

characteristics were simultaneously included, indicating some intervening relationship between education and workplace characteristics for men.

From a geographic perspective, workers in Quebec—both older and core-age—had lower training rates than workers in Ontario, which was used as the benchmark for other provinces (data not shown).⁷

Higher training among older workers in white-collar jobs

Compared with white-collar workers, non-white-collar workers (sales or service and blue-collar, see *Data source and definitions*) received less training. Older male blue-collar workers were less likely than their white-collar counterparts to receive employer-supported job training (odds ratio of 0.5), however this difference was not statistically significant when workplace factors were taken into consideration. Women with sales or service jobs were less likely than their white-collar counterparts to participate in employer-supported training.

Women with temporary jobs were less likely to participate in employer-supported training compared to women with permanent jobs. This finding suggests that older women's job security has an association with opportunities for employer-supported job training.

Training rates higher in service-industry jobs

Workers employed in goods-producing industries were less likely to participate in employer-supported training activities. With all controls in place in Model 3 (Table 4), older male and female employees in goods-producing industries were less likely to undertake job training than those working in service industries. This is likely related to the fact that there are some very high-training industries in the service sector, such as professional and scientific services, information, education and health care (Park 2011).

Several other job and workplace characteristics were significantly related to job training for older women. Women with private-sector jobs were less likely to participate in employer-supported training compared to those in the public sector. As Barrett et al. suggested (2009), training offered by private-sector workplaces tends to focus on employer-specific training, linked closely to the current job, whereas public-sector employers may sponsor more general training that is of use in both current and future employment.

Table 4 Adjusted odds ratios for participating in employer-supported job training for older employees

	Job characteristics model			Workplace model			Total model		
	All	Men	Women	All	Men	Women	All	Men	Women
Sociodemographic characteristics¹									
odds ratio									
Age									
55 to 59 (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
60 to 64	0.85	0.86	0.77	0.91	0.96	0.81	0.92	0.95	0.80
Personal income									
Less than \$25,000	0.24*	0.08*	0.31*	0.19*	0.07*	0.28*	0.27*	0.09*	0.40
\$25,000 to \$49,999	0.35*	0.41*	0.26*	0.29*	0.29*	0.32*	0.35*	0.35*	0.33*
\$50,000 to \$74,999	0.64	0.57	0.66	0.63	0.47*	0.86	0.67	0.56	0.77
\$75,000 to \$99,999	1.16	1.16	0.99	1.12	1.09	1.25	1.10	1.07	0.98
\$100,000 or more (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education level									
Less than high school graduation	0.30*	0.37*	0.20*	0.30*	0.40*	0.21*	0.33*	0.42	0.21*
High school diploma or its equivalent	0.70*	0.88	0.56*	0.75	0.99	0.61*	0.75	0.93	0.61*
Postsecondary degree, diploma or certificate (ref.)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Job characteristics²									
Terms of employment									
Permanent (ref.)	1.00	1.00	1.00	...	...	...	1.00	1.00	1.00
Non permanent	0.72*	1.13	0.44*	...	...	...	0.62	0.95	0.37*
Occupation									
White-collar jobs (ref.)	1.00	1.00	1.00	...	...	...	1.00	1.00	1.00
Blue-collar jobs	0.50*	0.52*	0.56	...	...	...	0.82	0.78	0.97
Sales and services	0.54*	0.74	0.43*	...	...	...	0.55*	0.79	0.41*
Workplace characteristics									
Job sector									
Public sector (ref.)	...	...	...	1.00	1.00	1.00	1.00	1.00	1.00
Private sector	...	...	...	0.64*	0.66	0.61*	0.59*	0.63	0.54*
Firm size									
Less than 20 employees	...	...	...	0.68	1.02	0.50*	0.65	0.94	0.51*
20 to 99 employees	...	...	...	1.08	1.25	0.89	1.06	1.12	0.89
100 to 500 employees	...	...	...	0.90	0.94	0.90	0.90	0.91	0.92
More than 500 employees (ref.)...	...	...	...	1.00	1.00	1.00	1.00	1.00	1.00
Industry									
Goods-producing	...	...	...	0.50*	0.54*	0.36*	0.50*	0.57	0.29*
Service-producing (ref.)	...	...	...	1.00	1.00	1.00	1.00	1.00	1.00

* significantly different from the reference group (ref.) at the 5% level

1. Other variables controlled for are marital status, visible minority status and geographic region.

2. Other variables controlled for are working hours, unionization and job tenure.

Source: Statistics Canada, Access and Support to Education and Training Survey, 2008.

