

Microdata User Guide

PUBLIC SERVICE EMPLOYEE SURVEY

2014



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1.0 Introduction

The Public Service Employee Survey (PSES) was conducted by Statistics Canada from August 25th, 2014 to October 3rd, 2014 with the cooperation and support of the Office of the Chief Human Resources Officer. This manual has been produced to facilitate the manipulation of the microdata file of the survey results.

Any questions about the data set or its use should be directed to:

Statistics Canada

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2.0 Background

The Public Service Employee Survey (PSES) has been conducted every three years since 1999 to gather employee perspectives on aspects of their workplace, workforce and leadership, providing information about employee engagement, performance management, career development, and fairness and respect in the workplace. The survey results provide essential information for the Management Accountability Framework, and inform policy related to values and ethics, official languages, staffing, training, and other key people management areas.

As of 2014, survey results can be compared over three survey cycles (for the identical questions) to reveal trends across the public service or within organizations. Some questions of the PSES allow for benchmarking with the results of employee surveys of other governments, including provincial/territorial and international comparisons.

The survey results inform managers and employees about strengths and areas for improvement at all levels within an organization. The results contribute to the understanding of people management issues, leading to action plans that may positively impact the workplace. The results also serve as a platform to initiate and maintain dialogue about key people management issues.

3.0 Objectives

A fundamental objective of the 2014 Public Service Employee Survey (PSES) is to seek employee opinion on a variety of issues related to organizational effectiveness, workplace well-being and service delivery.

The results of the 2014 PSES, the sixth cycle to be conducted, will enable managers and employees to take concrete steps to improve their workplace, both within their own department and, where needed, across the Public Service. The survey results will be used to initiate actions at the department, sector or branch level, and work unit level. Ultimately, improvements to the Public Service workplace will improve service to Canadians.

4.0 Concepts and Definitions

This chapter outlines concepts and definitions of interest to users.

The target population for this survey is made up of all employees of participating departments and agencies within the federal public service (Schedules I, IV, and V of the *Federal Administration Act*) and those in special operating agencies who agreed to participate in the Survey. Employees meeting the following status were eligible to participate in the 2014 Public Service Employee Survey:

- full and part-time indeterminate employees
- seasonal employees
- employees on assignment
- term employees
- casual employees
- students
- Governor in Council appointees.

Minister's exempt staff, private sector contractors or consultants, and employees on parental leave or on leave without pay could not participate in the Survey.

Some definitions are included on the questionnaire to ensure that all respondents had the same understanding of the terms.

These include:

Harassment: Any improper conduct by an individual that is directed at and offensive to another individual in the workplace, including at any event or any location related to work, and that the individual knew or ought reasonably to have known would cause offence or harm. It comprises objectionable act(s), comment(s) or display(s) that demean, belittle, or cause personal humiliation or embarrassment, and any act of intimidation or threat. It also includes harassment within the meaning of the *Canadian Human Rights Act* (i.e., based on race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, family status, disability, and pardoned conviction or suspended record).

Discrimination: Refers to treating someone differently or unfairly because of a personal characteristic or distinction, which, whether intentional or not, has an effect that imposes disadvantages not imposed on others, or that withholds or limits access that is given to others. There are 11 prohibited grounds of discrimination under the *Canadian Human Rights Act*: race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, family status, disability, and pardoned conviction or suspended record.

Duty to Accommodate:

Employer's obligation to eliminate disadvantages to employees, prospective employees or clients that result from a rule, practice or physical barrier that has or that may have an adverse impact on individuals or groups protected under the *Canadian Human Rights Act* or identified as a designated group under the *Employment Equity Act*. It applies to all grounds of discrimination covered by the *Canadian Human Rights Act*: race, national or ethnic origin, colour, religion, age, sex (including pregnancy and childbirth), sexual orientation, marital status, family status, disability, and pardoned conviction or suspended record. Employers must provide accommodation up to the point of undue hardship, taking into account essential job requirements.

A diverse workplace:

A workplace that includes everyone, regardless of race, national or ethnic origin, colour, disability, sex, sexual orientation, marital or family status, religion, age, language, culture, background, interests, views or other dimensions

An Aboriginal person:

A North American Indian or a member of a First Nation, a Métis or an Inuk (Inuit). North American Indians or members of a First Nation include status, treaty or registered Indians, as well as non-status and non-registered Indians.

A person with a disability:

A person who has a long-term or recurring physical, mental, sensory, psychiatric or learning impairment and considers himself or herself to be disadvantaged in employment by reason of that impairment, or believes that an employer or potential employer is likely to consider him or her to be disadvantaged in employment by reason of that impairment. Persons with disabilities are also those whose functional limitations owing to their impairment have been accommodated in their current job or workplace.

A member of a visible minority group:

In Canada, this may be defined as someone (other than an Aboriginal person) who is non-white in colour or race, regardless of place of birth. For example: Black, Chinese, Filipino, Japanese, Korean, South Asian or East Indian, Southeast Asian, non-white West Asian, North African or Arab, non-white Latin American, person of mixed origin (with one parent in one of the visible minority groups in this list), or other visible minority group.

