



Catalogue no. 71-585-XIE

Workplace and Employee Survey COMPENDIUM

1999 Data



Statistique
Canada

Statistics
Canada

Canada

Published by authority of the Minister responsible for Statistics Canada

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June 2001.

Catalogue no. 71-585-XIE

ISBN 0-662-30723-2

Frequency: occasional

Ottawa

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Acknowledgements and credits

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Thanks also to Marie Drolet and Garnett Picot for their reviews and helpful comments.

Table of Contents

Section	Page
Introduction	5
Organizational Practices And Organizational Change	7
Innovation And Technology	12
Workplace Performance Measures	19
Employee Technology Use And Learning Activities	26
Non-Standard Work Arrangements	32
Employee Outcomes	37
Appendix A: Concepts and methods	44
Appendix B: Industry definitions	49

Explanation of table symbols

The symbol “..” represents estimates with a coefficient of variation greater than 33.4 percent.

Estimates with a coefficient in the range of 25.1 to 33.4 percent are published with a cautionary asterisk (*), denoting their relatively high variability.

Introduction

This compendium provides data from the new Workplace and Employee Survey (WES) conducted by Statistics Canada with the support of Human Resources Development Canada. The survey consists of two components: (1) a workplace survey on the adoption of technologies, organizational change, training and other human resource practices, business strategies, and labour turnover in workplaces; and (2) a survey of employees within these same workplaces covering wages, hours of work, job type, human capital, use of technologies and training. The result is a rich new source of linked information on workplaces and their employees.

Why have a linked workplace and employee survey?

Advanced economies are constantly evolving. There is a general sense that the pace of change has accelerated in recent years, and that we are moving in new directions. This evolution is captured in phrases such as "the knowledge-based economy" or "the learning organization". Central to these notions is the role of technology, particularly information technology. The implementation of these technologies is thought to have substantial impact on both firms and their workers. Likely related to these technological and environmental changes, many firms have undertaken significant organizational changes and have implemented innovative human resource practices. Globalization and increasing international competition also contribute to the sense of change.

In the knowledge economy, intellectual capital is a marketable commodity, and human resources represent the capital investment needed to produce it. Within this framework, greater attention is being paid to the management and development of human resources within firms. Education and training are increasingly seen as an important investment for improved prosperity -- both for firms and individual workers.

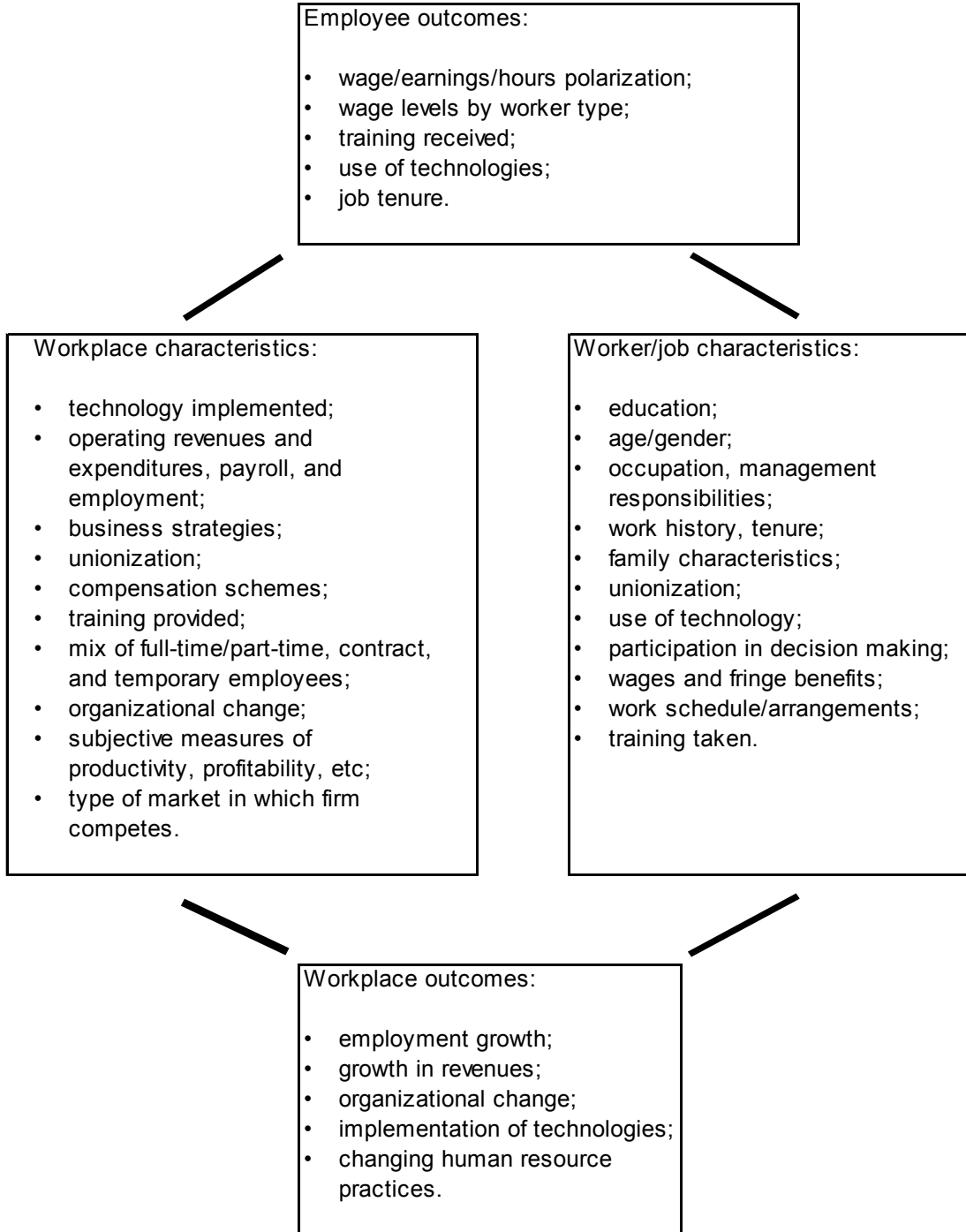
Indeed, the impacts of the knowledge economy, technological change and new competition are also reflected in labour markets through changing levels of job creation, changes in the types of jobs available, shifts in wage differentials across occupations and industries, new and expanded requirements to use and develop technologies on the job, along with ongoing needs to "keep up" via new training.

Thanks to earlier surveys, researchers have a good understanding of workers' outcomes regarding wages and wage inequality, job stability and layoffs, training, job creation, and unemployment. What is missing on the employees' side is the ability to link these changes to events taking place in firms. Such a connection is necessary if we hope to understand the association between labour market changes and pressures stemming from global competition, technological change, and the drive to improve human capital. Thus, one primary goal of WES is to establish a link between events occurring in workplaces and the outcomes for workers. The advantage of a linked survey is depicted in Figure 1, which displays the main content blocks in the two surveys.

The second goal of the survey is to develop a better understanding of what is indeed occurring in companies in an era of substantial change. Just how many companies have implemented new information technologies? On what scale? What kind of training is associated with these events? What type of organizational change is occurring in firms? These are the kinds of issues addressed in the WES.

This compendium aims to give practitioners and researchers some useful insights from the initial survey, as well as stimulating their interest in the possibilities provided by these new data.

Figure 1: The Link Between the Workplace Survey Content, Employee Survey Content, and Outcomes



Section 1: Organizational Practices and Organizational Change

To begin, we look at selected workplace practices and organizational changes in order to see how common they are in Canadian workplaces. To allow for easy comparison, we also break down workplaces into four size categories, based on the number of employees.

Employers were asked which of the following work organizational practices existed on a formal basis for non-managerial employees:

- Information sharing with employees;
- An employee suggestion program;
- Flexible job design;
- Quality circles/problem-solving teams;
- Joint labour-management committees, and
- Self-directed work groups.

Formal information sharing programs were the most prevalent of the organizational practices that were measured in 1999 (Table 1). Almost half of workplaces were estimated to have used information sharing. Least common was the practice of implementing self-directed work groups, where only one in ten workplaces reported having them.

Of course, workplaces are not necessarily a homogeneous group. Breaking down workplace categories, based on the number of employees, we see that large workplaces were far more likely to utilize formal organizational practices. The one exception was flexible job design, which was more likely to be found in smaller firms.

Chart 1. Incidence of Organizational Practices

Caption: Large workplaces were more likely to use most organizational practices.

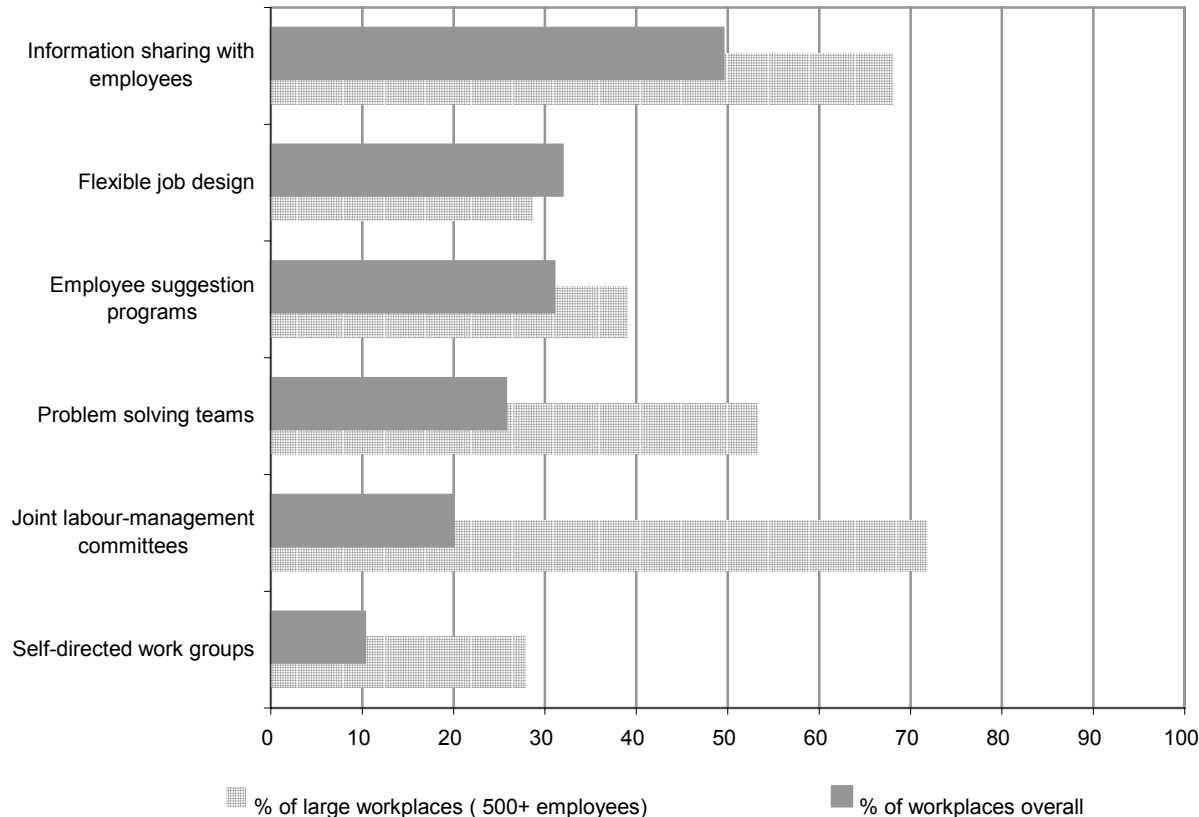


Table 1. Incidence of Organizational Practices

Large workplaces were more likely to use most organizational practices.

Organizational Practice	% of workplaces				
	Overall	By size of workplace			
		11-19 employees ¹	20-99 employees	100-499 employees	500+ employees
Information sharing with employees	49.5	47.2	49.8	60.3	68.0
Flexible job design	31.9	37.2	28.1	20.7	28.6
Employee suggestion programs	31.0	28.5	32.3	38.3	39.0
Problem solving teams	25.7	22.6	27.3	32.3	53.3
Joint labour-management committees	20.0	11.6	23.9	44.6	71.8
Self-directed work groups	10.3	* 8.0	11.4	15.7	27.8

1. Workplaces with ten employees or less were not asked these questions.

Source: Workplace and Employee Survey, 1999.

The survey also asked if any of the following organizational changes had been carried out in the workplace during the year prior:

- Downsizing (reducing the number of employees on payroll to reduce expenses);
- Re-engineering (focusing on the redesign of business processes to improve performance and cost);
- Increased integration among different functional areas;
- Increase in the degree of centralization with elimination of decentralized sub-offices;
- Decrease in the degree of centralization;
- Greater reliance on temporary workers;
- Greater reliance on part-time workers;
- Increase in overtime hours;
- Adoption of flexible working hours;
- Delaying (reducing the number of managerial levels);
- Greater reliance on functional flexibility (through job rotation and multi-skilling);
- Implementation of total quality management;
- Increased reliance on external suppliers of products or services, and
- Increased inter-firm collaboration in R&D, production, or marketing.

In Chart 2, we have grouped these changes into four categories to better show what was happening in the workplace in 1999. We also show the estimated share of employees who worked for these businesses, and therefore were affected in some way by the organizational change.

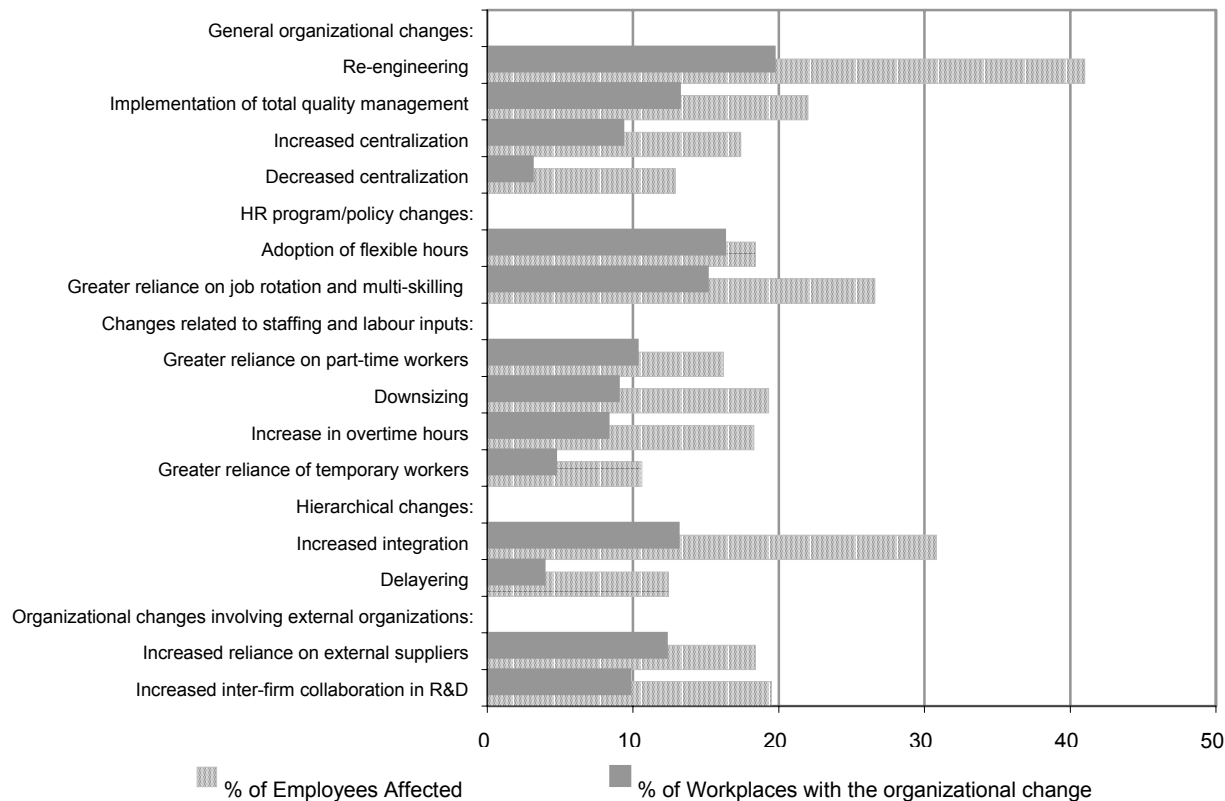
Re-engineering was the predominant form of organizational change, reported by one-fifth of the workplaces and accounting for over two-fifths total employment, while human resources program-type changes, such as flex-time, were close behind.

