

Professional, scientific and technical services: then and now

Employment in professional, scientific and technical services has boomed in the last few decades. Growth in this sector has been much faster than the Quebec average, all sectors combined. The increase in the number of workers comes, in particular, because the nature of economic activities has become more complex. At the same time, Quebec labour has responded to employers' call. The outlook for professional, scientific and technical services is fairly good, although hiring will not match the pace seen in the last few years. Economic growth will not be as lively and employment growth will, among other things, be tied to a capacity to export Quebec expertise to meet the surge in foreign demand. However, keeping up will take a pool of skilled, competent, versatile workers.

AN APPRECIABLE INCREASE

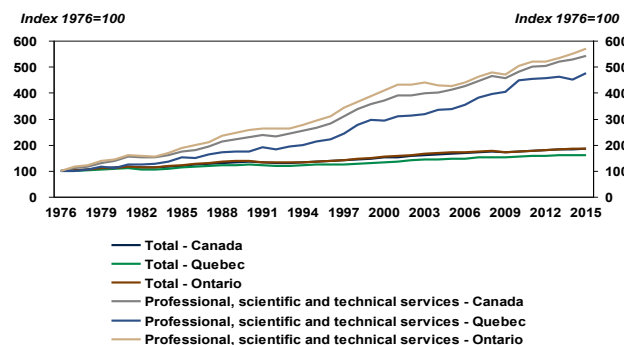
Professional, scientific and technical services (PSTS) include workers in legal and accounting services, architecture, engineering, design, computer system design, management, scientific and technical consulting, scientific research and development, advertising, public relations, market research, opinion polls, photography, translation, and even veterinary services.

This is a very wide range of activities. However, one of the common denominators is the high level of education required for employment. Note that this broad group does not include health professionals; they are included in the large "Health care and social assistance" group, according to Statistics Canada's classification.

In 2015, there were 315,700¹ jobs in this sector, or 7.7% of Quebec jobs, many more than there were in 1976 (the first year the figure is available) and 2000; then, the percentages were 2.6% and 5.7% respectively. This means that employment in the sector grew 376% between 1976 and 2015! In other words, in 2015, there were nearly five times more workers in this sector than there were in 1976 (66,300). Growth is much faster than growth by total employment in Quebec, which advanced 61.1% during this period (graph 1).

¹Statistics Canada, *Labour Force Survey*

Graph 1 – Employment in PSTS* grows faster than overall employment



* PSTS: Professional, scientific and technical services
Sources: Statistics Canada, Labour Force Survey, Tab_282_0008 and Desjardins, Economic Studies

The growth in PSTS may seem lightning fast, but a look at Canada and Ontario shows that this phenomenon is not exclusive to Quebec. Between 1976 and 2015, the number of jobs in PSTS increased 440.1% in Canada as a whole, and 468.8% in Ontario, even faster than in Quebec. However, Quebec does better since 2000 (table 1 on page 2). Growth in PSTS stands at 61.8%, whereas it is 46.0% for Canada and 39.0% in Ontario. The same applies when we do the comparison by calculating three-year averages (2000-2002 and 2013-2015).

François Dupuis
Vice-President and Chief Economist

Joëlle Noreau
Senior Economist

418-835-2450 or 1 866 835-8444, ext. 5562450
E-mail: desjardins.economics@desjardins.com

Table 1 – Employment growth from 2000 to 2015

		Number (in thousands)		
		2000	2015	% change
Total employment	Canada	14,760.1	17,946.6	21.6
	Quebec	3,401.5	4,097.0	20.4
	Ontario	5,814.9	6,923.2	19.1
PSTS*	Canada	935.7	1,365.8	46.0
	Quebec	195.1	315.7	61.8
	Ontario	416.9	579.6	39.0
		3-year average		
		Number (in thousands)		
		2000-2002	2013-2015	% change
PSTS*	Canada	970.0	1,336.7	37.8
	Quebec	202.2	307.1	51.9
	Ontario	431.3	560.7	30.0

* Professional, scientific and technical services
Sources: Statistics Canada and Desjardins, Economics Studies

FULL-TIME WORK

The proportion of full-time work in PSTS was 86.6% in 2015, down from 1976 (92.3%) and 2000 (88.5%). However, proportionately speaking, full-time workers are above the Quebec average. A look at the history shows that the proportion of all Quebec jobs fell from 91.0% in 1976 to 83.2% in 2000, and then to 80.3% in 2015. At 86.6%, full-time employment in PSTS is greater than it is for all Quebec workers.

