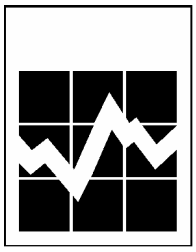

Microdata User Guide

Survey of Approaches to Educational Planning

2002

Statistics Canada Statistique Canada

Canada

Table of Contents

1.0 Introduction

The Survey of Approaches to Educational Planning (SAEP) was conducted by Statistics Canada in October and November 2002. 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

Client Services
Centre for Education Statistics
Telephone: (613) 951-7608 or call toll-free 1 800 307-3382
Fax: (613) 951-9040
E-mail: educationstats@statcan.ca

2.0 Background

Statistics Canada was approached by Human Resources Development Canada to conduct a cross-sectional survey which would examine how Canadians are preparing their children for postsecondary education.

Parents/guardians can participate in several ways. They can pro-actively plan for the financing of their children's postsecondary education by putting aside savings for that purpose and by actively participating in government sponsored mechanisms that facilitate savings for postsecondary education (i.e., Registered Education Savings Plans (RESP), Canada Education Savings Grants (CESG)). They can also prepare in a non-monetary fashion by encouraging, guiding and supporting their children through their early education, thereby laying the groundwork for successful participation in postsecondary education.

Since its inception, two surveys have now been completed, the first in 1999 and the second in 2002. Both surveys had substantially the same objectives, however the methodologies differed between the two. In 2002, the Survey of Approaches to Educational Planning was restricted to households with children 0 to 18 years of age, and based on one selected child per household. In 1999 the survey was based on as many as three children per household, and was not restricted to households with children between the ages of 0 and 18 only.

3.0 Objectives

The primary objective of Survey of Approaches to Educational Planning (SAEP) is to improve our understanding of the processes by which the parents/guardians of children aged 0 to 18 marshal the monetary and non-monetary resources needed to successfully pursue postsecondary education. These include financial saving strategies, parents/guardians' attitudes and values in respect to postsecondary education, the child's demonstration of commitment to education through academic performance and extra-curricular involvement.

The survey provides the following measurements and indicators:

- children's academic performance and extra curricular activities
- academic hopes and expectations by parents/guardians for their children
- parents/guardians values and attitudes towards education in general, and postsecondary education in particular
- proportion of the population aged 0 to 18 who currently have savings set aside for their postsecondary education by parents/guardians or other family members
- proportion of the population aged 0 to 18 whose parents/guardians plan to start saving at a later date
- saving strategies
- contributions to the Registered Education Savings Plan (RESP) program (both individual and group RESP)
- the dollar value of individual RESPs, group RESPs, and other savings methods (i.e. bank accounts, Registered Retirement Income Fund (RRIF), etc.)
- demographic differences such as level of education of the parents/guardians, household income, family structure, etc.
- the impact of saving on personal spending behaviour of parents/guardians
- expectations for the child's contributions to their own postsecondary education including, working while in high school or postsecondary, loans, grants, scholarships, etc.
- characteristics of families that are not and will not be saving for their child's postsecondary education, as well as the main reason for not saving

4.0 Concepts and Definitions

This chapter outlines concepts and definitions of interest to the users. The concepts and definitions used in the Labour Force Survey (LFS) are described in Section 4.1 while those specific to the Survey of Approaches to Educational Planning (SAEP) are given in Section 4.2. Users are referred to Chapter 12.0 of this document for a copy of the actual survey forms used.

4.1 Labour Force Survey Concepts and Definitions

Labour Force Status

Designates the status of the respondent vis-à-vis the labour market: a member of the non-institutional population 15 years of age and over is either **employed, unemployed** or **not in the labour force**.

Employment

Employed persons are those who, during the reference week:

a) did any work[1] at all at a job or business; or
b) had a job but were not at work due to factors such as own illness or disability, personal or family responsibilities, vacation, labour dispute or other reasons (excluding persons on layoff, between casual jobs, and those with a job to start at a future date).

Unemployment

Unemployed persons are those who, during the reference week:

a) were on temporary layoff during the reference week with an expectation of recall and were available for work; or
b) were without work, had actively looked for work in the past four weeks, and were available for work[2]; or
c) had a new job to start within four weeks from the reference week, and were available for work.

[1] Work includes any work for pay or profit, that is, paid work in the context of an employer-employee relationship, or self-employment. It also includes unpaid family work, which is defined as unpaid work contributing directly to the operation of a farm, business or professional practice owned and operated by a related member of the same household. Such activities may include keeping books, selling products, waiting on tables, and so on. Tasks such as housework or maintenance of the home are not considered unpaid family work.

[2] Persons are regarded as available for work if they:

i) reported that they could have worked in the reference week if a suitable job had been offered; or if the reason they could not take a job was of a temporary nature such as: because of own illness or disability, personal or family responsibilities, because they already have a job to start in the near future, or because of vacation (prior to 1997, those on vacation were not considered available).
ii) were full-time students seeking part-time work who also met condition i) above. Full-time students currently attending school and looking for full-time work are not considered to be available for work during the reference week.

Not in the Labour Force

Persons not in the labour force are those who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets, that is, they were neither employed nor unemployed.

Industry and Occupation

The Labour Force Survey provides information about the occupation and industry attachment of employed and unemployed persons, and of persons not in the labour force who have held a job in the past 12 months. Since 1997, these statistics have been based on the North American Industry Classification System (NAICS) and the Standard Occupational Classification (SOC-91). Prior to 1997, the 1980 Standard Industrial Classification and the 1980 Standard Occupational Classification were used.

Reference Week

The entire calendar week (from Sunday to Saturday) covered by the Labour Force Survey each month. It is usually the week containing the 15th day of the month. The interviews are conducted during the following week, called the Survey Week, and the labour force status determined is that of the reference week.

Full-time Employment

Full-time employment consists of persons who usually work 30 hours or more per week at their main or only job.

Part-time Employment

Part-time employment consists of persons who usually work less than 30 hours per week at their main or only job.

4.2 Survey of Approaches to Educational Planning Concepts and Definitions

Education costs
Tuition and other related education costs (books, co-op program fees, lab supplies, etc.).

Government student loans
Loans subsidized by federal and/or provincial governments that are used to pay for postsecondary studies.

Grants or bursaries
A sum of money given to a person by an organization to pay for the person to study. Grants and bursaries do not have to be repaid by the recipient.

In-trust account
An account with a bank, credit union or trust company in which deposits are made as a trust for the benefit of the beneficiary, even if no formal trust agreement exists.

Living expenses
Any expenses that a student would incur other than direct education costs. The major living expense would likely be rent/accommodation. Other expenses could include transportation, food, entertainment, clothing, etc.

Non-student loans from a financial institution
Includes personal loans, personal lines of credit and first or second mortgages.

Other loans
Include loans from employers, salary advances and credit cards.

Postsecondary education
Any type of formal education after high school including college and university as well as apprenticeships, trade and vocational programs, general and vocational college (collège d'enseignement général et professionnel (CEGEP) in Quebec) and other programs.

Registered Education Savings Plan (RESP)
A tax-sheltered means of saving to finance a child's postsecondary education. Once the child starts postsecondary studies, the earnings in the plan are used to pay for tuition or other expenses related to his/her studies.

RESP - Group plans
RESPs that operate on a pooling principle where the plan redistributes the earnings among all the beneficiaries in the plan.

RESP - Individual plan
RESPs are sold by vendors that separate each RESP contract from the other independent RESP contracts that they manage.

Registered Retirement Savings Plan (RRSP)
A capital accumulation program designed to encourage saving for retirement. Contributions are tax-deductible within certain limits.

5.0 Survey Methodology

The Survey of Approaches to Educational Planning (SAEP) was administered in October and November 2002 to a sub-sample of the dwellings in the Labour Force Survey (LFS) sample, and therefore its sample design is closely tied to that of the LFS. The LFS design is briefly described in Sections 5.1 to 5.4[3]. Sections 5.5 and 5.6 describe how the SAEP departed from the basic LFS design in 2002.

5.1 Population Coverage

The LFS is a monthly household survey of a sample of individuals who are representative of the civilian, non-institutionalized population 15 years of age or older in Canada's ten provinces. Specifically excluded from the survey's coverage are residents of the Yukon, Northwest Territories and Nunavut, persons living on Indian Reserves, full-time members of the Canadian Armed Forces and inmates of institutions. These groups together represent an exclusion of approximately 2% of the population aged 15 or over.

5.2 Sample Design

The LFS has undergone an extensive redesign, culminating in the introduction of the new design at the end of 1994. The LFS sample is based upon a stratified, multi-stage design employing probability sampling at all stages of the design. The design principles are the same for each province. A diagram summarizing the design stages can be found in the document LFS_AppendixA.pdf.

5.2.1 Primary Stratification

Provinces are divided into economic regions (ER) and employment insurance economic regions (EIER). ERs are geographic areas of more or less homogeneous economic structure formed on the basis of federal-provincial agreements. They are relatively stable over time. EIERs are also geographic areas, and are roughly the same size and number as ERs, but they do not share the same definitions. Labour force estimates are produced for the EIERs for the use of Human Resources Development Canada.

The intersections of the two types of regions form the first level of stratification for the LFS. These ER/EIER intersections are treated as primary strata and further stratification is carried out within them (see Section 5.2.3). Note that a third set of regions, census metropolitan areas (CMA), is also respected by stratification in the current LFS design, since each CMA is also an EIER.

5.2.2 Types of Areas

The primary strata (ER/EIER intersections) are further disaggregated into three types of areas: rural, urban, and remote areas. Urban and rural areas are loosely based on the Census definitions of urban and rural, with some exceptions to allow for the formation of strata in some areas. Urban areas include the largest CMAs down to the smallest villages categorized by the 1991 Census as urban (1,000 people or more), while rural areas are made up of areas not designated as urban or remote.

All urban areas are further subdivided into two types: those using an apartment list frame and an area frame, as well as those using only an area frame.

[3] A detailed description of the LFS design is available in the Statistics Canada publication entitled *Methodology of the Canadian Labour Force Survey*, Catalogue no. 71-526-XPB.

Approximately 1% of the LFS population is found in remote areas of provinces which are less accessible to LFS interviewers than other areas. For administrative purposes, this portion of the population is sampled separately through the remote area frame. Some populations, not congregated in places of 25 or more people, are excluded from the sampling frame.

5.2.3 Secondary Stratification

In urban areas with sufficiently large numbers of apartment buildings, the strata are subdivided into apartment frames and area frames. The apartment list frame is a register maintained for the 18 largest cities across Canada. The purpose of this is to ensure better representation of apartment dwellers in the sample as well as to minimize the effect of growth in clusters, due to construction of new apartment buildings. In the major cities, the apartment strata are further stratified into low income strata and regular strata.

Where it is possible and/or necessary, the urban area frame is further stratified into regular strata, high income strata, and low population density strata. Most urban areas fall into the regular urban strata, which, in fact, cover the majority of Canada's population. High income strata are found in major urban areas, while low density urban strata consist of small towns that are geographically scattered.

In rural areas, the population density can vary greatly from relatively high population density areas to low population density areas, resulting in the formation of strata that reflect these variations. The different stratification strategies for rural areas were based not only on concentration of population, but also on cost-efficiency and interviewer constraints.

In each province, remote settlements are sampled proportional to the number of dwellings in the settlement, with no further stratification taking place. Dwellings are selected using systematic sampling in each of the places sampled.

5.2.4 Cluster Delineation and Selection

Households in final strata are not selected directly. Instead, each stratum is divided into clusters, and then a sample of clusters is selected within the stratum. Dwellings are then sampled from selected clusters. Different methods are used to define the clusters, depending on the type of stratum.

Within each urban stratum in the urban area frame, a number of geographically contiguous groups of dwellings, or clusters, are formed based upon 1991 Census counts. These clusters are generally a set of one or more city blocks or block-faces. The selection of a sample of clusters (always six or a multiple of six clusters) from each of these secondary strata represents the first stage of sampling in most urban areas. In some other urban areas, census enumeration areas (EA) are used as clusters. In the low density urban strata, a three stage design is followed. Under this design, two towns within a stratum are sampled, and then 6 or 24 clusters within each town are sampled.

For urban apartment strata, instead of defining clusters, the apartment building is the primary sampling unit. Apartment buildings are sampled from the list frame with probability proportional to the number of units in each building.

Within each of the secondary strata in rural areas, where necessary, further stratification is carried out in order to reflect the differences among a number of socio-economic characteristics within each stratum. Within each rural stratum, six EAs or two or three groups of EAs are sampled as clusters.

5.2.5 Dwelling Selection

In all three types of areas (urban, rural and remote areas) selected clusters are first visited by enumerators in the field and a listing of all private dwellings in the cluster is prepared. From the listing, a sample of dwellings is then selected. The sample yield depends on the type of stratum. For example, in the urban area frame, sample yields are either six or eight dwellings, depending on the size of the city. In the urban apartment frame, each cluster yields five dwellings, while in the rural areas and EA parts of cities, each cluster yields 10 dwellings. In all clusters, dwellings are sampled systematically. This represents the final stage of sampling.