Some interesting dichotomies are apparent in Chart 2, such as near equal shares of workplaces carrying out downsizing and increasing overtime. The shares of employees affected by these two changes were also similar.

In table 2, the first row indicates the proportion of firms that did *not* undertake one of the above forms of organizational change.

Chart 2. Incidence of Organizational Change

Caption: Re-engineering was the most common organizational change reported. Since large workplaces were more likely to introduce organizational changes, a disproportionate share of employment was affected.



Increasing centralization was favoured by a three-to-one ratio over decentralization for workplaces overall. However, the edge did not extend to larger workplaces: an estimated 27% of these employers moved towards decentralization, while only 23% were becoming increasingly centralized.

As with the formal organizational practices seen earlier, organizational changes were found more frequently in larger workplaces. The sole exception, and an interesting one, was the adoption of flexible hours, which had similar reported levels of implementation across all workplace sizes.

Table 2. Incidence of Organizational Change

Re-engineering was the most common organizational change reported. Since large workplaces were more likely to introduce organizational changes, a disproportionate share of employees was affected.

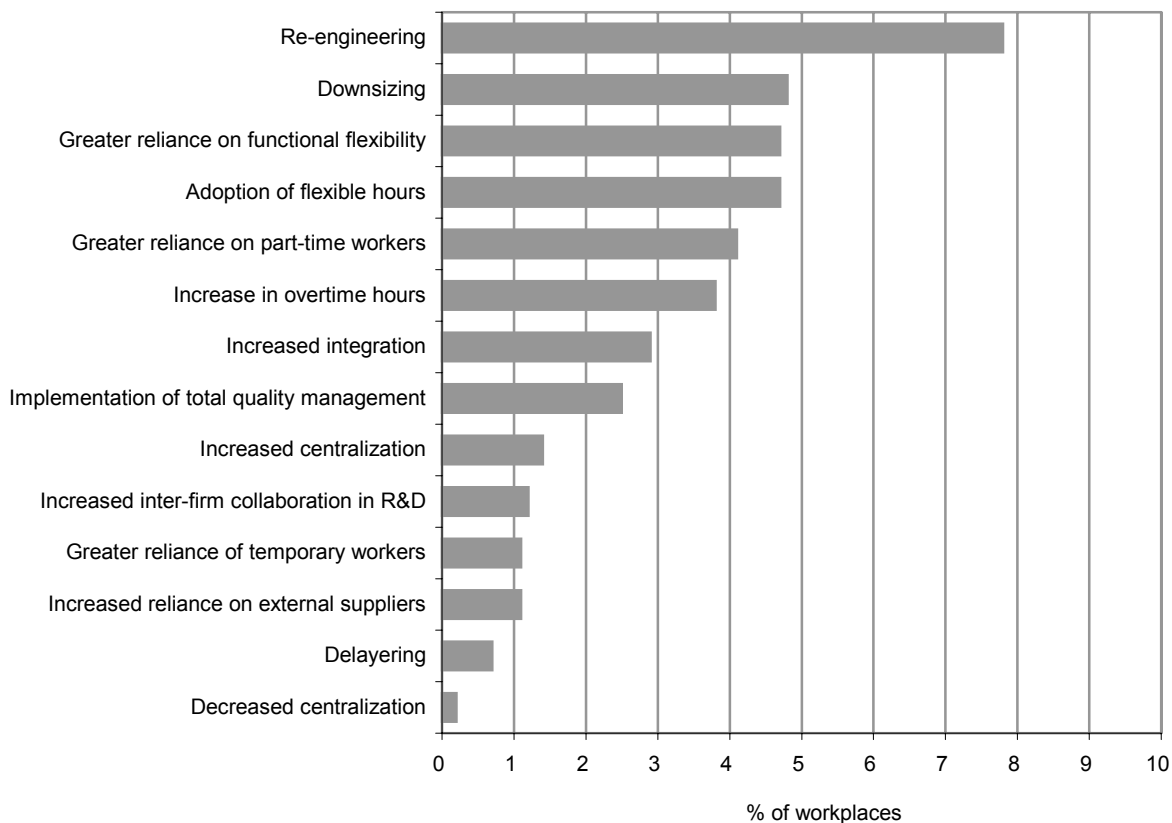
Type of change	% of workplaces				
	Overall	By size of workplace			
		1-19 employees	20-99 employees	100-499 employees	500+ employees
No organizational change	57.8	61.4	36.3	22.6	12.1
Re-engineering	19.7	16.9	35.5	50.8	65.2
Implementation of total quality management	13.2	11.8	22.1	26.4	27.4
Increased centralization	9.3	8.4	13.9	23.2	23.3
Decreased centralization	3.1	2.2	7.8	18.3	26.9
Adoption of flexible hours	16.3	16.1	17.3	18.9	16.6
Greater reliance on job rotation and multi-skilling	15.1	13.6	24.3	28.5	37.6
Greater reliance on part-time workers	10.3	9.8	12.6	16.0	24.4
Downsizing	9.0	7.7	16.0	22.4	33.8
Increase in overtime hours	8.3	7.1	15.4	22.6	29.8
Greater reliance of temporary workers	4.7	4.1	8.6	11.1	19.7
Increased integration	13.1	11.0	25.2	38.2	53.2
Delaying	3.9	3.2	6.6	18.9	23.2
Increased reliance on external suppliers	12.3	11.7	16.7	16.4	24.9
Increased inter-firm collaboration in R&D	9.8	8.1	20.3	24.9	26.5

Source: Workplace and Employee Survey, 1999.

We now have a feel for the standing of various types of organizational change among workplaces. But how important were they? The results of asking employers to name their single most significant organizational change are shown in Chart 3.¹ These results were quite consistent with the incidence for the various categories. Note that for the 57.8% of workplaces reporting none of these organizational changes, there can be no "most significant" change.

Chart 3. Ranking of most significant organizational changes

Caption: Reengineering viewed as most significant organizational change for those workplaces reporting one.



¹ The survey defines "most significant" as the change affecting the greatest number of employees.

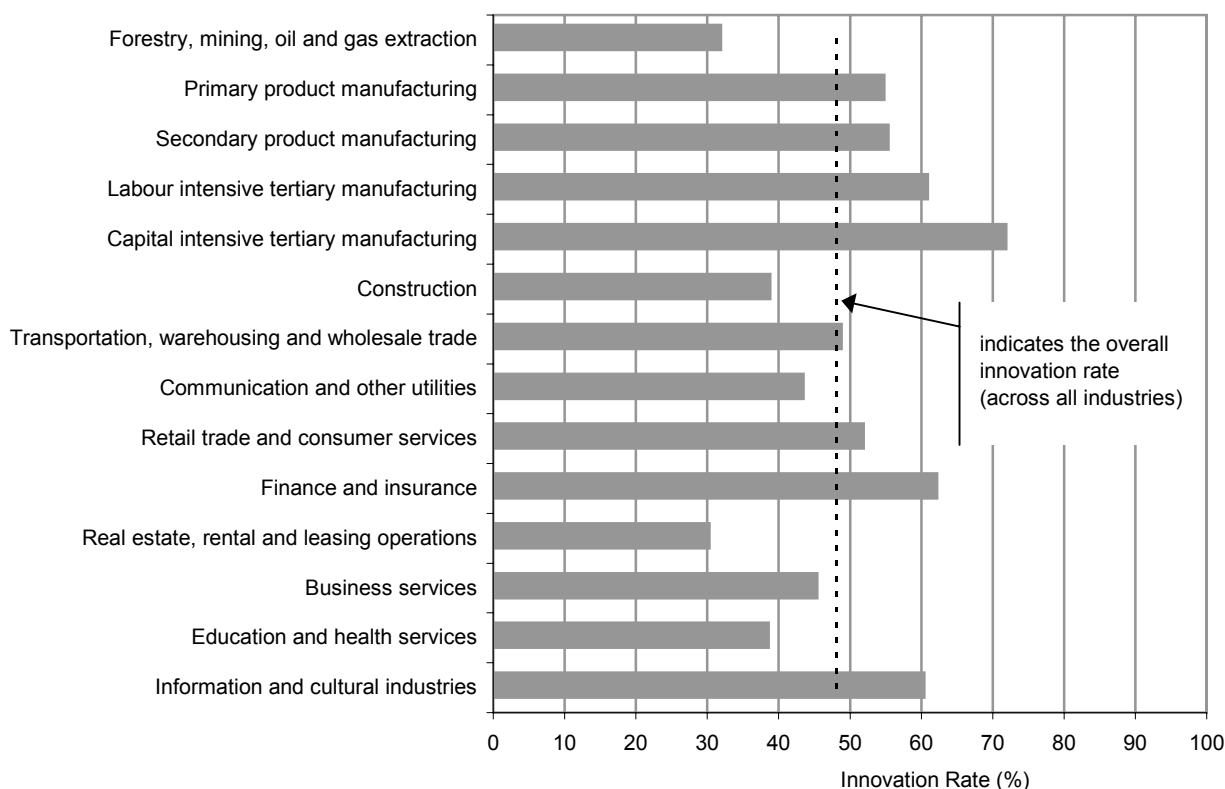
Section 2: Innovation and Technology

Some commentators see rapid technological change as the widespread diffusion of new (predominantly computer-based) technologies, while others refer mainly to innovation. WES allows an in-depth look at the introduction of innovation in goods and services² and the adoption of new technologies by workplaces. Specifically, it distinguishes between product and process innovation³ and technology adopters of new computer software and hardware adoption, computer-assisted technologies like retail scanners and manufacturing robots, and other technologies (optical, laser, biotechnology, etc.).

When workplaces are sub-divided into industry categories (Chart 4), we find that manufacturing had above-average innovation rates, along with finance and insurance, and information and culture. The resource industries, along with real estate, rental and leasing operators lagged.

Chart 4. Innovation rates by industry

Caption: Manufacturing had above-average innovation rates, while finance and insurance as well as information and culture led the services sector.



Nearly half of the workplaces in the survey reported at least one innovation (Table 3), and these workplaces employed nearly two-thirds of the workforce. Workplaces introducing product innovations outnumbered those with process innovations by a 3-to-2 margin. Nearly three in ten workplaces had both.

The innovation rates for larger workplaces were clearly higher than those where fewer than 20 people were employed. Looking at workplaces by region, however, reveals less variation. Ontario and Atlantic Canada workplaces led all regions.

² In WES, innovation is assessed through four questions on the introduction of (1) new goods and services, (2) improved goods and services, (3) new processes and (4), improved processes.

³ For service producers, “product innovation” means “new service” and “process innovation” means “change in existing services.”

Table 3. Innovation

Capital intensive manufacturing and larger workplaces had highest innovation rates.

Category	% of workplaces				% of employees in a workplace with an innovation
	Innovation (% with any)	By type of innovation			
		Product	Process	Both	
Overall	48.1	44.6	31.8	28.4	63.9
Industry					
Forestry, mining, oil and gas extraction	31.9	27.5	22.1	17.6	49.7
Primary product manufacturing	54.8	44.4	46.6	36.3	66.2
Secondary product manufacturing	55.4	48.4	42.3	35.3	78.1
Labour intensive tertiary manufacturing	60.9	56.9	42.0	38.0	77.3
Capital intensive tertiary manufacturing	71.9	62.5	55.8	46.5	78.2
Construction	38.7	32.9	25.4	19.5	43.2
Transportation, warehousing and wholesale trade	48.8	46.8	28.0	26.0	65.4
Communication and other utilities	43.5	33.6	29.5	19.5	62.5
Retail trade and consumer services	51.9	50.1	31.9	30.2	62.0
Finance and insurance	62.2	54.7	55.7	48.2	73.8
Real estate, rental and leasing operations	30.3	26.6	19.8	16.1	49.8
Business services	45.4	42.2	29.9	26.7	64.2
Education and health services, and non-profit groups	38.5	34.7	27.7	23.9	58.5
Information and cultural industries	60.4	57.7	35.5	32.7	75.6
Workplace size					
1-19 employees	45.2	42.0	29.0	25.8	53.2
20-99 employees	67.1	62.5	50.1	45.6	68.1
100-499 employees	67.0	55.5	55.8	44.3	67.9
500 employees or more	76.1	65.9	68.3	58.1	71.3

Region					
Atlantic	50.8	46.8	31.1	27.1	58.5
Quebec	45.2	42.2	26.5	23.5	60.6
Ontario	53.0	49.0	38.0	34.0	70.8
Manitoba	46.7	45.9	25.3	24.5	63.5
Saskatchewan	43.4	38.2	31.2	26.0	56.3
Alberta	39.6	37.9	27.6	25.9	55.0
British Columbia	46.0	42.0	29.1	25.0	59.8

Source: Workplace and Employee Survey, 1999.

In contrast to innovation rates, the share of workplaces reporting a new computer based technology adoption was lower, at 26% (Table 4).

Looking at computer based technology implementation by industry, a similar pattern emerges as seen for innovation rates (Chart 5). Here however, it is a service industry, business services, at the top of the list. Information and cultural industries were next, followed closely by capital intensive manufacturers.

Size appears to have played a role in indicating which workplaces adopted technologies: While medium and large workplaces had essentially similar rates, smaller workplaces showed smaller rates. This was particularly true with workplaces of less than 20 employees with a rate approximately one half that of the other workplace size categories. Further, the shares of employees working for computer based technology adopters were quite close to the workplace shares, indicating little in the way of a pattern in terms of staff size and technology introduction. For example, in the workplace size category of 100-499 employees, 50.7% of workplaces were adopters, and these employed 50.5% of employees working in this category.

Some variations in regional computer based technology adoption rates are apparent, with Saskatchewan and Ontario workplaces having the highest rates. Manitoba workplaces reported rates that were quite low compared to the national average.

Chart 5. Computer Based Technology Adoption

Caption: Business services, information and cultural industries and capital intensive tertiary manufacturing had highest computer based technology adoption rates.

