

Wage Watch

A Comparison of Public-sector and Private-sector Salaries and Benefits

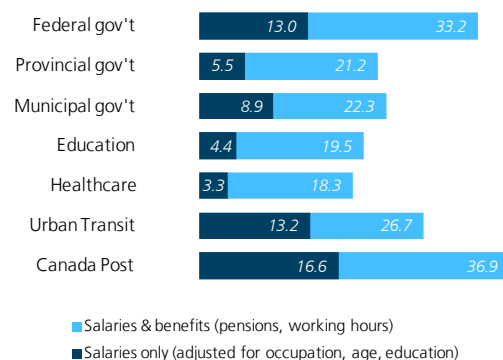
Ted Mallett, VP & Chief Economist

The broad public sector is a major employer in Canada. As a group, it employs 3.6 million Canadians—more than one job in five. Because the large share of these jobs are supported in whole or in part by tax revenues, it is certainly appropriate to question how representative and appropriate public sector salaries are in relation to private sector norms. Latest findings based on the 2011 National Household Survey, which represents earnings from 2010, show a continued and substantial gap in salary compensation in favour of government or public sector employees—even after adjustments for differences in occupation mix, age and education. The gaps grow even wider once employment benefits such as working hours and pensions are taken into account. The impacts on the public purse are significant, adding almost \$20 billion to the hard costs of compensating the public sector in 2010.

Among the big public sector employers, the federal government has the largest gaps, with a salary premium of 13.0 per cent, which grows to 33.2 per cent once benefits are taken into account (see Figure 1). Premiums paid to municipal employees are almost as severe—8.9 per cent (22.3 per cent with benefits). Provincial governments, as a group, appear to have a little more control over salary premiums at 5.5 per cent, but benefits bring the gap rises to 21.2 per cent with benefits factored in.

CFIB's analysis also covers public sector groups such as education, health care institutions, urban transit agencies and Canada Post—with findings along similar lines.

Figure 1:
Public sector salary* and benefits % advantages over private sector**



* full-time, full-year earnings adjusted for weighted occupation mix, education and age

** employer pension contributions and working hours

Overall for 2010, annual wages and salaries in the public sector groupings range from \$51,029 to \$69,833, while their respective private sector comparators earn between \$48,872 and \$61,688. These figures represent a nation-wide weighted average of full-time, full-year employment earnings of Canadians in more than 200 occupations that are common to both public and private sectors. These occupations cover about one-third of all employees in the public and private sectors. Overall, the findings are based on about 1.5 million National Household Survey (NHS) returns, which are representative of more than 7.2 million Canadians.

This report is the sixth such study CFIB has conducted using the Census (or NHS), dating back to 1986. Census-type data are well suited for this purpose because they represent the largest sample size possible for breadth of detail of industry, occupation and geographic area.

Nonetheless, figures from this most recent dive into the data should not be directly compared with those from five years ago. CFIB made slight adjustments to our methodology on age, education and pension adjustments, while Statistics Canada shifted from a mandatory census to a voluntary household survey. See the appendix sections for more detailed presentation of the study background methodology and raw data.

Detailed findings by level of government

The analysis finds significant wage differences favouring the public sector in all seven major categories. Federal employees receive the biggest benefits compared to private sector **groupings**, while provincial employees have the smallest wage advantages. There are consistent findings at provincial and city levels of detail as well, suggesting that these wage advantages are structural and more than just due to random survey data variations.

Federal government administration

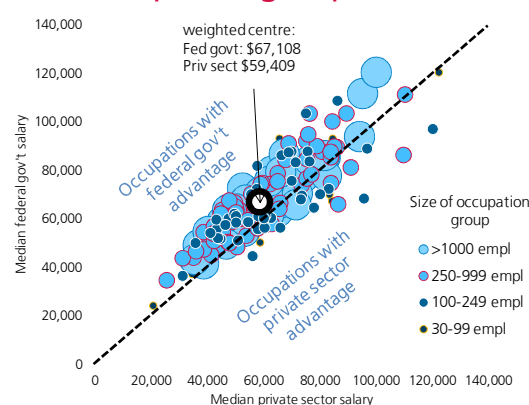
Salaries

Large salary premiums favouring public administration persist at the federal level. Federal government employees are paid, on average about 13.0 per cent more than similar occupations in the private sector. Of the 212 occupations that met the matching criteria, 172 show a government wage advantage, while only 40 show a private sector advantage.

On average, the annual pay of these federal employees is \$67,108, while that of comparably employed private sector workers is \$59,409. These findings reflect the representative census records of 174,615 federal employees and 3.7 million private sector employees across Canada.

The public- private sector relationship can be best shown visually with a scatter plot, with each dot representing an occupation present in both the public and private sectors. If a **dot is above** the 45-degree line, then there is a public sector salary advantage, while any **dot below** that line has a private sector salary advantage (see Figure 2). In this case, we show the dots varying in size based on the number of federal employees within each occupation group.

Figure 2:
Federal government and private sector salary medians for 212 occupation groups



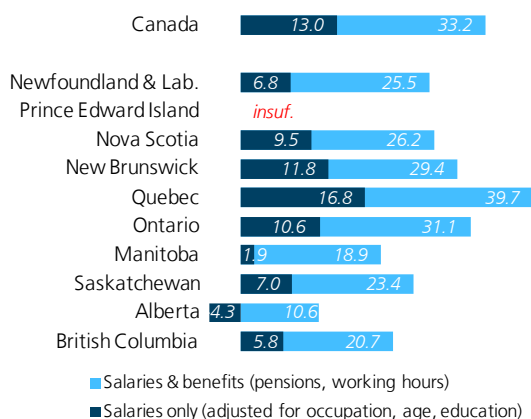
The cloud of dots in the chart displays the 172 occupations with federal advantages versus the 40 with private sector advantages. The central point, based on the weighted means, is what we use as the published public/private sector gaps by level of government and geography.

The pay gap is largest in Quebec (16.8 per cent) and the eastern provinces, and lower out west. In Alberta, the gap favours the private sector by 4.3 per cent (see Figure 3).

Figure 3:

Federal government salary and benefits advantages, by province

(% above comparable private sector wages)



The most common occupations that made the selection criteria include the following National Occupation Classifications (NOCs), making up about 38 per cent of the 174,600 federal employees covered in the analysis:

- ▶ General office support workers
- ▶ Administrative officers
- ▶ Financial auditors and accountants
- ▶ Administrative assistants
- ▶ Information systems analysts and consultants
- ▶ Human resources professionals
- ▶ Social policy researchers, consultants
- ▶ Other customer and information services representatives
- ▶ Computer programmers and interactive media developers
- ▶ Accounting and related clerks

Benefits

Unpaid benefits, such as the length of the average actual workweek also largely favour the federal public sector. Full-time federal public servants work an average 32.9 hour workweek, taking into account vacations, sick leave and other time-off. In the private sector the actual workweek is 37.9 hours—a difference of another 15 per cent in the effective cost of public and private sector employment.¹ Factoring these unpaid benefits differentials into the equation along with pension benefits and total salaries pushes the federal total compensation advantage to beyond 33 per cent.

The federal government spent \$36.0 billion in 2010 on salaries and benefits, billions more if one includes the various and numerous federal business agencies and crown corporations.² A premium, therefore, represents a huge spike in the cost of running government—approximately \$5.6 billion. Adding benefits to the mix and accounting for the significantly shorter workweek of federal employees, taxpayers have legitimate cause to question the real value for the money they pay.

Provincial public administration

Salaries

In contrast to its federal counterpart, wage premiums favouring provincial public administration are a more modest 5.5 per cent above the private sector—when taken as a group. Of the 199 occupations that met the matching criteria, 142 show a government wage advantage, while only 57 show a private sector advantage.

On average, the annual pay of these provincial employees is \$61,080 while that of comparably employed private sector workers is \$57,894. These findings reflect the representative census records of 148,535 provincial

¹ Source: Statistics Canada, Labour Force Survey, Custom Tabulation

² Source: Statistics Canada, CANSIM table number 385-0033

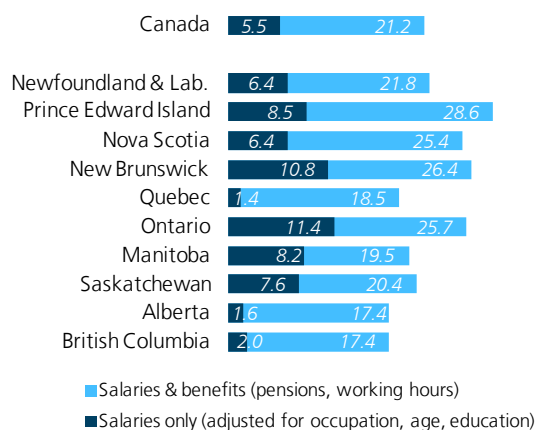
employees and 3.7 million private sector employees across Canada.

