Microdata User Guide

PUBLIC SERVICE EMPLOYEE SURVEY

2008

Statistics Canada Statistique Canada

Canada

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1.0 Introduction

The Public Service Employee Survey (PSES) was conducted by Statistics Canada from November 3rd 2008 to December 12th, 2008 with the cooperation and support of the Public Service Human Resources Management Agency of Canada. 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:

<u>Statistics Canada</u>

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2.0 Background

The first Public Service Employee Survey (PSES) was conducted in 1999 and was repeated in 2002, 2005 and 2008. Almost 65.8% of the workforce participated, providing important information about how employees viewed their work and workplace. Departments and agencies launched a number of initiatives to address the workplace issues identified by Public Service employees in the 1999, 2002, 2005 and 2008 PSES.

As a follow-up to the 1999, 2002, and 2005 Public Service Employee Survey, the Public Service Human Resources Management Agency of Canada (PSHRMAC) asked Statistics Canada to conduct a fourth voluntary survey of all Federal Public Service employees. For this cycle, the Agency invited separate employer agencies such as the Canada Revenue Agency, National Energy Board, etc. to participate. This increased the number of participating organizations from 77 in 2005 to 88 in 2008. The fourth Public Service Employee Survey took place in November and December of 2008. The 2008 PSES used a similar questionnaire as for the 2005 survey. The major change to the questionnaire was on the scale used for opinion questions which went from a 4-point scale to a 5-point scale.

As in the 2005 PSES, the 2008 survey will enable departments and agencies to identify areas where the Public Service is doing well and point to other areas where improvement is still needed.

The survey solicited views of Public Service employees on their work environment and overall job satisfaction. Employees expressed their opinions on their work unit, their communication with their supervisor, skills and career aspirations, client services and labour management relations. General information such as age, gender, years of service and province of work were collected and questions were asked on specific themes such as staffing fairness, official languages, health and safety, harassment and discrimination, and retention issues.

3.0 Objectives

A fundamental objective of the 2008 Public Service Employee Survey (PSES) was to seek employee opinion on a variety of issues related to organizational effectiveness, workplace well-being and service delivery.

The results of the fourth PSES 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 population for the survey includes all employees as of November 2008 for whom the Treasury Board Secretariat is the employer as defined in Schedule 1, Part 1 of the Public Service Staff Relations Act as well as employees of separate agencies who accepted the invitation made by Treasury Board Secretariat to 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:

Supervisor:	Your immediate supervisor is the person who evaluates your work performance.
Work Unit:	Your work unit includes you, your immediate supervisor and your colleagues.
Client:	Every Public Service employee delivers goods or provides services to a client. A client could be another public service employee, a member of the Canadian public or other clients outside Canada.
Harassment:	Harassment is any improper conduct by an individual, that is directed at and offensive to another person or persons in the workplace, and that the individual knew or ought reasonably to have known would cause offence or harm. It comprises any objectionable act, comment or display that demeans, belittles, or causes personal humiliation or embarrassment, and any act of intimidation or threat. It includes harassment within the meaning of the *Canadian Human Rights Act*.
Discrimination:	Discrimination means to treat someone differently or unfairly because of a personal characteristic or distinction which, whether intentional or not, has an effect which imposes disadvantages not imposed upon others or which withholds or limits access to other members of society. There are eleven prohibited grounds under the *Canadian Human Rights Act*: race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, family status, mental or physical disability and pardoned conviction.

5.0 Survey Methodology

The survey was a census across all in-scope organizations. 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 of the participating organizations in November 2008. Unlike previous iterations of this survey, students and Governor-in-council nominees were included as part of the target population in 2008. As before, Minister's exempt staff were excluded.