Comparing with Canada and Ontario shows that 85.6% of PSTS workers had full-time work in Canada in 2015, while 86.5% of these workers were full time in Ontario. In 1976 and 2000, Quebec had a much higher proportion of full-time PSTS work than Canada and Ontario.

SELF-EMPLOYED WORKERS FRONT AND CENTRE

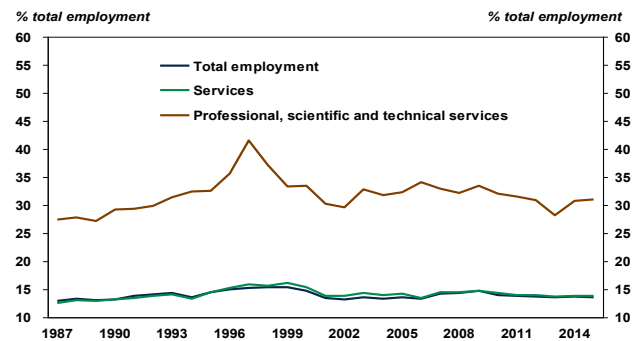
Proportionately speaking, self-employed workers are far more numerous in PSTS than in general in Quebec (graph 2). This phenomenon is also true in Canada and Ontario (table 2). In 2015, the proportion of self-employed workers in PSTS was estimated to be 31.0% in Quebec, 33.1% in Canada, and 34.0% in Ontario. These percentages are well above the average for total employment, in which they are 13.6%, 15.4% and 15.7% respectively for the same year.

Table 2 – Change in the proportion of self-employment in employment (%)

	1987		2000		2015	
	T.E.**	PSTS*	T.E.**	PSTS*	T.E.**	PSTS*
Canada	13.8	27.4	16.1	34.4	15.4	33.1
Quebec	13.0	27.4	14.8	33.4	13.6	31.0
Ontario	11.7	24.9	15.5	34.3	15.7	34.0

* Professional, scientific and technical services ** Total employment
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 2 – Quebec: The proportion of self-employed is much higher in PSTS*



* PSTS: Professional, scientific and technical services
Sources: Statistics Canada and Desjardins, Economic Studies

Quebec had nearly 100,000 self-employed PSTS workers (98,000) in 2015. They were estimated to be 65,000 in 2000, and 29,500 in 1987 (first year for which data is available). This is substantial growth. In 2015, there were 559,100 self-employed workers in Quebec. In other words, at least one out of six self-employed workers is in PSTS.

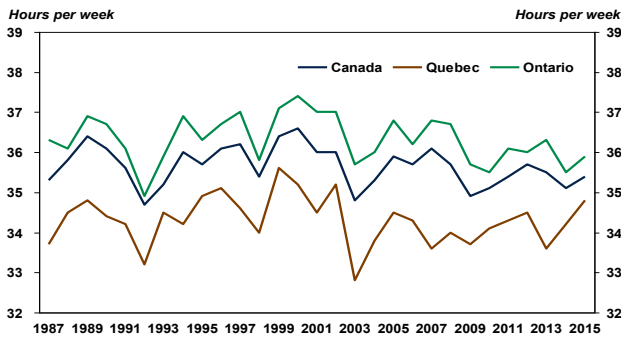
LONGER HOURS

In Quebec, more actual hours were worked² per week in PSTS than the Quebec average. In 2015, actual hours worked were 33.8 and 31.5 per week respectively. The same applies to Canada and Ontario. Note that the number of actual hours worked per week has declined since 1987 (first year for which data is available), in Quebec, Ontario and Canada as a whole.

It is interesting to see the difference between actual hours worked by self-employed workers and employees in the PSTS sector. Graphs 3 and 4 on page 3 are eloquent. Note that the decline in hours occurred among self-employed workers. Why is that? Could the ageing of business owners be one avenue to explore? Could the number of self-employed professional workers opting to cut back on their hours over time but stay in the job market be an explanation? Another avenue would be the launching of new consulting careers following early retirement.