5.2.6 Person Selection

Demographic information is obtained for all persons in a household for whom the selected dwelling is the usual place of residence. LFS information is obtained for all civilian household members 15 years of age or older. Respondent burden is minimized for the elderly (age 70 and over) by carrying forward their responses for the initial interview to the subsequent five months in the survey.

5.3 Sample Size

The sample size of eligible persons in the LFS is determined so as to meet the statistical precision requirements for various labour force characteristics at the provincial and sub-provincial level, to meet the requirements of federal, provincial and municipal governments as well as a host of other data users.

The monthly LFS sample consists of approximately 60,000 dwellings. After excluding dwellings found to be vacant, dwellings demolished or converted to non-residential uses, dwellings containing only ineligible persons, dwellings under construction, and seasonal dwellings, about 54,000 dwellings remain which are occupied by one or more eligible persons. From these dwellings, LFS information is obtained for approximately 102,000 civilians aged 15 or over.

5.4 Sample Rotation

The LFS follows a rotating panel sample design, in which households remain in the sample for six consecutive months. The total sample consists of six representative sub-samples or panels, and each month a panel is replaced after completing its six month stay in the survey. Outgoing households are replaced by households in the same or a similar area. This results in a five-sixths month-to-month sample overlap, which makes the design efficient for estimating month-to-month changes. The rotation after six months prevents undue respondent burden for households that are selected for the survey.

Because of the rotation group feature, it is possible to readily conduct supplementary surveys using the LFS design but employing less than the full size sample.

5.5 Modifications to the Labour Force Survey Design for the Survey of Approaches to Educational Planning

The SAEP used five of the six rotation groups in the October LFS sample. For the SAEP, the coverage of the LFS was modified to include only those households with at least one child aged 18 and under and, within those households, only one randomly selected child. Also, unlike the LFS where information is collected for all eligible household members, the SAEP collected information from the person most knowledgeable (PMK) about the selected child's education.

5.6 Sample Size by Province for the Survey of Approaches to Educational Planning

The following table shows the number of households in the LFS sampled rotations who were eligible for the SAEP supplement, namely, those with at least one child aged 18 and under. This table includes households which were non-respondents to the SAEP.

Province	Sample Size
Newfoundland and Labrador	593
Prince Edward Island	437
Nova Scotia	858
New Brunswick	861
Quebec	2,716
Ontario	4,583
Manitoba	1,134
Saskatchewan	1,094
Alberta	1,435
British Columbia	1,378
Canada	**15,089**

6.0 Data Collection

Data collection for the Labour Force Survey (LFS) is carried out each month during the week following the LFS reference week. The reference week is normally the week containing the 15th day of the month.

6.1 Interviewing for the Labour Force Survey

Statistics Canada interviewers are employees hired and trained to carry out the LFS and other household surveys. Each month they contact the sampled dwellings to obtain the required labour force information. Each interviewer contacts approximately 75 dwellings per month.

Dwellings new to the sample are usually contacted through a personal visit using the computer-assisted personal interview (CAPI). The interviewer first obtains socio-demographic information for each household member and then obtains labour force information for all members aged 15 and over who are not members of the regular armed forces. Provided there is a telephone in the dwelling and permission has been granted, subsequent interviews are conducted by telephone. This is done out of a centralized computer-assisted telephone interviewing (CATI) unit where cases are assigned randomly to interviewers. As a result, approximately 85% of all households are interviewed by telephone. In these subsequent monthly interviews, the interviewer confirms the socio-demographic information collected in the first month and collects the labour force information for the current month.

In each dwelling, information about all household members is usually obtained from one knowledgeable household member. Such ”proxy” reporting, which accounts for approximately 65% of the information collected, is used to avoid the high cost and extended time requirements that would be involved in repeat visits or calls necessary to obtain information directly from each respondent.

If, during the course of the six months that a dwelling normally remains in the sample, an entire household moves out and is replaced by a new household, information is obtained about the new household for the remainder of the six-month period.

At the conclusion of the LFS monthly interviews, interviewers introduce the supplementary survey, if any, to be administered to some or all household members that month.

6.2 Supervision and Quality Control

All LFS interviewers are under the supervision of a staff of senior interviewers who are responsible for ensuring that interviewers are familiar with the concepts and procedures of the LFS and its many supplementary surveys, and also for periodically monitoring their interviewers and reviewing their completed documents. The senior interviewers are, in turn, under the supervision of the LFS program managers, located in each of the Statistics Canada regional offices.

6.3 Non-response to the Labour Force Survey

Interviewers are instructed to make all reasonable attempts to obtain LFS interviews with members of eligible households. For individuals who at first refuse to participate in the LFS, a letter is sent from the Regional Office to the dwelling address stressing the importance of the survey and the household's cooperation. This is followed by a second call (or visit) from the interviewer. For cases in which the timing of the interviewer's call (or visit) is inconvenient, an appointment is arranged to call back at a more convenient time. For cases in which there is no one home, numerous call backs are made. Under no circumstances are sampled dwellings replaced by other dwellings for reasons of non-response.

Each month, after all attempts to obtain interviews have been made, a small number of non-responding households remain. For households non-responding to the LFS and for which LFS information was obtained in the previous month, this information is brought forward and used as the current month's LFS information. No supplementary survey information is collected for these households.

6.4 Data Collection Modifications for the Survey of Approaches to Educational Planning

Upon completion of the LFS interview, households that were eligible for the Survey of Approaches to Educational Planning (SAEP) (i.e., contained at least one child aged 18 and under) were administered the SAEP questionnaire. First, a child was randomly selected by the computer-assisted program. Next, the interviewer asked to speak to the person most knowledgeable (PMK) about that child's education. If the PMK was not available, the interviewer arranged for a convenient time to phone back. Proxy response was not allowed.

6.5 Exclusion to the Survey of Approaches to Educational Planning

The SAEP eligible households that were pre-identified as being part of the National Longitudinal Survey of Children and Youth (NLSCY), another Statistics Canada survey, were excluded from the SAEP collection.

7.0 Data Processing

The main output of the Survey of Approaches to Educational Planning (SAEP) is a "clean" microdata file. This chapter presents a brief summary of the processing steps involved in producing this file.

Before discussing how the SAEP data was processed it is important to understand how the data has been stored. The SAEP data is stored on one main file.

The **CHILD** file is a flat ascii file. It contains one record per selected child and includes data from the following modules:

CP - Child Profile
PP - Parent Profile
FP - Financial Planning
PS - Parents Saving for Selected Child
OS - Others Saving for Selected Child
NS - Not Saving for Selected Child
SO - Parents Saving for Other Children
PA - Policy Awareness
DE - Demographics

Other data found on the child file are the derived variables and the selected child's Labour Force Survey (LFS) data, plus some parents' LFS data.

There is one additional file for researchers to use called the **LFS** file, or the Labour Force Survey file. It consists of data about all the household members such as parents and siblings.

Each file has a respondent identifier (SEQID) with which the files can be linked together.

7.1 Data Capture

Responses to survey questions are captured directly by the interviewer at the time of the interview using a computerized questionnaire. The computerized questionnaire reduces processing time and costs associated with data entry, transcription errors, and data transmission. The response data are encrypted to ensure confidentiality and sent via modem to the appropriate Statistics Canada Regional Office. From there they are transmitted over a secure line to Ottawa for further processing.

Some editing is done directly at the time of the interview. Where the information entered is out of range (too large or small) of expected values, or inconsistent with previous entries, the interviewer is prompted, through message screens on the computer, to modify the information. However, for some questions interviewers have the option of bypassing the edits, and of skipping questions if the respondent does not know the answer or refuses to answer. Therefore, the response data are subjected to further edit and imputation processes once they arrive in head office.

7.2 Editing

The editing and imputation phases of processing involve the identification of logically inconsistent or missing information items, and the modification of such conditions. Since the true value of each entry on the questionnaire is not known, the identification of errors can be done only through recognition of obvious inconsistencies. If a value is suspicious but reasonable, the erroneous value will find its way into the surveys' statistics. For that reason emphasis must be placed on quality controls and interviewer training to ensure that errors are both minimal in number and non-systematic in nature.

Where errors or omissions are detected, the erroneous or missing items are replaced by the imputation of logically consistent values. Such changes are made automatically by the edit and imputation system or through intervention of experts. These changes are based on pre-specified criteria, and may involve the internal logic of the questionnaire, reference to earlier month's information (if available), or the use of similar records to impute one or more values.

In all cases, editing changes are recorded and this information is used to assess various aspects of survey performance. These records of errors are also used to advise interviewers of mistakes made in the past in order to avoid repetition of these mistakes in the future.

7.3 Coding of Open-ended Questions

The coding process assigns standard codes to open-ended questions so that the data can be better analyzed.

A type of coding that is performed is called "Other – Specify" coding. Questions which contain a list of answer categories often contain "Other - Specify" as the final category. The text from these questions is captured. These write-ins are examined and may be recoded into one of the existing categories. If the write-in is reflected in one of the existing categories to the question, the appropriate category is set to "*Yes"* and the *"Other - Specify"* is set to "*No"*. Also, new categories may be added if there is a large number of write-ins which can be categorized together.

7.4 Imputation

Imputation is the process that supplies valid values for those variables that have been identified for a change either because of invalid information or because of missing information. The new values are supplied in such a way as to preserve the underlying structure of the data and to ensure that the resulting records will pass all required edits. In other words, the objective is not to reproduce the true microdata values, but rather to establish internally consistent data records that yield good aggregate estimates.

We can distinguish between three types of non-response. Complete non-response is when the respondent does not provide the minimum set of questions. These records are dropped and accounted for in the weighting process (see Chapter 11.0). Item non-response is when the respondent does not provide an answer to one question, but goes on to the next question. These are usually handled using the "not stated" or are imputed. Finally, partial non-response is when the respondent provides the minimum set of questions but does not finish the interview. These records can be handled like either complete non-response or multiple item non-response.

In the case of the 2002 SAEP, donor imputation was used to fill in missing data in six key items due to item non-response. Further information on the imputation process is given in Chapter 8.0 (Data Quality).

7.5 Creation of Derived Variables

The derived variable process creates new variables based on existing ones. A derived variable (DV) may be based on one survey question (regrouping/collapsing categories), or on several questions combined together to define a new concept. Specifications for the DVs may be defined as Decision Tables using LogiPlus, in specially defined formats in a spreadsheet, or in the case of complex DVs, as algorithms which the programmer codes.

For the SAEP various questions on the microdata file have been combined to derive additional variables in order to facilitate data analysis. When creating the derived variable, if any question was missing a value (i.e. the response was "Don't know", "Refused" or "Not stated"), the code assigned to the derived variable was "Not stated".

The following are some examples of the derived variables that have been created.

Child Derived Variables

Child Public Use Microdata File and Child Master file:

SELSAV01	Total savings (Registered Education Savings Plan (RESP) and other savings) by parents/guardians for the selected child in 2001
SELSAVST	Selected child's savings status (by parents/guardians and others)
SELSAVPO	Indicator of who is currently saving for the selected child
OTHSAV1	Other savings for the selected child (other than RESPs)
SELWSPO	Indicator of future savings plans for the selected child with no current savings
SELWHPAY	Indicator for selected child whose (parents/guardians) and/or others will pay or help pay for their postsecondary education
HEDUC	Parent(s)/guardian(s) highest level of education completed

Child Public Use Microdata File only:

BLANGUAG	Main language spoken at home
ORIGIN	Ethnic origin of parents
INCOME	Household income categorical breakdown (13 categories)

Child Master File only:

SAVESELC	Parent/guardian savings for selected child
SAVINGPO	Selected child's total savings (by parents/guardians and others)
RESPSELC	Parent/guardian RESP savings for the selected child
LANGUAGE	Language spoken most often in the household
ETHNIC	Ethnic and cultural background of the selected child's parents or grandparents
HIGHAGE	Age of oldest parent or guardian
HHINCBRK	Household income categorical breakdown (27 categories)

7.6 Weighting

The principle behind estimation in a probability sample such as the LFS is that each person in the sample "represents", besides himself or herself, several other persons not in the sample. For example, in a simple random 2% sample of the population, each person in the sample represents 50 persons in the population.

The weighting phase is a step which calculates, for each record, what this number is. This weight appears on the microdata file, and **must** be used to derive meaningful estimates from the survey. For example, if the number of children whose parents/guardians have set aside savings for postsecondary education is to be estimated, it is done by selecting the records referring to those individuals in the sample with that characteristic and summing the weights entered on those records.

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

7.7 Suppression of Confidential Information

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.

Province - Suppression of Geographic Identifiers

The survey master data file includes explicit geographic identifiers for province, economic region and census metropolitan area. It is also possible to obtain, where sample sizes permit, estimates by urban size class. The survey public use microdata files do not contain any geographic identifiers below the provincial level.

Where necessary some of the text codes used in the open-ended questions are aggregated on the microdata files. They are regrouped to suit the major coding schemes.

8.0 Data Quality

8.1 Response Rates

The following table summarizes the response rates to the Labour Force Survey (LFS) and to the Survey of Approaches to Educational Planning (SAEP).