The gaps are widest in Ontario (11.4 per cent), New Brunswick (10.8 per cent) and Prince Edward Island (8.5 per cent), while narrowest in Quebec (1.4 per cent), Alberta and British Columbia (1.6 and 2.0 per cent respectively; see Figure 4)

Figure 4:

Provincial government salary and benefits advantages

(% above comparable private sector wages)

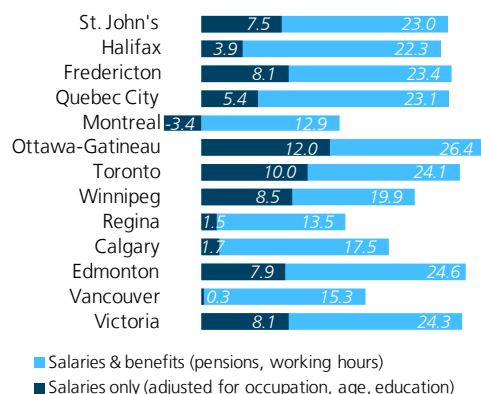


Within the major cities, aggregate advantages vary widely, ranging from 12.0 per cent in Ottawa-Gatineau to -3.4 per cent in Montreal (see Figure 5). For full detail, please consult Table B2 on page 19.

Figure 5:

Provincial government salary advantages by major city

(% above comparable private sector wages)



The most common occupations that made the selection criteria include the following NOCs, making up about 41 per cent of the provincial and territorial government employees covered in the analysis:

- ▶ Administrative assistants
- ▶ Administrative officers
- ▶ General office support workers
- ▶ Information systems analysts and consultants
- ▶ Social and community service workers
- ▶ Financial auditors and accountants
- ▶ Social workers
- ▶ Lawyers and Quebec notaries
- ▶ Social policy researchers, consultants and program officers
- ▶ Senior management occupations

Benefits

Unpaid benefits, such as the length of the average actual workweek also largely favour the provincial public sector. Full-time provincial public servants work an average 33.8 hour workweek, taking into account vacations and sick leave and other time off—a difference of another 12.1 per cent in the effective cost of public and private sector employment.³ Factoring these paid and unpaid benefits differentials into the equation along with total wages pushes the provincial government total compensation advantage to about 21.2 per cent.

Provincial and territorial governments spent \$26.6 billion in 2010 on salaries and benefits.⁴ The premium may look small, but it represents \$2.1 billion per year in total spending or tax revenues. This money is better spent on priority government services or on reduced taxes for the public.

³ Source: Statistics Canada, Labour Force Survey, Custom Tabulation

⁴ Source: Statistics Canada, CANSIM table number 385-0034

Municipal public administration

Salaries

Pay premiums favouring municipal public administration employees across Canada are 8.9 per cent over the private sector. Of the 188 occupations that met the matching criteria, 151 show a government wage advantage, while only 37 show a private sector advantage.

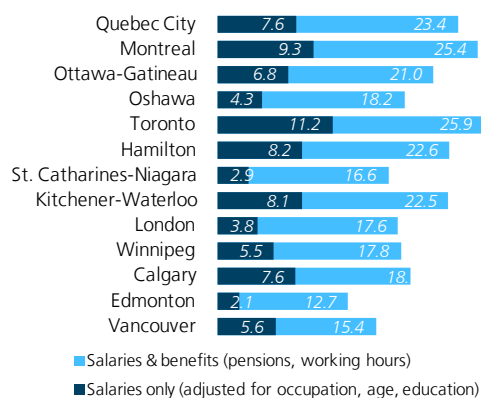
On average, the annual pay of these municipal employees is \$61,023, while that of comparably employed private sector workers is \$56,049. These findings reflect the representative census records of 132,790 municipal employees and 3.6 million private sector employees across Canada.

Province by province, the gaps are widest in Quebec (7.1 per cent), Ontario (6.9 per cent) and British Columbia (6.8 per cent), while narrowest in Newfoundland and Manitoba (-4.1 per cent and 2.1 per cent respectively).

Among the major urban areas, pay advantages are even higher—including Toronto (11.2 per cent), Montreal (9.3 per cent) and Hamilton (8.2 per cent). The lowest pay gaps are found in Edmonton (2.1 per cent), St Catharines-Niagara (2.9 per cent) and London (3.8 per cent; see Figure 6). For full detail, please consult table B3 on page 20.

Figure 6:

Municipal government salary and benefits advantages, by city (% above comparable private sector wages)



The most common occupations that made the selection criteria include the following NOCs, making up about 36 per cent of the municipal employees covered in the analysis:

- ▶ Public works and maintenance labourers
- ▶ Administrative assistants
- ▶ General office support workers
- ▶ Senior management occupations
- ▶ Administrative officers
- ▶ Heavy equipment operators (except crane)
- ▶ Public works maintenance equipment operators and related workers
- ▶ Dispatchers
- ▶ Social and community service workers
- ▶ Transport truck drivers

The analysis, however, does not include local government occupations such as police officers, firefighters and others that are clearly exclusively in the public sector. Any reference to their pay relative to private sector norms has to be conducted differently and is beyond the scope of this analysis. However, it is fair to say that any wage premium measured among comparable occupations can be used as an indirect assessment of the reasonableness of earnings in non-comparable occupations.

Because the Census data are collected from individuals where they live, the urban area definitions don't specifically identify local governments in detail. For example, public sector employees living in the Greater Vancouver Region may work for any of the numerous local governments that make up the area—and they may live in a different city than where they work. Although the basic conclusions hold firm, these findings, depending on the structure of the urban region, therefore may represent an aggregated view of salaries in multiple governments.

Benefits

Unpaid benefits, such as the length of the average actual workweek also largely favour the municipal public sector. Full-time municipal public servants work an average 34.5 hour workweek, taking into account vacations and sick leave and other time off—a difference of roughly 9.6 per cent in the

effective cost between public and private sector employment.⁵ Factoring these paid and unpaid benefits differentials into the equation along with total wages pushes the municipal government total compensation advantage to roughly 22.3 per cent.

In 2010, local governments spent \$29.5 billion on salaries and benefits.⁶ A premium at any level would be a big price tag. The municipal premium represents about \$3.4 billion per year in spending over and above what the local wage markets dictate. This is money that could be put to better use, such as improvements in infrastructure and services to the community.

Education institutions

Salaries

Salary premiums favouring public sector employees at educational institutions across Canada are 4.4 per cent above the private sector. Of the 198 occupations that met the matching criteria, 130 show a public sector wage advantage, while only 68 show a private sector advantage.

On average, the annual pay of these public sector employees is \$51,029, while that of comparably employed private sector workers is \$48,872. These findings reflect the representative census records of 136,535 public sector employees and 4.1 million private sector employees across Canada.

Salary gaps are largest in Manitoba (7.1 per cent), Ontario (6.7 per cent) and New Brunswick (6.0 per cent). Pay gaps are smallest in Alberta and Quebec (-0.8 per cent and 0.3 per cent respectively). For full detail, please consult table B4 on page 21.

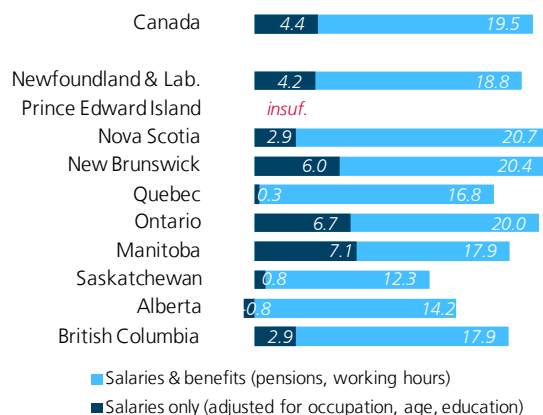
⁵ Source: Statistics Canada, Labour Force Survey, Custom Tabulation

⁶ Source: Statistics Canada, CANSIM table 385-0037

Figure 7:

Education sector salary advantages, by province

(% above comparable private sector wages)



The most common occupations that made the selection criteria include the following NOCs, making up about 53 per cent of the education sector employees covered in the analysis:

- ▶ Janitors, caretakers and building superintendents
- ▶ Administrative assistants
- ▶ Administrative officers
- ▶ General office support workers
- ▶ Computer network technicians
- ▶ Early childhood educators and assistants
- ▶ Information systems analysts and consultants
- ▶ Accounting and related clerks
- ▶ User support technicians
- ▶ Senior management occupations

Benefits

The salary analysis excludes teachers and professors, however any general sector statistics on working hours would include these occupations—which could skew results. As a proxy, we chose to adopt the provincial government norms for working hours because most comparable occupation groups would likely be in office roles at school board and post secondary administrative offices rather than in classrooms.