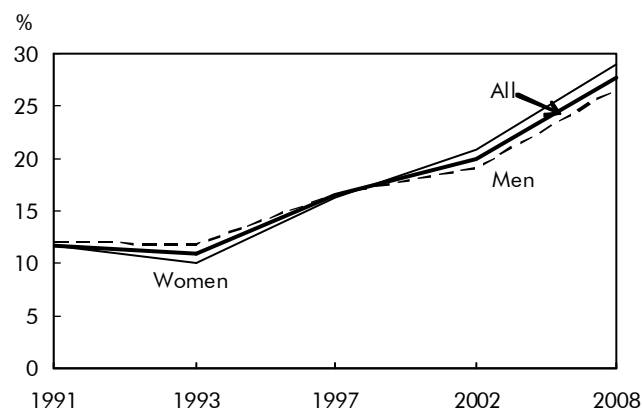
With regard to employer size, older women working at small firms (less than 20 employees) were less than one-half as likely to participate in employer-supported training as those working at firms with more than 500 employees. Larger firms tend to have a greater incentive to train employees because they can pool training risks (Holtmann and Idson 1991), whereas smaller companies may have difficulty sparing resources for training (Leckie et al. 2001).

Increased participation in employer-supported training over time

Based on previous cycles of the Adult Education and Training Survey, there has been a steady increase in the incidence of employer-supported training among older workers since 1993.⁸ In 2008, almost 30% of older employees received employer-supported training compared with roughly 10% of employees in both 1991 and 1993⁹ (Chart C). The steady rise in participation in job-related training was noted for both older men and women.

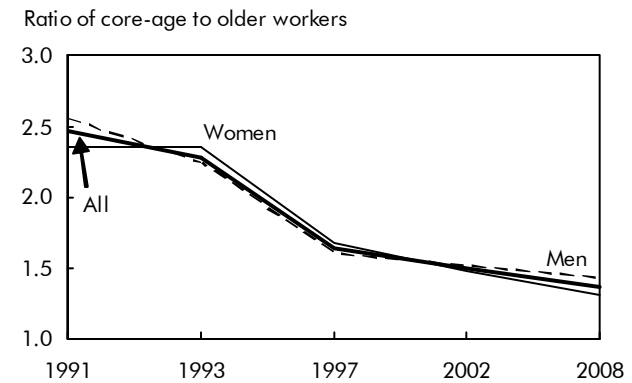
Not only have the training participation rates of older workers increased over time, but the gap in participation rates between older and younger workers has also narrowed. The training rate for core-age workers also increased, but not to the same extent as the rate for

Chart C Employer-supported training of older workers has increased since 1993



Sources: Statistics Canada, Adult Education and Training Survey, 1992, 1994, 1998 and 2003; Access and Support to Education and Training Survey, 2008.

Chart D Gap between older and with core-age group in employer-supported training has decreased



Sources: Statistics Canada, Adult Education and Training Survey, 1992, 1994, 1998 and 2003; Access and Support to Education and Training Survey, 2008.

older workers. For example, between 1991 and 2008, the participation rate for core-age workers increased from 29% to 38% while for older workers it went from 12% to 28%. In other words, while in 1991 core-age workers were about 2.5 times more likely to train than older workers, by 2008 the ratio had decreased to 1.4 (Chart D).