Province	LFS Selected Households	LFS Responding Households	LFS Response Rate*	LFS Households with children	SAEP Responding Children	SAEP Response Rate**
			%			%
Newfoundland and Labrador	1,631	1,545	94.7	593	480	80.9
Prince Edward Island	1,187	1,130	95.2	437	351	80.3
Nova Scotia	2,799	2,676	95.6	858	685	79.8
New Brunswick	2,575	2,446	95.0	861	697	81.0
Quebec	8,794	8,258	93.9	2,716	1,983	73.0
Ontario	13,313	12,501	93.9	4,583	3,018	65.9
Manitoba	3,238	3,128	96.6	1,134	847	74.7
Saskatchewan	3,312	3,130	94.5	1,094	823	75.2
Alberta	3,892	3,678	94.5	1,435	996	69.4
British Columbia	4,446	4,170	93.8	1,378	908	65.9
Canada	**45,187**	**42,662**	**94.4**	**15,089**	**10,788**	**71.5**

Note: While the LFS counts are in terms of households, the SAEP counts are in terms of children, which is equivalent to households since only one child per household was selected.

* The LFS response rate is the number of households responding to the LFS as a percentage of the number of eligible households. LFS responding households include LFS respondents carried forward from the previous month.

** The SAEP response rate is the number of **children (households)** for whom a response to the SAEP supplement was received as a percentage of the number of **children (households)** who were eligible among those **children (households)** selected for the SAEP (a maximum of one child per household could be selected) (see the table in Section 5.6). Only LFS responding households in rotation groups 1, 2, 3, 5 and 6 which had given permission to be contacted by telephone or in person and had at least one child between the ages of 0 and 18 years were eligible for the SAEP supplement.

8.2 Survey Errors

The estimates derived from this survey are based on a sample of households. Somewhat different estimates might have been obtained if a complete census had been taken using the same questionnaire, interviewers, supervisors, processing methods, etc. as those actually used in the survey. The difference between the estimates obtained from the sample and those resulting from a complete count taken under similar conditions, is called the sampling error of the estimate.

Errors which are not related to sampling may occur at almost every phase of a survey operation. Interviewers may misunderstand instructions, respondents may make errors in answering questions, the answers may be incorrectly entered on the questionnaire and errors may be introduced in the processing and tabulation of the data. These are all examples of non-sampling errors.

Over a large number of observations, randomly occurring errors will have little effect on estimates derived from the survey. However, errors occurring systematically will contribute to biases in the survey estimates. Considerable time and effort was made to reduce non-sampling errors in the survey. Quality assurance measures were implemented at each step of the data collection and processing cycle to monitor the quality of the data. These measures include the use of highly skilled interviewers, extensive training of interviewers with respect to the survey procedures and questionnaire, observation of interviewers to detect problems of questionnaire design or misunderstanding of instructions, procedures to ensure that data capture errors were minimized and coding and edit quality checks to verify the processing logic.

8.2.1 The Frame

Because the SAEP was a supplement to the LFS, the frame used was the LFS frame. Any non-response to the LFS had an impact on the SAEP frame. The quality of the sampling variables in the frame was very high. The SAEP sample consisted of five rotation groups from the LFS. The criteria used for the SAEP selection (like rotation group) were not missing for any LFS records.

Note that the LFS frame excludes about 2% of all households in the 10 provinces of Canada. Therefore, the SAEP frame also excludes the same proportion of households in the same geographical area. It is unlikely that this exclusion introduces any significant bias into the survey data.

Some variables on the sampling frame may play a critical role with respect to the software application used in the survey. For example, in a computer-assisted telephone interview (CATI) application, each record must have an accurate province code. Moreover, it requires accurate coding of the time zone field corresponding to province and each of the telephone number fields. Such analysis of the sampling frame provides important feedback on the quality of the frame used in the survey.

8.2.2 Data Collection

Interviewer training consisted of reading the SAEP Procedures Manual and Interviewers Manual, practicing with the SAEP training cases on the computer, and discussing any questions with senior interviewers before the start of the survey. A description of the background and objectives of the survey was provided, as well as a glossary of terms and a set of questions and answers. Interviewers collected the SAEP information after the LFS information was collected. The collection period ran from the week of October 20th to November 15th, 2002.

8.2.3 Data Processing

During processing of the data, 28 SAEP records did not match to corresponding records in the LFS. Thus they were coded as out-of-scope and were dropped from further processing. When supplementary survey records do not match to host survey records they must be dropped since a weight cannot be derived for them.

Some records were discarded because they did not complete the first section of the questionnaire. There were two such records and these were coded as non-response.

Data processing of the SAEP was done in a number of steps including verification, coding, editing, imputation, estimation, confidentiality, etc. At each step a picture of the output files is taken and an easy verification can be made comparing files at the current and previous step. This procedure greatly improved the data processing stage.

8.2.4 Non-response

A major source of non-sampling errors in surveys is the effect of non-response on the survey results. The extent of non-response varies from partial non-response (failure to answer just one or some questions) to total non-response. Total non-response occurred because the interviewer was either unable to contact the respondent, no member of the household was able to provide the information, or the respondent refused to participate in the survey. Total non-response was handled by adjusting the weight of households who responded to the survey to compensate for those who did not respond.

In most cases, partial non-response to the survey occurred when the respondent did not understand or misinterpreted a question, refused to answer a question, or could not recall the requested information.

For the 2002 SAEP, donor imputation was used to fill missing data in household income and six key items. This was done in order to provide complete data, thereby allowing for totals to be estimated (e.g., total group RESP contributions in Ontario).

The six key items gathered information on the current value of, or annual contribution to, savings for the postsecondary education of children aged 0 to18. The savings were in terms of Registered Education Savings Plans (RESP) or other savings (e.g., term deposits, guaranteed investment certificates (GIC), savings bonds, Registered Retirement Savings Plans (RRSP), mutual funds). The corresponding modules, item labels, and item descriptions are given in the table below.

Module	Item Label	Item Description
DE (Demographics)	DE_Q18	Household income
PS (Parents Savings)	PS_Q13	Current value of individual RESP savings
	PS_Q15	Total contributions to group RESP
	PS_Q17	Annual contributions to RESP in 2001
	PS_Q22	Current value of other savings
	PS_Q24	Annual contributions to other savings in 2001
OS (Others Savings)	OS_Q03	Current value of savings by others

Note: Any related derived variables to these variables are based on imputed data as well. For example, the derived variable INCOME on the child public use microdata file was derived from the imputed variable DE_Q18.

Because the six items depend on previous questions (lead-ins), missing values in the lead-ins were imputed first[4].The lead-ins ask whether there are (or will be) savings and, if so, whether these savings are for the postsecondary education of children aged 0 to 18. The corresponding modules, lead-in labels, and lead-in descriptions are given in the table below.

Module	Lead-In	Lead-In Description	Lead-In to
FP (Financial Planning)	FP_Q01	Do parents/guardians currently have savings for child's postsecondary education?	PS_Q13, PS_Q15, PS_Q17, PS_Q22, PS_Q24
	FP_Q05	Are others currently planning savings for child's postsecondary education?	OS_Q03
	FP_Q07	Do others have savings for child's postsecondary education?	OS_Q03
PS (Parents Savings)	PS_Q04	Do parents/guardians have RESPs?	PS_Q13, PS_Q15, PS_Q17
	PS_Q10	What type of RESP do parents/guardians have for child?	PS_Q13, PS_Q15
Derived Variables	OTHSAV1	Do parents/guardians have other savings (other than RESPs)?	PS_Q22, PS_Q24

Imputation involved filling the missing values in household income, the six items and/or the lead-ins on a given record (the "recipient" record) using another record whose values were all known and whose characteristics were the "closest" (the "donor" record). The characteristics of each recipient were compared to those of each donor in a pool of donors. When a characteristic between the recipient and a donor were the same, the weight (value) of that characteristic was added to a "score" for that donor. In the end, the donor with the highest score was deemed to be the closest, and was therefore chosen to fill the missing value(s) in the recipient. If there was more than one donor with the highest score, one donor was randomly selected. The pool of donors was made up in such a way that the imputed value assigned to the recipient, in conjunction with other non-imputed items from the recipient, would still pass the edits.

Donor imputation was done in three steps. First, household income was imputed. This is partly because household income is an important factor in the donor score when imputing key items. Second, the five PS (Parents Savings) items and their corresponding lead-ins were imputed. These variables were imputed simultaneously for consistency and coherence. Finally, the OS (Others Savings) item and its corresponding lead-ins were simultaneously imputed.

The table below shows the imputation rates for household income and the six items.

Item	Imputed	Total	Rate (%)
DE_Q18	909	10,788	8
PS_Q13	286	2,152	13
PS_Q15	133	841	16
PS_Q17	418	2,604	16
PS_Q22	654	4,372	15
PS_Q24	1,008	4,070	25
OS_Q03	710	1,494	47

4 There are no "lead-ins" to DE_Q18 (household income), since all selected SAEP households are requested to answer DE_Q18.

The SAEP imputation process worked well**,** with minimal impact on the final estimates for the six key items in terms of bias and variance**.** Overall, the process helped fill incomplete responses using the experience of other respondents with similar or identical characteristics, and adds to the number of units available for researchers to analyze.

Note that the master file contains imputation flags. These flags indicate which of the six key items and lead-ins, if any, were imputed using the process described above.

8.2.5 Measurement of Sampling Error

Since it is an unavoidable fact that estimates from a sample survey are subject to sampling error, sound statistical practice calls for researchers to provide users with some indication of the magnitude of this sampling error. This section of the documentation outlines the measures of sampling error which Statistics Canada commonly uses and which it urges users producing estimates from this microdata file to use also.

The basis for measuring the potential size of sampling errors is the standard error of the estimates derived from survey results.

However, because of the large variety of estimates that can be produced from a survey, the standard error of an estimate is usually expressed relative to the estimate to which it pertains. This resulting measure, known as the coefficient of variation (CV) of an estimate, is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percentage of the estimate.

For example, suppose that, based upon the survey results, one estimates that 50.2% of children have parents/guardians who have set aside savings for postsecondary education, and this estimate is found to have a standard error of 0.0055. Then the coefficient of variation of the estimate is calculated as:

$$\left(\frac{0.0055}{0.502}\right) X\ 100\% = 1.1\%$$

There is more information on the calculation of coefficient of variation in Chapter 10.0.

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 Sample Weighting Guidelines for Tabulation

The sample design used for the Survey of Approaches to Educational Planning (SAEP) was not self-weighting. When producing simple estimates, including the production of ordinary statistical tables, users must apply the proper sampling weight.

If proper weights are not used, the estimates derived from the microdata files cannot be considered to be representative of the survey population, and 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.

9.3 Definitions of Types of Estimates: Categorical and Quantitative

Before discussing how the SAEP data can be tabulated and analysed, it is useful to describe the two main types of point estimates of population characteristics which can be generated from the microdata file for the SAEP.

9.3.1 Categorical Estimates

Categorical estimates are estimates of the number, or percentage of the surveyed population possessing certain characteristics or falling into some defined category. The number of children whose parents/guardians have set aside savings for postsecondary education, or the proportion of children who receive help or tutoring outside the school are examples of such estimates. An estimate of the number of persons possessing a certain characteristic may also be referred to as an estimate of an aggregate.

Examples of Categorical Questions

Q: Do you (and/or your spouse) currently have savings set aside for (his/her) postsecondary education?
R: Yes / No

Q: Excluding any help from you (and/or your spouse) did (name of child) receive any help or tutoring outside the school?
R: Yes / No

9.3.2 Quantitative Estimates

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.

An example of a quantitative estimate is the average current value of individual Registered Education Savings Plan (RESP) savings per child. The numerator is an estimate of the total current value of individual RESP savings, and its denominator is the number of children with RESP savings.

Example of Quantitative Question:

Q: What is the current value of the RESP? Include earnings and interest as well as the Canada Education Savings Grant (CESG).
R: |_|_|_|_|_|_| (Minimum: 1, Maximum: 200000)

9.3.3 Tabulation of Categorical Estimates

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 having the characteristic of interest for the numerator $\left(\hat{X}\right)$,

b) summing the final weights of records having the characteristic of interest for the denominator $\left(\hat{Y}\right)$, then

c) dividing estimate a) by estimate b) $\left(\hat{X} / \hat{Y}\right)$.

9.3.4 Tabulation of Quantitative Estimates

Estimates of quantities can be obtained from the microdata file by multiplying the value of the variable of interest by the final weight for each record, then summing this quantity over all records of interest. For example, to obtain an estimate of the total current value of individual RESPs saved for the postsecondary education of children whose parents/guardians hope they will attend university, multiply the value reported in question (C)PS_Q13 (current value of individual's RESP) by the final weight for the record, then sum this value over all records with CP_Q24 = 07 (University).

To obtain a weighted average of the form $\hat{X} / \hat{Y}$, the numerator $\left(\hat{X}\right)$ is calculated as for a quantitative estimate and the denominator $\left(\hat{Y}\right)$ is calculated as for a categorical estimate. For example, to estimate the average current value of individual RESPs saved for the postsecondary education of children whose parents/guardians hope they will attend university,

a) estimate the total current value of individual RESPs $\left(\hat{X}\right)$ as described above,

b) estimate the number of children $\left(\hat{Y}\right)$ in this category by summing the final weights of all records with CP_Q24 = 07, then

c) divide estimate a) by estimate b) $\left(\hat{X} / \hat{Y}\right)$.