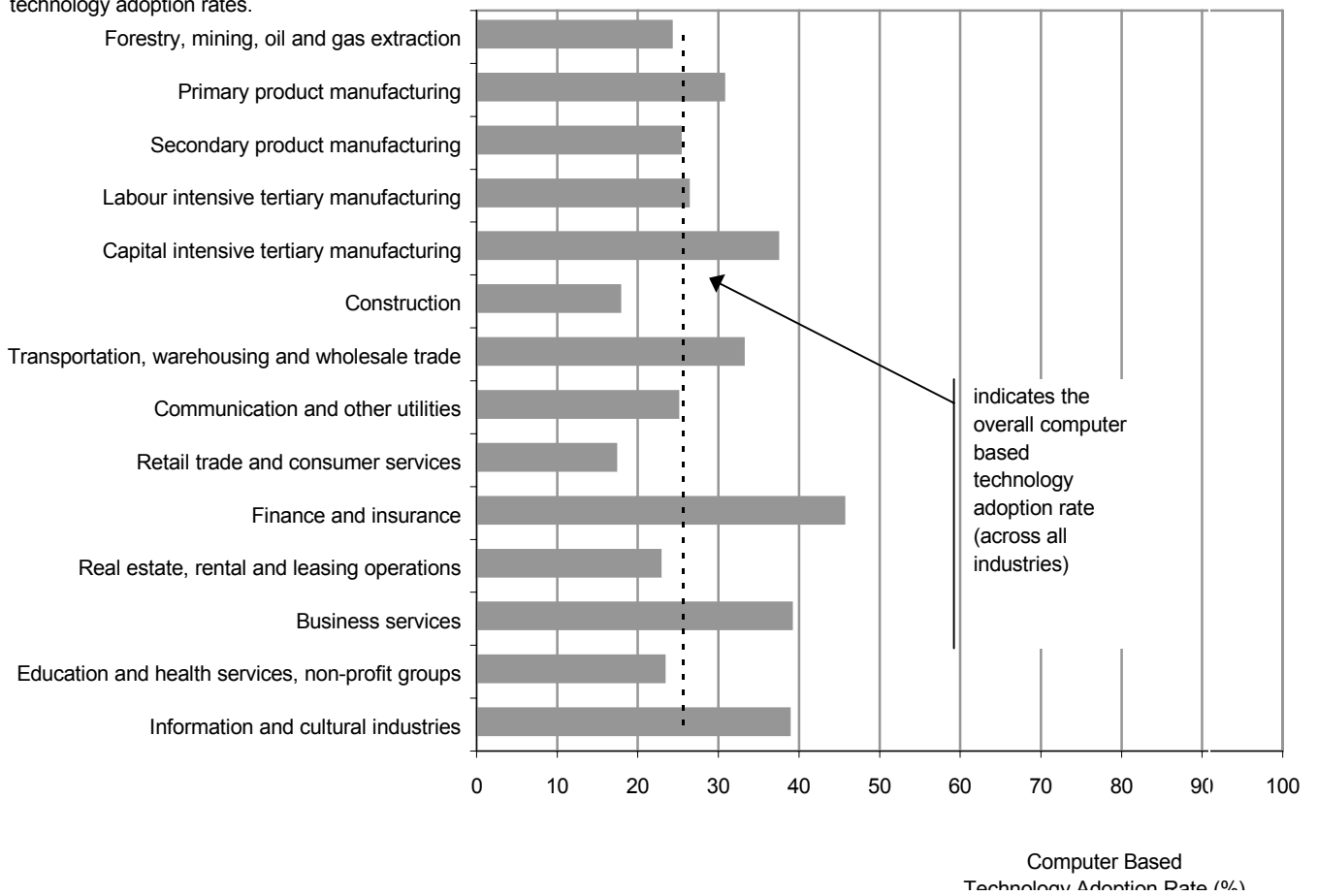


Table 4. Computer Based Technology Adoption

Business services, information and cultural industries and capital intensive tertiary manufacturing had highest computer based technology adoption rates.

Category	% of workplaces with a computer based technology adoption	% of employees in a workplace with a computer-based technology adoption
Overall	25.7	41.5
Industry		
Forestry, mining, oil and gas extraction	24.2	44.7
Primary product manufacturing	30.7	49.5
Secondary product manufacturing	25.3	56.1
Labour intensive tertiary manufacturing	26.3	47.3
Capital intensive tertiary manufacturing	37.4	53.4
Construction	17.8	31.4
Transportation, warehousing and wholesale trade	33.1	47.1
Communication and other utilities	25.0	52.8
Retail trade and consumer services	17.3	27.9
Finance and insurance	45.6	46.2
Real estate, rental and leasing operations	22.8	30.8
Business services	39.1	42.0
Education and health services, non-profit groups	23.3	45.1
Information and cultural industries	38.8	48.8
Workplace size		
1-19 employees	23.1	26.5
20-99 employees	42.0	44.0
100-499 employees	50.7	50.5
500 employees or more	50.9	54.0
Region		
Atlantic	21.9	38.6
Quebec	24.6	42.5
Ontario	28.1	42.7
Manitoba	17.2	30.5
Saskatchewan	29.9	44.9
Alberta	26.8	40.7
British Columbia	23.5	40.4

Source: Workplace and Employee Survey, 1999.

How complementary were innovation rates and rates of technology adoption? Crossing the combinations of responses to the innovation and computer-based technology adoption questions yields the results shown in Table 5, with the shares of workplaces with neither, one, or both of innovation and technology adoption indicated. In general, innovation (30.6%) was cited more frequently than computer-based technology adoption (8.2%) in the workplace for the 1999 survey year, but the most common situation was workplaces that neither adopted new technologies nor innovated (43.7%). The remaining 17.5% of workplaces had both.

Chart 6. Combined look at innovation and technology adoption

Caption: Capital intensive tertiary manufacturing shows both the highest levels of both innovation and technology adoption and the lowest level of neither innovation nor technology.

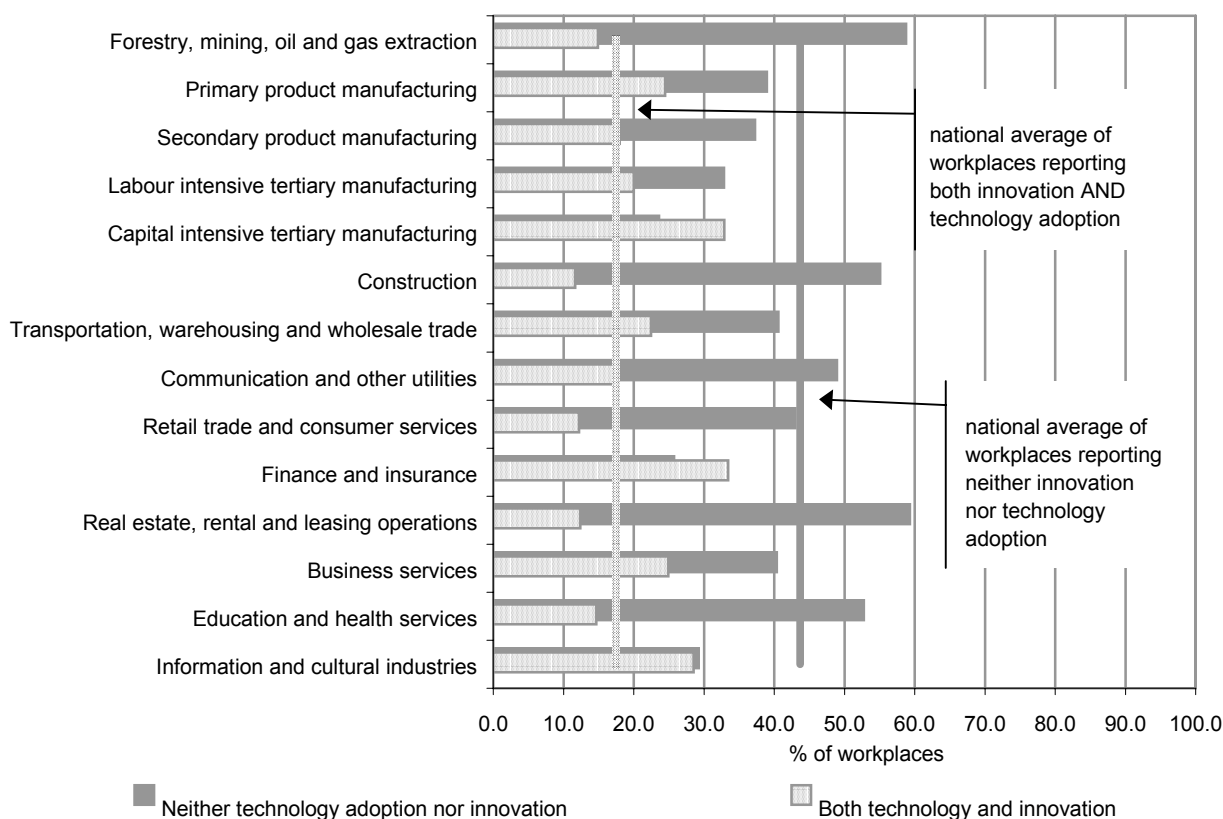


Table 5. Technology Adoption and Innovation

Larger firms on the leading edge.

Category	% of workplaces			
	Neither technology adoption nor innovation	Technology adoption but not innovation	Innovation but not technology adoption	Both technology adopt'n and innovation
Overall	43.7	8.2	30.6	17.5
Industry				
Forestry, mining, oil and gas extraction	58.8	* 9.3	17.1	14.9
Primary product manufacturing	39.0	* 6.3	30.3	24.5
Secondary product manufacturing	37.3	* 7.4	37.4	18.0
Labour intensive tertiary manufacturing	32.8	* 6.3	40.9	20.0
Capital intensive tertiary manufacturing	23.6	..	39.0	32.9
Construction	55.1	6.2	27.1	11.7
Transportation, warehousing and wholesale trade	40.6	10.6	26.3	22.5
Communication and other utilities	48.9	7.5	26.0	17.5
Retail trade and consumer services	43.0	* 5.1	39.6	12.2
Finance and insurance	25.7	12.1	28.7	33.5
Real estate, rental and leasing operations	59.3	* 10.4	17.9	12.4
Business services	40.4	14.2	20.5	24.9
Education and health services, non-profit groups	52.8	8.7	23.9	14.7
Information and cultural industries	29.3	10.3	31.9	28.5

Workplace size				
1-19 employees	46.5	8.2	30.4	14.9
20-99 employees	25.6	7.3	32.3	34.7
100-499 employees	21.2	11.8	28.0	39.0
500 employees or more	11.2	12.7	37.9	38.2
Region				
Atlantic	41.6	* 7.6	36.5	14.2
Quebec	46.6	8.2	28.7	16.4
Ontario	39.0	8.0	32.9	20.1
Manitoba	49.1	* 4.2	33.7	13.0
Saskatchewan	42.6	* 14.0	27.5	15.9
Alberta	51.8	8.7	21.4	18.2
British Columbia	46.0	8.0	30.6	15.4

Source: Workplace and Employee Survey, 1999.

Section 3: Workplace Performance Measures

How's business? The Workplace and Employee Survey allows for both traditional and new-look analyses of performance measures. In this section, we shall look at results from the business perspective.. WES includes both quantifiable measures, such as growth rates for employment and revenue, along with so-called "self-assessment indicators", where respondents are asked their perception of changes in areas such as productivity, sales growth and profitability.

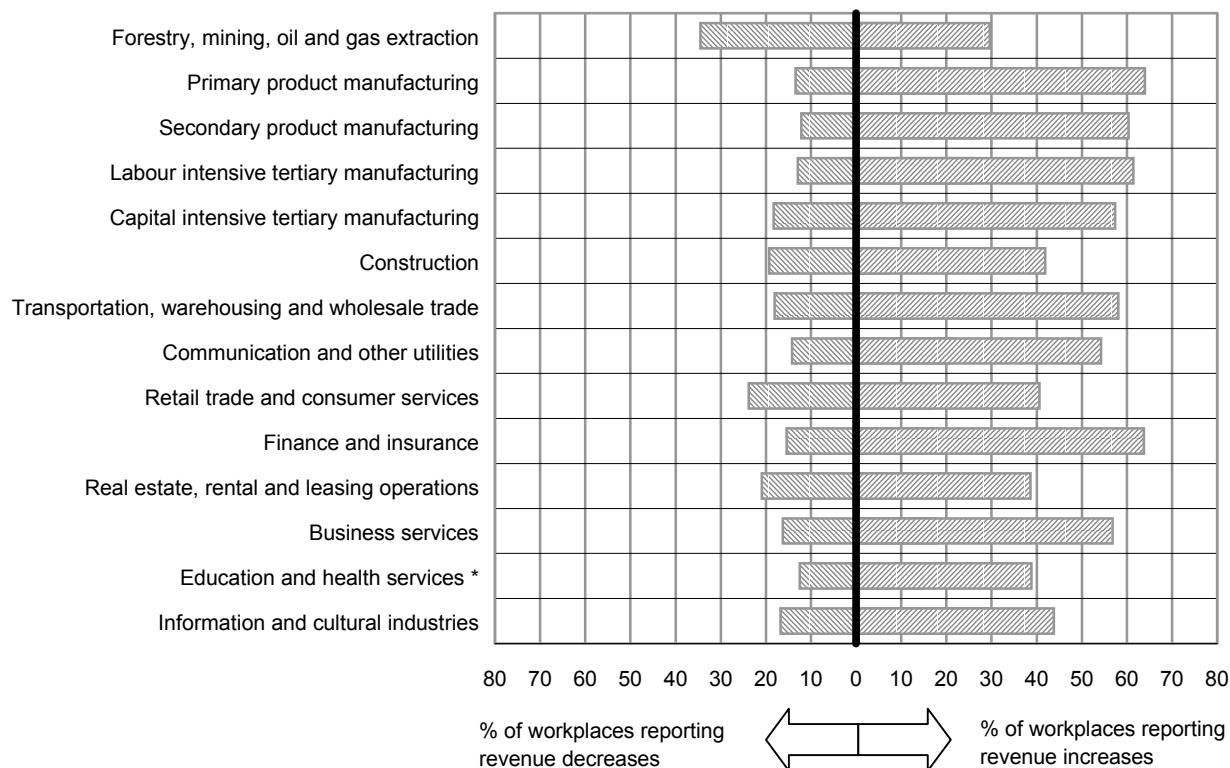
Nearly half of all workplaces reported an increase in revenues for 1999.⁴ An additional one in three workplaces had stable revenues, while one in five workplaces saw decreases (Table 6). Manufacturing industries led the pack, with growth being reported by approximately 60% of workplaces in these four categories. Finance and insurance also came in with an over 60% share reporting growth. These results appear to confirm what was being reported by the business press during this time: Demand for manufactured goods was strong (which helped the transportation industry), investments in communications were being made, the financial sector was growing with some companies reporting record numbers, and business services (including computer systems design) were quite robust. On the down side, commodity prices were low, the construction and real estate boom now felt in many areas had yet to really get started, and retailers were having mixed results.

Year-over-year revenue growth was highest for mid-sized workplaces, slightly ahead of large workplaces. Most regions had shares of workplaces reporting revenue growth that reflected the national average of 47.5. Manitoba led, while neighbouring Saskatchewan had the lowest rate.

⁴ The specific time frame involved was between April 1, 1998 and March 31, 1999.