All other concepts mentioned in the questionnaire were left to the self-interpretation of each respondent.

5.0 Survey Methodology

The survey was a census across all participating departments and agencies. The vast majority of employees received an email invitation to complete the questionnaire using the Internet. Those employees without internet access were provided with a paper questionnaire to complete. The survey was anonymous; that is, the respondent's name or other identification was not required on the questionnaire.

5.1 Population Coverage

The target population for the Public Service Employee Survey (PSES) was all employees listed by the participating organizations in August 2014.

5.2 Participating Departments and Agencies in 2014

Aboriginal Affairs and Northern Development Canada
Agriculture and Agri-Food Canada
Atlantic Canada Opportunities Agency
Canada Border Services Agency
Canada Economic Development for Quebec Regions
Canada Industrial Relations Board
Canada Revenue Agency
Canada School of Public Service
Canadian Dairy Commission
Canadian Environmental Assessment Agency
Canadian Food Inspection Agency
Canadian Grain Commission
Canadian Heritage
Canadian Human Rights Commission
Canadian Human Rights Tribunal
Canadian Institutes of Health Research
Canadian Intergovernmental Conference Secretariat
Canadian International Trade Tribunal
Canadian Northern Economic Development Agency
Canadian Nuclear Safety Commission
Canadian Polar Commission
Canadian Radio-television and TeleCommunications Commission

Canadian Space Agency
Canadian Transportation Agency
Citizenship and Immigration Canada
Commission for Public Complaints Against the RCMP
Communications Security Establishment
Copyright Board of Canada
Correctional Service Canada
Courts Administration Service
Department of Finance Canada
Department of Justice
Department of National Defence
Elections Canada
Employment and Social Development Canada
Environment Canada
Farm Products Council of Canada
Federal Economic Development Agency for Southern Ontario
Financial Consumer Agency of Canada
Financial Transactions and Reports Analysis Centre of Canada
Fisheries and Oceans Canada
Foreign Affairs, Trade and Development Canada
Health Canada
Immigration and Refugee Board of Canada
Indian Oil and Gas Canada
Industry Canada
Infrastructure Canada
International Joint Commission
Library and Archives Canada
Military Grievances External Review Committee
Military Police Complaints Commission
National Capital Commission
National Energy Board
Natural Resources Canada
Natural Sciences and Engineering Research Council
Northern Pipeline Agency
Office of the Auditor General of Canada
Office of the Commissioner for Federal Judicial Affairs Canada
Office of the Commissioner of Lobbying of Canada
Office of the Commissioner of Official Languages
Office of the Correctional Investigator
Office of the Information Commissioner of Canada
Office of the Privacy Commissioner of Canada

Office of the Public Sector Integrity Commissioner of Canada
Office of the Secretary to the Governor General
Parks Canada
Parole Board of Canada
Patented Medicine Prices Review Board of Canada
Privy Council Office
Public Health Agency of Canada
Public Prosecution Service of Canada
Public Safety Canada
Public Servants Disclosure Protection Tribunal Canada
Public Service Commission of Canada
Public Service Staffing Tribunal
Public Works and Government Services Canada
RCMP External Review Committee
Registry of the Competition Tribunal
Registry of the Specific Claims Tribunal
Royal Canadian Mounted Police
Shared Services Canada
Social Sciences and Humanities Research Council
Statistical Survey Operations
Statistics Canada
Status of Women Canada
Supreme Court of Canada
Transport Canada
Transportation Appeal Tribunal of Canada
Transportation Safety Board of Canada
Treasury Board of Canada Secretariat
Veterans Affairs Canada
Veterans Review and Appeal Board
Western Economic Diversification Canada

5.3 Organizational Units

An important objective of the survey was to provide all departments and agencies with information that would allow them to react to the feedback provided by their employees. To do so, all departments and agencies with 150 employees or more were asked to provide Statistics Canada with a list of organizational units for which the data could be broken down. Guidelines were provided to the departments and agencies and individual discussions took place to develop a list that would satisfy the department's or agency's needs and still ensure the confidentiality of the data. As a general rule, departments were asked to come up with organisational units with 50 employees or more. A list of codes was prepared for each department and agency. Question 85 for the electronic questionnaire asked, "In which organizational unit are you currently working?". The same question was asked in the paper questionnaire; however the list of codes was included in the envelope along with the paper questionnaire.

6.0 Questionnaire Design

The questionnaire was developed by the Office of the Chief Human Resources Officer of the Treasury Board Secretariat and was based on previous versions of the Public Service Employee Survey (PSES).

The content of the first survey in 1999 was developed by an interdepartmental committee, led by the Treasury Board of Canada Secretariat, with the support of Statistics Canada. In 2002, the survey was modified extensively, retaining 39 questions from the 1999 version. The 2005 version was a duplicate of the 2002 PSES. In 2008, the survey underwent a major revision, including changes to the response scale for the majority of questions, which precluded comparisons with results from previous survey cycles. Both the 2011 and 2014 questionnaires have evolved to address current issues and allow for benchmarking with other government employee surveys. The 2014 survey content was developed through extensive consultation with departments and agencies, central agencies, bargaining agents, human resources policy groups, functional communities, and employment equity group committees.