9.4 Guidelines for Statistical Analysis

The SAEP is based upon a complex sample design, with stratification, multiple stages of selection, and unequal probabilities of selection of respondents. Using data from such complex surveys presents problems to analysts because the survey design and the selection probabilities affect the estimation and variance calculation procedures that should be used. In order for survey estimates and analyses to be free from bias, the survey weights must be used.

While many analysis procedures found in statistical packages allow weights to be used, the meaning or definition of the weight in these procedures differ from that which is appropriate in a sample survey framework, with the result that while in many cases the estimates produced by the packages are correct, the variances that are calculated are poor. Approximate variances for simple estimates such as totals, proportions and ratios (for qualitative variables) can be derived using the accompanying Approximate Sampling Variability Tables.

For other analysis techniques (for example linear regression, logistic regression and analysis of variance), a method exists which can make the variances calculated by the standard packages more meaningful, by incorporating the unequal probabilities of selection. The method rescales the weights so that there is an average weight of 1.

For example, suppose that analysis of all male respondents is required. The steps to rescale the weights are as follows:

1) select all respondents from the file who reported SEX = male;
2) calculate the AVERAGE weight for these records by summing the original child weights from the microdata file for these records and then dividing by the number of children who reported SEX = male;
3) for each of these respondents, calculate a RESCALED weight equal to the original child weight divided by the AVERAGE weight;
4) perform the analysis for these children using the RESCALED weight.

However, because the stratification and clustering of the sample's design are still not taken into account, the variance estimates calculated in this way are likely to be under-estimates.

The calculation of more precise variance estimates requires detailed knowledge of the design of the survey. Such detail cannot be given in this microdata file because of confidentiality. Variances that take the complete sample design into account can be calculated for many statistics by Statistics Canada on a cost-recovery basis.

9.5 Coefficient of Variation Release Guidelines

Before releasing and/or publishing any estimate from SAEP, users should first determine the quality level of the estimate. The quality levels are *acceptable*, *marginal* and *unacceptable*. Data quality is affected by both sampling and non-sampling errors as discussed in Chapter 8.0. However for this purpose, the quality level of an estimate will be determined only on the basis of sampling error as reflected by the coefficient of variation as shown in the table below. Nonetheless users should be sure to read Chapter 8.0 to be more fully aware of the quality characteristics of these data.

First, the number of respondents who contribute to the calculation of the estimate should be determined. If this number is less than 30, the weighted estimate should be considered to be of unacceptable quality

For weighted estimates based on sample sizes of 30 or more, users should determine the coefficient of variation of the estimate and follow the guidelines below. These quality level guidelines should be applied to weighted rounded estimates.

All estimates can be considered releasable. However, those of marginal or unacceptable quality level must be accompanied by a warning to caution subsequent users.

Quality Level Guidelines

Quality Level of Estimate	Guidelines
1) Acceptable	Estimates have a sample size of 30 or more, and low coefficients of variation in the range of 0.0% to 16.5%. No warning is required.
2) Marginal	Estimates have a sample size of 30 or more, and high coefficients of variation in the range of 16.6% to 33.3%. Estimates should be flagged with the letter M (or some similar identifier). They should be accompanied by a warning to caution subsequent users about the high levels of error, associated with the estimates.
3) Unacceptable	Estimates have a sample size of less than 30, or very high coefficients of variation in excess of 33.3%. Statistics Canada recommends not to release estimates of unacceptable quality. However, if the user chooses to do so then estimates should be flagged with the letter U (or some similar identifier) and the following warning should accompany the estimates: "Please be warned that these estimates [flagged with the letter U] do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid."

9.6 Release Cut-off's for the Survey of Approaches to Educational Planning

The following table provides an indication of the precision of population estimates as it shows the release cut-offs associated with each of the three quality levels presented in the previous section. These cut-offs are derived from the coefficient of variation (CV) tables discussed in Chapter 10.0.

For example, the table shows that the quality of a weighted estimate of 5,000 people possessing a given characteristic in Newfoundland and Labrador is marginal.

Note that these cut-offs apply to estimates of population totals only. To estimate ratios, users should not use the numerator value (nor the denominator) in order to find the corresponding quality level. Rule 4 in Section 10.1 and Example 4 in Section 10.1.1 explains the correct procedure to be used for ratios.

Province and Region	**Acceptable CV 0.0% to 16.5%**		**Marginal CV 16.6% to 33.3%**			**Unacceptable CV > 33.3%**	
Newfoundland and Labrador	12,000	& over	3,000	to <	12,000	under	3,000
Prince Edward Island	4,500	& over	1,000	to <	4,500	under	1,000
Nova Scotia	16,500	& over	4,500	to <	16,500	under	4,500
New Brunswick	11,000	& over	3,000	to <	11,000	under	3,000
Quebec	62,000	& over	15,500	to <	62,000	under	15,500
Ontario	66,500	& over	16,500	to <	66,500	under	16,500
Manitoba	17,500	& over	4,500	to <	17,500	under	4,500
Saskatchewan	15,500	& over	4,000	to <	15,500	under	4,000
Alberta	43,000	& over	11,000	to <	43,000	under	11,000
British Columbia	58,000	& over	15,000	to <	58,000	under	15,000
Atlantic Provinces	13,500	& over	3,500	to <	13,500	under	3,500
Prairie Provinces	32,500	& over	8,000	to <	32,500	under	8,000
Canada	**55,000**	**& over**	**13,500**	**to <**	**55,000**	**under**	**13,500**

10.0 Approximate Sampling Variability Tables

In order to supply coefficients of variation (CV) which would be applicable to a wide variety of categorical estimates produced from this microdata file and which could be readily accessed by the user, a set of Approximate Sampling Variability Tables has been produced. These CV tables allow the user to obtain an approximate coefficient of variation based on the size of the estimate calculated from the survey data.

The coefficients of variation are derived using the variance formula for simple random sampling and incorporating a factor which reflects the multi-stage, clustered nature of the sample design. This factor, known as the design effect, was determined by first calculating design effects for a wide range of characteristics and then choosing from among these a conservative value (usually the 75th percentile) to be used in the CV tables which would then apply to the entire set of characteristics.

The table below shows the conservative value of the design effects as well as sample sizes and population counts by province which were used to produce the Approximate Sampling Variability Tables for the Survey of Approaches to Educational Planning (SAEP).

Province and Region	**Design Effect**	**Sample Size**	**Population**
Newfoundland and Labrador	1.49	480	117,641
Prince Edward Island	1.42	351	34,623
Nova Scotia	1.60	685	211,545
New Brunswick	1.32	697	168,847
Quebec	2.14	1,983	1,632,427
Ontario	1.93	3,018	2,903,060
Manitoba	1.59	847	273,665
Saskatchewan	1.46	823	250,407
Alberta	1.57	996	784,658
British Columbia	1.67	908	913,140
Atlantic Provinces	1.58	2,213	532,656
Prairie Provinces	1.86	2,666	1,308,730
Canada	**2.23**	**10,788**	**7,290,013**

All coefficients of variation in the Approximate Sampling Variability Tables are approximate and, therefore, unofficial. Estimates of actual variance for specific variables may be obtained from Statistics Canada on a cost-recovery basis. Since the approximate CV is conservative, the use of actual variance estimates may cause the estimate to be switched from one quality level to another. For instance a *marginal* estimate could become *acceptable* based on the exact CV calculation.

Remember: If the number of observations on which an estimate is based is less than 30, the weighted estimate is most likely unacceptable and Statistics Canada recommends not to release such an estimate, regardless of the value of the coefficient of variation.

10.1 How to Use the Coefficient of Variation Tables for Categorical Estimates

The following rules should enable the user to determine the approximate coefficients of variation from the Approximate Sampling Variability Tables for estimates of the number, proportion or percentage of the surveyed population possessing a certain characteristic and for ratios and differences between such estimates.

Rule 1: Estimates of Numbers of Children Possessing a Characteristic (Aggregates)

The coefficient of variation depends only on the size of the estimate itself. On the Approximate Sampling Variability Table for the appropriate geographic area, locate the estimated number in the left-most column of the table (headed "Numerator of Percentage") and follow the asterisks (if any) across to the first figure encountered. This figure is the approximate coefficient of variation.

Rule 2: Estimates of Proportions or Percentages of Children Possessing a Characteristic

The coefficient of variation of an estimated proportion or percentage depends on both the size of the proportion or percentage and the size of the total upon which the proportion or percentage is based. Estimated proportions or percentages are relatively more reliable than the corresponding estimates of the numerator of the proportion or percentage, when the proportion or percentage is based upon a sub-group of the population. For example, the estimated proportion of children who receive help or tutoring outside the school is more reliable than the estimated number of children who receive help or tutoring outside the school. (Note that in the tables the coefficients of variation decline in value reading from left to right).

When the proportion or percentage is based upon the total population of the geographic area covered by the table, the CV of the proportion or percentage is the same as the CV of the numerator of the proportion or percentage. In this case, Rule 1 can be used.

When the proportion or percentage is based upon a subset of the total population (e.g. those in a particular sex or age group), reference should be made to the proportion or percentage (across the top of the table) and to the numerator of the proportion or percentage (down the left side of the table). The intersection of the appropriate row and column gives the coefficient of variation.

Rule 3: Estimates of Differences Between Aggregates or Percentages

The standard error of a difference between two estimates is approximately equal to the square root of the sum of squares of each standard error considered separately. That is, the standard error of a difference $\left(\hat{d} = \hat{X}_1 - \hat{X}_2\right)$ is:

$$\sigma_{\hat{d}} = \sqrt{\left(\hat{X}_1\alpha_1\right)^2 + \left(\hat{X}_2\alpha_2\right)^2}$$

where $\hat{X}_1$ is estimate 1, $\hat{X}_2$ is estimate 2, and α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively. The coefficient of variation of $\hat{d}$ is given by $\sigma_{\hat{d}} / \hat{d}$. This formula is accurate for the difference between separate and uncorrelated characteristics, but is only approximate otherwise.

Rule 4: Estimates of Ratios

In the case where the numerator is a subset of the denominator, the ratio should be converted to a percentage and Rule 2 applied. This would apply, for example, to the case where the denominator is the number of children and the numerator is the number of children whose parents/guardians have set aside savings for postsecondary education.

In the case where the numerator is not a subset of the denominator, as for example, the ratio of the number of pre-teen children (0 to12 years) whose parents/guardians have set aside savings for postsecondary education, as compared to the number of teen children (13 to 18 years) whose parents/guardians have set aside savings for postsecondary, the standard error of the ratio of the estimates is approximately equal to the square root of the sum of squares of each coefficient of variation considered separately multiplied by $\hat{R}$. That is, the standard error of a ratio $\left(\hat{R} = \hat{X}_1 / \hat{X}_2\right)$ is:

$$\sigma_{\hat{R}} = \hat{R}\sqrt{\alpha_1^{\,2} + \alpha_2^{\,2}}$$

where α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively. The coefficient of variation of $\hat{R}$ is given by $\sigma_{\hat{R}} / \hat{R}$. The formula will tend to overstate the error, if $\hat{X}_1$ and $\hat{X}_2$ are positively correlated and understate the error if $\hat{X}_1$ and $\hat{X}_2$ are negatively correlated.

Rule 5: Estimates of Differences of Ratios

In this case, Rules 3 and 4 are combined. The CVs for the two ratios are first determined using Rule 4, and then the CV of their difference is found using Rule 3.

10.1.1 Examples of Using the Coefficient of Variation Tables for Categorical Estimates

The following examples based on the SAEP are included to assist users in applying the foregoing rules.

Example 1: Estimates of Numbers of Children Possessing a Characteristic (Aggregates)

Suppose that a user estimates 3,660,679 children have parents/guardians who have set aside savings for postsecondary. How does the user determine the coefficient of variation of this estimate?

1) Refer to the coefficient of variation table for CANADA.

2) The estimated aggregate (3,660,679) does not appear in the left-hand column (the "Numerator of Percentage" column), so it is necessary to use the figure closest to it, namely 4,000,000.

3) The coefficient of variation for an estimated aggregate is found by referring to the first non-asterisk entry on that row, namely, 1.1%.

4) So the approximate coefficient of variation of the estimate is 1.1%. The finding that there were 3,660,679 (rounded to 3,660,700 according to the guidelines in Section 9.1) children for whom savings have been set aside for postsecondary education is publishable with no qualifications.

Example 2: Estimates of Proportions or Percentages of Children Possessing a Characteristic

Suppose that the user estimates that 2,666,940 / 3,660,679 = 72.9% of children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university. How does the user determine the coefficient of variation of this estimate?

1) Refer to the coefficient of variation table for CANADA.

2) Because the estimate is a percentage which is based on a subset of the total population (i.e., children whose parents/guardians have set aside savings for postsecondary education), it is necessary to use both the percentage (72.9%) and the numerator portion of the percentage (2,666,940) in determining the coefficient of variation.