Chart 7. Revenue - reported increases and decreases by industry

Caption: With the exception of the primary sector (forestry, mining, and oil and gas extraction), reported increases exceeded reported decreases. The manufacturing and the finance and insurance sectors had strong net increases.



* Non-profit organizations are excluded from these figures.

Table 6. Revenues

Manufacturing and mid-to-large workplaces showed solid revenue growth.

Category	% of workplaces ¹		
	with revenue growth	with stable revenues	with decreases in revenues
Overall	47.5	33.0	19.5
Industry			
Forestry, mining, oil and gas extraction	29.6	35.9	34.5
Primary product manufacturing	64.0	22.6	13.4
Secondary product manufacturing	60.4	27.5	12.1
Labour intensive tertiary manufacturing	61.4	25.6	12.9
Capital intensive tertiary manufacturing	57.4	24.4	18.3
Construction	41.9	38.8	19.3
Transportation, warehousing and wholesale trade	58.1	23.8	18.1
Communication and other utilities	54.3	31.5	14.2
Retail trade and consumer services	40.6	35.6	23.8
Finance and insurance	63.8	20.8	15.4
Real estate, rental and leasing operations	38.6	40.6	20.9
Business services	56.8	27.0	16.2
Education and health services ¹	38.8	48.7	12.5
Information and cultural industries	43.8	39.6	16.7

Workplace size			
1-19 employees	44.6	35.4	20.0
20-99 employees	66.2	16.9	16.9
100-499 employees	74.0	14.9	11.1
500 employees or more	72.2	14.3	13.5
Region			
Atlantic	49.9	33.9	16.2
Quebec	51.0	32.0	17.1
Ontario	45.3	33.8	20.9
Manitoba	55.0	29.0	* 16.1
Saskatchewan	36.9	38.2	* 24.8
Alberta	50.0	29.0	21.0
British Columbia	45.8	34.5	19.8

1. Non-profit organizations are excluded from this table.

Source: Workplace and Employee Survey, 1999.

For another perspective on performance, WES asked employers to assess changes in unit production costs, productivity, sales growth, product quality, customer satisfaction and profitability (Table 7). Some of these measures are quantifiable, while others are qualitative. Nonetheless, for all of these measures the survey asks for straightforward assessments as to whether the measures had increased, decreased, or stayed the same.

By subtracting the share of workplaces with negative assessments from the share reporting increases, we have a net figure. Using this measure, the "softer", or qualitative measures of performance (such as customer satisfaction) had higher net shares reporting increases than those for more quantitative measures (such as profitability).

Table 7. Net shares reporting increased performance

Qualitative categories had higher net shares reporting increases than those for more quantitative measures.

Category	Net share of workplaces reporting increases in:					
	Customer satisfaction	Product quality	Productivity	Sales growth	Unit production costs	Profitability
Overall	37.0	31.0	30.2	25.9	25.9	13.5
Industry						
Forestry, mining, oil and gas extraction	21.8	15.6	26.6	4.0	12.5	6.7
Primary product manufacturing	44.4	46.6	46.7	41.9	36.3	35.8
Secondary product manufacturing	38.9	36.7	44.1	37.9	29.7	8.4
Labour intensive tertiary manufacturing	29.1	36.5	28.2	32.3	23.8	9.8
Capital intensive tertiary manufacturing	45.0	53.1	45.6	45.6	28.0	28.7
Construction	32.5	22.7	24.7	23.7	31.1	1.3
Transportation, warehousing and wholesale trade	35.5	26.2	31.9	31.1	19.8	10.3
Communication and other utilities	29.3	26.0	29.5	28.7	18.5	15.2
Retail trade and consumer services	42.9	30.4	28.7	23.5	30.9	11.9
Finance and insurance	42.9	49.6	43.1	39.4	18.3	26.7
Real estate, rental and leasing operations	18.8	13.5	12.7	11.0	9.8	6.3
Business services	36.8	36.6	33.6	33.5	18.7	30.4
Education, health, and non-profit groups	29.1	27.1	26.3	16.9	28.7	5.0
Information and cultural industries	42.7	42.6	33.9	25.6	19.0	17.1
Workplace size						
1-19 employees	36.2	29.4	28.1	23.7	26.0	11.2
20-99 employees	43.1	41.4	44.7	41.7	25.5	29.8
100-499 employees	38.6	43.8	45.2	37.6	22.3	22.9
500 employees or more	35.9	40.3	44.3	27.3	14.4	18.4
Region						
Atlantic	39.5	29.6	29.8	30.0	27.4	11.7
Quebec	37.1	31.2	29.5	26.0	31.1	18.1
Ontario	42.0	35.1	33.5	34.9	21.6	21.0
Manitoba	35.5	23.9	25.7	19.1	18.3	8.3
Saskatchewan	30.1	32.3	13.8	14.2	27.7	-6.5
Alberta	31.8	27.9	36.1	17.5	28.3	7.1
British Columbia	28.5	24.5	24.3	11.3	28.0	0.0

Source: Workplace and Employee Survey, 1999.

Chart 8. Net share of workplaces reporting increased performance

Caption: A larger share of workplaces reported increases in "soft" measures, such as customer satisfaction than in more quantifiable areas such as profits.

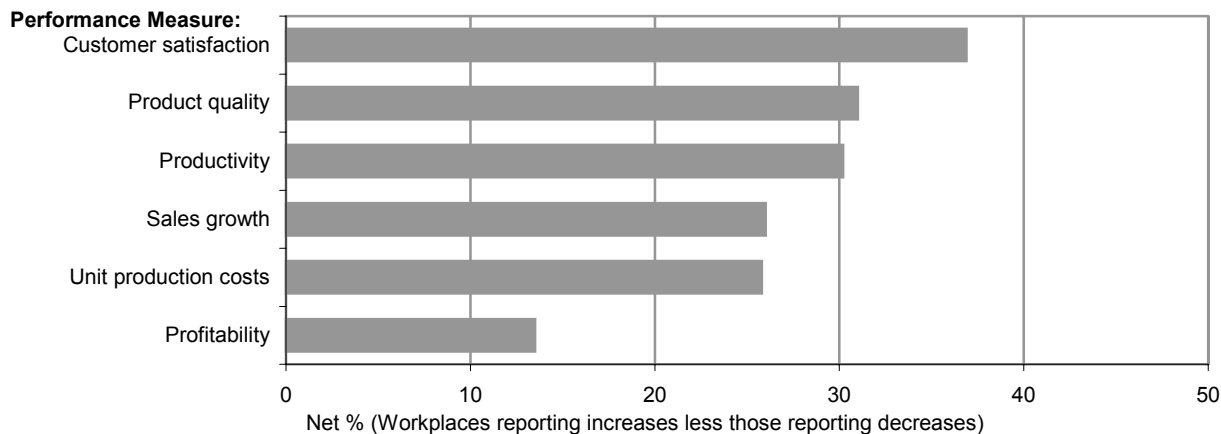
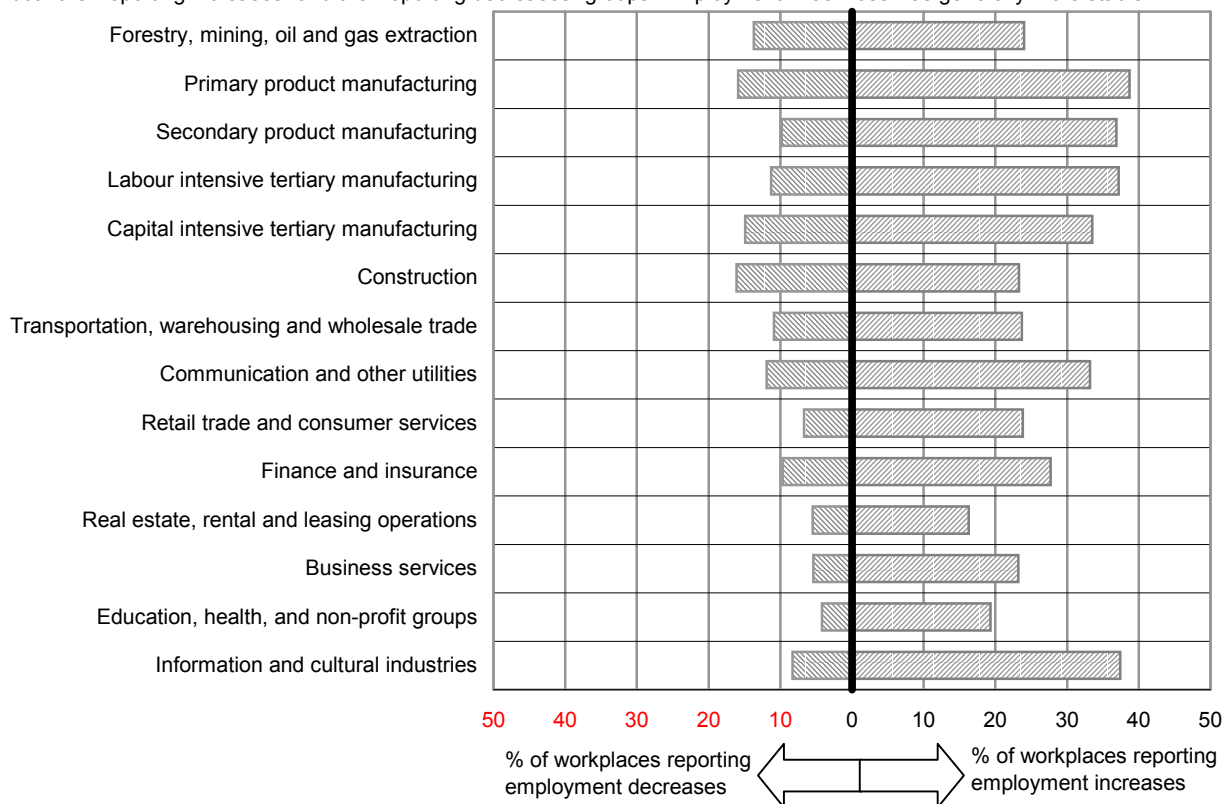


Chart 9. Employer assessments of changes in employment levels

Caption: Employment levels in primary product manufacturing were quite volatile, with relatively high levels of workplaces in both the "reporting increases" and the "reporting decreases" groups. Employment in services was generally more stable.



Another performance measure provided by WES is change in employment levels (table 9). For two out of every three workplaces, employment levels were stable in the 12 months ending March 31, 1999.⁵ Almost a quarter of workplaces increased their employment while less than 10% reported decreases. Nearly 40% of manufacturers in labour intensive, primary and secondary product industries and in information and cultural industries reported an increase in employment. Workplaces reporting decreases in employment ranged from a low of about 4% in education, health, and non-profit groups to a high of 16% in construction and primary product manufacturing. About eight in ten workplaces in the real estate, rental and leasing operations as well as the education, health and non-profit sectors reported no employment change.

Table 8. Employer assessments of changes in employment levels

By region, Atlantic Canada (22.7), Quebec and Alberta had the highest net increases, while Ontario and British Columbia (9.6) had the lowest.

Category	% of workplaces		
	with increases in employment	with stable employment levels	with decreases in employment
Overall	24.3	67.5	8.2
Industry			
Forestry, mining, oil and gas extraction	24.0	62.3	13.7
Primary product manufacturing	38.7	45.4	15.9
Secondary product manufacturing	36.9	53.3	9.8
Labour intensive tertiary manufacturing	37.2	51.6	11.3
Capital intensive tertiary manufacturing	33.5	51.6	14.9
Construction	23.3	60.6	16.1
Transportation, warehousing and wholesale trade	23.7	65.4	10.9
Communication and other utilities	33.2	54.9	11.9
Retail trade and consumer services	23.8	69.4	* 6.7
Finance and insurance	27.7	62.6	9.7
Real estate, rental and leasing operations	16.3	78.2	* 5.5
Business services	23.2	71.3	* 5.4
Education, health, and non-profit groups	19.3	76.5	4.2
Information and cultural industries	37.4	54.3	* 8.3

⁵ These estimates are based on the total number of employees reported for the end of March of the year prior to the survey minus the total number of employees at the end of March for the year of the survey. Two cautions: First, note that this measure relates to the percentage of workplaces reporting increases or decreases, and not to the level of increase or decrease in employment itself. Second, even workplaces reporting stable employment may well have experienced significant turnover through offsetting hires and separations.

Workplace size			
1-19 employees	20.7	72.4	6.8
20-99 employees	47.5	36.0	16.5
100-499 employees	53.8	25.1	21.1
500 employees or more	59.0	17.0	24.1
Region			
Atlantic	26.8	69.3	3.9
Quebec	27.1	66.8	6.1
Ontario	23.6	66.5	9.9
Manitoba	22.3	70.0	* 7.8
Saskatchewan	22.2	71.2	* 6.6
Alberta	28.8	62.3	8.8
British Columbia	18.7	72.1	9.1

Source: Workplace and Employee Survey, 1999.

Section 4: Employee Technology Use and Learning Activities

We turn now to the employee side of the survey. This section, along with those that follow, presents information on the activities and outcomes of workers -- such as skill development, non-standard work arrangements, wages, non-wage benefits and job satisfaction -- and relates these to various employee characteristics, such as educational attainment and occupation. We also use the employer data to group employees into the workplace categories seen in the previous three sections.

Six in ten employees regularly used a computer in 1999 (Table 9). The proportion of computer users was slightly higher among women than men. The survey also found that computer use increased with education level and was concentrated in white-collar occupations (managers, professionals and clerical/administrative workers). Marketing and sales occupations had above average usage rates for computer-assisted technologies and other machines or devices, but were below average in terms of computer use. Production workers had the lowest reported computer use, but did have above average usage rates for other machines or devices.

While only 12.5% of employees used computer-assisted/controlled technology (CAT), more than a quarter of all workers used other machines or technological devices as part of their job. Marketing/sales employees showed the highest use of CAT and other machine or technological devices, most likely cash registers and sales terminal scanners.

Chart 10. Employees' Use of Technology

Caption: Technology use highest on the shop floor: computer use for administrative occupations, other technologies for those working in sales.