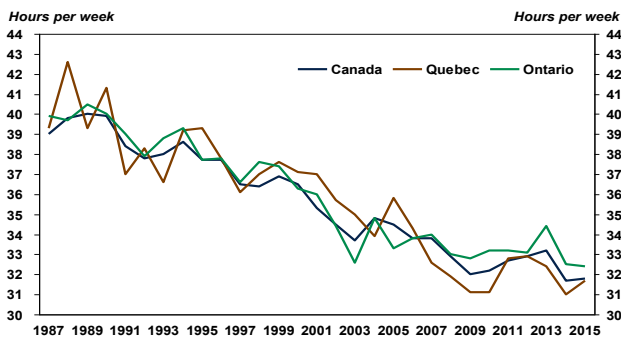
² According to Statistics Canada's *Labour Force Survey*: "Number of hours actually worked by the respondent during the reference week, including paid and unpaid hours. In January 1997, the labour force survey questionnaire was changed to allow responses of up to 168 hours per week. Prior to 1997, the upper limit was set at 99."

Graph 3 – Hours actually worked by PSTS* employees are relatively stable



* PSTS: Professional, scientific and technical services
Sources: Statistics Canada, Labour Force Survey, Tab_282_0008 and Desjardins, Economic Studies

Graph 4 – Hours actually worked by independent PSTS* workers declined



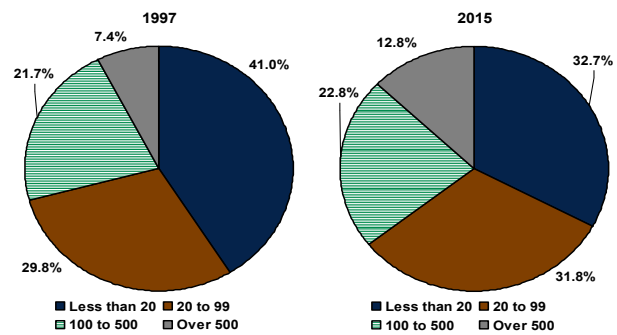
* PSTS: Professional, scientific and technical services
Sources: Statistics Canada, Labour Force Survey, Tab_282_0008 and Desjardins, Economic Studies

PRESENT IN SMALL, MID-SIZED AND LARGE BUSINESSES

PSTS jobs can be found in all business categories. In 2015, they were distributed as follows: 32.7% in businesses with less than 20 employees, 31.8% in businesses within 20 to 99 employees, 22.8% in companies with 100 to 500 employees, and 12.8% in companies with 500 or more employees (graph 5). This distribution is not too different from the distribution in all of Quebec’s economic sectors.

The contrast occurs with the distribution recorded in 1997 (first year for which data is available). The proportion of businesses with fewer than 20 employees stood at 41%, while those with more than 500 employees stood at 7.4%. This means that, for nearly 20 years, there have been more PSTS jobs in businesses with 20 or more employees.

Graph 5 – PSTS*: The distribution of jobs among different business sizes has changed



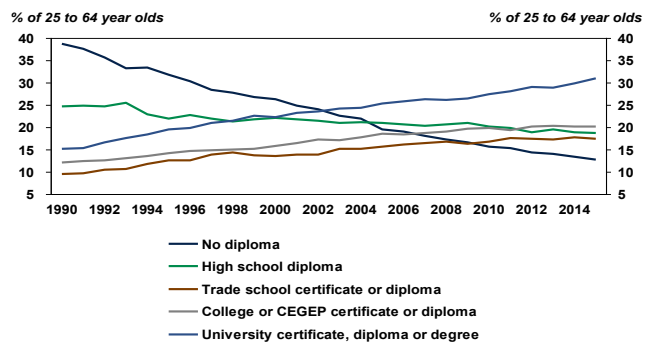
* PSTS: Professional, scientific and technical services
Sources: Statistics Canada, Labour Force Survey, Tab_282_0008 and Desjardins, Economic Studies

A WORKFORCE THAT SUPPORTED THE SHIFT

It seems that, over time, the expansion in PSTS is attributable to the increasing complexity of economic activities, in particular, stronger demand for specialists. However, the job growth in PSTS could not have occurred if Quebec labour had not responded to the call.