3) The numerator, 2,666,940, does not appear in the left-hand column (the "Numerator of Percentage" column) so it is necessary to use the figure closest to it, namely 3,000,000. Similarly, the percentage estimate does not appear as any of the column headings, so it is necessary to use the percentage closest to it, 70.0%.

4) The figure at the intersection of the row and column used, namely 1.2% is the coefficient of variation to be used.

5) So the approximate coefficient of variation of the estimate is 1.2%. The finding that 72.9% of children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university can be published with no qualifications.

Example 3: Estimates of Differences Between Aggregates or Percentages

Suppose that a user estimates that 1,848,788 / 2,482,241 = 74.5% of pre-teen children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university. The user also estimates that 818,152 / 1,178,438 = 69.4% of teen children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university. How does the user determine the coefficient of variation of the difference between these two estimates?

1) Using the CANADA coefficient of variation table in the same manner as described in Example 2 gives the CV of the estimate for pre-teen children as 1.5%, and the CV of the estimate for teen children as 2.5%.

2) Using Rule 3, the standard error of a difference $\left(\hat{d} = \hat{X}_1 - \hat{X}_2\right)$ is:

$$\sigma_{\hat{d}} = \sqrt{\left(\hat{X}_1\alpha_1\right)^2 + \left(\hat{X}_2\alpha_2\right)^2}$$

where $\hat{X}_1$ is estimate 1 (pre-teen children), $\hat{X}_2$ is estimate 2 (teen children), and α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively.

That is, the standard error of the difference $\hat{d}$ = 0.745 - 0.694 = 0.051 is:

$$\sigma_{\hat{d}} = \sqrt{[(0.745)(0.015)]^2 + [(0.694)(0.025)]^2}$$

$$= \sqrt{(0.000125) + (0.000301)}$$

$$= 0.021$$

3) The coefficient of variation of $\hat{d}$ is given by $\sigma_{\hat{d}} / \hat{d}$ = 0.021 / 0.051 = 0.412.

4) So the approximate coefficient of variation of the difference between the estimates is 41.2%. This estimate is considered unacceptable and Statistics Canada recommends this estimate not be released. However, should the user choose to do so, the estimate should be flagged with the letter U (or some similar identifier) and be accompanied by a warning to caution subsequent users about the high levels of error, associated with the estimate.

Example 4: Estimates of Ratios

Suppose that the user estimates that 1,848,788 pre-teen children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university, while 818,152 teen children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university. The user is interested in comparing the estimate of pre-teen children versus that of teen children in the form of a ratio. How does the user determine the coefficient of variation of this estimate?

1) First of all, this estimate is a ratio estimate, where the numerator of the estimate ($\hat{X}_1$) is the number of pre-teen children who have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university. The denominator of the estimate ($\hat{X}_2$) is the number of teen children who have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university.

2) Refer to the coefficient of variation table for CANADA.

3) The numerator of this ratio estimate is 1,848,788. The figure closest to it is 2,000,000. The coefficient of variation for this estimate is found by referring to the first non-asterisk entry on that row, namely, 2.3%.

4) The denominator of this ratio estimate is 818,152. The figure closest to it is 750,000. The coefficient of variation for this estimate is found by referring to the first non-asterisk entry on that row, namely, 4.1%.

5) So the approximate coefficient of variation of the ratio estimate is given by Rule 4, which is:

$$\alpha_{\hat{R}} = \sqrt{\alpha_1^{\,2} + \alpha_2^{\,2}}$$

where α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively.

That is:

$$\begin{aligned}\alpha_{\hat{R}} &= \sqrt{(0.023)^2 + (0.041)^2} \\ &= \sqrt{0.000529 + 0.001681} \\ &= 0.047\end{aligned}$$

6) The obtained ratio of pre-teen children versus teen children who have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university is 1,848,788 / 818,152, which is 2.26. The coefficient of variation of this estimate is 4.7%.This estimate is considered to be of acceptable quality, and no warning is required.

Example 5: Estimates of Differences of Ratios

Suppose that the user estimates that the ratio of pre-teen children to teen children who have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university is 1.98 for Nova Scotia, while it is 2.10 for Manitoba. The user is interested in comparing the two ratios to see if there is a statistical difference between them. How does the user determine the coefficient of variation of the difference?

1) First calculate the approximate coefficient of variation for the Nova Scotia ratio $\left(\hat{R}_1\right)$ and the Manitoba ratio $\left(\hat{R}_2\right)$ as in Example 4. The approximate CV for the Nova Scotia ratio is 15.8% and 13.3% for Manitoba.

2) Using Rule 3, the standard error of a difference $\left(\hat{d} = \hat{R}_1 - \hat{R}_2\right)$ is:

$$\sigma_{\hat{d}} = \sqrt{\left(\hat{R}_1\alpha_1\right)^2 + \left(\hat{R}_2\alpha_2\right)^2}$$

where α_1 and α_2 are the coefficients of variation of $\hat{R}_1$ and $\hat{R}_2$ respectively.

That is, the standard error of the difference $\hat{d}$ = 1.98 - 2.10 = -0.12 is:

$$\begin{aligned}\sigma_{\hat{d}} &= \sqrt{\left[(1.98)(0.158)\right]^2 + \left[(2.10)(0.133)\right]^2} \\ &= \sqrt{(0.0979) + (0.0780)} \\ &= 0.419\end{aligned}$$

3) The coefficient of variation of $\hat{d}$ is given by $\sigma_{\hat{d}} / \hat{d}$ = 0.419 / (-0.12) = -3.492.

4) So the approximate coefficient of variation of the difference between the estimates is 349.2%. This estimate is considered unacceptable and Statistics Canada recommends this estimate not be released. However, should the user choose to do so, the estimate should be flagged with the letter U (or some similar identifier) and be accompanied by a warning to caution subsequent users about the high levels of error, associated with the estimate.

10.2 How to Use the Coefficient of Variation Tables to Obtain Confidence Limits

Although coefficients of variation are widely used, a more intuitively meaningful measure of sampling error is the confidence interval of an estimate. A confidence interval constitutes a statement on the level of confidence that the true value for the population lies within a specified range of values. For example a 95% confidence interval can be described as follows:

> If sampling of the population is repeated indefinitely, each sample leading to a new confidence interval for an estimate, then in 95% of the samples the interval will cover the true population value.
>
> Using the standard error of an estimate, confidence intervals for estimates may be obtained under the assumption that under repeated sampling of the population, the various estimates obtained for a population characteristic are normally distributed about the true population value. Under this assumption, the chances are about 68 out of 100 that the difference between a sample estimate and the true population value would be less than one standard error, about 95 out of 100 that the difference would be less than two standard errors, and about 99 out of 100 that the differences would be less than three standard errors. These different degrees of confidence are referred to as the confidence levels.
>
> Confidence intervals for an estimate, $\hat{X}$, are generally expressed as two numbers, one below the estimate and one above the estimate, as $\left(\hat{X} - k, \hat{X} + k\right)$ where k is determined depending upon the level of confidence desired and the sampling error of the estimate.
>
> Confidence intervals for an estimate can be calculated directly from the Approximate Sampling Variability Tables by first determining from the appropriate table the coefficient of variation of the estimate $\hat{X}$, and then using the following formula to convert to a confidence interval $\left(CI_{\hat{x}}\right)$:
>
> $$CI_{\hat{x}} = \left(\hat{X} - t\hat{X}\alpha_{\hat{x}}, \hat{X} + t\hat{X}\alpha_{\hat{x}}\right)$$
>
> where $\alpha_{\hat{x}}$ is the determined coefficient of variation of $\hat{X}$, and
>
> t = 1 if a 68% confidence interval is desired;
> t = 1.6 if a 90% confidence interval is desired;
> t = 2 if a 95% confidence interval is desired;
> t = 2.6 if a 99% confidence interval is desired.
>
> Note: Release guidelines which apply to the estimate also apply to the confidence interval. For example, if the estimate is not releasable, then the confidence interval is not releasable either.

10.2.1 Example of Using the Coefficient of Variation Tables to Obtain Confidence Limits

A 95% confidence interval for the estimated proportion of children who have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university (from Example 2, Section 10.1.1) would be calculated as follows:

$\hat{X}$ = 72.9% (or expressed as a proportion 0.729)

t = 2

$\alpha_{\hat{x}}$ = 1.2% (0.012 expressed as a proportion) is the coefficient of variation of this estimate as determined from the tables.

$CI_{\hat{x}}$ = {0.729 - (2) (0.729) (0.012), 0.729 + (2) (0.729) (0.012)}

$CI_{\hat{x}}$ = {0.729 - 0.017, 0.729 + 0.017}

$CI_{\hat{x}}$ = {0.712, 0.746}

With 95% confidence it can be said that between 71.2% and 74.6% of children have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university.

10.3 How to Use the Coefficient of Variation Tables to Do a T-test

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The sample estimates can be numbers, averages, percentages, ratios, etc. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the characteristics are different when, in fact, they are identical.

Let $\hat{X}_1$ and $\hat{X}_2$ be sample estimates for two characteristics of interest. Let the standard error on the difference $\hat{X}_1$ - $\hat{X}_2$ be $\sigma_{\hat{d}}$.

If $t = \dfrac{\hat{X}_1 - \hat{X}_2}{\sigma_{\hat{d}}}$ is between -2 and 2, then no conclusion about the difference between the characteristics is justified at the 5% level of significance. If however, this ratio is smaller than -2 or larger than +2, the observed difference is significant at the 0.05 level. That is to say that the difference between the estimates is significant.

10.3.1 Example of Using the Coefficient of Variation Tables to Do a T-test

Let us suppose that the user wishes to test, at 5% level of significance, the hypothesis that there is no difference between the proportions of pre-teen children versus teen children who have parents/guardians who have set aside savings for postsecondary education and hope the child will attend university. From Example 3, Section 10.1.1, the standard error of the difference between these two estimates was found to be 0.021. Hence,

$$t = \frac{\hat{X}_1 - \hat{X}_2}{\sigma_{\hat{d}}} = \frac{0.745 - 0.694}{0.021} = \frac{0.051}{0.021} = 2.43$$

Since t = 2.43 is greater than 2, it must be concluded that there is a significant difference between the two estimates at the 0.05 level of significance.

10.4 Coefficients of Variation for Quantitative Estimates

For quantitative estimates, special tables would have to be produced to determine their sampling error. Since most of the variables for the SAEP are primarily categorical in nature, this has not been done.

As a general rule, however, the coefficient of variation of a quantitative total will be larger than the coefficient of variation of the corresponding category estimate (i.e., the estimate of the number of persons contributing to the quantitative estimate). If the corresponding category estimate is not releasable, the quantitative estimate will not be either. For example, the coefficient of variation for the total amount of savings set aside by parents/guardians for postsecondary education of children would be greater than the coefficient of variation of the corresponding proportion of parents/guardians who have set aside savings for the postsecondary education of children. Hence, if the coefficient of variation of the proportion is unacceptable (making the proportion not releasable), then the coefficient of variation of the corresponding quantitative estimate will also be unacceptable (making the quantitative estimate not releasable).

Coefficients of variation of such estimates can be derived as required for a specific estimate using a technique known as pseudo replication. This involves dividing the records on the microdata files into subgroups (or replicates) and determining the variation in the estimate from replicate to replicate. Users wishing to derive coefficients of variation for quantitative estimates may contact Statistics Canada for advice on the allocation of records to appropriate replicates and the formulae to be used in these calculations.