5.2 Participating Departments and Agencies

Agriculture and Agri-Food Canada
Assisted Human Reproduction Canada
Atlantic Canada Opportunities Agency
Canada Industrial Relations Board
Canada Public Service Agency
Canada Revenue Agency
Canada School of Public Service
Canadian Artists and Producers Professional Relations Tribunal
Canadian Border Services Agency
Canadian Dairy Commission
Canadian Environmental Assessment Agency
Canadian Food Inspection Agency
Canadian Forces Grievance Board
Canadian Grain Commission
Canadian Human Rights Commission
Canadian Human Rights Tribunal
Canadian Institutes of Health Research
Canadian Intergovernmental Conference Secretariat
Canadian International Development Agency
Canadian International Trade Tribunal
Canadian Nuclear Safety Commission
Canadian Radio-television and Telecommunications Commission
Canadian Space Agency
Canadian Transportation Accident Investigation and Transportation Safety Board of Canada
Canadian Transportation Agency
Citizenship and Immigration Canada
Commission for Public Complaints against RCMP
Competition Tribunal

Copyright Board of Canada
Correctional Service of Canada
Courts Administration Service
Department of Canadian Heritage
Department of Finance Canada
Department of Indian and Northern Affairs Canada
Department of Justice
Department of National Defence
Department of Veterans Affairs Canada
Economic Development Agency of Canada for the regions of Quebec
Elections Canada
Environment Canada
Financial Consumer Agency of Canada
Financial Transactions and Reports Analysis Centre of Canada
Fisheries and Oceans Canada
Foreign Affairs and International Trade Canada
Human Resources and Skills Development Canada, Service Canada and Labour
Hazardous Materials Information Review Board
Health Canada
Immigration and Refugee Board
Indian Oil and Gas Canada
Industry Canada
Infrastructure Canada
International Joint Commission
Library and Archives Canada
Military Police Complaints Commission
NAFTA Secretariat - Canadian Section
National Capital Commission
National Energy Board
National Farm Products Council
National Parole Board
National Research Council
Natural Resources Canada
Office of the Commissioner for Federal Judicial Affairs
Office of the Commissioner of Lobbying of Canada
Office of the Commissioner of Official Languages
Office of the Coordinator Status of Women
Office of the Privacy Commissioner and Office of the Information Commissioner of Canada
Office of the Secretary to the Governor General
Office of the Superintendent of Financial Institutions Canada
Passport Canada

Patented Medicine Prices Review Board
Privy Council Office
Public Health Agency of Canada
Public Prosecution Service of Canada
Public Safety Canada
Public Servants Disclosure Protection Tribunal
Public Service Commission of Canada
Public Service Staffing Tribunal
Public Works and Government Services Canada
RCMP External Review Committee
Royal Canadian Mounted Police
Security Intelligence Review Committee
Ship-source Oil Pollution Fund
Statistics Canada
The Supreme Court of Canada
Transport Canada
Transportation Appeal Tribunal of Canada
Treasury Board of Canada Secretariat
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 were asked to provide Statistics Canada with a list of units for which the data would 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/agency's needs and still ensure the confidentiality of the data. A code list was prepared for each department and agency, which was included in the envelope with the paper questionnaire. For the electronic questionnaire, Question 80 collected the same information (i.e., In which organizational unit are you currently working?). Where there were less than 10 respondents, the department or the agency was asked to group the unit with another unit.

6.0 Data Collection

6.1 Questionnaire Design

The questionnaire was developed by the Public Service Human Resources Management Agency of Canada and was based on the 2005 Public Service Employee Survey (PSES) and similar surveys conducted across Canada by other government organizations. For the first time, Statistics Canada used an electronic questionnaire as well as a paper questionnaire.

In 2008, English and French focus groups were held in the National Capital Region and included employees at various groups and levels. Comments from the focus groups were integrated into the questionnaire and a final layout was decided. Participating departments and agencies were also invited to provide comments on the draft questionnaire. All Survey Champions (departments and agencies) were invited to briefings on the questionnaire and project plan. The Minister responsible for the Public Service Human Resources Management Agency of Canada approved the delivery of the fourth survey.

Survey collection was administered using an E-Questionnaire (via Internet). For those employees who are unable to complete an E-Questionnaire, a paper questionnaire was mailed out.

6.2 Data Collection

All departments were able to support electronic collection to various degrees. The vast majority of employees, more than 95%, were able to complete the questionnaire electronically.

Employees not having access to a computer or to the internet were provided with paper questionnaires. A very small number of employees requested a paper questionnaire thru the Help Line even if they had access to the electronic version. A paper questionnaire was mailed to them at the address of their choice i.e. work or personal address.