The 2014 questionnaire contained 106 questions: 17 new questions, 13 modified questions, and 76 questions repeated from the 2011 survey (55 of the repeated questions were also used in the 2008 survey). To test the content of the 2014 questionnaire, focus group sessions were held in the National Capital, Winnipeg and Montréal. Participants were from various departments and agencies, and various occupational groups and levels.

As well, participating departments and agencies were given an opportunity to add up to five supplementary questions to be administered to their employees and, 12 did. The supplements were also tested in a series of focus groups held in each of these departments for both official languages.

The 2014 questionnaire was formatted as an electronic survey (to be completed online), as a paper survey and in three alternate formats (large print, Braille and audio CD).

7.0 Data Collection

All departments were able to support electronic collection. The vast majority of employees, more than 98%, were able to complete the questionnaire electronically, up from 95% in 2011.

Employees not having access to a computer or to the Internet were provided with paper questionnaires by communicating with their human resource contact.

The electronic collection occurred between August 25th, and October 3rd, 2014. The invitation to participate was sent over a five-day period in the first week of collection. Every week an email reminder was sent to employees not having responded to the survey during the previous week.

The closing date for acceptance of paper questionnaires was October 31st, 2014.

8.0 Data Processing

Two PSES microdata files were produced for the PSES 2014. The first file (PSES2014_PSES_Master_PS.txt) contains results at the Public Service level, and was used to produce the main data tabulations for this survey. The variables and their distributions for this file can be found in the codebook entitled PSES2014_Master_PS_Cdbk.pdf. The second microdata file (PSES2014_Master.txt) includes all these results as well as results for regular and civilian members of the RCMP and non-public service employees from Foreign Affairs, Trade and Development Canada (DFATD) working abroad. As these employees were not part of the public service these data were not included in the tabulations that were released on February 5, 2015. The variables and their distributions for this microdata file can be found in the codebook entitled PSES2014_Master_Cdbk.pdf. This chapter presents a brief summary of the processing steps involved in producing the microdata files.

8.1 Data Capture

In total, only 3,664 paper response questionnaires were received (3,347 from the public service respondents). The data of these questionnaires was captured between September and October 2014. The data were captured using an electronic image and a combination of automated data entry and Key From Image technology. All questionnaire fields that were not successfully recognized by the optical scanner technology used for automated data entry were captured using heads-down keying by experienced operators. Quality control was used to measure the error rate for a sample of the data captured by the operators and automatically. Errors found in the sample were corrected. For the Public Service Employee Survey, based on the quality control sample that was selected, it was determined that the overall data capture error rate did not exceed 0.5%.

8.2 Editing

All 194,806¹ paper and electronic response questionnaires received were processed the same way. The data were processed by applying edit rules to identify missing, invalid or inconsistent data. To be considered a response record, a respondent must have completed at least one question in the survey. Also, respondents who chose response options 6 or 8 from Question 89 were removed from the public service file as these responses exclude them from the public servants. Furthermore, RCMP and DFATD respondents were matched against the Treasury Board pay file to determine whether they had to be treated as public servants (in-scope) or non-public servants (out of scope). The latter group was excluded from the public service file and related results. Each question was examined to verify the presence of a valid code. If none was present then a “Not stated” response code of “9” was assigned. For example, an edit rule was also applied that examined the flow of data from Question 61 to Question 62. Depending on the response to Question 61, superfluous data that did not respect the flow of data were eliminated and coded as "Valid Skip", a response code ending with '6'. It should be noted that the value of the response codes depends on the length of the variable: a one-byte variable will take on the value of '6' for a valid skip, while a two-bytes long variable will take on the value of '96'.

Data inconsistencies were also corrected. For certain departments who requested it, some verification was done to match the province of work and the organizational unit. For example, an edit was applied in the National Capital Region (NCR) where respondents coded their province of work as being Ontario or Quebec instead of the separate NCR code. In other cases, when regions were identified separately, the department or agency was consulted and when applicable, personnel in the regions were recoded to a regional unit.

Further verification was done to match the occupational group by department or agency from the Treasury Board pay file with the survey data. Where a significant number of occupational group records did not belong to the department or agency, the department or agency was consulted and when applicable, occupational group was recoded.

8.3 Coding of Open-ended Questions

There were no open-ended questions in the PSES.

¹ Of the 194, 806 questionnaires received, 182,165 were from the public service and an additional 12, 641 were from the non-public service response from regular and civilian employees of the RCMP and DFATD.

8.4 Imputation

There was no imputation in the PSES. Item and partial non-responses were coded as “Not stated” during editing.

8.5 Creation of Derived Variables

A number of variables included on the Master file have been derived by grouping answer categories or by combining variables on the questionnaire in order to facilitate data analysis. For a detailed list of these variables and more information, please see the survey codebook.

8.6 Weighting (Non-response Adjustment)

Statistical weights were calculated for each responding public service employee to indicate the number of employees in the public service population that the respondent represents. The weight calculated for the PSES can be thought of as re-weighting the respondents so that the weighted respondent distribution and the public service population distribution have the same overall distribution with respect to their department or agency as well as their occupational group.