10.5 Coefficient of Variation Tables

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Canada

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	122.6	122.1	121.4	119.6	116.4	113.1	109.7	106.2	102.6	98.9	95.0	86.7	67.2	38.8
2	86.7	86.3	85.9	84.5	82.3	80.0	77.6	75.1	72.6	69.9	67.2	61.3	47.5	27.4
3	70.8	70.5	70.1	69.0	67.2	65.3	63.3	61.3	59.3	57.1	54.9	50.1	38.8	22.4
4	61.3	61.0	60.7	59.8	58.2	56.5	54.9	53.1	51.3	49.4	47.5	43.4	33.6	19.4
5	54.8	54.6	54.3	53.5	52.0	50.6	49.1	47.5	45.9	44.2	42.5	38.8	30.0	17.3
6	50.1	49.8	49.6	48.8	47.5	46.2	44.8	43.4	41.9	40.4	38.8	35.4	27.4	15.8
7	46.3	46.1	45.9	45.2	44.0	42.7	41.5	40.2	38.8	37.4	35.9	32.8	25.4	14.7
8	********	43.2	42.9	42.3	41.1	40.0	38.8	37.6	36.3	35.0	33.6	30.7	23.8	13.7
9	********	40.7	40.5	39.9	38.8	37.7	36.6	35.4	34.2	33.0	31.7	28.9	22.4	12.9
10	********	38.6	38.4	37.8	36.8	35.8	34.7	33.6	32.5	31.3	30.0	27.4	21.2	12.3
11	********	36.8	36.6	36.0	35.1	34.1	33.1	32.0	30.9	29.8	28.6	26.2	20.3	11.7
12	********	35.2	35.1	34.5	33.6	32.6	31.7	30.7	29.6	28.5	27.4	25.0	19.4	11.2
13	********	33.9	33.7	33.2	32.3	31.4	30.4	29.5	28.5	27.4	26.4	24.1	18.6	10.8
14	********	32.6	32.5	32.0	31.1	30.2	29.3	28.4	27.4	26.4	25.4	23.2	18.0	10.4
15	********	31.5	31.4	30.9	30.0	29.2	28.3	27.4	26.5	25.5	24.5	22.4	17.3	10.0
16	********	30.5	30.4	29.9	29.1	28.3	27.4	26.6	25.7	24.7	23.8	21.7	16.8	9.7
17	********	29.6	29.5	29.0	28.2	27.4	26.6	25.8	24.9	24.0	23.0	21.0	16.3	9.4
18	********	28.8	28.6	28.2	27.4	26.7	25.9	25.0	24.2	23.3	22.4	20.4	15.8	9.1
19	********	28.0	27.9	27.4	26.7	25.9	25.2	24.4	23.5	22.7	21.8	19.9	15.4	8.9
20	********	27.3	27.2	26.7	26.0	25.3	24.5	23.8	22.9	22.1	21.2	19.4	15.0	8.7
21	********	26.6	26.5	26.1	25.4	24.7	23.9	23.2	22.4	21.6	20.7	18.9	14.7	8.5
22	********	26.0	25.9	25.5	24.8	24.1	23.4	22.6	21.9	21.1	20.3	18.5	14.3	8.3
23	********	25.4	25.3	24.9	24.3	23.6	22.9	22.2	21.4	20.6	19.8	18.1	14.0	8.1
24	********	24.9	24.8	24.4	23.8	23.1	22.4	21.7	20.9	20.2	19.4	17.7	13.7	7.9
25	********	24.4	24.3	23.9	23.3	22.6	21.9	21.2	20.5	19.8	19.0	17.3	13.4	7.8
30	********	22.3	22.2	21.8	21.2	20.6	20.0	19.4	18.7	18.1	17.3	15.8	12.3	7.1
35	********	20.6	20.5	20.2	19.7	19.1	18.5	18.0	17.3	16.7	16.1	14.7	11.4	6.6
40	********	19.3	19.2	18.9	18.4	17.9	17.3	16.8	16.2	15.6	15.0	13.7	10.6	6.1
45	********	18.2	18.1	17.8	17.3	16.9	16.4	15.8	15.3	14.7	14.2	12.9	10.0	5.8
50	********	17.3	17.2	16.9	16.5	16.0	15.5	15.0	14.5	14.0	13.4	12.3	9.5	5.5
55	********	16.5	16.4	16.1	15.7	15.2	14.8	14.3	13.8	13.3	12.8	11.7	9.1	5.2
60	********	15.8	15.7	15.4	15.0	14.6	14.2	13.7	13.2	12.8	12.3	11.2	8.7	5.0
65	********	15.1	15.1	14.8	14.4	14.0	13.6	13.2	12.7	12.3	11.8	10.8	8.3	4.8
70	********	14.6	14.5	14.3	13.9	13.5	13.1	12.7	12.3	11.8	11.4	10.4	8.0	4.6
75	**********	14.0	13.8	13.4	13.1	12.7	12.3	11.9	11.4	11.0	10.0	7.8	4.5	
80	**********	13.6	13.4	13.0	12.6	12.3	11.9	11.5	11.1	10.6	9.7	7.5	4.3	
85	**********	13.2	13.0	12.6	12.3	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2	
90	**********	12.8	12.6	12.3	11.9	11.6	11.2	10.8	10.4	10.0	9.1	7.1	4.1	
95	**********	12.5	12.3	11.9	11.6	11.3	10.9	10.5	10.1	9.7	8.9	6.9	4.0	
100	**********	12.1	12.0	11.6	11.3	11.0	10.6	10.3	9.9	9.5	8.7	6.7	3.9	
125	**********	10.9	10.7	10.4	10.1	9.8	9.5	9.2	8.8	8.5	7.8	6.0	3.5	
150	**********	9.8	9.5	9.2	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2		
200	**********	8.5	8.2	8.0	7.8	7.5	7.3	7.0	6.7	6.1	4.8	2.7		
250	**********	7.6	7.4	7.2	6.9	6.7	6.5	6.3	6.0	5.5	4.2	2.5		
300	**********	6.9	6.7	6.5	6.3	6.1	5.9	5.7	5.5	5.0	3.9	2.2		
350	**********	6.4	6.2	6.0	5.9	5.7	5.5	5.3	5.1	4.6	3.6	2.1		
400	**********	5.8	5.7	5.5	5.3	5.1	4.9	4.8	4.3	3.4	1.9			
450	**********	5.5	5.3	5.2	5.0	4.8	4.7	4.5	4.1	3.2	1.8			
500	**********	5.2	5.1	4.9	4.8	4.6	4.4	4.2	3.9	3.0	1.7			
750	**********	4.1	4.0	3.9	3.7	3.6	3.5	3.2	2.5	1.4				
1000	**********	3.6	3.5	3.4	3.2	3.1	3.0	2.7	2.1	1.2				
1500	**********	2.7	2.6	2.6	2.5	2.2	1.7	1.0						
2000	**********	2.3	2.2	2.1	1.9	1.5	0.9							
3000	**********	1.6	1.2	0.7										
4000	**********	1.1	0.6											
5000	**********	1.0	0.5											
6000	**********	0.5												

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Newfoundland and Labrador

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	60.0	59.7	58.8	57.2	55.6	53.9	52.2	50.5	48.6	46.7	42.6	33.0	19.1
2	**********	42.2	41.6	40.5	39.3	38.1	36.9	35.7	34.4	33.0	30.2	23.4	13.5	
3	**********	33.9	33.0	32.1	31.1	30.2	29.1	28.1	27.0	24.6	19.1	11.0		
4	**********	29.4	28.6	27.8	27.0	26.1	25.2	24.3	23.4	21.3	16.5	9.5		
5	**********	26.3	25.6	24.9	24.1	23.4	22.6	21.7	20.9	19.1	14.8	8.5		
6	**********	23.4	22.7	22.0	21.3	20.6	19.8	19.1	17.4	13.5	7.8			
7	**********	21.6	21.0	20.4	19.7	19.1	18.4	17.7	16.1	12.5	7.2			
8	**********	20.2	19.7	19.1	18.5	17.8	17.2	16.5	15.1	11.7	6.7			
9	**********	19.1	18.5	18.0	17.4	16.8	16.2	15.6	14.2	11.0	6.4			
10	**********	18.1	17.6	17.1	16.5	16.0	15.4	14.8	13.5	10.4	6.0			
11	**********	17.2	16.8	16.3	15.7	15.2	14.7	14.1	12.9	10.0	5.7			
12	**********	16.1	15.6	15.1	14.6	14.0	13.5	12.3	9.5	5.5				
13	**********	15.4	15.0	14.5	14.0	13.5	13.0	11.8	9.2	5.3				
14	**********	14.9	14.4	14.0	13.5	13.0	12.5	11.4	8.8	5.1				
15	**********	14.4	13.9	13.5	13.0	12.6	12.1	11.0	8.5	4.9				
16	**********	13.9	13.5	13.1	12.6	12.2	11.7	10.7	8.3	4.8				
17	**********	13.5	13.1	12.7	12.2	11.8	11.3	10.3	8.0	4.6				
18	**********	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5					
19	**********	12.4	12.0	11.6	11.2	10.7	9.8	7.6	4.4					
20	**********	12.1	11.7	11.3	10.9	10.4	9.5	7.4	4.3					
21	**********	11.8	11.4	11.0	10.6	10.2	9.3	7.2	4.2					
22	**********	11.5	11.1	10.8	10.4	10.0	9.1	7.0	4.1					
23	**********	11.2	10.9	10.5	10.1	9.7	8.9	6.9	4.0					
24	**********	10.7	10.3	9.9	9.5	8.7	6.7	3.9						
25	**********	10.4	10.1	9.7	9.3	8.5	6.6	3.8						
30	**********	9.2	8.9	8.5	7.8	6.0	3.5							
35	**********	8.5	8.2	7.9	7.2	5.6	3.2							
40	**********	7.7	7.4	6.7	5.2	3.0								
45	**********	7.0	6.4	4.9	2.8									
50	**********	6.0	4.7	2.7										
55	**********	5.7	4.5	2.6										
60	**********	4.3	2.5											
65	**********	4.1	2.4											
70	**********	3.9	2.3											
75	**********	3.8	2.2											
80	**********	3.7	2.1											
85	**********	2.1												
90	**********	2.0												
95	**********	2.0												
100	**********	1.9												

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Prince Edward Island

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	**********	**********	**********	36.3	35.3	34.3	33.3	32.2	31.2	30.0	28.8	26.3	20.4	11.8
2	**********	**********	**********	25.0	24.3	23.5	22.8	22.0	21.2	20.4	18.6	14.4	8.3	
3	**********	**********	**********	20.4	19.8	19.2	18.6	18.0	17.3	16.7	15.2	11.8	6.8	
4	**********	**********	**********	17.2	16.7	16.1	15.6	15.0	14.4	13.2	10.2	5.9		
5	**********	**********	**********	15.4	14.9	14.4	13.9	13.4	12.9	11.8	9.1	5.3		
6	**********	**********	**********	13.6	13.2	12.7	12.3	11.8	10.7	8.3	4.8			
7	**********	**********	**********	12.2	11.8	11.3	10.9	10.0	7.7	4.5				
8	**********	**********	**********	11.4	11.0	10.6	10.2	9.3	7.2	4.2				
9	**********	**********	**********	10.4	10.0	9.6	8.8	6.8	3.9					
10	**********	**********	**********	9.9	9.5	9.1	8.3	6.4	3.7					
11	**********	**********	**********	9.1	8.7	7.9	6.1	3.6						
12	**********	**********	**********	8.7	8.3	7.6	5.9	3.4						
13	**********	**********	**********	8.0	7.3	5.7	3.3							
14	**********	**********	**********	7.0	5.5	3.1								
15	**********	**********	**********	6.8	5.3	3.0								
16	**********	**********	**********	6.6	5.1	2.9								
17	**********	**********	**********	6.4	4.9	2.9								
18	**********	**********	**********	4.8	2.8									
19	**********	**********	**********	4.7	2.7									
20	**********	**********	**********	4.6	2.6									
21	**********	**********	**********	4.5	2.6									
22	**********	**********	**********	4.3	2.5									
23	**********	**********	**********	4.3	2.5									
24	**********	**********	**********	4.2	2.4									
25	**********	**********	**********	2.4										
30	**********	**********	**********	2.1										

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Nova Scotia

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	69.8	69.5	68.4	66.6	64.7	62.8	60.8	58.7	56.6	54.4	49.6	38.4	22.2
2	********	49.4	49.1	48.4	47.1	45.8	44.4	43.0	41.5	40.0	38.4	35.1	27.2	15.7
3	**********	40.1	39.5	38.4	37.4	36.2	35.1	33.9	32.7	31.4	28.7	22.2	12.8	
4	**********	34.7	34.2	33.3	32.4	31.4	30.4	29.4	28.3	27.2	24.8	19.2	11.1	
5	**********	30.6	29.8	28.9	28.1	27.2	26.3	25.3	24.3	22.2	17.2	9.9		
6	**********	27.9	27.2	26.4	25.6	24.8	24.0	23.1	22.2	20.3	15.7	9.1		
7	**********	25.9	25.2	24.5	23.7	23.0	22.2	21.4	20.5	18.8	14.5	8.4		
8	**********	24.2	23.5	22.9	22.2	21.5	20.8	20.0	19.2	17.5	13.6	7.8		
9	**********	22.8	22.2	21.6	20.9	20.3	19.6	18.9	18.1	16.5	12.8	7.4		
10	**********	21.6	21.1	20.5	19.8	19.2	18.6	17.9	17.2	15.7	12.2	7.0		
11	**********	20.1	19.5	18.9	18.3	17.7	17.1	16.4	15.0	11.6	6.7			
12	**********	19.2	18.7	18.1	17.5	17.0	16.3	15.7	14.3	11.1	6.4			
13	**********	18.5	17.9	17.4	16.9	16.3	15.7	15.1	13.8	10.7	6.2			
14	**********	17.8	17.3	16.8	16.2	15.7	15.1	14.5	13.3	10.3	5.9			
15	**********	17.2	16.7	16.2	15.7	15.2	14.6	14.0	12.8	9.9	5.7			
16	**********	16.6	16.2	15.7	15.2	14.7	14.1	13.6	12.4	9.6	5.5			
17	**********	16.1	15.7	15.2	14.7	14.2	13.7	13.2	12.0	9.3	5.4			
18	**********	15.7	15.3	14.8	14.3	13.8	13.3	12.8	11.7	9.1	5.2			
19	**********	15.3	14.8	14.4	13.9	13.5	13.0	12.5	11.4	8.8	5.1			
20	**********	14.9	14.5	14.0	13.6	13.1	12.7	12.2	11.1	8.6	5.0			
21	**********	14.5	14.1	13.7	13.3	12.8	12.3	11.9	10.8	8.4	4.8			
22	**********	13.8	13.4	13.0	12.5	12.1	11.6	10.6	8.2	4.7				
23	**********	13.5	13.1	12.7	12.2	11.8	11.3	10.3	8.0	4.6				
24	**********	13.2	12.8	12.4	12.0	11.5	11.1	10.1	7.8	4.5				
25	**********	12.9	12.6	12.2	11.7	11.3	10.9	9.9	7.7	4.4				
30	**********	11.8	11.5	11.1	10.7	10.3	9.9	9.1	7.0	4.1				
35	**********	10.6	10.3	9.9	9.6	9.2	8.4	6.5	3.8					
40	**********	9.9	9.6	9.3	8.9	8.6	7.8	6.1	3.5					
45	**********	9.1	8.8	8.4	8.1	7.4	5.7	3.3						
50	**********	8.6	8.3	8.0	7.7	7.0	5.4	3.1						
55	**********	7.9	7.6	7.3	6.7	5.2	3.0							
60	**********	7.6	7.3	7.0	6.4	5.0	2.9							
65	**********	7.0	6.7	6.2	4.8	2.8								
70	**********	6.8	6.5	5.9	4.6	2.7								
75	**********	6.3	5.7	4.4	2.6									
80	**********	6.1	5.5	4.3	2.5									
85	**********	5.4	4.2	2.4										
90	**********	5.2	4.1	2.3										
95	**********	5.1	3.9	2.3										
100	**********	5.0	3.8	2.2										
125	**********	3.4	2.0											
150	**********	1.8												