Together, the salary and estimated benefits advantage is close to 20 per cent across the country—ranging from a high of 20.7 per cent in Nova Scotia to a low of 12.3 per cent in Saskatchewan. More research would be required to create a more fine-tuned result,

but the proxy should be sufficient as a general indication.

Total expenditures on wages and salaries for local school boards and post-secondary institutions totaled about \$58.5 billion in 2010.⁷ Even at a lower compensation premium compared to other public administrations, it adds a whopping \$3.8 billion to the cost of publicly run educational institutions. Reducing this premium can translate into public savings which can be used to lower business- and residential-education property tax rates across Canada.

Health care institutions

Salaries

Salary premiums favouring public sector health care employees across Canada are 3.3 per cent relative to the private sector—narrowest of public sector groups studied. Of the 182 occupations that met the matching criteria, 114 show a public sector wage advantage, while only 68 show a private sector advantage.

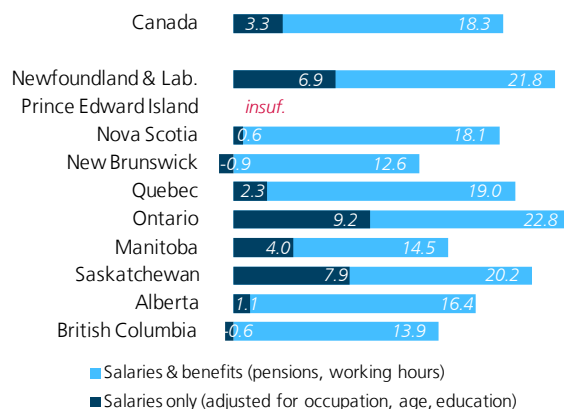
On average, the annual pay of these public sector healthcare employees is \$54,276, while that of comparably employed private sector workers is \$52,517. These findings reflect the representative census records of 453,390 public sector employees and 3.7 million private sector employees across Canada.

Pay gaps are widest in Ontario (9.2 per cent) and Saskatchewan (7.9 per cent). Pay gaps are narrowest in New Brunswick and British Columbia (-0.9 per cent and -0.6 per cent respectively) (see Figure 8). For full detail, please consult table B5 on page 22.

Figure 8:

Health care institution salary advantages, by province

(% above comparable private sector wages)



The most common occupations that made the selection criteria include the following NOCs, making up about 64 per cent of the health care employees covered in the analysis:

- ▶ Registered nurses and registered psychiatric nurses
- ▶ Nurse aides, orderlies and patient service associates
- ▶ Licensed practical nurses
- ▶ Social and community service workers
- ▶ Light duty cleaners
- ▶ Administrative assistants
- ▶ Managers in health care
- ▶ General office support workers
- ▶ Administrative officers
- ▶ Paramedical occupations

Benefits

As with the education sector, we applied the general provincial government working hours data to occupation groups in this sector, which pushed the total public sector compensation advantage to just over 18 per cent.

Spending on salaries and benefits of healthcare workers totaled \$53.3 billion in 2010.⁸ Even at The premium represents \$2.9 billion per year in excess public spending. The Canadian healthcare system can certainly benefit from additional funding. Instead of spending taxpayer money on wage premiums, funds can be allocated towards the hiring of

⁷ Source: Statistics Canada, CANSIM table number 385-0036

⁸ Source: Statistics Canada, CANSIM table number 385-0035

additional health care workers such as physicians and nurses and help reduce wait times at healthcare facilities.

Urban transit authorities

Salaries

Wage premiums favouring public sector urban transit workers across Canada are 13.2 per cent above the private sector. Of the 65 occupations that met the matching criteria, 54 show a government wage advantage, while only 11 show a private sector advantage. On average, the annual pay of these municipal employees is \$69,833 while that of comparably employed private sector workers is \$61,688. These findings reflect the representative census records of 7,340 public sector urban transit employees and 1.7 million private sector employees across Canada. For full detail, please consult table B6 on page 23.

The most common occupations that made the selection criteria include the following NOCs, making up about 43 per cent of the 7,340 transit employees covered in the analysis:

- ▶ Managers in transportation
- ▶ Other customer and information services representatives
- ▶ Administrative assistants
- ▶ Electrical and electronics engineering technologists and technicians
- ▶ Heavy-duty equipment mechanics
- ▶ Civil engineers
- ▶ Railway carmen/women
- ▶ Information systems analysts and consultants
- ▶ Railway yard and track maintenance workers
- ▶ Transportation route and crew schedulers

Benefits

Given that most public transit authorities are associated with municipal governments, we used that level of government to apply the hours-of-work effects. Overall, the total compensation advantage rises to 26.7 per cent on average across the country.

Canada Post

Salaries

Salary premiums favouring Canada Post employees across Canada are 16.6 per cent above the private sector—by far the highest premium of any major public sector group. Of the 39 occupations that met the matching criteria, 30 show a public sector advantage, while only nine show a private sector advantage.

On average the annual pay of these Canada Post employees is \$57,475, while that of comparably employed private sector workers is \$49,278. These findings reflect the representative census records of 28,585 Canada Post employees and 1.5 million comparable private sector employees across Canada.

The most common occupations that made the selection criteria include the following NOCs, making up about 81 per cent of the postal employees covered in the analysis:

- ▶ Supervisors, mail and message distribution occupations
- ▶ Postal and courier services managers
- ▶ Delivery and courier service drivers
- ▶ Couriers, messengers and door-to-door distributors
- ▶ Transport truck drivers
- ▶ General office support workers
- ▶ Dispatchers
- ▶ Administrative officers
- ▶ Other customer and information services representatives
- ▶ Material handlers

It should be noted that this analysis on Canada Post excludes letter carriers as it is almost exclusively a public sector occupation.

Benefits

Using federal government norms for working hour differentials, the pay and benefits gap rises to almost 37 per cent.

Aggregate impact on public sector compensation costs

The net result of the above-listed salary differentials adds significant costs to the running of the public sector. Even if one excludes the relative hours of work differentials and focuses only on the hard costs of salaries and employer pension contributions, the added costs in 2010 add up to almost \$20 billion in the above public sector groups⁹. For the federal government alone, the excess is \$5.6 billion, while the aggregate cost boosts for provincial and municipal governments are \$2.1 billion and \$3.4 billion respectively. Among the remaining non-government public sector organizations, the added annual costs of compensation amount to a collective \$8.2 billion—which if redirected would go a long way to providing better public services in education, health care and public transit.

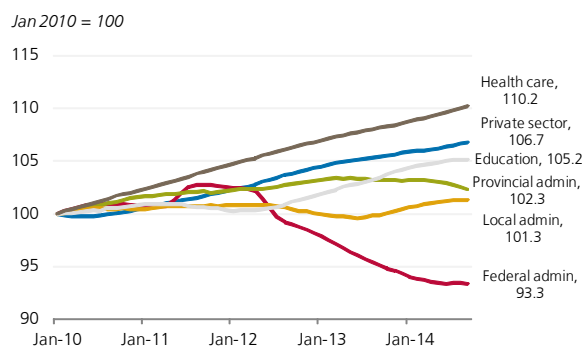
Payroll developments since 2010

The infrequent nature of the NHS and the lag in the publishing of results prevents one from reporting up-to-date compensation comparisons in the way most observers would like. There are, however, other sources of data that, while not as detailed, point out general trends since 2010. Recent information from the Survey of Employment Payrolls and Hours suggest nothing large, but that things could at least be moving in the right direction.

Using data expressed as 12-month moving averages, it looks like employment levels in government administration and education have risen more slowly than those of the private sector (see Figure 9). Current private payroll employment (as of September 2014) is up 6.7 per cent from January 2010 levels—not as much as the health care sector at 10.2 per cent, but just a shade higher than that of the broad education sector (5.2 per cent). By comparison, provincial and local government

employment is up 2.3 and 1.3 per cent respectively. By comparison, federal government payrolls are down 6.7 per cent as budgeted fiscal savings are applied.

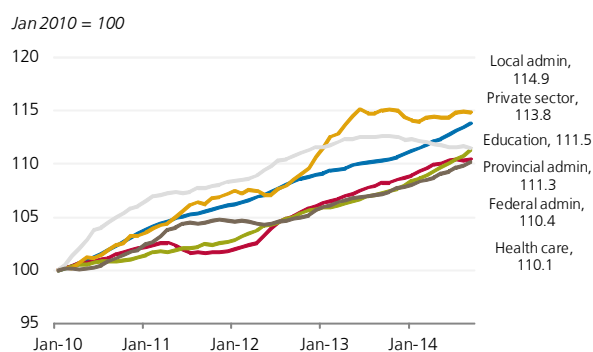
Figure 9
Indexes of sector employment
(12-month moving averages)



Source: Statistics Canada. Table 281-0047

The same implications apply to average weekly wage levels by sector, although these data do not provide the nuance of solely full-time, full year earners in matched occupations. Private sector wages have risen 13.8 per cent since the beginning of 2010, second-highest to local government's 14.9 per cent average increase (see Figure 10).