The value of the weight of a respondent equals the number of employees in the public service population whom the respondent represents. For example, if the weight is 2, the respondent represents 2 persons in the population, himself or herself as well as a non-respondent, employed at the same department or agency in the same or a similar occupational group.

The weight must be used to derive estimates from the microdata file. For example, if the number of employees in the public service population who “Strongly agree” with the statement “I can count on my immediate supervisor to keep his or her promises” is to be calculated, it is done by selecting the records for those respondents (Q31 = 1) and summing the weights.

Up to 2008, the weights calculated for the PSES had not been designed to inflate the respondents so that they represent the population. The weighting method used for the 2011 and 2014 PSES ensures that the weighted estimates represent the population of public service employees.

Non-respondents to the PSES are assumed to be missing completely at random. The weights may be used to estimate the variance associated with the PSES results.

Details of the method used to calculate these weights are presented in Chapter 11.0.

9.0 Data Quality

9.1 Response Rates – Departments and Agencies

The following table summarizes the response rates for public servants from all departments and agencies involved in the 2014 Public Service Employee Survey (PSES).

The final response rate (or participation rate) for a department is calculated by summing the total number of responses (i.e., electronic questionnaires (EQ) plus paper questionnaires) and dividing by the final sample size for that department. Departments or agencies were given 3 opportunities to add or delete employees from the sample. The final sample size for a department is based on counts of employees provided by the department; adding the initial department employee list count, less any confirmed bounce backs or deletions, plus any additions received during the course of collection.

Department/Agency Name	Response Rate (%)
Aboriginal Affairs and Northern Development Canada	71.0%
Agriculture and Agri-Food Canada	64.6%
Atlantic Canada Opportunities Agency	83.8%
Canada Border Services Agency	61.1%
Canada Economic Development for Quebec Regions	76.3%
Canada Revenue Agency	82.8%
Canada School of Public Service	82.8%
Canadian Dairy Commission	87.0%
Canadian Environmental Assessment Agency	89.7%
Canadian Food Inspection Agency	83.0%
Canadian Grain Commission	73.4%
Canadian Heritage	77.5%
Canadian Human Rights Commission	88.4%
Canadian Human Rights Tribunal	85.0%
Canadian Industrial Relations Board	74.4%
Canadian Institutes of Health Research	84.9%
Canadian Intergovernmental Conference Secretariat	87.5%
Canadian International Trade Tribunal	70.4%
Canadian Northern Economic Development Agency	82.7%
Canadian Nuclear Safety Commission	80.3%
Canadian Polar Commission	92.3%
Canadian Radio-television and TeleCommunications Commission	73.4%
Canadian Space Agency	76.9%
Canadian Transportation Agency	87.5%

Citizenship and Immigration Canada	75.8%
Commission for Public Complaints Against the RCMP	82.5%
Communications Security Establishment	58.9%
Copyright Board of Canada	81.3%
Correctional Service Canada	60.0%
Courts Administration Service	63.8%
Department of Finance Canada	78.7%
Department of Justice	68.1%
Department of National Defence	63.3%
Elections Canada	71.8%
Employment and Social Development Canada	73.2%
Environment Canada	69.9%
Farm Products Council of Canada	84.2%
Federal Economic Development Agency for Southern Ontario	89.6%
Financial Consumer Agency of Canada	89.9%
Financial Transactions and Reports Analysis Centre of Canada	96.4%
Fisheries and Oceans Canada	58.4%
Foreign Affairs, Trade and Development Canada	77.5%
Health Canada	71.9%
Immigration and Refugee Board of Canada	69.6%
Indian Oil and Gas Canada	91.4%
Industry Canada	74.5%
Infrastructure Canada	86.1%
International Joint Commission	56.3%
Library and Archives Canada	70.8%
Military Grievances External Review Committee	92.9%
Military Police Complaints Commission	100.0%
National Capital Commission	76.0%
National Energy Board	76.5%
Natural Resources Canada	70.5%
Natural Sciences and Engineering Research Council	81.0%
Northern Pipeline Agency	66.7%
Office of the Auditor General of Canada	88.2%
Office of the Commissioner for Federal Judicial Affairs Canada	75.9%
Office of the Commissioner of Lobbying of Canada	85.7%
Office of the Commissioner of Official Languages	78.7%
Office of the Correctional Investigator	97.5%
Office of the Information Commissioner of Canada	86.8%
Office of the Privacy Commissioner of Canada	82.3%
Office of the Public Sector Integrity Commissioner of Canada	88.0%
Office of the Secretary to the Governor General	77.1%
Parks Canada	62.1%
Parole Board of Canada	62.6%