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - New Brunswick

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	56.1	55.9	55.0	53.5	52.0	50.5	48.9	47.2	45.5	43.7	39.9	30.9	17.8
2	**********	39.5	38.9	37.9	36.8	35.7	34.6	33.4	32.2	30.9	28.2	21.9	12.6	
3	**********	32.3	31.8	30.9	30.0	29.1	28.2	27.3	26.3	25.2	23.0	17.8	10.3	
4	**********	27.5	26.8	26.0	25.2	24.4	23.6	22.7	21.9	20.0	15.5	8.9		
5	**********	24.6	23.9	23.3	22.6	21.9	21.1	20.3	19.5	17.8	13.8	8.0		
6	**********	22.5	21.9	21.2	20.6	20.0	19.3	18.6	17.8	16.3	12.6	7.3		
7	**********	20.8	20.2	19.7	19.1	18.5	17.8	17.2	16.5	15.1	11.7	6.7		
8	**********	19.4	18.9	18.4	17.8	17.3	16.7	16.1	15.5	14.1	10.9	6.3		
9	**********	17.8	17.3	16.8	16.3	15.7	15.2	14.6	13.3	10.3	5.9			
10	**********	16.9	16.5	16.0	15.5	14.9	14.4	13.8	12.6	9.8	5.6			
11	**********	16.1	15.7	15.2	14.7	14.2	13.7	13.2	12.0	9.3	5.4			
12	**********	15.5	15.0	14.6	14.1	13.6	13.1	12.6	11.5	8.9	5.2			
13	**********	14.8	14.4	14.0	13.6	13.1	12.6	12.1	11.1	8.6	4.9			
14	**********	14.3	13.9	13.5	13.1	12.6	12.2	11.7	10.7	8.3	4.8			
15	**********	13.8	13.4	13.0	12.6	12.2	11.7	11.3	10.3	8.0	4.6			
16	**********	13.4	13.0	12.6	12.2	11.8	11.4	10.9	10.0	7.7	4.5			
17	**********	12.6	12.2	11.9	11.5	11.0	10.6	9.7	7.5	4.3				
18	**********	12.3	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2				
19	**********	11.9	11.6	11.2	10.8	10.4	10.0	9.2	7.1	4.1				
20	**********	11.6	11.3	10.9	10.6	10.2	9.8	8.9	6.9	4.0				
21	**********	11.4	11.0	10.7	10.3	9.9	9.5	8.7	6.7	3.9				
22	**********	11.1	10.8	10.4	10.1	9.7	9.3	8.5	6.6	3.8				
23	**********	10.8	10.5	10.2	9.8	9.5	9.1	8.3	6.4	3.7				
24	**********	10.6	10.3	10.0	9.6	9.3	8.9	8.1	6.3	3.6				
25	**********	10.4	10.1	9.8	9.4	9.1	8.7	8.0	6.2	3.6				
30	**********	9.2	8.9	8.6	8.3	8.0	7.3	5.6	3.3					
35	**********	8.3	8.0	7.7	7.4	6.7	5.2	3.0						
40	**********	7.7	7.5	7.2	6.9	6.3	4.9	2.8						
45	**********	7.0	6.8	6.5	5.9	4.6	2.7							
50	**********	6.7	6.4	6.2	5.6	4.4	2.5							
55	**********	6.1	5.9	5.4	4.2	2.4								
60	**********	5.6	5.2	4.0	2.3									
65	**********	5.4	4.9	3.8	2.2									
70	**********	4.8	3.7	2.1										
75	**********	4.6	3.6	2.1										
80	**********	4.5	3.5	2.0										
85	**********	3.4	1.9											
90	**********	3.3	1.9											
95	**********	3.2	1.8											
100	**********	3.1	1.8											
125	**********	1.6												
150	**********	1.5												

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Quebec

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	132.6	132.0	131.3	129.3	125.8	122.3	118.6	114.9	111.0	106.9	102.7	93.8	72.7	41.9
2	********	93.3	92.9	91.4	89.0	86.5	83.9	81.2	78.5	75.6	72.7	66.3	51.4	29.7
3	********	76.2	75.8	74.6	72.7	70.6	68.5	66.3	64.1	61.7	59.3	54.2	41.9	24.2
4	********	66.0	65.7	64.6	62.9	61.1	59.3	57.4	55.5	53.5	51.4	46.9	36.3	21.0
5	********	59.0	58.7	57.8	56.3	54.7	53.1	51.4	49.6	47.8	46.0	41.9	32.5	18.8
6	********	53.9	53.6	52.8	51.4	49.9	48.4	46.9	45.3	43.7	41.9	38.3	29.7	17.1
7	********	49.9	49.6	48.9	47.6	46.2	44.8	43.4	41.9	40.4	38.8	35.5	27.5	15.9
8	********	46.7	46.4	45.7	44.5	43.2	41.9	40.6	39.2	37.8	36.3	33.2	25.7	14.8
9	********	44.0	43.8	43.1	41.9	40.8	39.5	38.3	37.0	35.6	34.2	31.3	24.2	14.0
10	********	41.7	41.5	40.9	39.8	38.7	37.5	36.3	35.1	33.8	32.5	29.7	23.0	13.3
11	********	39.8	39.6	39.0	37.9	36.9	35.8	34.6	33.5	32.2	31.0	28.3	21.9	12.6
12	********	38.1	37.9	37.3	36.3	35.3	34.2	33.2	32.0	30.9	29.7	27.1	21.0	12.1
13	********	36.6	36.4	35.9	34.9	33.9	32.9	31.9	30.8	29.7	28.5	26.0	20.2	11.6
14	********	35.3	35.1	34.6	33.6	32.7	31.7	30.7	29.7	28.6	27.5	25.1	19.4	11.2
15	********	34.1	33.9	33.4	32.5	31.6	30.6	29.7	28.7	27.6	26.5	24.2	18.8	10.8
16	********	33.0	32.8	32.3	31.5	30.6	29.7	28.7	27.7	26.7	25.7	23.4	18.2	10.5
17	**********	31.8	31.4	30.5	29.7	28.8	27.9	26.9	25.9	24.9	22.7	17.6	10.2	
18	**********	31.0	30.5	29.7	28.8	28.0	27.1	26.2	25.2	24.2	22.1	17.1	9.9	
19	**********	30.1	29.7	28.9	28.1	27.2	26.4	25.5	24.5	23.6	21.5	16.7	9.6	
20	**********	29.4	28.9	28.1	27.3	26.5	25.7	24.8	23.9	23.0	21.0	16.2	9.4	
21	**********	28.7	28.2	27.5	26.7	25.9	25.1	24.2	23.3	22.4	20.5	15.9	9.2	
22	**********	28.0	27.6	26.8	26.1	25.3	24.5	23.7	22.8	21.9	20.0	15.5	8.9	
23	**********	27.4	27.0	26.2	25.5	24.7	24.0	23.1	22.3	21.4	19.6	15.1	8.7	
24	**********	26.8	26.4	25.7	25.0	24.2	23.4	22.7	21.8	21.0	19.1	14.8	8.6	
25	**********	26.3	25.9	25.2	24.5	23.7	23.0	22.2	21.4	20.5	18.8	14.5	8.4	
30	**********	24.0	23.6	23.0	22.3	21.7	21.0	20.3	19.5	18.8	17.1	13.3	7.7	
35	**********	21.9	21.3	20.7	20.1	19.4	18.8	18.1	17.4	15.9	12.3	7.1		
40	**********	20.4	19.9	19.3	18.8	18.2	17.5	16.9	16.2	14.8	11.5	6.6		
45	**********	19.3	18.8	18.2	17.7	17.1	16.5	15.9	15.3	14.0	10.8	6.3		
50	**********	18.3	17.8	17.3	16.8	16.2	15.7	15.1	14.5	13.3	10.3	5.9		
55	**********	17.4	17.0	16.5	16.0	15.5	15.0	14.4	13.9	12.6	9.8	5.7		
60	**********	16.7	16.2	15.8	15.3	14.8	14.3	13.8	13.3	12.1	9.4	5.4		
65	**********	16.0	15.6	15.2	14.7	14.2	13.8	13.3	12.7	11.6	9.0	5.2		
70	**********	15.5	15.0	14.6	14.2	13.7	13.3	12.8	12.3	11.2	8.7	5.0		
75	**********	14.9	14.5	14.1	13.7	13.3	12.8	12.3	11.9	10.8	8.4	4.8		
80	**********	14.5	14.1	13.7	13.3	12.8	12.4	12.0	11.5	10.5	8.1	4.7		
85	**********	13.6	13.3	12.9	12.5	12.0	11.6	11.1	10.2	7.9	4.5			
90	**********	13.3	12.9	12.5	12.1	11.7	11.3	10.8	9.9	7.7	4.4			
95	**********	12.9	12.5	12.2	11.8	11.4	11.0	10.5	9.6	7.5	4.3			
100	**********	12.6	12.2	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2			
125	**********	11.3	10.9	10.6	10.3	9.9	9.6	9.2	8.4	6.5	3.8			
150	**********	10.3	10.0	9.7	9.4	9.1	8.7	8.4	7.7	5.9	3.4			
200	**********	8.6	8.4	8.1	7.8	7.6	7.3	6.6	5.1	3.0				
250	**********	7.5	7.3	7.0	6.8	6.5	5.9	4.6	2.7					
300	**********	6.8	6.6	6.4	6.2	5.9	5.4	4.2	2.4					
350	**********	6.1	5.9	5.7	5.5	5.0	3.9	2.2						
400	**********	5.7	5.5	5.3	5.1	4.7	3.6	2.1						
450	**********	5.2	5.0	4.8	4.4	3.4	2.0							
500	**********	4.8	4.6	4.2	3.2	1.9								
750	**********	3.4	2.7	1.5										
1000	**********	2.3	1.3											