The electronic collection was planned between November 3rd, and December 5th, 2008 but was extended to December 12th because some departments had technical problems and wanted to allow more time for their employees to complete the survey. 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. In some cases, the reminders were sent on a specific day of the week when departments organized special events to promote the survey.

The closing date for acceptance of paper questionnaires was January 8th, 2009 to allow for the return of the questionnaire and data capture.

7.0 Data Processing

On May 9th, 2009 data tabulations from the 2008 Public Service Employee Survey (PSES), at the Public Service level were released. Department/agency and organization level tabulations were also released on May 9th. 2009. The public use microdata file (PUMF) contains data at the Public Service level only. This chapter presents a brief summary of the processing steps involved in producing this file.

7.1 Data Capture

Only 6,172 paper questionnaires were received. The data capture of these questionnaires was done between November 17th, 2008 and January 8th, 2009.

The data were captured using imaging and automated data entry technology. A small proportion of questionnaires that could not be read by the optical scanners, were captured using heads-down keying by experienced operators. Questionable zones method with standard quality control measures were used to verify the error rate of the capture operations. 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%.

7.2 Editing

The data were processed by applying edit rules to identify missing, invalid or inconsistent data. 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 applied that examined the flow of data from Question 63 to Question 67. Depending on the response to Question 63, superfluous data that did not respect the flow of data were eliminated.

As well, data inconsistencies were corrected. Some verification was done to match the province of work and the work unit. 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/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/agency, the department/agency was consulted and when applicable, occupational group was recoded.

When data inconsistencies between questions were found, data were analyzed and depending on the answer, some data were eliminated. For example, an edit rule was applied that examined the consistency between Question 96 and Question 97. Where respondents coded their province of work as being Ontario (Q96 = 09) and working in the bilingual regions of Montréal, the Eastern Townships or the Gaspé area (Q97 = 1), their response to this latest question was eliminated (Q97).

7.3 Coding of Open-ended Questions

There were no open-ended questions in the PSES. Due to the large number of respondents (169,680), it would have been too difficult to capture, tabulate or analyze open-ended questions.

7.4 Imputation

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

7.5 Weighting (Non-response Adjustment)

Two sets of weights were produced for the 2008 PSES. The first set, WTP_DEPT, is the typical weight that has been produced for this survey for years. The second set, WTP_PSL, was created to adjust for differing response rates across departments. Both of these weights can be thought of as re-weighting the respondents so that the respondent and population distributions have the same overall distribution with respect to certain variables. The weight on the PUMF is a perturbed version of WTP_DEPT.

WTP_DEPT
This weight ensures the respondent and population distributions within each department are similar with respect to the aggregate occupational group. Simply put, if 20% of the employees in a department or agency are in a particular aggregate occupational group, then the weight ensures that this aggregate occupational group represents 20% of the number of respondents in that department or agency when tabulating the data.

In other words, the weight compensates for the over and under representation of aggregate occupational groups within each federal department/agency. For aggregate occupational groups that were over represented within the department/agency, the weights are smaller than one. For aggregate occupational groups that were under represented within the department/agency, the weights are greater than one. That is, if the weight is larger than one then each person represents, besides himself or herself, other persons who did not respond. This weight indicates that the aggregate occupational group was under represented within the department/agency. For example, if the weight is 2, each person represents 2 persons in the population.

When departments are combined for a specific analysis, these weights do not adjust for the different response rates of each department. For example, if departments A and B each have a population size of 1,000 employees, but only 500 responded in department A while all 1,000 responded in department B, then a global weighted estimate of a proportion for these two departments would be more heavily influenced by department B because it has more respondents: this despite the fact that both departments have the same population size.

WTP_PSL
As is the case for WTP_DEPT, this weight ensures the respondent and population distributions within each department are similar with respect to the aggregate occupational group. However within each department, the weights do not sum to the number of respondents in the department. Rather, the sum of all the weights, across all departments, equals the number of respondents across all departments.

Therefore, when departments are combined for a specific analysis, these weights do adjust for the different response rates of each department. For example, if departments A and B each have a population size of 1,000 employees, but only 500 responded in department A while all 1,000 responded in department B, then a global weighted estimate of a proportion for these two departments would be equally influenced by both departments because they have the same population size.

Note that when estimating a proportion for a given department, both weights will give the same weighted estimate. This is not true for totals.