Figure 10
Indexes of sector weekly wages, including overtime
(12-month moving averages)



The definition of private sector is constructed as the industry aggregate, less government administration, education, health care, public transit and postal services.
Source: Statistics Canada. Table 281-0047

⁹ Based on combined salary and pension percent differentials applied to Statistics Canada's Canadian Government Finance Statistics (CGFS) for 2010, CANSIM Tables 385-0033 through 385-0039, 'Compensation of employees'

By comparison, average wage increases in the other public sector categories are bunched between 10.1 per cent and 11.5 per cent. It suggests that the salary differences identified in the NHS data may have narrowed a couple of percentage points more recently. These are national numbers of course, which may mask some significant trend differences by region.

Conclusions and recommendations

Disparities between private sector and public administration wages are persistently high. This shows that not enough attention has been paid by public employers to ensure appropriate balance and comparability. In many cases, the threat or initiation of disruptive job action by government employee unions is enough to ensure that short-term labour peace is given higher priority over longer-term cost considerations.

Offering competitive wages and benefits to employees is a key strategy used to attract and retain professional and well-educated workers in the public sector. Even though this strategy is essential in building a good quality public service, compensation should be fair and not exceed what is being offered in the private sector. Excessive government wage and benefits premiums over the private sector and increases in government payrolls have significant negative impacts on local economies as well as on Canada's economy as a whole. As stated at the outset of this report, wage disparities disrupt local labour markets and the overall competitiveness of private enterprise. In addition, excessive public wages and non-wage benefits inflate the cost of government.

Measures must be taken to minimize the negative impacts of wage differentials. There is also a need to address the issue of coverage and funding on the benefits side. In this respect, guided by three principles—transparency, public debate, and accountability—CFIB sets out the following recommendations:

Key recommendations:

- ▶ There is a dire need for better tracking of compensation levels for occupations that are represented in both public and private sectors. Five-year NHS (Census) data are not frequent enough to monitor trends or measure progress in closing the gaps. The comparisons must be reflective of the whole economy, however, and not just on a hand-picked selection of big-business occupation groups.
- ▶ On the salary side, no government or public enterprise with a large wage advantage on their side should agree to any negotiated general wage increase above the rate of inflation. Only once public and private sector wage levels are in line, would it be appropriate to allow greater increases.
- ▶ Because public sector salaries are not as directly tied to market forces, more effort is required toward the development of productivity measures. Without this type of benchmarking, there is no way to tie staffing and compensation levels appropriately to the output of public services.
- ▶ Public sector employers must consider the combined value of wages, benefits and working hours in evaluating appropriate compensation levels. If the public sector decides to offer more generous wages, then benefits levels can logically be lower—or vice versa—without compromising fairness in total compensation.
- ▶ Using independent assessments and balanced methodologies, each government or public enterprise should measure and publish broad-based wage statistics of their workforces and those in the comparable private sector. These measures should attempt to deal with equivalence as much as possible. Evaluations should not, however, be permitted to cherry-pick only certain occupations or restrict analysis to certain private sector segments such as multi-national, union-only or pseudo-private enterprises. In general taxpayers need more clarity in the final costs and effects of compensation demands within the public sector.

- ▶ Governments must move toward implementing no-strike legislation for a larger proportion of its workforces. Apart from imposing huge costs and being a major inconvenience to the public, public sector strikes are major bargaining levers and contribute greatly to higher wage levels.
- ▶ At the same time, governments must also revise arbitration laws and practices to require that, in the event of failed negotiations, prevailing local private sector wage and benefit levels and taxpayer interests are the primary determinants of arbitrated wage awards—rather than the current practice of only benchmarking against other public sector organizations
- ▶ Any taxes or premiums a government places on the general public should also have to be paid by its own public sector employees.
- ▶ Governments should each engage in wide pension policy reviews that include public sector plans. The overall objective of any pension reform should be to level the playing field between the treatment of retirement savings for public and private sector individuals. If the public sector offers richer benefits compared to the private sector, it may be necessary to give private sector employees and employers more options and more capabilities in saving for retirement.
- ▶ Governments need to look into realistic solutions to the unsustainable funding deficiencies of defined-benefit plans. The taxpayer should not be the default go-to-mechanism to fund government pension plan shortfalls. Options should include mechanisms such as the capping of taxpayer funded contributions, benefit de-indexing, benefit restructuring and risk-sharing.
- ▶ Governments must move toward greater reliance on defined contribution plans or shared risk models rather than defined benefit pension plans which are far more expensive to maintain and much more opaque. Retaining defined benefit plans for existing employees and setting up defined contribution plans for new employees is a common way private sector employers have chosen to act.
- ▶ Remove features from pension plans that encourage people to retire before the age of 65. Life expectancies are higher now than when these types of plans were set up, with the result that a growing number of public servants are earning pensions for more years than they spent on the job.
- ▶ Federal and provincial institutions should harmonize solvency funding rules for private and public sector pension plans across the country, so that every plan is held to the same standard. The disturbing lack of clarity, accountability and transparency in the pension system needs to be corrected.

Appendix A: Methodology and background

Making any statement about the appropriateness of salary levels across groups not only requires an accurate reading of the dollars involved, but also the making of assumptions on the value of work being performed. Details on the former are hard enough to obtain to the level of precision necessary, but details on the latter are pretty much impossible to gauge.

In a simplified, pretend world where only a few types of never-changing goods are produced, one could measure the number and value of widgets a person can build—which would allow one to attach a reasonable estimate on how much of that value should go to the employee in the form of wages.

This simplified, non-existent world gets quite a bit more complex if one introduces capital equipment into the production process because the production no longer depends solely on the employee. It gets more complex still when technological change is added to the mix.

All of that doesn't even account for the fact that most people are employed performing services, not building goods. Produced services cannot be as neatly measured in fixed units, which mean assigning a value to wage levels becomes considerably more subjective and abstract.

So faced with this impossibility of objectively gauging wages to different tasks directly from above, how are wages set in a complex, diverse, real world economy? In a word, it's 'markets'. The interaction between buyers and sellers, consumers and producers determine the price and quantity of goods and services being produced—including wage levels.

In competitive markets, producers with wages set too high will find themselves priced disadvantageously. Those with wages set too low will find it difficult to attract the skilled people necessary to produce a quality product.

However, not all goods and services are produced in competitive market conditions. Regulated monopolies have the luxury of setting their own prices, which breaks some of the feedback loop in the setting of wages. Cartels do the same thing when businesses are able to collude on production volumes and prices. Similarly, unions are a form of cartel because they allow employees to collude on the price of their inputs¹⁰ and in making the production of a good or service conditional to union agreement. The public sector is an even greater departure from market forces because the consumer is given relatively little choice in the cost or amount of services being produced.

Combine all of the above and it quickly becomes apparent how, without direct policy interventions, wage levels in the public sector can diverge above and beyond those of the market-grounded private sector. Numerous studies have shown this indeed to have been the case in Canada.

What other studies have shown

There is a long history of academic works on comparisons of public and private sector wages in Canada. Morley Gunderson is perhaps the best known in this field, having identified differentials going back well into the 1970s. More recently, Gunderson, et al. (2000)¹¹, using Labour force Survey and Census data identified an overall government wage premium in the neighbourhood of nine per cent—roughly a point or two higher for women and lower for men by the same amount, depending on the data set used.

Mueller (2000)¹² arrived at similar conclusions using log regressions, finding a 3.3 per cent differential for males and 11.3 per cent

¹⁰ http://www.economist.com/economics/by-invitation/guest-contributions/unions_generally_reduce_welfare, accessed December 22, 2014.

¹¹ Gunderson, M., Hyatt, D. And Riddell, C. Pay Differences between the Government and Private Sectors: Labour Force Survey and Census Estimates. CPRN Discussion Paper, Human Resources in Government Series No. W/10, February 2000.

¹² Mueller, R. *Public- and Private-Sector Wage Differentials in Canada Revisited*, Industrial Relations. Vol 39, No 3 (July 2000).

differential for females employed by government. He also looked at wage comparisons among people who changed jobs between sectors, both voluntarily and involuntarily, with similar results.

More recently, Palacios and Clemens (2013)¹³ used LFS data to identify a 9.5 pay gap in favour of government workers. The Institute for Competitiveness and Prosperity (2014)¹⁴ found a 7.1 per cent public sector premium in the Ontario government, representing an overpayment burden of \$1 billion for taxpayers.