Patented Medicine Prices Review Board of Canada	87.9%
Privy Council Office	79.2%
Public Health Agency of Canada	70.4%
Public Prosecution Service of Canada	66.6%
Public Safety Canada	78.1%
Public Servants Disclosure Protection Tribunal Canada	83.3%
Public Service Commission of Canada	77.9%
Public Service Staffing Tribunal	61.6%
Public Works and Government Services Canada	74.7%
RCMP External Review Committee	100.0%
Registry of the Competition Tribunal	60.0%
Registry of the Specific Claims Tribunal	35.7%
Royal Canadian Mounted Police	67.6%
Shared Services Canada	71.5%
Social Sciences and Humanities Research Council	85.6%
Statistical Survey Operations	65.9%
Statistics Canada	77.9%
Status of Women Canada	88.8%
The Supreme Court of Canada	61.7%
Transport Canada	71.1%
Transportation Appeal Tribunal of Canada	40.0%
Transportation Safety Board of Canada	85.8%
Treasury Board of Canada Secretariat	76.5%
Veterans Affairs Canada	72.9%
Veterans Review and Appeal Board	83.0%
Western Economic Diversification Canada	87.1%
All Public Service	71.4%

9.2 Survey Errors

The Public Service Employee Survey is a census and therefore, there is no error due to sampling. However, the survey is subject to non-sampling errors such as non-response or other non-sampling errors that may occur at almost every phase of a survey operation. Respondents may make errors in answering questions, the answers may be incorrectly captured and errors may be introduced in the processing and tabulation of the data.

Quality assurance and control methods were implemented according to Statistics Canada's standard practices at each step of the data collection and processing cycle to monitor the quality of the data. These measures included focus group testing to detect problems of questionnaire design or misunderstanding of instructions, and using edit rules designed to detect missing, invalid or inconsistent data. Detailed specifics are described in Chapter 8.0, Data Processing.

10.0 Guidelines for Tabulation, Analysis and Release

This chapter of the documentation outlines the guidelines to be adhered to by users tabulating, analysing, publishing or otherwise releasing any data derived from the survey microdata files. With the aid of these guidelines, users of microdata should be able to produce the same figures as those produced by Statistics Canada and, at the same time, will be able to develop currently unpublished figures in a manner consistent with these established guidelines.

10.1 Rounding Guidelines

In order that estimates for publication or other release derived from these microdata files correspond to those produced by Statistics Canada, users are urged to adhere to the following guidelines regarding the rounding of such estimates:

- a) Estimates in the main body of a statistical table are to be rounded to the nearest hundred units using the normal rounding technique. In normal rounding, if the first or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is raised by 1. For example, in normal rounding to the nearest 100, if the last two digits are between 00 and 49, they are changed to 00 and the preceding digit (the hundreds digit) is left unchanged. If the last digits are between 50 and 99 they are changed to 00 and the preceding digit is incremented by 1.
- b) Marginal sub-totals and totals in statistical tables are to be derived from their corresponding unrounded components and then are to be rounded themselves to the nearest 100 units using normal rounding.
- c) Averages, proportions, rates and percentages are to be computed from unrounded components (i.e. numerators and/or denominators) and then are to be rounded themselves to one decimal using normal rounding. In normal rounding to a single digit, if the final or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is increased by 1.
- d) Sums and differences of aggregates (or ratios) are to be derived from their corresponding unrounded components and then are to be rounded themselves to the nearest 100 units (or the nearest one decimal) using normal rounding.
- e) In instances where, due to technical or other limitations, a rounding technique other than normal rounding is used resulting in estimates to be published or otherwise released which differ from corresponding estimates

published by Statistics Canada, users are urged to note the reason for such differences in the publication or release document(s).

- f) Under no circumstances are unrounded estimates to be published or otherwise released by users. Unrounded estimates imply greater precision than actually exists.

10.2 Weighting Guidelines for Tabulation

The Public Service Employee Survey (PSES) is a census; it is not a sample survey. Users producing simple estimates, including the production of ordinary statistical tables, must apply the proper weight.

If the weights are not used, the counts and percentages tabulated from the microdata file will not correspond to those produced by Statistics Canada.

Users should also note that some software packages may not allow the generation of estimates that exactly match those available from Statistics Canada, because of their treatment of the weight field.

10.2.1 Results from Scale-type Questions: Percentage of Favourable Response

The Public Service Employee Survey contains scale-type questions where the respondents are asked to rate their agreement or disagreement. The total number of responses is composed of "favourable" and "unfavourable" responses. Reporting the results in terms of the percentage of favourable responses is a standard practice that is widely used for scale-type surveys. This is because evaluating the results is easier when all of the favourable ratings on a question are combined into a single rating. In addition, the results from question to question are consistent.

The percentage of favourable responses is obtained by:

- a) summing the weights of records having a favourable response to obtain the numerator (\hat{x}) ,
- b) summing the weights of all records having a response (do not include the "Not stated") to obtain the denominator (\hat{y}) ,
- c) dividing the numerator (\hat{x}) by the denominator (\hat{y}) ,
- d) multiply by 100, then
- e) round to units.

For scale questions with more than three points on the scale, the favourable

groups “Strongly agree” and “Somewhat agree” may be grouped to obtain the percentage of favourable responses.

For example, for Question 30, “I receive useful feedback from my immediate supervisor on my job performance” the responses “Strongly agree” and “Somewhat agree” should be grouped to obtain the percentage of favourable responses.

Caution should be taken when interpreting the favourable responses to a question that has a negative context. Analysis of the opposite end of the scale should be done for these questions.