The weighting step calculates WTP_DEPT and WTP_PSL for each record. One of these weights must be used to derive estimates from the microdata file.

For example, if the number of respondents who “Strongly agree” with the statement “My work unit provides high quality service to its clients” is to be calculated, it is done by selecting the records for those respondents (Q31 = 1) and summing the weights.

The weights calculated for the PSES were not designed to inflate the respondents so that they represent the population. Non-response weighting adjustments were made to reduce non-response bias, but the weights add up to the number of respondents, not the population size. Therefore, when releasing demographic estimates, no statements to that effect can be made.

Note that no adjustment for non-response in small departments and agencies was done due to the small number of employees within the occupational groups in these departments and agencies.

See Chapter 9.0 for the guidelines for tabulation, analysis and release.

7.6 Suppression of Confidential Information

In 2005, there were a total of 106,495 records, and 9 demographic variables were retained on the PUMF. In 2008, there are 169,680 records, and 7 demographic variables on the microdata file[1].

It should be noted that the "Public Use" microdata files described above differ in a number of important respects from the survey "master" files held by Statistics Canada. These differences are the result of actions taken to protect the anonymity of individual survey respondents. Users requiring access to information excluded from the microdata files may purchase custom tabulations. Estimates generated will be released to the user, subject to meeting the guidelines for analysis and release outlined in Chapter 9.0 of this document.

In order to protect the confidentiality of respondents, the following actions were taken:

1) Suppression of some demographic and questionnaire variables.

The following variables were not included in the public use microdata file:

Q075	Type of discrimination experienced
Q079	Department code
Q080	Organizational unit code
Q081	Shift worker
Q082D	Job sharer
Q083	Full time/Part time worker
Q086	Promotions in past 3 years
Q087	Years at current group and level
Q089	Years in the Public Service
Q090	Years in current department or agency
Q091	Employee status
Q092	First official language
Q093	Language requirements of the position
Q094	Provide services directly to the public
Q095	Language(s) of services to the public
Q097	Work in a designated bilingual area of Quebec or Ontario
Q101	Professional designation
Q102	Aboriginal status
Q103	Disability status

1 Note the drop from 9 to 7 demographic variables is due to the fact that salary and major bargaining unit were not variables collected on the 2008 PSES survey.

Q104	Accessibility tools and/or media resources
Q105	Visible minority status

2) Collapsing the answer categories of some variables.

   For the following variables, the answer categories were grouped in order to minimize sensitivity:

J_G088	Aggregated occupational group
GREGION	Region of work
J_G098	Age group
J_G100	Level of education

   Please refer to the questionnaire for the actual categories before the collapsing.

3) Adding noise to the weights. Note that the PUMF weight is based on WTP_DEPT.

4) Local suppression to eliminate cells with less than ten respondents.

   In the case of the PSES, the protection of confidentiality is achieved by ensuring each possible set of demographic characteristics contains at least ten respondents (this is an increase from the threshold of five used in 2005).

   Less than 1% of the records were treated by local suppression, when there were fewer than ten responses in any cell of a table when all possible combinations of all the demographic variables were cross tabulated. One or more of the demographic variables were treated by randomly assigning a “Not stated” code.

8.0 Data Quality

8.1 Response Rates – Departments and Agencies

The following table summarizes the response rates for all departments and agencies involved in the 2008 Public Service Employee Survey (PSES).