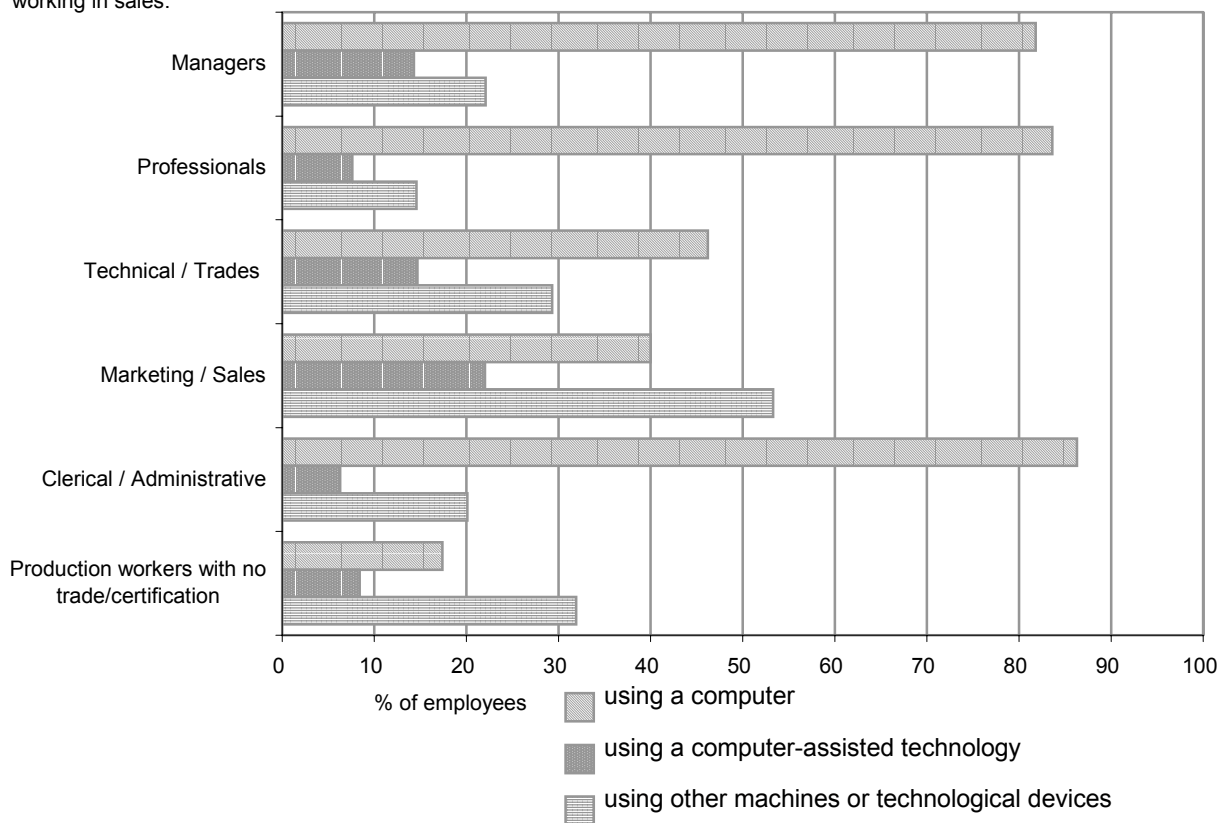


Table 9. Employees' Use of Technology

Technology use highest on the shop floor: computer use for administrative occupations, other technologies for those working in sales.

Category	% of employees		
	using a computer	using a computer-assisted technology	using other machines or technological devices
Overall	60.6	12.5	26.8
Gender			
Men	57.2	15.9	27.5
Women	63.6	9.4	26.1
Age			
less than 25 years	42.1	19.1	43.0
25 to 44 years	65.8	12.7	25.3
45 or more years	57.9	10.1	24.0
Educational attainment			
Some secondary or less	29.0	11.2	33.6
Secondary school diploma	51.7	12.9	32.4
Non-university post-secondary education	61.4	14.0	27.3
Some university	71.4	13.1	25.4
University degree	83.6	9.5	15.9
Occupation group			
Managers	81.8	14.3	22.1
Professionals	83.6	7.6	14.6
Technical / Trades	46.2	14.7	29.3
Marketing / Sales	40.0	22.0	53.3
Clerical / Administrative	86.3	6.3	20.1
Production workers with no trade/certification	17.4	8.4	31.9
Industry			
Forestry, mining, oil and gas extraction	53.7	12.5	27.9
Primary product manufacturing	51.1	17.9	27.0
Secondary product manufacturing	54.8	16.0	25.0
Labour intensive tertiary manufacturing	41.0	13.8	28.6
Capital intensive tertiary manufacturing	66.5	16.0	25.2
Construction	38.0	8.8	31.1
Transportation, warehousing and wholesale trade	65.1	8.0	27.7
Communication and other utilities	67.3	11.7	20.6
Retail trade and consumer services	45.6	21.3	41.3
Finance and insurance	92.9	* 4.4	14.1
Real estate, rental and leasing operations	69.9	6.7	19.1
Business services	78.2	11.1	17.8
Education, health, and non-profit groups	65.1	5.9	18.0
Information and cultural industries	86.2	11.8	22.8

Table 9. Employees' Use of Technology (continued)

Category	% of employees		
	using a computer	using a computer-assisted technology	using other machines or technological devices
Workplace size			
1-19 employees	54.5	11.2	32.7
20-99 employees	59.1	14.0	27.8
100-499 employees	61.4	13.2	22.0
500 employees or more	72.2	11.5	19.8
Region			
Atlantic	59.3	11.4	31.2
Quebec	52.8	8.4	14.7
Ontario	66.3	15.4	28.1
Manitoba	52.9	10.0	31.6
Saskatchewan	58.2	9.0	37.2
Alberta	65.5	13.6	32.9
British Columbia	56.5	11.8	34.3

Source: Workplace and Employee Survey, 1999.

As might be expected, employees' computer use varied significantly by their industry of employment. For example, over 90% of employees in the finance and insurance field used a computer, compared to 38% of construction workers. Computer use also increased with workplace size, reaching a high of 72% in workplaces with 500 or more employees

Canadian workers tended to rely more on themselves and co-workers than classroom training in learning how to use computer applications and other technologies (Table 10). When asked what was the most helpful method in learning to use their main computer application, users most frequently cited on-the-job training from co-workers and supervisors (41%) and self-training (38%). Employer paid formal training was most helpful for 13% of the computer users. Much smaller proportions of employees reported that university or college courses or self-paid formal training were their principal methods of computer training. For other types of workplace technologies, self-learning was the predominant method of skill acquisition.

Chart 11. Most Helpful Method in Learning Different Technologies

Caption: Self-learning cited frequently for all types of technologies.

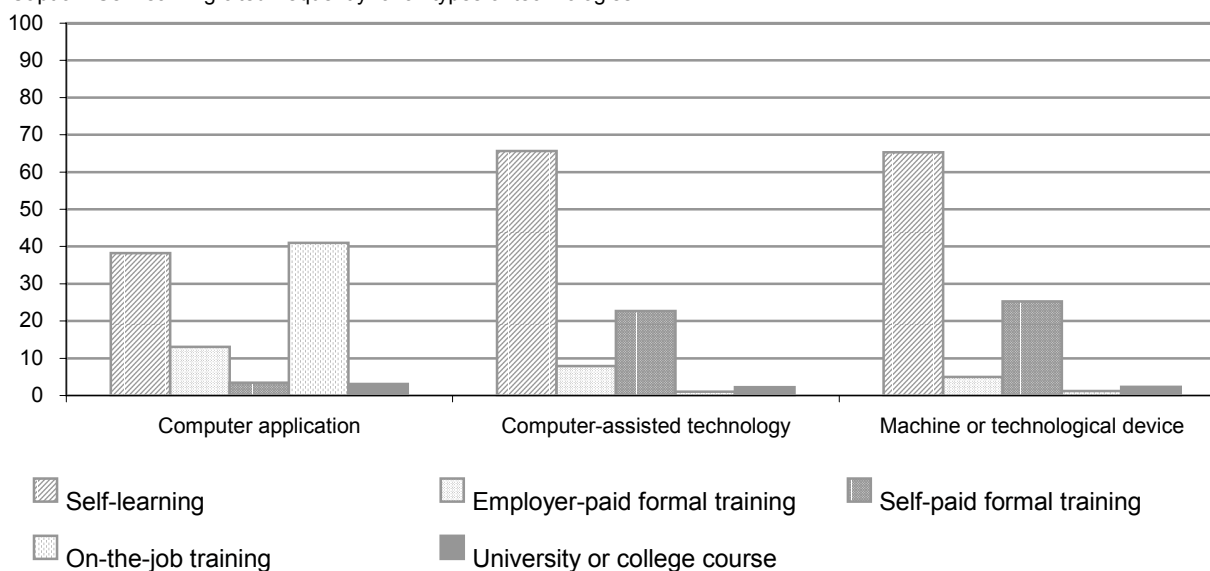


Table 10. Most Helpful Method in Learning Different Technologies

Self-learning cited frequently for all types of technologies.

Type of technology ¹ Most helpful learning method	% of employees ²				
	Overall	By workplace size			
		11-19 employees	20-99 employees	100-499 employees	500+ employees
Computer application					
Self-learning	38.2	42.3	36.6	38.0	36.1
Employer-paid formal training	13.1	* 9.2	11.2	17.4	* 15.5
Self-paid formal training	3.4	..	..	..	..
On-the-job training	41.0	42.7	44.7	40.5	35.2
University or college course	3.1	..	3.1	* 2.7	..
Other	..	..	..	..	..
Computer-assisted technology					
Self-learning	65.6	65.3	68.3	63.4	63.3
Employer-paid formal training	7.9	..	7.0	9.3	12.9
Self-paid formal training	22.7	25.3	21.3	23.8	19.9
On-the-job training	* 1.0	..	..	..	..
University or college course	2.2	..	..	..	..
Other	..	..	..	..	..
Machine or technological device					
Self-learning	57.5	58.7	58.2	55.7	54.7
Employer-paid formal training	4.0	* 2.4	4.1	5.0	* 6.7
Self-paid formal training	31.5	31.9	30.7	31.7	31.9
On-the-job training	1.8	* 1.6	1.9	* 1.8	..
University or college course	3.2	3.4	* 2.9	..	* 2.5
Other	2.1	2.1	* 2.2	* 2.3	..

1. The question relates to the most used technology of each type.

2. Columns for each technology may not add to 100% due to rounding.

Source: Workplace and Employee Survey, 1999.

Chart 12. Training Received by Employees

Caption: University graduates were the most likely to receive classroom training in the year.

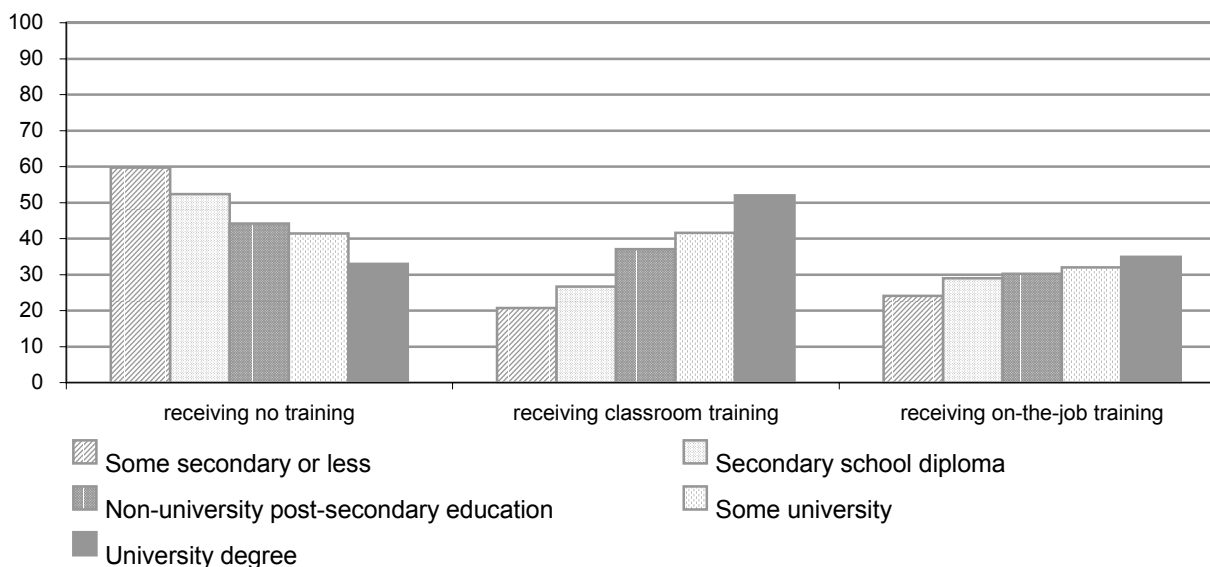


Table 11. Training Received by Employees

Professionals, managers and university graduates were the most likely to receive classroom training.

Category	% of employees ¹		
	receiving no training	receiving classroom training	receiving on-the-job training
Overall	45.4	36.6	30.3
Gender			
Men	46.9	36.3	28.8
Women	44.0	36.8	31.6
Age			
less than 25 years	45.2	22.7	40.5
25 to 44 years	42.6	39.7	31.6
45 or more years	50.1	35.8	25.0
Educational attainment			
Some secondary or less	59.7	20.7	24.1
Secondary school diploma	52.4	26.7	29.0
Non-university post-secondary education	44.2	37.1	30.2
Some university	41.4	41.6	32.0
University degree	33.0	52.0	34.9
Occupation group			
Managers	39.1	44.0	30.3
Professionals	31.7	54.2	35.6
Technical / Trades	49.1	34.1	27.2
Marketing / Sales	55.7	20.8	28.3
Clerical / Administrative	46.1	32.2	33.8
Production workers with no trade/certification	56.1	22.6	30.4
Industry			
Forestry, mining, oil and gas extraction	40.3	42.5	29.2
Primary product manufacturing	48.5	35.3	29.0
Secondary product manufacturing	45.6	36.1	32.4
Labour intensive tertiary manufacturing	60.6	23.8	23.5
Capital intensive tertiary manufacturing	38.3	42.4	36.7
Construction	53.6	29.4	27.7
Transportation, warehousing and wholesale trade	44.3	40.9	27.6
Communication and other utilities	35.0	51.9	30.9
Retail trade and consumer services	54.3	21.6	29.6
Finance and insurance	28.4	56.5	43.7
Real estate, rental and leasing operators	52.5	33.9	19.8
Business services	42.0	42.6	28.0
Education and health services, and non-profit groups	39.3	44.6	31.1
Information and cultural industries	41.3	40.6	32.5
Workplace size			
1-19 employees	55.5	25.7	25.3
20-99 employees	46.7	33.2	32.3
100-499 employees	38.4	45.5	30.9
500 employees or more	33.3	51.6	34.9

1. Rows will not add to 100% since employees can receive both classroom and on-the-job training.

Source: Workplace and Employee Survey, 1999.

Looking more closely at employee participation in formal and informal training, we see that more than half of all employees received some form of training in 1999, with classroom training outpacing on-the-job training (Table 11). The training rate was slightly higher for women than for men. Although the overall training rate is the same for youths and adults, youths tend to receive more on-the-job training, while adults receive more classroom training. Chart 12 highlights the relationship between education and training: the more highly educated receive more training, particularly classroom training, than less-educated workers do. Similarly, managers and professionals receive more classroom training than other occupational groups (Table 11).

The survey also shows that industries with high classroom training rates tend to be those that were previously shown to have high concentrations of computer users. For example, finance and insurance was at the top of both of these lists.

Section 5: Non-standard Work Arrangements

Traditional surveys that look at labour force participation often do not go beyond identifying whether a job is part-time or full-time. Of course, the job market is far more complex than that, and surveys dealing with the time-use practices of individuals point increasingly to a perception of "time crunch". With WES, these complexities, and the working world's response to time pressures faced by employees, can be explored.

Table 12 highlights differences in work arrangements related to individual and workplace characteristics. While WES reproduces the standard result that part-time employment is concentrated among women, youths and salespeople, it adds new information on such "non-standard arrangements" as reduced work weeks, compressed work weeks, flexible hours and weekend work. Overall, four in ten workers have some flexibility in their hours of work and one-quarter work weekends. Despite the fact that other surveys have found that the burden of family-work conflicts fall mainly on women, WES results show that more men than women reported flexible working hours. Women's higher incidence of weekend work is undoubtedly linked to their greater concentration in part-time jobs. The availability of flexible hours also increased with education. And while the university educated had the greatest incidence of flexible hours, they seldom had regularly scheduled weekend work hours.