All of the above studies use regression techniques to compare employee groups while factoring out all measurable differences in age, education, occupation, experience, workplace size, etc. So as much as possible, within the limits of the data sets, they try to isolate the pure public-private sector differentials. Even so, there is considerable variability in the results among subgroups of data, such as level of government, occupation group or region. The reason for the variability, though, may have as much to do with data imperfections as with inherent differences in wage levels among employee groups.

Although regression techniques do a good job of identifying statistical differences, they often use (over-) simplified data categories. For example, education is often measured by highest level of schooling achieved, using only half a dozen categories. A bachelor degree is assumed to have a uniform impact on skill sets or earnings potential, when in fact the myriad of degrees out there can create very different wage-earning potentials. Occupation groups used in these analyses are also fairly rudimentary given the vast range of occupations found in the economy. They tend to be boiled down to 'management', 'clerical' or 'scientific', when there are many occupations within these groups with very

different skill requirements, and hence, salary characteristics.

Given the shortcomings of regression analysis, CFIB has historically used other techniques, using far more detailed data to identify salary gaps. Our aim had not been to challenge the regression-based studies, but to reinforce them. After all, two methodological approaches arriving at basically the same conclusions make a stronger case.

There are some notable exceptions to this past research. The Canadian Union of Public Employees¹⁵, using a modified approach to CFIB's Census-based methodology, finds the pay gaps are non-existent between public and private sectors. Other labour groups weigh in with the same conclusions. Their methods, however, use a restricted range of occupations in their analysis and rely on using mean average calculations of wage levels within groups rather than medians¹⁶. See Box 1 for a more complete discussion of the differences between the two measures.

¹³ Palacios, M. And Clemens, J. Comparing Public and Private Compensation in Canada. Fraser Institute, Studies in Labour Markets Series, April 2013.

¹⁴ Institute for Competitiveness and Prosperity, The Realities of Ontario's Public Sector Compensation. Working Paper 19, February 2014

¹⁵ Sanger, Toby, Battle of the Wages: Who gets paid more, public or private sector workers? Canadian Union of Public Employees, December 2011

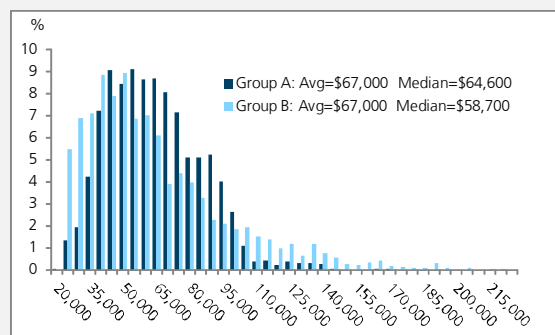
¹⁶ There are plenty of references available from academic sources that medians are better measures for this type of analysis, for example, https://epilab.ich.ucl.ac.uk/coursematerial/statistics/summarising_centre_spread/measures_centre/which_to_use.html or <https://statistics.laerd.com/statistical-guides/measures-central-tendency-mean-mode-median.php> to name just two.

Box 1. Averages vs. Medians

The general aim for wage comparisons is to summarize and distill any differences down to what would apply for a *typical* employee. That notion, however, can be defined a number of ways. One can use either averages (the arithmetic mean of a distribution, or medians (the central dollar figure at which 50 per cent of people in that group earn more and the other 50 per cent earn less).

If there is general symmetry to the distribution of earnings, then the median and mean would basically be the same, rendering the issue moot. However, if the distribution is skewed, then there can be a big difference between the two measures. The differences can be seen in the following chart, which shows a wage distribution for two employee groups, A and B. Both groups have identical average earnings of \$67,000. However, there is clearly a difference in earnings profiles in the two groups. The small number of high earners in Group B pushes up the average earnings, even though there are many more people on the low side of the scale. The differences show up more reliably in the median wage levels, which are \$64,600 in Group A and \$58,700 in Group B—a gap of almost \$6,000 or about 10 per cent.

Hypothetical wage distributions of two employee groups



In most studies of wages, the convention has been to use medians, when available, because it avoids giving disproportionate weight to small numbers of outliers. Indeed, any distribution with an unconstrained maximum or minimum should be using medians for general summarizations.

Averages tend to be used a great deal because they are often the only measure possible if relying on summarized tabular data (i.e. total payrolls and total employment). Medians can only be calculated if one obtains a full dataset with individual records.

Turning back to the above chart, Group A is an actual distribution of full-time government workers from Statistics Canada's 2010 Survey of Labour and Income Dynamics. Group B is an actual distribution of private sector earners with their earnings uniformly scaled up to achieve the same arithmetic mean. There should be no surprise, therefore, why public sector labour groups would wish to restrict their analyses to average rather than median comparisons.

CFIB's study approach

The only way to measure wage gaps precisely is to canvas the entire workforce and collect the relevant details of wages, working conditions, benefits, hours of work, job responsibilities and so on. Clearly, though, that kind of canvassing is not possible on a wide scale, so analysts have had to come up with simplifying approaches. There are a number to choose from—each with their own advantages and disadvantages.

With any type of study, one is limited to the data available. An analysis of wages, quite obviously requires some sort of measure of worker quality. However there is no such objective measure, so one has to rely on available proxies like education levels and occupation and length of experience. The trouble is, proxies can be imprecise—a year of extra schooling in the hands of one person will improve their skill level differently than another. The same goes for length of work experience. Among people in the same job, the first five years of experience results in a much greater improvement in worker quality than one progressing from 20- to 25-years experience—but exactly how much is difficult to say.

CFIB chose to use a Census (NHS) approach to wage comparisons because of the much larger sample sizes and detail available on key variables such as occupation, region, and level of government. In this report, the 2011 analysis is similar to the methods we had used in previous Census rounds. Significant potential influences such as age, schooling and working hours are taken into account, but by using large sample disaggregation rather than statistical regression. As any approach would, this method has its caveats, but the results from previous years have proven to be in line with other studies.

Note on the new data

In the 2011 Census round, the federal government replaced the mandatory long-form method with a voluntary National Household Survey (NHS). The questions in both questionnaires were the same, but the sampling differed. The mandatory long-forms

had been randomly sent to one-in-five households, while the voluntary NHS was sent out to one-third of all households. With approximately 13.3 million Census dwellings, the long-form approach would have collected roughly 2.5 million completed forms (at an assumed 94 per cent completion rate). The NHS achieved a raw response rate of 68.6 per cent, for a total response of about 3.0 million.

Even with mandatory completion, there will be sampling errors in the data across Census years. However, the change to a voluntary approach introduced additional variability—particularly with respect to those in low income groups and remote communities. For that reason, Statistics Canada cautions drawing direct conclusions about apparent trends between 2011 and 2006 data, especially in small or remote regions where non-response may be more of a factor.

This shift in methodology is an obvious caveat to our analysis, but we don't expect it to have had a significant effect on data quality. First, we are keeping our analysis within the 2011 data set—drawing no direct conclusions with 2006 or earlier Census data. Second, the analysis relies on data from middle income, employed individuals, who have not been shown to have under-reported. And, third, the study's geographic details are kept to the national, provincial and large municipality levels. Occupational details may have sampling biases among them, but we expect they would be random with respect to public or private sector employment and evenly distributed around the means and medians reported.

Basic comparators

It is important to note that this analysis focuses solely on occupations found in both the public and private sectors, as defined by Statistics Canada. Unique public sector occupations are treated as incomparable and hence, are excluded from the analysis. Excluded occupations include: teachers, professors, urban transit drivers, letter carriers, law enforcement officers, fire fighters, military personnel, elected government officials, and senior government officials such as deputy ministers, assistant deputy ministers, and director generals.

We also ensure that the comparisons are based on full-time and full-year employees with no other forms of income beyond salaries. This ensures that results do not get clouded with differences in full-time-part-time status or supplemental income from pension or self-employment sources.

Although the NHS allows one to adjust for many of the differing characteristics between public and private sector organizations, some other factors have to be dealt with separately. For the sake of simplicity we did not make separate wage comparisons for women and men. Other studies have indeed found larger public sector differentials for women than for men, though the amounts are typically less than the overall public-private sector gaps. One could reasonably apply these generalized findings to our results as well. This angle is certainly worthy of further study, but doing a more complete job requires a quite a bit more detailed look at the potential drivers and influences—information not fully available from the NHS.

Data adjustments:

Education:

Wage levels depend a great deal on the skills employees bring to their work. One influence of skills is education levels. The relationship, however is not a clear one because of the high level of interaction with other variables—namely occupation. Government employees indeed have higher amounts of post-secondary education compared to private sector employees; however, once occupation differences are taken into account between sectors, the education influence shrinks considerably. Log regressions on 2010 SLID microdata show the effect.