Department/Agency Name	Response Rate (%)
Agriculture and Agri-Food Canada	62.4
Assisted Human Reproduction Canada	100.0
Atlantic Canada Opportunities Agency	83.4
Canada Industrial Relations Board	86.4
Canada Public Service Agency	67.9
Canada Revenue Agency	75.9
Canada School of Public Service	68.6
Canadian Artists and Producers Professional Relations Tribunal	100.0
Canadian Border Services Agency	62.4
Canadian Dairy Commission	83.6
Canadian Environmental Assessment Agency *	118.5
Canadian Food Inspection Agency	57.8
Canadian Forces Grievance Board	71.4
Canadian Grain Commission	68.7
Canadian Human Rights Commission	86.3
Canadian Human Rights Tribunal	95.2
Canadian Institutes of Health Research	74.7
Canadian Intergovernmental Conference Secretariat	100.0
Canadian International Development Agency	67.9
Canadian International Trade Tribunal	90.7
Canadian Nuclear Safety Commission	76.9
Canadian Radio-television and Telecommunications Commission	74.5
Canadian Space Agency	84.8
Canadian Transportation Accident Investigation and Transportation Safety Board of Canada	87.6
Canadian Transportation Agency	76.4
Citizenship and Immigration Canada	75.1
Commission for Public Complaints against RCMP	71.7
Competition Tribunal	91.7
Copyright Board of Canada	62.5
Correctional Service of Canada	55.7
Courts Administration Service	72.5
Department of Canadian Heritage	64.1
Department of Finance Canada	69.3
Department of Indian and Northern Affairs Canada	69.5
Department of Justice	73.6
Department of National Defence	47.0
Department of Veterans Affairs Canada	82.5
Economic Development Agency of Canada for the regions of Quebec	83.0
Elections Canada	41.6

Department/Agency Name	Response Rate (%)
Environment Canada	64.5
Financial Consumer Agency of Canada	83.3
Financial Transactions and Reports Analysis Centre of Canada	89.6
Fisheries and Oceans Canada	61.2
Foreign Affairs and International Trade Canada	69.1
Human Resources and Skills Development Canada, Service Canada and Labour	64.0
Hazardous Materials Information Review Board	81.6
Health Canada	69.6
Immigration and Refugee Board	64.7
Indian Oil and Gas Canada	66.7
Industry Canada	67.1
Infrastructure Canada	90.6
International Joint Commission	54.8
Library and Archives Canada	71.3
Military Police Complaints Commission	88.9
NAFTA Secretariat - Canadian Section	64.3
National Capital Commission	73.1
National Energy Board	76.0
National Farm Products Council	94.4
National Parole Board	67.7
National Research Council	70.7
Natural Resources Canada	72.3
Office of the Commissioner for Federal Judicial Affairs	81.5
Office of the Commissioner of Lobbying of Canada	81.5
Office of the Commissioner of Official Languages	79.6
Office of the Coordinator Status of Women	64.3
Office of the Privacy Commissioner and Office of the Information Commissioner of Canada	76.4
Office of the Secretary to the Governor General	50.8
Office of the Superintendent of Financial Institutions Canada	65.9
Passport Canada	61.6
Patented Medicine Prices Review Board	69.6
Privy Council Office	58.6
Public Health Agency of Canada	63.8
Public Prosecution Service of Canada	69.7
Public Safety Canada	70.0
Public Servants Disclosure Protection Tribunal	100.0
Public Service Commission of Canada	77.4
Public Service Staffing Tribunal	90.3
Public Works and Government Services Canada	62.1
RCMP External Review Committee	88.9
Royal Canadian Mounted Police	61.9
Security Intelligence Review Committee	94.7
Ship-source Oil Pollution Fund	25.0
Statistics Canada	86.3
The Supreme Court of Canada	58.0
Transport Canada	71.2
Transportation Appeal Tribunal of Canada	50.0

Department/Agency Name	Response Rate (%)
Treasury Board of Canada Secretariat	83.1
Western Economic Diversification Canada	87.9
Overall Public Service Response Rate	**65.8**

* The response rate of greater than 100% simply means more people responded to the survey in this department/organization than were listed as working for this department/organization in the population file of employees provided by Treasury Board.

8.2 Response Rates – Demographic Variables

Demographic	Sub-group	Response Rate (%)	% of Total Population	% of those who Responded (Unweighted)
Age Group	24 years or less	47	4	3
	25 to 29 years	65	8	9
	30 to 34 years	68	11	12
	35 to 39 years	68	12	13
	40 to 44 years	66	14	14
	45 to 49 years	65	17	18
	50 to 54 years	64	17	17
	55 to 59 years	58	11	10
	60 years and over	49	5	4
	Total		**100**	**100**
First Official Language	English	63	71	69
	French	69	29	31
	Total		**100**	**100**
Aggregated Occupational Group	Executive	71	3	3
	Scientific/Professional	65	16	17
	Administration and foreign services	65	46	50
	Technical	61	9	9
	Administrative support	61	15	15
	Operational	28	11	5
	Other	44	1	1
	Total		**100**	**100**
Region	Atlantic Provinces	61	11	10
	Québec	59	12	11
	Ontario	66	14	15
	Northwest Territories, Nunavut and Prairie Provinces	63	13	13
	Yukon and British Columbia	62	9	9
	National Capital Region	65	41	42
	Total		**100**	**100**

Demographic	Sub-group	Response Rate (%)	% of Total Population	% of those who Responded (Unweighted)
Gender	Male	58	45	42
	Female	67	55	58
	Total		**100**	**100**

8.3 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 7.0, Data Processing.