Reduced and compressed work weeks were not widespread work arrangements, each being reported by fewer than one in 20 workers.⁶ The groups with the highest incidence of reduced work weeks were: youths (11%), marketing/salespersons (9%) and retail trade / consumer services workers (8%).

Table 12. Work Schedule

Over half of managers worked flexible hours, and nearly half of workers in the retail/consumer industry usually worked weekends.

Category	% of employees who usually work:					
	Full-time	Part-time ¹	Reduced work week	Compressed work week	Flexible hours	Saturdays or Sundays
Overall	83.3	16.7	4.9	2.9	39.7	24.9
Gender						
Men	91.3	8.7	3.4	3.6	43.4	21.4
Women	75.9	24.1	6.2	2.3	36.3	28.2
Age						
less than 25 years	62.3	37.7	10.9	* 2.9	43.9	54.0
25 to 44 years	87.5	12.5	4.0	3.0	40.2	21.6
45 or more years	83.0	17.0	4.3	2.8	37.6	21.3

⁶ The incidence of reduced and compressed work weeks may be underestimated for the 1999 data due to the structure of the questionnaire. Respondents were asked if they worked Monday to Friday, at least six hours per day, between the hours of 6 a.m. to 6 p.m. Those answering yes to all of these skipped the questions about compressed and reduced work weeks. However, someone could meet these criteria but still be working a modified work week such as a 32 hour week.

Table 12. Work Schedule (continued)

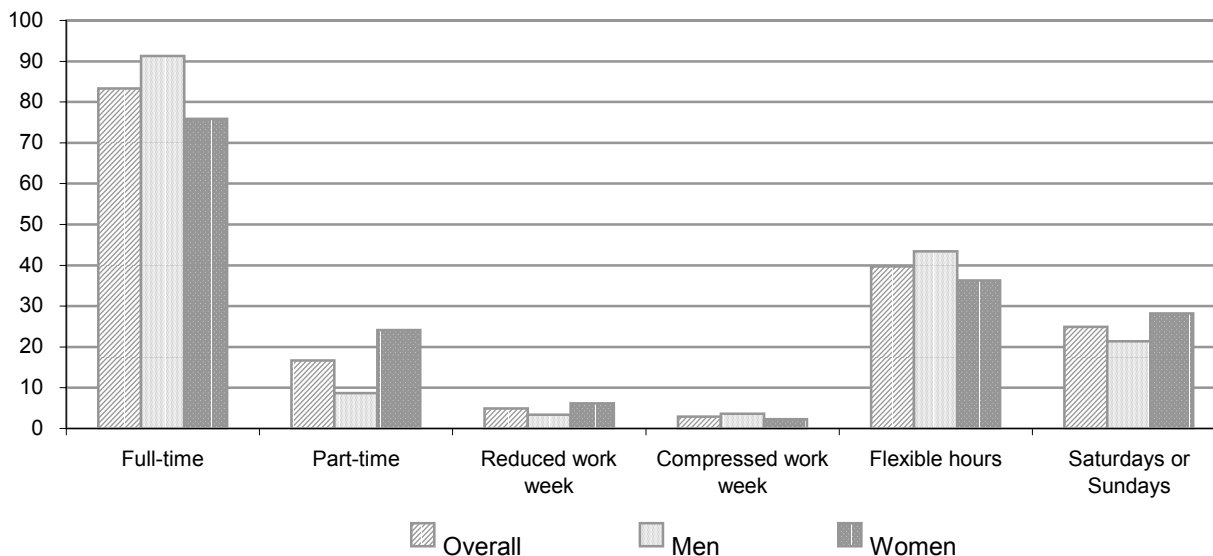
Category	% of employees who usually work:					
	Full-time	Part-time	Reduced work week	Compressed work week	Flexible hours	Saturdays or Sundays
Educational attainment						
Some secondary or less	76.9	23.1	3.4	2.5	36.7	31.0
Secondary school diploma	84.3	15.7	5.4	3.1	36.6	28.8
Non-university post-secondary education	84.5	15.5	5.2	3.6	39.1	24.4
Some university	79.7	20.3	6.7	3.5	40.8	28.6
University degree	85.5	14.5	3.5	1.4	45.9	16.2
Occupation group						
Managers	95.5	..	..	..	53.3	16.9
Professionals	80.8	19.2	4.7	3.4	44.6	18.6
Technical / Trades	88.6	11.5	4.7	4.2	36.2	23.7
Marketing / Sales	50.1	49.9	9.4	1.8	43.5	66.5
Clerical / Administrative	82.5	17.5	6.2	1.2	29.5	12.5
Production workers with no trade/certification	74.6	25.4	6.0	3.3	34.8	38.0
Industry						
Forestry, mining, oil and gas extraction	96.4	3.6	..	7.3	43.4	19.7
Primary product manufacturing	98.2	* 1.8	* 1.3	7.4	27.6	19.7
Secondary product manufacturing	98.2	* 1.8		5.3	29.5	* 17.2
Labour intensive tertiary manufacturing	95.9	* 4.1	..	* 3.7	28.6	12.8
Capital intensive tertiary manufacturing	97.8	2.2	1.9	1.6	34.4	5.2
Construction	95.6	4.4	* 1.9	* 1.3	49.5	7.5
Transportation, warehousing and wholesale trade	93.2	6.8	* 2.6	2.1	39.6	14.9
Communication and other utilities	95.1	4.9	..	6.5	32.9	8.7
Retail trade and consumer services	70.1	29.9	7.9	* 2.6	45.0	49.5
Finance and insurance	88.3	11.7	5.5	..	31.5	8.1
Real estate, rental and leasing operators	78.3	21.7	* 2.4	..	47.6	28.1
Business services	89.1	10.9	4.0	* 1.3	50.4	14.9
Education and health services, non-profit groups	73.4	26.6	6.1	3.3	36.1	25.9
Information and cultural industries	89.4	10.6	2.3	..	43.3	19.5
Workplace size						
1-19 employees	79.5	20.5	6.5	1.8	44.5	26.2
20-99 employees	85.8	14.2	5.0	2.3	39.9	25.8
100-499 employees	87.8	12.2	3.4	3.7	36.4	23.4
500 employees or more	81.2	18.8	3.3	5.0	34.5	22.9

1. Part-time work is defined as 30 hours or less per week.

Source: WES, 1999.

Chart 13. Work schedule

Caption: More men than women reported flexible working hours.



On an industry basis, non-standard work arrangements were much more prevalent in the service-producing than in the goods-producing industries. The only notable exception was for flex-hours arrangements. The survey also showed that the proportion of employees in non-standard work schedules declined with the size of the workplace for all types of work arrangements except those working on a compressed work week.

Just over a quarter of employees reported working at home on a regular basis in 1999, mostly in the form of unpaid overtime (Table 13). Only one in 20 employees worked regularly scheduled, paid hours in their own homes, while an additional 3% were paid for overtime worked at home. Fully 18% of the workforce brought unpaid “catch-up” work home with them. This unpaid overtime was concentrated among more highly educated workers and the corresponding managerial and professional occupations.

Chart 14. Work at home

Caption: Unpaid work at home was reported at more than twice the rate of paid work at home.

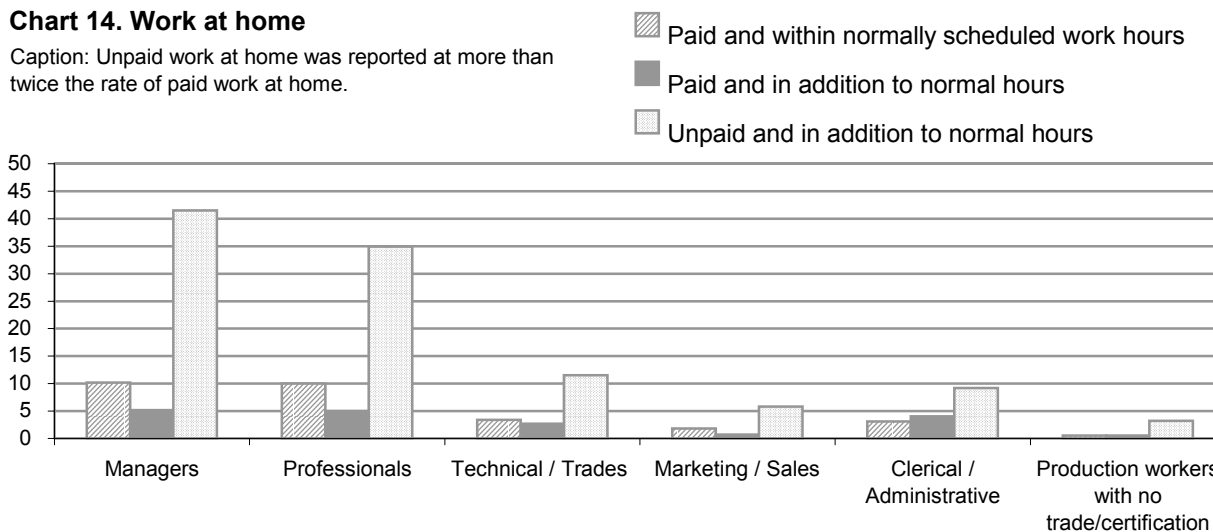


Table 13. Work at Home

Unpaid work at home was reported at more than twice the rate of paid work at home.

Employee characteristic	% of employees			
	Doing some work at home:			Never working at home
	Type of work at home			
	Paid and within normally scheduled work hours	Paid and in addition to normal hours	Unpaid and in addition to normal hours	
Overall	5.1	3.3	18.4	73.2
Gender				
Men	5.2	3.7	20.0	71.2
Women	5.0	3.0	17.1	75.0
Age				
less than 25 years	1.5	1.5	5.2	91.8
25 to 44 years	5.3	3.5	20.2	70.9
45 or more years	5.9	3.5	19.6	70.9
Educational attainment				
Some secondary or less	1.7	1.0	6.4	90.9
Secondary school diploma	4.1	3.1	14.1	78.7
Non-university post-secondary education	4.0	3.6	13.8	78.6
Some university	6.1	3.9	24.0	66.0
University degree	10.2	4.1	37.0	48.7
Occupation group				
Managers	10.2	* 5.2	41.5	43.2
Professionals	10.0	5.0	34.9	50.1
Technical / Trades	3.4	2.7	11.5	82.3
Marketing / Sales	..	..	5.8	91.7
Clerical / Administrative	3.1	4.0	9.2	83.7
Production workers with no trade/certification	0.5	..	3.2	95.8
Industry				
Forestry, mining, oil and gas extraction	3.1	..	17.3	78.6
Primary product manufacturing	2.7	* 1.7	12.0	83.6
Secondary product manufacturing	* 2.4	* 1.9	* 15.9	79.8
Labour intensive tertiary manufacturing	2.9	* 1.6	8.7	86.9
Capital intensive tertiary manufacturing	3.6	* 3.1	13.6	79.7
Construction	6.4	..	14.5	72.6
Transportation, warehousing and wholesale trade	6.9	3.7	19.4	70.0
Communication and utilities	..	* 3.9	19.9	72.8
Retail trade and consumer services	* 2.1	..	10.6	84.0
Finance and insurance	* 7.4	* 2.3	22.5	67.8
Real estate, rental and leasing operators	..	..	17.1	69.1
Business services	9.3	4.4	23.7	62.6
Education and health services, and non-profit groups	6.6	3.0	28.3	62.2
Information and cultural industries	8.0	4.2	26.7	64.2

Table 13. Work at Home (continued)

Employee characteristic	% of employees			
	Doing some work at home:			Never working at home
	Type of work at home			
	Paid and within normally scheduled work hours	Paid and in addition to normal hours	Unpaid and in addition to normal hours	
Workplace size				
1-19 employees	6.0	4.0	14.3	75.7
20-99 employees	5.0	3.5	17.5	74.1
100-499 employees	4.2	2.4	18.7	74.7
500 employees or more	4.8	2.7	26.5	65.9

Source: Workplace and Employee Survey, 1999.

In terms of workplace characteristics, unpaid home work was most prevalent in several service sector industries: Education and health services, and non-profit groups (28%); information and cultural industries (27%); Business services (23%); and, Finance and insurance (23%), as well as in workplaces with greater than 500 employees (27%).

Section 6: Employee Outcomes

As revenues and profits paint a picture of outcomes for employers, so do wages and non-wage benefits for workers. This section looks at the distribution of these measures for employees, and also looks at employees' perceptions of satisfaction with their job, and with their pay.

Table 14 depicts that higher wage rates are associated with men, older workers, the university educated, and professional workers. Younger employees tended to be paid less than older employees, a fact that can probably be attributed to their shorter length of service. Education does play a significant role in the wage distribution as the university graduates receive more pay. The higher wage rate sectors include forestry, mining, oil and gas extraction; information and cultural industries, as well as communication and other utilities -- as opposed to retail trade and consumer services, and labour intensive tertiary manufacturing.

Workplace size also plays a major role with the percentage of employees in the lower wage bracket dropping down as size increases. Conversely, the percentages of workers in the highest bracket increase with size.

Table 14. Hourly earnings

Primary industries had the highest estimated hourly wage.

Category	% of employees by earnings category			Mean hourly wage
	less than \$12.00	\$12.00–\$19.99	\$20.00 and above	
Overall	30.4	36.6	33.0	\$ 19.04
Gender				
Men	23.0	35.6	41.4	\$ 21.09
Women	37.1	37.5	25.3	\$ 17.16
Age				
less than 25 years	72.9	17.9	9.2	\$ 13.13
25 to 44 years	25.6	41.7	32.7	\$ 19.01
45 or more years	24.7	34.2	41.1	\$ 20.94

Table 14. Hourly earnings (continued)

Category	% of employees by earnings category			Average hourly earnings
	< \$12.00	\$12.00–\$19.99	\$20.00+	
Work experience				
less than 2 years	63.1	21.2	15.7	\$ 15.33
2 to less than 5 years	51.1	35.4	13.5	\$ 14.29
5 to less than 10 years	34.3	38.9	26.9	\$ 17.07
10 to less than 20 years	26.8	41.2	32.0	\$ 18.84
20 or more years	19.6	35.8	44.6	\$ 21.88
Educational attainment				
Some secondary or less	49.0	34.1	16.9	\$ 14.19
Secondary school diploma	38.0	38.8	23.1	\$ 16.42
Non-university post-secondary education	30.0	40.7	29.3	\$ 18.20
Some university	28.2	40.3	31.5	\$ 19.41
University degree	11.8	26.0	62.2	\$ 26.46

Occupation group				
Managers	18.2	32.1	49.7	\$ 25.12
Professionals	6.9	29.2	64.0	\$ 25.52
Technical / Trades	29.6	41.9	28.5	\$ 17.55
Marketing / Sales	75.3	14.6	10.1	\$ 13.05
Clerical / Administrative	35.2	51.2	13.6	\$ 14.70
Production workers with no trade/certification	50.1	31.7	18.2	\$ 15.24
Industry				
Forestry, mining, oil and gas extraction	6.5	30.5	63.0	\$ 26.45
Primary product manufacturing	13.2	34.3	52.5	\$ 21.24
Secondary product manufacturing	18.9	51.4	29.7	\$ 19.03
Labour intensive tertiary manufacturing	42.8	39.9	17.3	\$ 15.31
Capital intensive tertiary manufacturing	12.8	35.4	51.8	\$ 21.91
Construction	15.2	37.5	47.3	\$ 21.74
Transportation, warehousing and wholesale trade	21.7	45.6	32.7	\$ 20.03
Communication and other utilities	11.9	35.0	53.1	\$ 23.81
Retail trade and consumer services	63.8	25.2	10.9	\$ 13.40
Finance and insurance	14.5	53.2	32.3	\$ 20.39
Real estate, rental and leasing operators	33.9	29.8	36.3	\$ 20.56
Business services	26.0	35.9	38.2	\$ 20.51
Education and health services, and non-profit groups	17.2	40.6	42.3	\$ 21.25
Information and cultural industries	17.5	34.4	48.1	\$ 23.83
Workplace size				
1-19 employees	43.7	35.9	20.4	\$ 16.47
20-99 employees	35.8	37.7	26.5	\$ 17.18
100-499 employees	21.8	37.9	40.3	\$ 20.84
500 employees or more	7.7	34.9	57.5	\$ 24.52

Table 14. Hourly earnings (continued)

Category	% of employees by earnings category			Average hourly earnings
	< \$12.00	\$12.00–\$19.99	\$20.00+	
Region				
Atlantic	42.7	33.8	23.6	\$ 16.53
Quebec	32.9	37.9	29.1	\$ 17.91
Ontario	25.1	38.0	36.9	\$ 19.96
Manitoba	46.0	32.2	21.9	\$ 15.99
Saskatchewan	38.7	34.4	26.9	\$ 19.29
Alberta	35.0	31.0	34.0	\$ 18.98
British Columbia	25.5	37.5	37.0	\$ 20.42

Source: Workplace and Employee Survey, 1999.