For example, the percentage of favourable responses for Question 21A. “I feel that the quality of my work suffers because of constantly changing priorities” are the percentage of responses to “Rarely” or “Never/Almost never”.

Results should be reported in terms of the percentage of favourable responses.

10.2.2 Tabulation of Scale-type Results

Estimates of the number of people with a certain characteristic can be obtained from the microdata file by summing the final weights of all records possessing the characteristic(s) of interest. Proportions and ratios of the form \hat{x} / \hat{y} are obtained by:

- a) summing the final weights of records in the subgroup having the characteristic of interest to obtain the numerator (\hat{x}),
- b) summing the final weights of all records having the characteristic of interest to obtain the denominator (\hat{y}), then
- c) dividing estimate a) by estimate b) (\hat{x} / \hat{y}).

10.2.3 Percentage of Favourable Response: Evaluation Guidelines

Before releasing and/or publishing any estimate from the PSES users should first determine the data quality of the estimate. Data quality is affected by non-sampling errors as discussed in Chapter 9.0. Users should be sure to read this chapter to be more fully aware of the quality characteristics of these data.

The following table, extracted from William Davidson’s (1979) *How to Develop and Conduct Successful Employee Attitude Surveys*, may be used as a guide to evaluate the percentage of favourable responses.

<u>Favourable Response</u>	<u>Evaluation</u>
90% or more	Highly meaningful favourable response
75% - 89%	Quite meaningful favourable response
65% - 74%	Suggestive of favourable response
35% - 64%	Requires further study
25% - 34%	Suggestive of unfavourable response
11% - 24%	Quite meaningful unfavourable response
10% or less	Highly meaningful unfavourable response

Davidson explained that the above table is based on the fact that favourable responses in the range of 35% to 64% do not show either favourable or unfavourable responses. It is clear that a 50% favourable response on an item indicates no trend whatsoever, as equal numbers of employees reacted both favourably and unfavourably. Questions that receive favourable responses in the 35% to 64% range should be further explored through, perhaps, follow-up discussions. Favourable response reactions below 35% indicate problem areas and may warrant immediate attention.

In addition, the number of respondents who contribute to the calculation of the percentage of favourable response should be determined. When comparing percentages, users should be cautious if the percentages are of different total quantities.

10.2.4 Quantitative Results

Quantitative estimates are estimates of totals or of means, medians and other measures of central tendency of quantities based upon some or all of the members of the surveyed population. They also specifically involve estimates of the form \hat{X} / \hat{Y} where \hat{X} is an estimate of surveyed population quantity total and \hat{Y} is an estimate of the number of persons in the surveyed population contributing to that total quantity.

One question in the Public Service Employee Survey that provides quantitative results is Question 93 “In total, how many years have you been working in the federal public service?”

Estimates of the average number of years are obtained by dividing the total weighted number of years (\hat{x}) by the weighted number of persons (\hat{y}). The numerator (\hat{x}) is obtained by multiplying the value reported in Question 93 by

the final weight for the record, then summing this quantity over all the records of interest. The denominator (\hat{y}) is obtained by summing the weights of all records of interest.

For example, the average number of years a person has been working in the public service in the 'operational group' is obtained by dividing the total weighted number of years (\hat{x}) reported by persons in the group of interest, by the sum of the weights for the persons (\hat{y}) in the same group. Note that the "Not stated" responses are not included in either the numerator or denominator.

10.3 Other Types of Analysis

The opportunities for other types of statistical analysis (e.g., hypothesis testing, ANOVA, factor analysis) are numerous, particularly if a specialist is involved. It is beyond the scope of this paper to describe all the various possibilities. In order for results to be free from bias, the weights must be used.

The sequence in which survey findings are analysed usually follows some predetermined pattern. Typically general level results are produced first, followed by analysis at finer levels. For example, it may be useful to compare results across different occupational groups of employees. Further insight into the results can be gained by examining different tenure groups, by gender, by language, etc.

11.0 Weighting

There is one weight for each record of the microdata file for the Public Service Employee Survey (PSES). The weight adjusts for the unequal response rates by occupational group within each department or agency. The calculation of the weights is described in Section 10.2.

11.1 Non-response Assessment

Total non-response can be a major source of non-sampling error in many surveys, depending on the degree to which respondents and non-respondents differ with respect to the characteristics of interest. Total non-response occurred when an eligible employee did not participate in the survey or returned a completely blank questionnaire. The percentage of respondents to the number of employees in the public service population for 2014 was 71.4%. The Treasury Board Secretariat Incumbent System file was used to represent the public service population.

A nonresponse group could be:

- A two-letter occupational group with 51 or more employees at a department or agency;
- An aggregated occupational group with 51 or more employees at a department or agency;
- Other employees in (aggregated) occupational groups that did not belong to another nonresponse group; or
- All employees at a department or agency (there was no way to create distinctive nonresponse groups, each of which had 50 or more employees)

Nonresponse adjustments were calculated separately for each department or agency from which 50 or more employees responded to the 2014 PSES. As in 2011, the nonresponse groups were defined by two-letter occupational group where possible, or collapsed within the aggregate occupation group.