9.0 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.

9.1 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 one. 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.

9.2 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.

9.2.1 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 33, "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 14A. "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.

9.2.2 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) $(\hat{X} / \hat{Y})$.

9.2.3 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 8.0. 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.

Favourable Response	Evaluation
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 34% 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.

9.2.4 Impact of Local Suppression and Guidelines for Tabulation

Approximately 1% of the records were treated by local suppression when there were fewer than ten responses in any cell of a table when all possible combinations of all demographic variables were cross tabulated. One or more of the demographic variables were treated by randomly assigning a "Not stated" code.

The impact of local suppression was that:

1) the percentage of "Not stated" increased by about 0.23% (approximately 380) for each of the seven demographic variables. The percentage increase of the "Not stated" ranged from 0.20% to 0.25%. The specific increase depends on the demographic variable. Note that local suppression was not always

applied to the same records.

2) for tables of any two demographic variable categories with a response count greater than 200, there were only five cases where the relative change between the results before and after local suppression was high (ranged from 20% to 51%). Care should be taken when performing analysis on these cells (as well as those with less than 200 records) as the results could be biased by the local suppression. These cells are:
   - employees from the Executive aggregated occupation group who are not supervisors
   - employees from the Executive aggregated occupation group whose highest level of education is secondary/high school graduation certificate or equivalent or less or; diploma or certificate from a community college, CEGEP, institute of technology, nursing school, etc. or a trades certificate or diploma
   - employees from the Operations aggregated occupation group whose region of work is the National Capital Region
   - employees from the Other aggregated occupation group whose department size is less than 2,000
   - employees from the Administrative Support aggregated occupation group who are also supervisors

Users should be cautioned against analyzing tables when the number of responses is smaller than 200. This usually occurs for tables of subgroups formed of three or more demographic variables that include the occupational demographic variable.

It is strongly recommended that tables which involve three or more demographic variables be requested from Statistics Canada. These tables would be based on unsuppressed data, which would then be vetted for confidentiality prior to release.

9.2.5 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.

The only question in the Public Service Employee Survey that provides quantitative results is Question 84 “In your current job, how many supervisors have you had in the last three years?”. The responses to Question 84 are one, two and three or more.

Estimates of the average number of supervisors per person are obtained by dividing the total weighted number of supervisors $(\hat{X})$ by the weighted number of persons $(\hat{Y})$. The numerator $(\hat{X})$ is obtained by multiplying the value reported in Question 84 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 <u>average</u> number of supervisors per person in the operational group is obtained by dividing the total weighted number of supervisors $(\hat{X})$ reported by persons in the occupational group, by the sum of the weights for the persons $(\hat{Y})$ in the operational group. Note that the “Not stated” responses are not included in either the numerator or denominator.

9.3 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.

10.0 Weighting

There are two weights on each record of the microdata file for the Public Service Employee Survey (PSES). Each of these weights adjusts for the disproportionate response rates by occupational group within each federal department and agency, however one is calibrated to the number of respondents within each department/agency, while the other is calibrated to the number of respondents across all departments and agencies. In both cases, the weights add up to the number of respondents, not the population size. The calculation of the weights is described in Section 10.2.

10.1 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 the employee did not participate in the survey or returned a completely blank questionnaire. The overall response rate was 65.8%. That is, the overall non-response rate was 34.2%. Total non-response was assessed by examining the representativeness of 7 primary demographic characteristics that were available in a separate file for all Federal Public Service employees from the Treasury Board Secretariat Incumbent System file.

Representativeness was assessed for occupation group, region, first official language, gender, age group, province of employment and employment type. The distributions of the subgroups for the respondents and non-respondents of each of the characteristics were compared.