The raw wage differential between full-time, full-year government employees and their private sector counterparts was 34.2 per cent. Re-running the regressions by adding in the effects of age, experience, size of organization and union status each has a small or insignificant impact on the relationship. However, by accounting for occupation—even a crude 25 groups—the differential shrinks to 17.7 per cent. Finally, adding education as an

explanatory variable shrinks the differential to only 14.9 per cent. This means education, by itself, only accounts for 2.8 per cent of the wage difference between government and private sector workers.

Table A1

Decomposition of regression effects: log wages for full-time full-year workers with single jobs

	Independent variables	Regression series 1: Government sector wage premium over private sector	Regression series 2: Broad public sector over private sector
A	Public/private sector	34.2%	21.0%
	A + age, sex, experience, union, employment size	29.5%	21.1%
C	B + occupation	17.7%	13.7%
D	C + education	14.9%	8.2%

Final regression 1: R2=0.477, F=74063.720, resid.df=3580235

Final regression 2: R2=0.458, F=78541.160, resid.df=4090487

Data from Statistics Canada 2010 Survey of Labour and Income Dynamics

Had the occupation category detail been available to the 500-level detail found in the NHS, rather than the SLID's 25, the incremental explanatory effects of education would likely have been much smaller. Nonetheless, we will take half the effect (1.4 per cent) and use it as an adjustment for the NHS data. Running the regressions on the broader public sector produces an education adjustment somewhat larger at 2.8 per cent (half of 13.7 minus 8.2 per cent).

Unfortunately we do not have findings more finely tuned, so there is the possibility that these adjustments may over or under compensate when looking at the level of government or regional subgroupings.

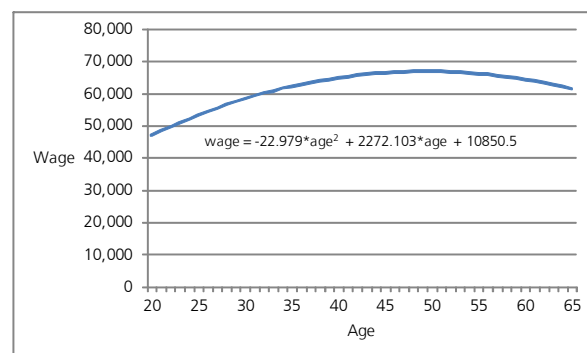
Age:

Employee age is taken here as a proxy for experience because measures of work tenure or skills are not available on the NHS. The age to wage relationship was derived via a

multivariate regression on the 2010 SLID microdata. Because the relationship is nonlinear, age was structured as a quadratic function of annual wage. The other dependent variables of occupation and education levels (number of years of post-secondary education) were defined as flags. Aligning the coefficients to the average government administration wage and average age yielded the impacts on wage levels as one moves up the age scale (see Figure 3). Applying the equation to differences in the age levels between public and private sector employees therefore yields an adjustment factor.

Figure A1

Relationship between age and annual wage



Data from Statistics Canada 2010 Survey of Labour and Income Dynamics

Working hours:

Neither the SLID nor the NHS has measures of standard working hours or time off for sickness or vacations. Tabular data that are available from other sources such as the Labour Force Survey do not account for the differences in the occupational mix of each sector.

To get as close as reasonably possible to matching up weekly working hours on a comparable basis, we acquired a custom tabulation of LFS data for only full-time salaried workers who had post-secondary certificates or degrees for the private sector and the three major levels of government and by province. To ensure stability of the series from potentially small survey sample sizes, we averaged the data across the 2008 to 2013 timeframe (see Table A2).

Table A2

Average usual and actual weekly hours worked*, 2008-13

Canada	Usual weekly hours	Actual weekly hours
Private sector	40.2	37.9
Federal admin.	38.1	32.1
Provincial admin.	37.5	34.2
Municipal admin.	38.4	34.5

*Full-time employees not paid by the hour, by post-secondary certificate or diploma and/or university degree, industry, Canada and provinces

Source: Statistics Canada, Labour Force Survey, custom tabulation

Usual weekly hours are taken as the standard workweek for employees of each group, while actual hours include time off.

Pension benefits.

Pension benefits are an important consideration when comparing compensation levels. A good part of pension costs are borne by employees themselves from their basic wages. However, the employer-paid portion can be considered a deferred income—payable to employees after they retire. Unfortunately, neither the NHS nor SLID has complete information on these pension contributions. Note that we are restricting our comparisons to registered employer pension plans and not including CPP, OAS or GIS benefits. The latter are formulated based on earnings, but result in no advantages to either public or private sector earners.

In the past, we cited unpublished supplementary labour income (SLI) statistics from Statistics Canada as a proxy for employer-paid benefits such as pensions, retirement health costs and bonuses. These data, however, were only available as global averages for the public and private sector, and not tuned properly to allow for adjustments for occupation, age, experience and so on. The findings suggested very large public sector advantages, but it meant also leaving a very large caveat in our analyses. SLI data are no longer available from Statistics Canada in the same form, so for this round, we took a different (and more conservative) approach in

measuring the relative benefits of retirement benefits.

Fortunately, the SLID microdata have some partial information that can help us work around the data difficulties of the past. SLID contains one flag variable on whether the individual is a member of an employer pension plan. The raw data tell us that among full-time, full-year wage earners, 98.3 per cent of government employees, 94.1 per cent of broad public sector employees and 49.2 per cent of private sector employees have employer pensions—a gap of 49.1 and 44.9 percentage points respectively. However, using logistic regression to account for differences in union status, age, gender, occupation, experience and education, we find that government employees are 19.0 per cent more likely than their most similar private sector counterparts to have an employer pension. From that we can infer that 79.3 per cent of comparably employed private sector workers have such plans.

Statistics Canada data on registered pension plans can help us with the dollars involved. In 2010, total public sector plans had required employer contributions of \$15.606 billion spread amongst 3.084 million plan members—an average contribution of \$5,060 per member. Private sector employer required contributions amounted to \$10.471 billion for 2.949 million members—or \$3,562 per member. Of course, these data do not allow for adjustments according to type of job.

To do so and to find what proportion of income it represents, we turn back to raw SLID income estimates to find average earnings of pension plan members were \$67,160 for government workers and \$57,923 for those in the private sector. Applying the respective employer contribution levels to these incomes shows a raw 7.5 per cent contribution rate in government and a 6.1 per cent rate in the private sector. Adjusting for those without plans and accounting for occupation, education, age groups, etc., leaves us with an estimated government employer contribution rate of 7.4 per cent and a comparable private sector rate of 4.9 per cent—a gap of 2.5 per cent in favour of government workers. Replicating the above calculations for the broader non-government public sector shows a

very similar 2.1 per cent differential versus private sector employer pension contributions.

These estimates naturally involve calculations spreading across separate data sources, so appropriate caveats are necessary. It also would have been preferable to use median estimates rather than averages, but the pension contribution information was not structured that way. Nonetheless, these findings look quite conservative relative to the past findings based on older supplementary labour income statistics.

Variables not accounted for:

- Unionization

The high prevalence in public sector unionization indeed adds a few points to the differential according to others' studies. But whether it should be accounted for in wage comparisons for policy purposes is debateable. Unionization may help *explain* the higher salaries of public sector workers, but it need not *justify* it.

Attribute-based qualities of employees such as knowledge, skills and experience are positively correlated with salaries because they directly influence employees' productivity levels. Unionization, by itself, has no direct link to productivity. There is not a general case to be made, therefore, that simply being a member of a union entitles one to a higher salary than someone else outside of a union but with exactly the same attributes and job type.

The prevalence of unions in the public sector is a result of labour groups' market power coupled with the lack of market-based checks and balances to employment cost structures. Unlike in the private sector, government entities with top-heavy labour costs cannot be priced out of the marketplace, nor can users of government services switch to other providers in the event of work stoppages. Both factors shift the power balance toward public sector unions. For these reasons, we do not include unionization as a justifiable reason for a public versus private sector salary gap.

- Size of business

For basically the same reasons as above, we also do not adjust the salary gaps according to size of organization. Although there are differences in raw salary levels by size of business, the rationales are rooted in productivity. Large firms have the benefits of economies of scale, which allow them to run higher levels of employee compensation compared to smaller firms—all else being held equal. Again, the activities of these large private sector companies are market tested, whereas Public sector organizations are not. One cannot simply benchmark government salary levels to other large organizations, therefore, because there are no clear productivity-based measures in the public sector to justify a proper comparison

- Other exclusions

Also excluded from the analysis are those occupations which exhibit high wage differentials between respective sectors. These outliers suggest that the nature of employment within these occupations significantly differ from one sector to another, and may skew the empirical results. To further ensure stability of the estimates, only those occupations with more than 25 individuals, in a defined geographic area, are included in the analysis.