Chart 15. Hourly earnings

Caption: Primary industries had the highest estimated hourly wage.

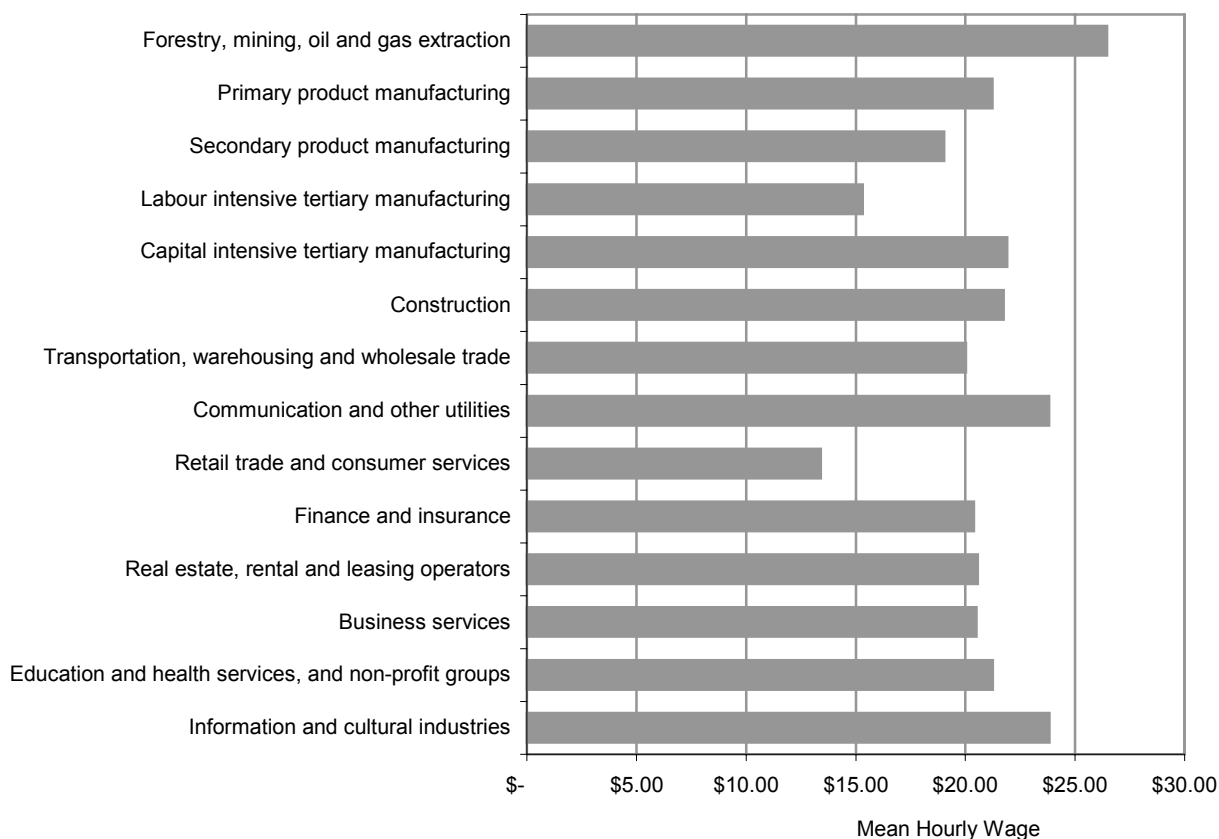


Table 15 covers the non-wage benefits of employees.⁷ The data show that in 1999, life/disability insurance plans, medical and dental plans were the most prevalent form of non-wage benefits, while group RRSP and stock purchase plans were not as widely available. Men were somewhat more likely than women to receive non-wage benefits while youths and part-timers had very low rates of coverage. Not surprisingly, the incidence of non-wage benefits increased with education and wage rates. Looking at occupational groupings, marketing and sales employees were by far the least likely to receive non-wage benefits, while professional workers had the highest rate of coverage.

The access to non-wage benefits varied significantly by industry. While half or more of the employees in retail trade and consumer services (56%), real estate, rental and leasing operators (58%) and construction (50%) received some type of non-wage benefit, coverage exceeded 85% in two industry groups: communication and other utilities and capital intensive tertiary manufacturing. These results are likely related to findings for two other cross-sections: large workplaces were much more likely to provide non-wage benefits than smaller workplaces, and unionized jobs were more likely to receive these benefits than non-union.

⁷ Data is also available from the workplace perspective: for example, 37.6% of workplaces offered non-wage benefits. The share of employees who received these benefits was higher, at 66.1%. The workplace size section of table 15 illustrates how workplaces with more employees were more likely to offer non-wage benefits.

Table 15. Non-Wage Benefits

Youths, those with low earnings, those in marketing/sales occupations and part-time workers were less likely to receive benefits.

Category	% of employees who are included in :						
	Employer-sponsored pension plan	Group RRSP	Life / disability insurance plan	Sup. medical insurance plan	Dental plan	Stock purchase plan	No non-wage benefits
Overall	37.8	17.6	56.2	52.9	51.8	7.3	33.9
Gender							
Men	39.7	20.0	61.9	58.9	57.5	8.2	30.4
Women	36	15.4	51.0	47.3	46.6	6.4	37.2
Age							
less than 25 years	13.0	6.0	21.7	23.8	24.8	2.6	62.3
25 to 44 years	38.5	19.7	60.7	56.9	56.1	8.4	29.6
45 or more years	44.3	17.9	59.7	55.3	53.2	6.8	32.1
Educational attainment							
Some secondary or less	26.0	10.9	40.9	38.6	36.3	2.7	51.5
Secondary school diploma	35.3	16.7	56.0	52.2	51.9	6.9	35.8
Non-university post-secondary education	37.1	18.3	56.3	52.7	51.6	6.7	32.8
Some university	39.8	18.5	53.9	52.6	52.5	10.7	32.7
University degree	48.5	21.3	67.2	63.2	61.9	9.8	23.3
Occupation group							
Managers	38.5	24.3	65.3	64.5	62.8	11.1	26.1
Professionals	57.1	23.8	70.7	65.6	64.4	8.7	18.6
Technical / Trades	35.0	16.4	55.1	50.5	49.4	7.0	36.5
Marketing / Sales	10.8	4.9	21.4	22.4	21.4	* 3.3	64.9
Clerical / Administrative	40.3	17.7	59.8	55.0	54.4	6.6	30.0
Production workers with no trade/certification	35.0	11.4	44.9	43.9	44.6	..	42.1
Employment type							
Full-time	41.6	19.9	62.9	59.5	58.1	8.4	28.3
Part-time	18.9	6.5	23.1	19.8	20.7	1.5	62.0
Hourly earnings							
\$11.99 and below	16.0	6.8	28.3	26.9	26.5	3.0	59.4
\$12.00 - \$19.99	38.8	18.5	62.6	58.2	56.3	6.8	27.6
\$20.00 and above	56.7	26.5	74.8	70.8	70.2	11.7	17.6

Table 15. Non-Wage Benefits (continued)

Category	% of employees who are included in :						
	Employer-sponsored pension plan	Group RRSP	Life / disability insurance plan	Sup. medical insurance plan	Dental plan	Stock purchase plan	No non-wage benefits
Tenure (years at this particular job)							
less than 1 year	28.8	13.1	46.5	43.6	44.6	8.0	42.6
1 to less than 5 years	33.9	17.8	54.0	52.6	51.3	7.1	35.8
5 to less than 10 years	41.9	19.1	59.0	54.8	54.3	6.9	31.6
10 to less than 20 years	46.7	19.7	65.0	58.3	56.4	6.8	26.0
20 or more years	58.9	20.9	71.6	64.1	59.1	8.2	20.5
Union status							
Not covered by a collective bargaining agreement	27.7	17.5	50.0	47.7	46.1	8.0	40.9
Covered by a collective	66.1	17.9	73.5	67.4	68.0	5.1	14.5

bargaining agreement							
Industry							
Forestry, mining, oil and gas extraction	49.5	31.7	67.3	65.2	64.6	23.8	27.6
Primary product manufacturing	59.9	29.5	78.3	74.3	72.0	12.6	16.1
Secondary product manufacturing	43.4	28.8	78.0	73.9	72.5	7.0	18.2
Labour intensive tertiary manufacturing	34.8	15.5	56.1	52.2	49.4	6.0	37.4
Capital intensive tertiary manufacturing	51.6	28.9	79.8	75.9	78.5	13.5	14.0
Construction	22.1	14.1	42.7	41.8	38.0	* 2.6	49.7
Transportation, warehousing and wholesale trade	33.7	23.5	64.8	61.1	58.3	8.5	28.2
Communication and other utilities	70.4	18.1	82.7	74.4	77.4	7.5	12.9
Retail trade and consumer services	14.4	8.8	32.4	31.5	30.3	5.4	55.7
Finance and insurance	61.1	27.3	76.1	72.6	70.5	13.7	15.3
Real estate, rental and leasing operators	19.4	6.8	31.7	32.9	32.6	* 1.9	57.6
Business services	25.3	19.8	53.8	49.1	49.6	11.1	38.3
Education and health services, non-profit groups	57.7	15.0	61.4	56.0	55.0	* 1.6	24.1
Information and cultural industries	44.1	23.0	67.3	65.1	66.5	20.5	22.6
Workplace size							
1-19 employees	13.4	8.7	33.8	31.3	30.6	4.1	58.0
20-99 employees	31.3	18.9	56.6	55.0	53.2	7.2	33.1
100-499 employees	53.8	27.5	72.7	68.7	68.3	11.6	16.1
500 employees or more	73.6	21.3	77.4	70.5	69.6	8.3	11.9

Table 15. Non-Wage Benefits (continued)

Category	% of employees who are included in :						
	Employer-sponsored pension plan	Group RRSP	Life / disability insurance plan	Sup. medical insurance plan	Dental plan	Stock purchase plan	No non-wage benefits
Region							
Atlantic	40.2	11.9	53.4	47.8	45.7	6.0	36.8
Quebec	35.7	16.2	51.5	45.5	37.4	4.6	41.8
Ontario	40.0	20.0	61.3	59.6	59.1	8.7	28.2
Manitoba	44.1	18.4	56.4	45.2	50.5	* 7.5	29.4
Saskatchewan	44.8	16.7	60.5	44.3	58.7	* 5.1	34.0
Alberta	31.1	19.2	53.0	51.8	54.7	9.7	37.2
British Columbia	35.3	14.4	51.8	52.7	55.3	7.0	34.8

Source: Workplace and Employee Survey, 1999.

Overall, WES indicates that nine in ten employees were either satisfied or very satisfied with their job (Table 16). However, the level of satisfaction fell to 74% when discussing pay. Women and youths tended to be a little less satisfied with their level of pay.

Managers were most likely to be very satisfied with their jobs (44%), contrasting the 28% of production workers who were very satisfied with their jobs. Employees who had higher levels of pay also had higher

levels of satisfaction with their jobs ranging from 29% at the low end of the pay spectrum to 43% of the workers at the upper end of the pay scale.

Chart 16. Job and pay satisfaction

Caption: The bars are the combined percentage of those reporting "very satisfied" and "satisfied". Symbols indicate the percentages reporting "very satisfied".

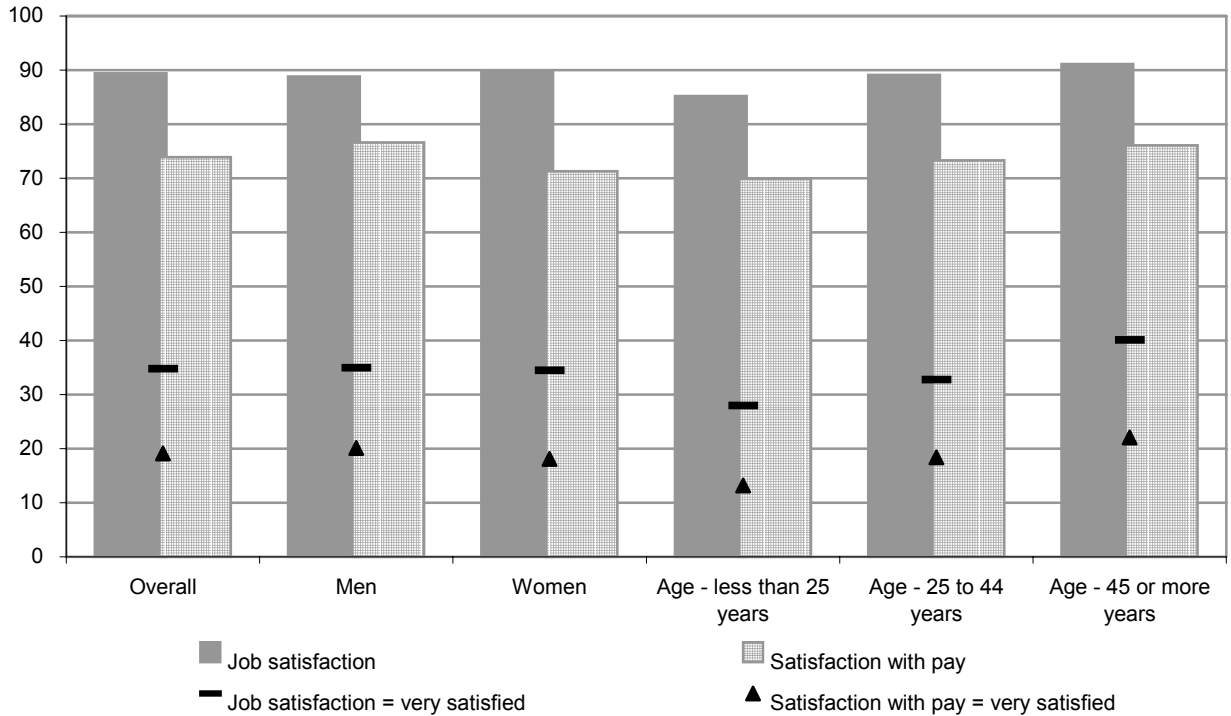


Table 16. Job and pay satisfaction

Employees more satisfied with their jobs than with their pay.