This assessment showed that there were large differences in the two distributions by occupational group within the department/agency. As in 2005, non-response adjustments were calculated separately for those departments with 1,000 or more employees on the frame. In 2005 this amounted to the 28 largest departments/agencies, whereas in 2008 there were 32 such departments/agencies. As in 2005, the non-response groups were defined at the occupational group level, or collapsed within the aggregate occupation category when there were insufficient respondents.

Departments/Agencies which received non-response adjustments (sorted from largest to smallest)

Canada Revenue Agency
Human Resaorces and Skills Development Canada, Service Canada and Labour
Department of National Defence
Correctional Service of Canada
Fisheries and Oceans Canada
Health Canada
Public Works and Government Services Canada
Statistics Canada
Agriculture and Agri-Food Canada
Industry Canada
Environment Canada
Transport Canada
Citizenship and Immigration Canada
Foreign Affairs and International Trade Canada
Natural Resources Canada
Royal Canadian Mounted Police
Department of Indian and Northern Affairs Canada

Department of Veterans Affairs Canada
Department of Justice
Department of Canadian Heritage
Public Service Commission of Canada
Canadian International Development Agency
Immigration and Refugee Board
Department of Finance
Treasury Board of Canada Secretariat
National Research Council
Public Safety Canada
Public Health Agency of Canada
Passport Canada
Library and Archives Canada
Canadian Border Services Agency
Canadian Food Inspection Agency

10.2 Weighting Procedures

Two weights were produced for the 2008 PSES, WTP_DEPT which is calibrated to the number of respondents in each department/agency, and WTP_PSL which is calibrated to the number of respondents across all departments/agencies.

10.2.1 WTP_DEPT

The weight variable WTP_DEPT is the traditional weight that has been produced for PSES since its inception. The weight WPT_DEPT is placed on each record of the PSES microdata file and adjusts for the disproportionate response rates by occupational group within each of these 32 federal departments and agencies.

The weights were calculated as follows for respondents in department/agency i and non-response group j:

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

$$w_{i,j} = \left(\frac{\sum_t n_{i,t}}{n_{i,j}} \right) \cdot \left(\frac{N_{i,j}}{\sum_t N_{i,t}} \right)$$

where:

$N_{i,j}$ is the number of people in department/agency i and non-response group j, and

$n_{i,j}$ is the number of respondents in department/agency i and non-response group j.

Another way of thinking about the weight is as the inverse of the proportion of the responses for non-response group i multiplied by the proportion of non-response group i in the population, in the department or agency j.

The following example illustrates the non-response weighting adjustment. The example shows that the weight adjusts the contribution of each subgroup to the total according to its population proportion. That is, the weight adjusts for the under or over representation of the subgroup responses, while preserving the response pattern proportion of the subgroup.

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	2.50	= (1,000 / 200) * (1,500 / 3,000)
Subgroup B	0.63	= (1,000 / 800) * (1,500 / 3,000)

Adjusted: Weighted Survey Counts			
	Yes	No	Total
Subgroup A	50	450	500
Subgroup B	450	50	500
Total	**500**	**500**	**1,000**

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

10.2.2 WTP_PSL

The weight variable WTP_PSL is a new weight calculated for the 2008 PSES. The weight WTP_PSL is placed on each record of the PSES microdata file and adjusts for the disproportionate response rates by occupational group within each of these 32 federal departments and agencies.

The weights were calculated as follows for respondents in department/agency i and non-response group j:

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

$$w_{i,j} = \left(\frac{\sum_k \sum_t n_{k,t}}{n_{i,j}} \right) \cdot \left(\frac{N_{i,j}}{\sum_k \sum_t N_{k,t}} \right)$$

where:

$N_{i,j}$ is the number of people in department/agency i and non-response group j, and

$n_{i,j}$ is the number of respondents in department/agency i and non-response group j.

Another way of thinking about the weight is as the inverse of the proportion of the responses for non-response group i multiplied by the proportion of non-response group i in the population, across all departments/agencies.

11.0 Questionnaire

The file PSES2008_QuestE.pdf contains the English questionnaire.

12.0 Record Layout with Univariate Frequencies

See PSES2008_CdBk.pdf for the record layout with univariate counts.