The following is a list of 73 departments or agencies that received nonresponse adjustments. The list also indicates whether it was possible to form two or more nonresponse groups within the department or agency using occupational information.

Canada Revenue Agency	YES
Employment and Social Development	YES
Department of National Defence	YES
Correctional Service Canada	YES
Fisheries and Oceans Canada	YES
Health Canada	YES
Public Works and Government Services	YES
Statistics Canada	YES
Agriculture and Agri-Food Canada	YES
Industry Canada	YES
Environment Canada	YES
Transport Canada	YES
Citizenship and Immigration Canada	YES
Foreign Affairs, Trade and Development	YES
Natural Resources Canada	YES
Royal Canadian Mounted Police	YES
Aboriginal Affairs and Northern Development	YES
Veterans Affairs Canada	YES
Department of Justice	YES
Canadian Heritage	YES
Public Service Commission of Canada	YES
Immigration and Refugee Board of Canada	YES
Department of Finance Canada	YES
Canadian Grain Commission	YES
Treasury Board of Canada Secretariat	YES
Privy Council Office	YES
National Capital Commission	NO
Courts Administration Service	YES
Radio-TV and TeleCommunications (CRTC)	YES
Atlantic Canada Opportunities Agency	YES
Canadian Space Agency	YES
Canada Economic Development for Quebec	YES
Canadian Institutes of Health Research	YES
Parole Board of Canada	YES
Shared Services Canada	YES
Transportation Safety Board of Canada	YES
Elections Canada	YES
Canadian Human Rights Commission	YES
Office of Commissioner Official Languages	YES
Western Economic Diversification Canada	YES

The Supreme Court of Canada	YES
Public Prosecution Service of Canada	YES
Canadian Environmental Assessment Agency	YES
Office of the Auditor General of Canada	YES
Public Safety Canada	YES
Canadian Transportation Agency	YES
Social Sciences/Humanities Research Council	YES
Canadian Nuclear Safety Commission	YES
Public Health Agency of Canada	YES
Secretary to the Governor General	YES
Library and Archives Canada	YES
National Energy Board	YES
Canada School of Public Service	YES
Office of the Privacy Commissioner	YES
Sciences/Engineering Research (NSERC)	YES
Infrastructure Canada	YES
Canada Border Services Agency	YES
Canadian Food Inspection Agency	YES
Financial Transactions and Reports Analysis	YES
Parks Canada	YES
Communications Security Establishment	YES
Federal Economic Development/S Ontario	YES
Statistical Survey Operations	NO
Patented Medicine Prices Review Board	NO
Canadian Industrial Relations Board	NO
Canadian International Trade Tribunal	NO
Financial Consumer Agency of Canada	NO
Public Service Staffing Tribunal	NO
Status of Women Canada	NO
Northern Economic Development Agency	NO
Indian Oil and Gas Canada	NO
Veterans Review and Appeal Board	NO
Office of the Information Commissioner	NO

Notes:

Several microdepartments (20) do not appear on the list. The employees at these microdepartments together comprised a single nonresponse group, given that 50 or fewer responses had been received from any one of these microdepartments.

11.2 Weighting Procedures

The weight produced for the 2014 PSES was calibrated to the number of employees in the public service population at each department or agency. At 62 departments or agencies, nonresponse groups were defined using occupational information as well in order to improve the representation of nonrespondents by respondents to the 2014 PSES. At each of a further 11 departments or agencies, a common weight adjustment was applied to all respondents at the department or agency because it was not possible to identify subsets of employees using occupational information. Microdepartments that were not listed in Section 10.1 had 50 or fewer respondents to the 2014 PSES, and their employees received a common weight adjustment.

For each response in department or agency i and nonresponse group j , the weight $w_{i,j}$, is equal to:

$$w_{i,j} = \frac{N_{i,j}}{n_{i,j}}$$

where:

$N_{i,j}$ is the number of public service employees in department or agency i and nonresponse group j , and

$n_{i,j}$ is the number of respondents in department or agency i and nonresponse group j .

The total weighted count of respondents in a nonresponse group sums to the public service population of that group. For example, the total weighted count of the respondents from the PM occupational group at Employment and Social Development Canada (ESDC) sums to the total count of all PM employees at ESDC.

The following example shows the calculation of the weights for two nonresponse groups, called A and B, at a department or agency.

Example: Non-response Adjustment Weight

Not Adjusted: Unweighted Survey Counts			
	Yes	No	Total
Subgroup A	20	180	200
Subgroup B	720	80	800
Total	740	260	1,000

Not Adjusted: Unweighted Survey Percentage Distributions (%)			
	Yes	No	Total
Subgroup A	10.0	90.0	100.0
Subgroup B	90.0	10.0	100.0
Total	74.0	26.0	100.0

	Population		Respondents	
	Count	%	Rate (%)	% Distribution
Subgroup A	1,500	50.0	13.3	20.0
Subgroup B	1,500	50.0	53.3	80.0
Total	3,000	100.0	33.3	100.0

Weight Adjustment			
Subgroup A	7.5	=	(1,500 / 200)
Subgroup B	1.875	=	(1,500 / 800)