The idea behind this methodology is to get the best use of the occupational and industrial detail behind the most widely responded survey of population available. Although occupations are highly detailed, CFIB recognizes that they are not perfect substitutes for precise job matching exercises. Therefore, this study does not focus on individual occupation-by-occupation wage differences—only in aggregate.

The fact that the data are also self-reported and then classified by Census data-entry staff means that some misclassifications are possible—either by occupation or by industry. CFIB makes the reasonable assumption that errors caused by occupational generalization or misclassification are randomly distributed in either direction and have no systematic bias on the overall wage gap estimates.

Appendix B

Detailed results by province and major city

Table B1

Federal government

	Salary				Employment		Comparable occupations		
	Federal	Comparable Private sector	Salary premium	Incl. benefits*	Federal	Comparable private sector	Public sector premium	Private sector premium	Total
	\$/yr	\$/yr	%	%	#	#	#	#	#
Canada	67,108	59,409	13.0	33.2	174,615	3,694,065	172	40	212
Newfoundland	63,013	59,016	6.8	25.5	1,365	6,555	12	4	16
St. John's	62,183	57,091	8.9	28.1	930	4,275	10	2	12
Nova Scotia	63,851	58,288	9.5	26.2	3,595	15,725	26	7	33
Halifax	66,588	59,681	11.6	28.5	1,955	6,700	17	3	20
New Brunswick	57,669	51,569	11.8	29.4	2,470	13,020	20	5	25
Quebec	64,470	55,205	16.8	39.7	31,945	415,875	85	10	95
Quebec City	55,019	48,452	13.6	35.8	1,945	22,795	17	6	23
Montreal	63,645	57,780	10.2	31.8	8,050	176,340	35	15	50
Ottawa-Gatineau	71,828	65,957	8.9	29.0	67,360	76,070	74	24	98
Ontario	71,541	64,660	10.6	31.1	75,950	1,035,240	113	24	137
Toronto	66,061	63,420	4.2	23.4	9,090	301,105	34	15	49
Manitoba	57,933	56,874	1.9	18.9	4,380	23,705	22	4	26
Winnipeg	55,435	51,096	8.5	26.7	2,620	14,825	17	4	21
Saskatchewan	59,551	55,661	7.0	23.4	1,890	18,035	16	5	21
Alberta	62,706	65,502	-4.3	10.6	9,455	235,935	37	30	67
Calgary	62,140	69,511	-10.6	3.3	1,185	37,460	4	9	13
Edmonton	60,292	59,481	1.4	17.1	4,150	52,475	26	15	41
British Columbia	63,215	59,753	5.8	20.7	15,145	220,015	66	25	91
Vancouver	63,259	61,943	2.1	16.5	7,955	103,525	36	16	52
Victoria	64,710	58,844	10.0	25.5	1,595	6,470	20	6	26

Table B2
Provincial government

	Salaries				Employment		Comparable occupations		
	Provincial \$/yr	Comparable Private sector \$/yr	Salary premium %	Incl. benefits* %	Provincial #	Comparable private sector #	Public sector premium #	Private sector premium #	Total #
Canada	61,080	57,894	5.5	21.2	148,535	3,693,330	142	57	199
Newfoundland	57,869	54,363	6.4	21.8	2,895	14,570	23	12	35
St. John's	59,444	55,282	7.5	23.0	1,685	5,955	17	6	23
Prince Edward Island	49,496	45,629	8.5	28.6	445	830	3	1	4
Nova Scotia	54,927	51,605	6.4	25.4	4,095	29,365	29	7	36
Halifax	55,712	53,629	3.9	22.3	2,505	13,245	20	7	27
New Brunswick	55,453	50,059	10.8	26.4	4,070	24,435	28	9	37
Fredricton	59,313	54,857	8.1	23.4	1,155	2,105	10	2	12
Quebec	51,391	50,693	1.4	18.5	40,970	503,035	73	37	110
Quebec City	54,064	51,311	5.4	23.1	17,145	37,050	54	16	70
Montreal	50,953	52,758	-3.4	12.9	11,840	202,445	30	31	61
Ottawa-Gatineau	70,048	62,527	12.0	26.4	1,980	35,355	20	6	26
Ontario	71,022	63,739	11.4	25.7	32,010	856,540	88	14	102
Oshawa	70,522	70,835	-0.4	12.4	610	6,230	5	5	10
Toronto	74,832	68,057	10.0	24.1	16,540	339,675	53	10	63
Manitoba	56,626	52,347	8.2	19.5	5,555	43,340	43	11	54
Winnipeg	57,886	53,358	8.5	19.9	3,805	30,155	35	7	42
Saskatchewan	62,167	57,763	7.6	20.4	4,040	33,000	26	13	39
Regina	65,057	64,113	1.5	13.5	2,025	8,160	12	11	23
Alberta	70,859	69,728	1.6	17.4	12,185	200,810	46	28	74
Calgary	74,111	72,866	1.7	17.5	1,265	36,340	11	5	16
Edmonton	71,409	66,205	7.9	24.6	8,010	54,290	39	15	54
British Columbia	59,847	58,648	2.0	17.4	15,045	255,005	45	35	80
Vancouver	57,563	57,405	0.3	15.3	3,410	109,740	17	18	35
Victoria	61,709	57,073	8.1	24.3	4,945	10,130	29	9	38

Note: Figures for Ottawa-Gatineau reflect employees in both the Ontario and Quebec governments

Table B3

Municipal government

	Salaries				Employment		Comparable occupations		
	Municipal	Comparable Private sector	Salary premium	Incl. benefits*	Municipal	Comparable private sector	Public sector premium	Private sector premium	Total
	\$/yr	\$/yr	%	%	#	#	#	#	#
Canada	61,023	56,049	8.9	22.3	132,790	3,564,775	151	37	188
Newfoundland	45,675	47,604	-4.1	6.2	775	5,255	4	4	8
Nova Scotia	47,023	44,958	4.6	10.1	935	13,680	10	5	15
New Brunswick	45,322	43,084	5.2	19.1	680	5,700	4	4	8
Quebec	53,911	50,318	7.1	22.9	23,290	489,680	70	21	91
Quebec City	55,132	51,224	7.6	23.4	1,800	24,390	17	4	21
Montreal	56,423	51,622	9.3	25.4	10,985	231,585	58	12	70
Ottawa-Gatineau	61,703	57,748	6.8	21.0	3,370	37,675	26	10	36
Ontario	64,041	59,897	6.9	21.1	44,970	976,215	101	25	126
Oshawa	61,902	59,335	4.3	18.2	975	5,275	10	5	15
Toronto	68,674	61,764	11.2	25.9	15,935	397,435	70	12	82
Hamilton	61,573	56,887	8.2	22.6	1,800	16,905	21	6	27
St. Catharines-Niag.	56,281	54,671	2.9	16.6	640	4,290	6	5	11
Kitchener-Waterloo	59,928	55,420	8.1	22.5	805	11,820	12	2	14
London	56,434	54,364	3.8	17.6	570	8,905	8	5	13
Manitoba	49,399	48,381	2.1	14.1	2,460	32,100	14	10	24
Winnipeg	50,392	47,786	5.5	17.8	1,525	16,545	13	5	18
Saskatchewan	50,796	49,314	3.0	14.1	2,320	25,055	18	8	26
Alberta	67,911	64,435	5.4	16.3	18,285	276,945	55	26	81
Calgary	70,567	65,604	7.6	18.7	5,620	82,840	42	12	54
Edmonton	63,333	62,050	2.1	12.7	5,190	63,835	40	13	53
British Columbia	60,977	57,108	6.8	16.7	13,440	228,035	61	20	81
Vancouver	60,759	57,531	5.6	15.4	5,820	97,055	41	10	51