Category	% of employees					
	Job satisfaction			Satisfaction with pay		
	Very satisfied	Satisfied	Not satisfied / No opinion	Very satisfied	Satisfied	Not satisfied / No opinion
Overall	34.8	54.6	10.7	19.1	54.8	26.2
Gender						
Men	35.0	53.8	11.2	20.1	56.5	23.4
Women	34.5	55.3	10.2	18.1	53.2	28.7
Age						
less than 25 years	28.0	57.2	14.8	13.2	56.7	30.2
25 to 44 years	32.8	56.3	10.9	18.4	54.9	26.7
45 or more years	40.1	51.0	9.0	22.1	54.0	24.0

Educational attainment						
Some secondary or less	33.7	56.7	9.6	19.4	56.6	24.0
Secondary school diploma	36.1	53.2	10.7	18.7	56.5	24.8
Non-university post-secondary education	34.6	55.2	10.2	18.5	55.4	26.1
Some university	33.0	53.9	13.1	20.5	51.7	27.8
University degree	35.2	53.8	11.0	19.7	53.2	28.2
Occupation group						
Managers	43.5	47.1	9.4	25.9	51.9	22.1
Professionals	36.4	53.6	10.0	17.6	54.9	27.6
Technical / Trades	32.6	56.4	11.0	17.1	56.4	26.5
Marketing / Sales	31.8	56.2	12.1	14.8	55.6	29.6
Clerical / Administrative	35.0	54.9	10.1	20.3	53.8	25.9
Production workers with no trade/certification	27.5	60.3	12.2	20.9	53.0	26.1
Hourly earnings						
\$11.99 and below	28.9	57.7	13.4	12.9	53.9	33.2
\$12.00 - \$19.99	32.6	57.1	10.3	17.5	56.0	26.5
\$20.00 and above	42.5	48.9	8.6	26.5	54.2	19.3

Source: Workplace and Employee Survey, 1999.

Appendix A: Concepts and Methods

OBJECTIVES

The Workplace and Employee Survey (WES) is designed to explore a broad range of issues relating to employers and their employees. The survey aims to shed light on the relationships among competitiveness, innovation, technology use and human resource management on the employer side and technology use, training, job stability and earnings on the employee side.

The survey is unique in that employers and employees are linked at the micro data level; employees are selected from within sampled workplaces. Thus, information from both the supply and demand sides of the labour market is available to enrich studies on either side of the market.

SAMPLE SIZES AND RESPONSE RATES

WES was conducted for the first time during the summer (employer survey part) and fall of 1999 (employee survey part). Just over 6,350 workplaces and about 24,600 employees responded to the survey, representing response rates of 94% and 83%, respectively. The employer sample is longitudinal – the sampled locations will be followed over time, with the periodic addition of samples of new locations to maintain a representative cross section. Employees will be followed for two years only, due to the difficulty of integrating new employers into the location sample as workers change companies. As such, fresh samples of employees will be drawn on every second survey occasion (i.e. first, third, fifth). This longitudinal aspect will allow researchers to study both employer and employee outcomes over time in the evolving workplace.

Appendix Table 1. Sample Sizes and Estimated Populations

Industry / Workplace size / Region	Workplaces		Employees	
	Number of respondents	Estimated population	Number of respondents	Estimated population
Overall	6,351	735,911	24,597	10,777,543
Industry				
Forestry, mining, oil and gas extraction	313	13,359	1,193	190,453
Labour intensive tertiary manufacturing	406	20,584	1,620	497,409
Primary product manufacturing	318	7,648	1,434	392,872
Secondary product manufacturing	292	11,762	1,191	371,888
Capital intensive tertiary manufacturing	359	17,059	1,469	585,253
Construction	607	54,659	2,095	419,373
Transportation, warehousing and wholesale trade	706	84,820	2,877	1,114,182
Communication and other utilities	413	9,712	1,376	243,601
Retail trade and consumer services	515	249,409	1,864	2,596,439
Finance and insurance	498	34,153	1,893	512,159
Real estate, rental and leasing operations	364	24,429	1,143	189,303
Business services	467	83,245	1,830	1,006,460
Education and health services, and non-profit groups	751	109,404	3,193	2,340,519
Information and cultural industries	342	15,669	1,419	317,632

Appendix Table 1. Sample Sizes and Estimated Populations (continued)

Industry / Workplace size / Region	Workplaces		Employees	
	Number of respondents	Estimated population	Number of respondents	Estimated population
Workplace size				
1-19 employees	2,872	640,077	6,154	3,471,168
20-99 employees	1,743	83,412	8,356	3,260,557
100-499 employees	1,249	10,735	6,810	1,960,109
500 employees or more	487	1,687	3,277	2,085,708
Region				
Atlantic	777	63,152	3,003	709,303
Quebec	1,432	153,277	5,745	2,560,682
Ontario	1,626	276,920	6,187	4,352,265
Manitoba	423	27,888	1,641	402,138
Saskatchewan	329	29,333	1,217	322,333
Alberta	839	80,063	3,183	1,076,019
British Columbia	925	105,279	3,621	1,354,803

Appendix Table 2. Response Rates

Category	Workplace response rate (%)	Employee response rate (%)
Overall	94.0	83.1
Industry		
Forestry, mining, oil and gas extraction	97.0	87.1
Labour intensive tertiary manufacturing	91.0	81.3
Primary product manufacturing	95.3	85.7
Secondary product manufacturing	94.7	85.7
Capital intensive tertiary manufacturing	94.5	84.4
Construction	94.3	83.8
Transportation, warehousing and wholesale trade	92.6	84.5
Communication and other utilities	98.0	82.9
Retail trade and consumer services	93.3	82.2
Finance and insurance	96.5	87.5
Real estate, rental and leasing operations	97.3	87.8
Business services	94.2	85.7
Education and health services, and non-profit groups	96.8	86.5
Information and cultural industries	98.1	87.9
Workplace size		
1-19 employees	96.9	85.0
20-99 employees	95.1	86.8
100-499 employees	92.4	85.0
500 employees or more	93.4	81.6
Region		
Atlantic	96.3	88.8
Quebec	92.4	82.5
Ontario	95.6	84.2
Manitoba	96.4	87.7
Saskatchewan	96.7	86.3
Alberta	94.9	85.0
British Columbia	96.2	85.1

Source: Workplace and Employee Survey, 1999.

Target population

The target population for the employer component is defined as all business locations operating in Canada that have paid employees, with the following exceptions:

- a) Employers in Yukon and Northwest Territories
- b) Employers operating in crop production and animal production; fishing, hunting and trapping; private households and public administration.

The target population for the employee component is all employees working in the selected workplaces who receive a Customs Canada and Revenue Agency T-4 Supplementary form. If a person receives a T-4 slip from two different workplaces, then the person will be counted as two employees on the WES frame.

Survey Population

The survey population is the collection of all units for which the survey can realistically provide information. The survey population may differ from the target population due to operational difficulties in identifying all the units that belong to the target population.

WES draws its sample from the Business Register (BR) maintained by the Business Register Division of Statistics Canada, and from lists of employees provided by the surveyed employers.

The Business Register is a list of all businesses in Canada, and is updated each month using data from various surveys, profiling of businesses and administrative sources.

REFERENCE PERIOD

The reference period for WES is mainly the 12-month period ending March 1999. Some questions in the workplace portion covered the last pay period ending before March 1999.

SAMPLE DESIGN

The survey frame is a list of all units that carries contact and classification (e.g., industrial classification) information on the units. This list is used for sample design and selection; ultimately, it provides contact information for the selected units.

i) Workplace Survey

The survey frame for the Workplace component of WES was created from the information available on the Statistics Canada Business Register.

Prior to sample selection, the business locations on the frame were stratified into relatively homogeneous groups called *strata*, which were then used for sample allocation and selection. The WES frame was stratified by industry (14), region (6), and size (3), which was defined using estimated employment. The size stratum boundaries were typically different for each industry/region combination. The cut-off points defining a particular size stratum were computed using a model-based approach. The sample was selected using Neyman allocation. This process generated 252 strata with 9,144 sampled business locations.

All sampled units were assigned a sampling weight (a raising factor attached to each sampled unit to obtain estimates for the population from a sample). For example, if two units were selected at random

and with equal probability out of a population of ten units, then each selected unit would represent five units in the population, and it would have a sampling weight of five.

The inaugural WES survey collected data from 6,351 out of the 9,144 sampled employers. The remaining employers were a combination of workplaces determined to be either out-of-business, seasonally inactive, holding companies, or out-of-scope. The majority of non-respondents were owner-operators with no paid help and in possession of a payroll deduction account.

ii) Employee Survey

The frame for the employee component of WES was based on lists of employees made available to interviewers by the selected workplaces. A maximum of twelve employees was sampled using a probability mechanism. In workplaces with fewer than four employees, all employees were selected.

Data Collection

Data collection, data capture, preliminary editing and follow-up of non-respondents were all done in Statistics Canada Regional Offices. Interviewers in person collected the workplace survey data. The workplace questionnaire covered a wide range of topics. For about 20% of the surveyed units (mostly large workplaces), more than one respondent was required to complete the questionnaire. For the employee component, telephone interviews were conducted with persons who had agreed to participate in the survey by filling out and mailing in an employee participation form.

Statistical Edit and Imputation

Following collection, all data were analyzed extensively. Extreme values were listed for manual inspection in order of priority determined by the size of the deviation from average behaviour and the size of their contribution to the overall estimate.

Respondents who opted not to participate in the survey – *total non-response* – were removed and the weights of the remaining units were adjusted upward to preserve the representativity of the sample. For respondents who did not provide all required fields – *item non-response* – a statistical technique called *imputation* was used to fill in the missing values for both employers and employees. The particular method that was selected for this purpose, *weighted hot-deck*, is based on first identifying respondents at a certain level called *imputation class*, and then from within the imputation class a donor is selected using a probability mechanism. The donor's value is then transferred to the missing field of the non-respondent.

The WES components were treated independently even if some questions on the employee questionnaire could have been imputed from the related workplace questionnaire.

Estimation

The reported (or imputed) values for each workplace and employee in the sample are multiplied by the weight for that workplace or employee; these weighted values are summed up to produce estimates. An initial weight equal to the inverse of the original probability of selection is assigned to each unit. To calculate variance estimates, the initial survey weights are adjusted to force the estimated totals in each industry/region group to agree with the known population totals. These adjusted weights are then used in forming estimates of means or totals of variables collected by the survey.

Variables for which population totals are known are called auxiliary variables. They are used to calibrate survey estimates to increase their precision. Each business location is calibrated to known population totals at the industry/region level. The auxiliary variable used for WES is total employment obtained from the Survey of Employment, Payrolls and Hours.

Estimates are computed for many domains of interest such as industry and region.

DATA QUALITY

Any survey is subject to errors. While considerable effort is made to ensure a high standard throughout all survey operations, the resulting estimates are inevitably subject to a certain degree of error. Errors can arise due to the use of a sample instead of a complete census, from mistakes made by respondents or interviewers during the collection of data, from errors made in keying in the data, from imputation of a consistent but not necessarily correct value, or from other sources.

Sampling Errors

The true sampling error is unknown; however, it can be estimated from the sample itself by using a statistical measure called the *standard error*. When the standard error is expressed as a percent of the estimate, it is known as the relative standard error or *coefficient of variation*.

Non-Sampling Errors

Some non-sampling errors will cancel out over many observations, but systematically occurring errors (i.e. those that do not tend to cancel) will contribute to a bias in the estimates. For example, if respondents consistently tend to underestimate their sales, then the resulting estimate of the total sales will be below the true population total. Such a bias is not reflected in the estimates of standard error. As the sample size increases, the sampling error decreases. However, this is not necessarily true for the non-sampling error.

Coverage Errors

Coverage errors arise when the survey frame does not adequately cover the target population. As a result, certain units belonging to the target population are either excluded (under-coverage), or counted more than once (over-coverage). In addition, out-of-scope units may be present on the survey frame (over-coverage).

Response Errors

Response errors occur when a respondent provides incorrect information due to misinterpretation of the survey questions or lack of correct information, gives wrong information by mistake, or is reluctant to disclose the correct information. Gross response errors are likely to be caught during editing, but others may simply go through undetected.

Non-response Errors

Non-response errors can occur when a respondent does not respond at all (total non-response) or responds only to some questions (partial non-response). These errors can have a serious impact on estimates if the non-respondents are systematically different from the respondents in survey characteristics and/or the non-response rate is high.

Processing Errors

Errors that occur during the processing of data represent another component of the non-sampling error. Processing errors can arise during data capture, coding, editing, imputation, outlier treatment and other types of data handling. A coding error occurs when a field is coded erroneously because of misinterpretation of coding procedures or bad judgement. A data capture error occurs when data are misinterpreted or keyed in incorrectly.

Joint Interpretation of Measures of Error

The measure of non-response error and the coefficient of variation must be considered jointly to assess the quality of the estimates. The lower the coefficient of variation and the higher the response fraction, the better will be the published estimate.

Confidentiality

The information presented in this publication has been reviewed to ensure that the confidentiality of individual responses is respected. Any estimate that could reveal the identity of a specific respondent is declared confidential, and consequently not published.

Response/Non-response

a) Response rate: includes all units, which responded by providing "usable information" during the collection phase.

b) Refusal rate: includes those units, which were contacted but refused to participate in the survey.

Appendix B: Industry Definitions

WES industry codes	Industry descriptions	3-digit North American Industry Classification System (NAICS)
01	Forestry, mining, oil and gas extraction	113, 115, 211, 212, 213
02	Labour intensive tertiary manufacturing	311, 312, 313, 314, 315, 316, 337, 339
03	Primary product manufacturing	321, 322, 324, 327, 331
04	Secondary product manufacturing	325, 326, 332
05	Capital intensive tertiary manufacturing	323, 333, 334, 335, 336
06	Construction	231, 232
07	Transportation, warehousing and wholesale trade	411, 412, 413, 414, 415, 416, 417, 418, 419, 481, 482, 483, 484, 485, 486, 487, 488, 493
08	Communication and other utilities	221, 491, 492, 562
09	Retail trade and consumer services	441, 442, 443, 444, 445, 446, 447, 448, 451, 452, 453, 454, 713, 721, 722, 811, 812
10	Finance and insurance	521, 522, 523, 524, 526
11	Real estate, rental, leasing operations	531, 532
12	Business services	533, 541, 551, 561
13	Education and health services	611, 621, 622, 623, 624, 813
14	Information and cultural industries	511, 512, 513, 514, 711, 712

Industrial activities excluded from WES	3-digit North American Industry Classification System (NAICS)
Crop production / animal production	111, 112
Fishing, hunting and trapping	114
Private households	814
Federal government public administration	911
Provincial and territorial public administration	912
Local, municipal and regional public administration	913
Aboriginal public administration	914
International and other extra-territorial public administration	919