Adjusted: Weighted Survey Counts			
	Yes	No	Total
Subgroup A	150	1350	1500
Subgroup B	1350	150	1500
Total	1500	1500	3,000

Adjusted: Weighted Survey Percentage Distributions (%)			
	Yes	No	Total
Subgroup A	10.0	90.0	100.0
Subgroup B	90.0	10.0	100.0
Row Total	50.0	50.0	100.0

11.3 Weighting Procedures

In order to estimate the variance of a PSES result, the following stratum sizes are provided for use. We consider non-respondents to be missing completely at random, and therefore the weights may be used with design-based estimation. The stratum sizes are based on the September 2014 counts from the Incumbent File of persons actively employed in the federal public service; additional information was used for the population counts at RCMP and Department of Foreign Affairs, Trade and Development Canada (DFATD).

Department/Agency Name	Stratum count
Canada Revenue Agency	38,660
Employment and Social Development	20,585
Department of National Defence	22,395
Correctional Service Canada	18,129
Fisheries and Oceans Canada	9,901
Health Canada	9,009
Public Works and Government Services	11,667
Statistics Canada	4,817
Agriculture and AgriFood Canada	5,178
Industry Canada	4,603
Environment Canada	6,186
Transport Canada	4,815
Citizenship and Immigration Canada	5,710
Foreign Affairs, Trade and Development	5,801
Natural Resources Canada	3,942
Royal Canadian Mounted Police	6,216
Aboriginal Affairs and Northern Development	4,563
Veterans Affairs Canada	3,041
Department of Justice	4,536
Canadian Heritage	1,762
Public Service Commission of Canada	736
Immigration and Refugee Board of Canada	956
Department of Finance Canada	738
Canadian Grain Commission	386
Treasury Board of Canada Secretariat	1,722
Privy Council Office	728
National Capital Commission	420
Courts Administration Service	584
Canada Radio, Television and Telecommunications Commission (CRTC)	447
Atlantic Canada Opportunities Agency	594

Canadian Space Agency	599
Canada Economic Development for Quebec	323
Canadian Institutes of Health Research	413
Parole Board of Canada	464
Shared Services Canada	5,291
Transportation Safety Board of Canada	206
Elections Canada	543
Canadian Human Rights Commission	199
Office of Commissioner Official Languages	165
Western Economic Diversification Canada	291
The Supreme Court of Canada	224
Public Prosecution Service of Canada	966
Canadian Environmental Assessment Agency	209
Office of the Auditor General of Canada	562
Public Safety Canada	953
Canadian Transportation Agency	216
Social Sciences/Humanities Research Council	182
Canadian Nuclear Safety Commission	820
Public Health Agency of Canada	2,055
Secretary to the Governor General	177
Library and Archives Canada	1,010
National Energy Board	438
Canada School of Public Service	628
Office of the Privacy Commissioner	181
Sciences/Engineering Research (NSERC)	400
Infrastructure Canada	325
Canada Border Services Agency	13,889
Canadian Food Inspection Agency	6,138
Financial Transactions and Reports Analysis	346
Parks Canada	5,076
Communications Security Establishment	2,245
Federal Economic Development/S Ontario	205
Statistical Survey Operations	1,487

Microdepartments not listed separately comprised a single stratum of size 1,231 and included:

- Military Police Complaints Commission
- Canadian Intergovernmental Conference Secretariat
- Copyright Board of Canada
- International Joint Commission
- Farm Products Council of Canada
- Commissioner for Federal Judicial Affairs
- Patented Medicine Prices Review Board
- Registry of the Competition Tribunal
- Public Complaints Against the RCMP
- Canadian Industrial Relations Board
- Military Grievances Review Committee
- Canadian International Trade Tribunal
- Canadian Dairy Commission
- Canadian Human Rights Tribunal
- RCMP External Review Committee
- Transportation Appeal Tribunal of Canada
- Financial Consumer Agency of Canada
- Public Servants Disclosure Protection
- Public Service Staffing Tribunal
- Office of the Commissioner of Lobbying
- Status of Women Canada
- Public Sector Integrity Commissioner
- Northern Economic Development Agency
- Canadian Polar Commission
- Office of the Correctional Investigator
- Registry of the Specific Claims Tribunal
- Indian Oil and Gas Canada
- Veterans Review and Appeal Board
- Office of the Information Commissioner
- Northern Pipeline Agency

12.0 Survey Documentation

12.1 Questionnaire

The 2014 Public Service Employee Survey questionnaire was used from August to October 2014 to collect information for the survey. The paper version of the questionnaire is available in English and French. It can also be found on Statistics Canada's website with other useful information at:

<http://www23.statcan.gc.ca:81/imdb/p2SV.pl?Function=getSurvey&SDDS=4438&lang=en&db=imdb&adm=8&dis=2>

12.2 Record Layout with Univariate Frequencies

For a complete list of meta data, record layouts and univariate frequencies, the codebook called PSES2014_Master_PS_Cdbk.pdf is available in the Statistics Canada Research Data Centres with the master file.

The non-confidential codebook with 0 counts (PSES2014_Master_PS_Cdbk_zerocounts.pdf) is available from our client service at:

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