Level of education is the biggest contributor to increases in training over time

The marked growth in job-related training for older workers could be related to changes in their sociodemographic profile, like increasing levels of educational attainment. For example, while 30% of older workers held a postsecondary diploma or certificate in 1991, 56% held one in 2008.¹⁰

A Blinder-Oaxaca decomposition technique is used to estimate the extent to which the across-time difference is attributable to selected socioeconomic characteristics (Table 5). There was a 16-percentage-point difference in older workers' participation in employer-supported training between 1991 and 2008. Differences in the socio-economic characteristics of older workers in the two years accounted for about 10 percentage points—or 61%—of this overall difference. Educational attainment played the largest role,

Table 5 Blinder-Oaxaca decomposition on older workers' participation in employer-supported training, 1991 and 2008

	Decomposition
	% points
Raw difference	16.00
Explained portion - Total	9.80
Female	-0.04
Marital status	0.06
Education	5.03
Work hours (part-time/full-time)	-0.19
Employment sector (private/public)	1.58
Industry	1.53
Occupation	1.84

Sources: Statistics Canada, Adult Education and Training Survey, 1992; Access and Support to Education and Training Survey, 2008.

accounting for about 5 percentage points while occupation, industry, and the public/private sector accounted for 1.8, 1.5, and 1.6 percentage points, respectively. In other words, more than one-half of the increase in participation in employer-supported training in 2008 was related to the changing characteristics of older workers and their workplaces—particularly higher levels of education and a greater proportion of jobs in the public sector, service industries and white-collar occupations.

On the other hand, more than one-third (39%) of the increase in the training participation rate of older workers cannot be explained by changes in socio-economic conditions. Thus there has also been an increase in training participation among older workers regardless of personal, job or workplace characteristics.

Conclusion

Given recent economic trends, job-related training is increasingly important to older workers who wish to continue working. As older workers are delaying their retirement (Carrière and Galarneau 2011), their training rate is increasing—helping maintain their employability and productivity.

For employers, the retention of older workers is one response to workforce aging, particularly where skill shortages may come into play. Data indicate that the

tenure of newly hired older workers is also increasing, so that employers have a longer time to recoup training expenses through productivity gains.

This study found that older workers were still significantly less likely to participate in job-related training than their of core-age counterparts, even after controls were in place for labour market and sociodemographic factors.

Among older workers, significantly lower participation in training was found for those with lower annual income, low educational attainment, temporary employment, blue-collar or service jobs, and those working in the private sector, particularly goods-producing industries.

However, the training gap between older and younger workers shrank over time as the training participation rates of older workers more than doubled from 1991 to 2008. The ratio of core-age worker to older-worker training rates stood at 1.4 in 2008, compared to 2.5 in 1991. Although almost two-thirds of the increase in the training participation rate of older workers can be attributed to changes in educational attainment and workplace characteristics, there is also clear evidence of a general upward trend in the training rates of older workers.

Perspectives

Notes

1. Based on Labour Force Survey data, between 1987 and 1989 and 1997 and 1999, the growth rate in average job tenure (months) for workers age 55 to 64 was 49% compared with 35%, 27% and 38% for those age 25 to 34, 35 to 44 and 45 to 54, respectively (Picot et al. 2001). As well, this analysis found that 30% of those age 55 to 64 reported job tenure longer than 20 years (52% reported longer than 10 years), while 23% of workers age 45 to 54 reported job tenure longer than 20 years (45% reported longer than 10 years).
2. While some studies using the 2008 ASETS focused on courses (Knighton et al. 2009; Park 2011), training in this analysis combines the two to ensure better comparability with previous studies that combined courses and programs, such as Sussman (2002), Peters (2004) and Underhill (2006).
3. Most training (83%) was at least partially supported by the employer (Park 2011).

4. There were no statistically significant differences in training participation between workers age 55 to 59 and workers age 60 to 64.
5. Control variables included education level, personal income, visible minority status, marital status, geographic region, disability, job tenure, full-time status, permanent job status, unionization, occupation, firm size, job sector (public/private), and industry.
6. Alternating job and workplace characteristics across the models helps to determine whether collinearity between the two is an issue.
7. In addition to the model for employer-supported training among older workers, a separate regression analysis was conducted for overall job-training activities. Similar findings were found. Detailed results for overall job training can be obtained from the author.
8. Employer-supported training provides more comparable data over the cycles than overall job-training activities. Earlier cycles measured employer-related courses/programs and non-employer-related ones differently.
9. Note that there are differences between survey years and reference years. For example, the 2003 AETS asked respondents if they had participated in education or training in 2002.
10. During the same period, the proportion of core-age workers with a postsecondary diploma or certificate increased from 46% to 69%.

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