Table B4

Primary, secondary, post-secondary education

	Salaries				Employment		Comparable occupations		
	Education	Comparable Private sector	Salary premium	Incl. benefits*	Education	Comparable private sector	Public sector premium	Private sector premium	Total
	\$/yr	\$/yr	%	%	#	#	#	#	#
Canada	51,029	48,872	4.4	19.5	136,535	4,093,915	130	68	198
Newfoundland	43,225	41,475	4.2	18.8	1,875	8,105	8	6	14
Nova Scotia	48,365	46,994	2.9	20.7	2,340	18,465	18	6	24
Halifax	42,757	39,255	8.9	27.8	1,765	7,980	10	4	14
New Brunswick	39,451	37,229	6.0	20.4	1,830	13,085	11	4	15
Quebec	45,002	44,850	0.3	16.8	30,355	533,975	59	33	92
Quebec City	46,771	45,453	2.9	19.8	2,480	21,655	17	4	21
Montreal	45,688	47,254	-3.3	12.5	14,500	241,225	41	35	76
Ottawa-Gatineau	49,703	49,129	1.2	13.7	4,210	44,040	22	12	34
Ontario	53,909	50,510	6.7	20.0	44,175	1,085,060	74	33	107
Toronto	53,643	49,978	7.3	20.7	14,905	418,690	41	22	63
Hamilton	50,700	49,761	1.9	14.5	2,525	16,300	14	9	23
Kitchener-Waterloo	53,947	48,067	12.2	26.2	1,540	10,345	11	2	13
London	54,570	49,279	10.7	24.5	1,290	9,700	14	4	18
Manitoba	45,244	42,230	7.1	17.9	3,810	32,135	25	7	32
Winnipeg	50,110	46,694	7.3	18.1	1,885	19,190	19	3	22
Saskatchewan	46,639	46,273	0.8	12.3	3,315	22,510	14	13	27
Alberta	58,206	58,660	-0.8	14.2	13,015	238,915	45	30	75
Calgary	58,262	60,724	-4.1	10.4	3,480	65,990	15	19	34
Edmonton	61,242	57,628	6.3	22.3	4,500	46,445	30	10	40
British Columbia	52,534	51,061	2.9	17.9	14,380	286,130	48	33	81
Vancouver	53,768	53,355	0.8	15.4	7,575	124,625	31	18	49
Victoria	49,576	47,872	3.6	18.6	1,015	5,560	10	4	14

Table B5
Health care

	Salaries				Employment		Comparable occupations		
	Health	Comparable Private sector	Salary premium	Incl. benefits*	Health	Comparable private sector	Public sector premium	Private sector premium	Total
	\$/yr	\$/yr	%	%	#	#	#	#	#
Canada	54,276	52,517	3.3	18.3	453,390	3,657,145	114	68	182
Newfoundland	53,271	49,839	6.9	21.8	8,840	14,220	20	11	31
St. John's	60,072	55,745	7.8	22.8	2,650	4,285	12	1	13
Nova Scotia	52,180	51,852	0.6	18.1	15,060	29,140	29	18	47
Halifax	53,107	54,008	-1.7	15.4	5,850	12,140	20	13	33
New Brunswick	56,422	56,963	-0.9	12.6	9,900	20,945	25	11	36
Saint John	54,059	55,597	-2.8	10.5	1,650	1,985	6	4	10
Quebec	46,844	45,804	2.3	19.0	111,755	551,245	62	36	98
Saguenay	41,351	38,636	7.0	24.6	1,860	2,830	7	7	14
Quebec City	45,531	45,291	0.5	17.0	12,940	28,355	18	22	40
Sherbrooke	45,531	41,194	10.5	28.6	12,940	28,355	10	3	13
Montreal	47,869	46,727	2.4	19.2	49,860	269,230	50	30	80
Ottawa-Gatineau	56,903	55,280	2.9	15.7	13,980	49,540	34	19	53
Ontario	60,093	55,012	9.2	22.8	143,335	1,062,360	85	42	127
Oshawa	66,512	61,573	8.0	21.4	2,470	5,160	5	6	11
Toronto	61,695	56,121	9.9	23.6	49,860	440,130	62	33	95
Hamilton	61,765	58,505	5.6	18.7	7,450	18,190	25	8	33
St. Catharines-Niag.	52,280	47,356	10.4	24.1	3,410	3,785	10	2	12
Kitchener-Waterloo	57,556	53,738	7.1	20.4	3,290	9,480	8	9	17
London	59,525	55,139	8.0	21.4	6,250	10,230	16	10	26
Windsor	55,079	50,143	9.8	23.5	3,405	3,660	7	7	14
Manitoba	52,330	50,303	4.0	14.5	15,445	41,715	23	27	50
Winnipeg	53,986	50,674	6.5	17.3	10,005	27,500	24	15	39
Saskatchewan	58,615	54,330	7.9	20.2	12,425	20,245	20	16	36
Regina	62,954	63,754	-1.3	10.0	2,475	3,555	8	5	13
Saskatoon	63,441	68,389	-7.2	3.3	2,785	2,625	8	4	12
Alberta	61,673	60,983	1.1	16.4	37,970	232,610	54	28	82
Calgary	62,392	59,969	4.0	19.7	10,510	52,810	21	19	40
Edmonton	63,626	62,415	1.9	17.3	13,890	49,150	38	14	52
British Columbia	56,273	56,604	-0.6	13.9	47,450	257,420	58	33	91
Kelowna	54,312	51,875	4.7	19.9	1,560	2,510	11	1	12
Vancouver	60,554	60,443	0.2	14.8	21,850	100,505	37	24	61
Victoria	53,675	54,266	-1.1	13.3	3,830	8,010	19	3	22

Table B6
Transit

	Salaries				Employment		Comparable occupations		
	Transit	Comparable Private sector	Salary premium	Incl. benefits*	Transit	Comparable private sector	Public sector premium	Private sector premium	Total
	\$/yr	\$/yr	%	%	#	#	#	#	#
Canada	69,833	61,688	13.2	26.7	7,340	1,710,965	54	11	65
Quebec Montreal	63,204	57,185	10.5	26.3	1,515	211,290	20	3	23
	64,324	57,424	12.0	28.0	1,340	111,350	22	1	23
Ontario Toronto	69,017	61,122	12.9	27.4	1,915	319,855	19	3	22
	69,998	62,767	11.5	25.8	1,410	146,630	16	2	18
British Columbia	60,434	48,118	25.6	36.7	3,960	56,080	12	3	15

Table B7
Canada Post

	Salaries				Employment		Comparable occupations		
	Canada Post	Comparable Private sector	Salary premium	Incl. benefits*	Canada Post	Comparable private sector	Public sector premium	Private sector premium	Total
	\$/yr	\$/yr	%	%	#	#	#	#	#
Canada	57,475	49,278	16.6	36.9	28,585	1,513,980	30	9	39
Quebec	54,926	51,844	5.9	26.2	6,185	130,810	10	2	12
Ontario Toronto	58,553	48,702	20.2	41.9	9,335	454,475	14	6	20
	55,972	52,718	6.2	25.3	800	109,315	7	3	10

*Includes, public and private sector differences in actual hours worked and differences in employer-paid pension contributions.

Appendix C

Empirical Methodology: Comparison of Narrowly-Defined Occupations

Population:

Persons 15 years of age and over with exclusively salary income who worked full time, full year. Full-time employment is defined as 30 hours or more per week; full-year employment is defined as 50 weeks or more per year.

Sector and Occupation Definitions:

Occupations found in both the public and private sectors were selected from a total list of 717 occupation groups (including all occupational codes) as defined in the 2011 National Occupational Classification (NOC 2011) system. A total of 493 occupations at the four digit occupational code were used in this analysis after excluding selected occupations that are non-comparable between public-sector and private-sector employees.

The 8 industry groups used in this study are based on the 2002 North American Industrial Classification System (NAICS)

- ▶ Federal public administration
- ▶ Provincial public administration
- ▶ Local/Municipal public administration
- ▶ Urban transit
- ▶ Public Education
- ▶ Hospitals and Health Care institutions
- ▶ Postal services
- ▶ Private sector

Geography:

48 geographical areas in total: Canada, the provinces/territories and select Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs).

Variables:

i = The i th occupation from a total list of 493 SOC categories.

j = The j th geographic area from a total list of 48 categories

$G\#_{ij}$ = Number of public administration employees in occupation i and residing in geographic area j .

$P\#_{ij}$ = Number of private-sector employees in occupation i and residing in geographic area j .

$Gm\$_{ij}$ = Median employment earnings of public administration employees in occupation i and residing in geographic area j .

$Pm\$_{ij}$ = Median employment earnings of private-sector employees in occupation i and residing in geographic area j .

Data Filtering:

Data which meets the following criteria are to be excluded in computing wage differentials as to omit statistical outliers:

1. If $G\#_{ij} < 25$ or $P\#_{ij} < 25$
2. If $0.7 > Gm\$_{ij} / Pm\$_{ij} > 1/0.7$

Aggregation Method:

The computation of wage differentials between the private-sector and public administration is based on an index (I) as follows:

$$I_j = (\sum Gm\$_{ij} \times G\#_{ij}) / (\sum Pm\$_{ij} \times G\#_{ij})$$

The value $Gm\$_{ij} \times G\#_{ij}$ for example, represents the median earnings in public administration weighted by the number of persons working in public administration for occupation i , geographic area j . This value is computed for each level of public administration (federal, provincial, and local). The total value of the earnings in each level of public administration for all occupations is therefore the sum of $Gm\$_{ij} \times G\#_{ij}$ (or $\sum Gm\$_{ij} \times G\#_{ij}$).

Hence, if $I-1 > 0$ (or $I > 1$), there is a wage advantage in favour of those occupations in public administration. Similarly, if $I-1 < 0$ (or $I < 1$), the wage advantage is in favour of private-sector occupations.