In Quebec, in 25 years (1990 to 2015), the proportion of 25 to 64 year olds with no school diplomas went from 38.7% to 12.8% (graph 6). The proportion of people with high school diplomas dropped from 24.6% to 18.7%, in favour of increases among those with certificates or diplomas from vocational school (9.5% to 17.5%), college or CEGEP (12.1% to 20.1%) or university certificates, diplomas or degrees (15.2% to 31.0%). The proportion of people with completed bachelor’s degrees went from 8.3% to 18.4%. The change in education level in the 25 to 64 year old group certainly has something to do with the striking growth in PSTS.

Graph 6 – Quebec: University education has shot up in the last 25 years among 25 to 64-year olds



Sources: Statistics Canada, data adapted by the Institut de la statistique du Québec, and Desjardins, Economic Studies

A PACE THAT WILL BE HARD TO MAINTAIN

Can employment in PSTS keep advancing at the same pace seen in the last 15 years? The answer depends on a host of factors, including demand for such services. This is based on both the vigour of Quebec's economy, and the economies of its trade partners. Quebec's demographic outlook means we cannot bank on very fast general growth in the next few years, or the next decade. However, demand for PSTS could increase, in particular because of the increasing complexity of economic activities, which require more and more specialists.

Moreover, Quebec firms are renowned for their competence and expertise in many domains (computer system design, water management, and engineering, among others). The needs of Quebec's trade partners are another aspect of demand for PSTS. To the extent that these countries undergo rapid economic development, they may turn to local businesses, which will increase both business opportunities and employment. Quebec engineering firms are well versed in the international industry: they have been in these markets for fifty years.

The export of services is a little known aspect of international trade. In 2014, Quebec sold \$18.3B in services outside Canada, and \$33.8B to other Canadian provinces and territories.³ From 2010 to 2014, international exports increased 23.1%, while exports to the rest of Canada rose 15.5%. Professional services excluding software and R&D ranked seventh, with an estimated \$2.9B, among the 10 primary products and services exported to other provinces and territories in 2011 (last year for which data is available). This is more than chemical products, primary metal products, or metal ores and concentrates, taken alone.

With respect to international trade, trade agreements have proliferated worldwide, and Canada has entered into many partnerships in the last few years. However, changes in trade rules could change the outlook, which is currently positive. In its last report, the World Trade Organization noted that, from mid-May 2015 to mid-October of the same year, with respect to services in G20 nations, "the large majority of the policies adopted during the period under review reflect liberalizing measures."⁴ This augurs well, but the fact that the report says "large majority" means that not all the measures are favourable. We cannot take it for granted.

From the perspective of labour, Emploi-Québec's latest medium- and long-term outlooks suggest that the number of workers will grow in this industry. Although PSTS forms part of a broad set called "service-producing industries," which also includes wholesale trade, transportation and warehousing, finance, insurance, real estate, rental and leasing, business, building and other support services, all of the growth expected by 2024 cannot solely come from the sectors listed above. From 2014 to 2024, service-producing industries are expected to grow 7.2%, above the average for Quebec employment (5.9%).

WORKING ON BOTH SUPPLY AND DEMAND

Quebec does not have all the keys in its possession, particularly the keys that will open up foreign markets and dictate foreign demand. It does have some of them, however. The first is that Quebec's economy needs PSTS. In what way? In particular, in upgrading its industrial production methods to be competitive, in modern and rigorous management of resources and the environment, in infrastructure maintenance, in its audacious development of urban and rural communities, and in its businesses' quest for productivity gains, Quebec will need experts in professional, scientific and technical services.

The second key is workforce training. Workforce training creates a pool of skilled, competent and versatile workers, good reasons to promote school retention and workplace training. The promise is great, but so are the challenges.

Joëlle Noreau
Senior Economist

³ Statistics Canada and Ministère de l'Économie, de l'Innovation et des Exportations du Québec in "Le commerce extérieur du Québec," *Le Calepin*, 2015 edition, p.15

⁴ WTO. "According to the WTO, the number of new trade restrictions applied by the G20 is stabilizing, but the inventory of existing restrictions is rising," November 2, 2015. https://www.wto.org/english/news_e/news15_e/trdev_02nov15_e.htm