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Ontario

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	136.1	135.5	134.8	132.7	129.2	125.6	121.8	117.9	113.9	109.8	105.5	96.3	74.6	43.1
2	96.2	95.8	95.3	93.9	91.4	88.8	86.1	83.4	80.6	77.6	74.6	68.1	52.7	30.5
3	********	78.2	77.8	76.6	74.6	72.5	70.3	68.1	65.8	63.4	60.9	55.6	43.1	24.9
4	********	67.7	67.4	66.4	64.6	62.8	60.9	59.0	57.0	54.9	52.7	48.1	37.3	21.5
5	********	60.6	60.3	59.4	57.8	56.1	54.5	52.7	51.0	49.1	47.2	43.1	33.4	19.3
6	********	55.3	55.0	54.2	52.7	51.3	49.7	48.1	46.5	44.8	43.1	39.3	30.5	17.6
7	********	51.2	51.0	50.2	48.8	47.5	46.0	44.6	43.1	41.5	39.9	36.4	28.2	16.3
8	********	47.9	47.7	46.9	45.7	44.4	43.1	41.7	40.3	38.8	37.3	34.0	26.4	15.2
9	********	45.2	44.9	44.2	43.1	41.9	40.6	39.3	38.0	36.6	35.2	32.1	24.9	14.4
10	********	42.8	42.6	42.0	40.9	39.7	38.5	37.3	36.0	34.7	33.4	30.5	23.6	13.6
11	********	40.9	40.6	40.0	39.0	37.9	36.7	35.6	34.4	33.1	31.8	29.0	22.5	13.0
12	********	39.1	38.9	38.3	37.3	36.2	35.2	34.0	32.9	31.7	30.5	27.8	21.5	12.4
13	********	37.6	37.4	36.8	35.8	34.8	33.8	32.7	31.6	30.5	29.3	26.7	20.7	11.9
14	********	36.2	36.0	35.5	34.5	33.6	32.6	31.5	30.5	29.3	28.2	25.7	19.9	11.5
15	********	35.0	34.8	34.3	33.4	32.4	31.4	30.5	29.4	28.3	27.2	24.9	19.3	11.1
16	********	33.9	33.7	33.2	32.3	31.4	30.5	29.5	28.5	27.4	26.4	24.1	18.6	10.8
17	********	32.9	32.7	32.2	31.3	30.5	29.5	28.6	27.6	26.6	25.6	23.4	18.1	10.4
18	********	31.9	31.8	31.3	30.5	29.6	28.7	27.8	26.9	25.9	24.9	22.7	17.6	10.2
19	********	31.1	30.9	30.5	29.6	28.8	27.9	27.1	26.1	25.2	24.2	22.1	17.1	9.9
20	********	30.3	30.1	29.7	28.9	28.1	27.2	26.4	25.5	24.6	23.6	21.5	16.7	9.6
21	********	29.6	29.4	29.0	28.2	27.4	26.6	25.7	24.9	24.0	23.0	21.0	16.3	9.4
22	********	28.9	28.7	28.3	27.5	26.8	26.0	25.1	24.3	23.4	22.5	20.5	15.9	9.2
23	********	28.3	28.1	27.7	26.9	26.2	25.4	24.6	23.8	22.9	22.0	20.1	15.6	9.0
24	********	27.7	27.5	27.1	26.4	25.6	24.9	24.1	23.3	22.4	21.5	19.7	15.2	8.8
25	********	27.1	27.0	26.5	25.8	25.1	24.4	23.6	22.8	22.0	21.1	19.3	14.9	8.6
30	**********	24.6	24.2	23.6	22.9	22.2	21.5	20.8	20.0	19.3	17.6	13.6	7.9	
35	**********	22.8	22.4	21.8	21.2	20.6	19.9	19.3	18.6	17.8	16.3	12.6	7.3	
40	**********	21.3	21.0	20.4	19.9	19.3	18.6	18.0	17.4	16.7	15.2	11.8	6.8	
45	**********	20.1	19.8	19.3	18.7	18.2	17.6	17.0	16.4	15.7	14.4	11.1	6.4	
50	**********	19.1	18.8	18.3	17.8	17.2	16.7	16.1	15.5	14.9	13.6	10.5	6.1	
55	**********	18.2	17.9	17.4	16.9	16.4	15.9	15.4	14.8	14.2	13.0	10.1	5.8	
60	**********	17.1	16.7	16.2	15.7	15.2	14.7	14.2	13.6	12.4	9.6	5.6		
65	**********	16.5	16.0	15.6	15.1	14.6	14.1	13.6	13.1	11.9	9.3	5.3		
70	**********	15.9	15.4	15.0	14.6	14.1	13.6	13.1	12.6	11.5	8.9	5.1		
75	**********	15.3	14.9	14.5	14.1	13.6	13.2	12.7	12.2	11.1	8.6	5.0		
80	**********	14.8	14.4	14.0	13.6	13.2	12.7	12.3	11.8	10.8	8.3	4.8		
85	**********	14.4	14.0	13.6	13.2	12.8	12.4	11.9	11.4	10.4	8.1	4.7		
90	**********	14.0	13.6	13.2	12.8	12.4	12.0	11.6	11.1	10.2	7.9	4.5		
95	**********	13.6	13.3	12.9	12.5	12.1	11.7	11.3	10.8	9.9	7.7	4.4		
100	**********	13.3	12.9	12.6	12.2	11.8	11.4	11.0	10.5	9.6	7.5	4.3		
125	**********	11.9	11.6	11.2	10.9	10.5	10.2	9.8	9.4	8.6	6.7	3.9		
150	**********	10.5	10.3	9.9	9.6	9.3	9.0	8.6	7.9	6.1	3.5			
200	**********	9.1	8.9	8.6	8.3	8.1	7.8	7.5	6.8	5.3	3.0			
250	**********	8.2	7.9	7.7	7.5	7.2	6.9	6.7	6.1	4.7	2.7			
300	**********	7.2	7.0	6.8	6.6	6.3	6.1	5.6	4.3	2.5				
350	**********	6.7	6.5	6.3	6.1	5.9	5.6	5.1	4.0	2.3				
400	**********	6.3	6.1	5.9	5.7	5.5	5.3	4.8	3.7	2.2				
450	**********	5.7	5.6	5.4	5.2	5.0	4.5	3.5	2.0					
500	**********	5.4	5.3	5.1	4.9	4.7	4.3	3.3	1.9					
750	**********	4.2	4.0	3.9	3.5	2.7	1.6							
1000	**********	3.5	3.3	3.0	2.4	1.4								
1500	**********	1.9	1.1											
2000	**********	1.7	1.0											

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Manitoba

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	71.2	70.8	69.8	67.9	66.0	64.0	62.0	59.9	57.7	55.4	50.6	39.2	22.6
2	********	50.3	50.1	49.3	48.0	46.7	45.3	43.8	42.3	40.8	39.2	35.8	27.7	16.0
3	**********	40.9	40.3	39.2	38.1	37.0	35.8	34.6	33.3	32.0	29.2	22.6	13.1	
4	**********	35.4	34.9	33.9	33.0	32.0	31.0	29.9	28.8	27.7	25.3	19.6	11.3	
5	**********	31.7	31.2	30.4	29.5	28.6	27.7	26.8	25.8	24.8	22.6	17.5	10.1	
6	**********		28.5	27.7	26.9	26.1	25.3	24.4	23.6	22.6	20.7	16.0	9.2	
7	**********		26.4	25.7	24.9	24.2	23.4	22.6	21.8	21.0	19.1	14.8	8.6	
8	**********		24.7	24.0	23.3	22.6	21.9	21.2	20.4	19.6	17.9	13.9	8.0	
9	**********		23.3	22.6	22.0	21.3	20.7	20.0	19.2	18.5	16.9	13.1	7.5	
10	**********		22.1	21.5	20.9	20.2	19.6	18.9	18.2	17.5	16.0	12.4	7.2	
11	**********		21.0	20.5	19.9	19.3	18.7	18.1	17.4	16.7	15.3	11.8	6.8	
12	**********		20.1	19.6	19.0	18.5	17.9	17.3	16.7	16.0	14.6	11.3	6.5	
13	**********		19.3	18.8	18.3	17.8	17.2	16.6	16.0	15.4	14.0	10.9	6.3	
14	**********			18.1	17.6	17.1	16.6	16.0	15.4	14.8	13.5	10.5	6.0	
15	**********			17.5	17.0	16.5	16.0	15.5	14.9	14.3	13.1	10.1	5.8	
16	**********			17.0	16.5	16.0	15.5	15.0	14.4	13.9	12.7	9.8	5.7	
17	**********			16.5	16.0	15.5	15.0	14.5	14.0	13.4	12.3	9.5	5.5	
18	**********			16.0	15.6	15.1	14.6	14.1	13.6	13.1	11.9	9.2	5.3	
19	**********			15.6	15.1	14.7	14.2	13.7	13.2	12.7	11.6	9.0	5.2	
20	**********			15.2	14.8	14.3	13.9	13.4	12.9	12.4	11.3	8.8	5.1	
21	**********			14.8	14.4	14.0	13.5	13.1	12.6	12.1	11.0	8.6	4.9	
22	**********			14.5	14.1	13.6	13.2	12.8	12.3	11.8	10.8	8.4	4.8	
23	**********			14.2	13.8	13.3	12.9	12.5	12.0	11.6	10.6	8.2	4.7	
24	**********			13.9	13.5	13.1	12.7	12.2	11.8	11.3	10.3	8.0	4.6	
25	**********			13.6	13.2	12.8	12.4	12.0	11.5	11.1	10.1	7.8	4.5	
30	**********				12.0	11.7	11.3	10.9	10.5	10.1	9.2	7.2	4.1	
35	**********				11.2	10.8	10.5	10.1	9.8	9.4	8.6	6.6	3.8	
40	**********				10.4	10.1	9.8	9.5	9.1	8.8	8.0	6.2	3.6	
45	**********					9.5	9.2	8.9	8.6	8.3	7.5	5.8	3.4	
50	**********					9.1	8.8	8.5	8.2	7.8	7.2	5.5	3.2	
55	**********						8.4	8.1	7.8	7.5	6.8	5.3	3.1	
60	**********						8.0	7.7	7.4	7.2	6.5	5.1	2.9	
65	**********						7.7	7.4	7.2	6.9	6.3	4.9	2.8	
70	**********							7.2	6.9	6.6	6.0	4.7	2.7	
75	**********							6.9	6.7	6.4	5.8	4.5	2.6	
80	**********							6.7	6.5	6.2	5.7	4.4	2.5	
85	**********								6.3	6.0	5.5	4.3	2.5	
90	**********								6.1	5.8	5.3	4.1	2.4	
95	**********								5.9	5.7	5.2	4.0	2.3	
100	**********									5.5	5.1	3.9	2.3	
125	**********										4.5	3.5	2.0	
150	**********											3.2	1.8	
200	**********												1.6	

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Saskatchewan

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	66.2	65.9	64.9	63.1	61.3	59.5	57.6	55.7	53.6	51.5	47.1	36.4	21.0
2	********	46.8	46.6	45.9	44.6	43.4	42.1	40.7	39.4	37.9	36.4	33.3	25.8	14.9
3	**********	38.0	37.4	36.4	35.4	34.4	33.3	32.1	31.0	29.8	27.2	21.0	12.1
4	**********	32.9	32.4	31.6	30.7	29.8	28.8	27.8	26.8	25.8	23.5	18.2	10.5
5	**********	29.5	29.0	28.2	27.4	26.6	25.8	24.9	24.0	23.1	21.0	16.3	9.4
6	**********	26.5	25.8	25.0	24.3	23.5	22.7	21.9	21.0	19.2	14.9	8.6
7	**********	24.5	23.9	23.2	22.5	21.8	21.0	20.3	19.5	17.8	13.8	8.0
8	**********	22.9	22.3	21.7	21.0	20.4	19.7	19.0	18.2	16.6	12.9	7.4
9	**********	21.6	21.0	20.4	19.8	19.2	18.6	17.9	17.2	15.7	12.1	7.0
10	**********	20.5	20.0	19.4	18.8	18.2	17.6	17.0	16.3	14.9	11.5	6.7
11	**********	19.6	19.0	18.5	17.9	17.4	16.8	16.2	15.5	14.2	11.0	6.3
12	**********	18.7	18.2	17.7	17.2	16.6	16.1	15.5	14.9	13.6	10.5	6.1
13	**********	17.5	17.0	16.5	16.0	15.4	14.9	14.3	13.0	10.1	5.8
14	**********	16.9	16.4	15.9	15.4	14.9	14.3	13.8	12.6	9.7	5.6
15	**********	16.3	15.8	15.4	14.9	14.4	13.9	13.3	12.1	9.4	5.4
16	**********	15.8	15.3	14.9	14.4	13.9	13.4	12.9	11.8	9.1	5.3
17	**********	15.3	14.9	14.4	14.0	13.5	13.0	12.5	11.4	8.8	5.1
18	**********	14.9	14.5	14.0	13.6	13.1	12.6	12.1	11.1	8.6	5.0
19	**********	14.5	14.1	13.7	13.2	12.8	12.3	11.8	10.8	8.4	4.8
20	**********	14.1	13.7	13.3	12.9	12.4	12.0	11.5	10.5	8.1	4.7
21	**********	13.8	13.4	13.0	12.6	12.1	11.7	11.2	10.3	8.0	4.6
22	**********	13.5	13.1	12.7	12.3	11.9	11.4	11.0	10.0	7.8	4.5
23	**********	13.2	12.8	12.4	12.0	11.6	11.2	10.7	9.8	7.6	4.4
24	**********	12.9	12.5	12.1	11.8	11.4	11.0	10.5	9.6	7.4	4.3
25	**********	12.6	12.3	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2
30	**********	11.2	10.9	10.5	10.2	9.8	9.4	8.6	6.7	3.8
35	**********	10.4	10.1	9.7	9.4	9.1	8.7	8.0	6.2	3.6
40	**********	9.4	9.1	8.8	8.5	8.1	7.4	5.8	3.3
45	**********	8.9	8.6	8.3	8.0	7.7	7.0	5.4	3.1
50	**********	8.4	8.1	7.9	7.6	7.3	6.7	5.2	3.0
55	**********	7.8	7.5	7.2	6.9	6.3	4.9	2.8
60	**********	7.4	7.2	6.9	6.7	6.1	4.7	2.7
65	**********	6.9	6.7	6.4	5.8	4.5	2.6
70	**********	6.7	6.4	6.2	5.6	4.4	2.5
75	**********	6.4	6.2	6.0	5.4	4.2	2.4
80	**********	6.0	5.8	5.3	4.1	2.4
85	**********	5.8	5.6	5.1	4.0	2.3
90	**********	5.4	5.0	3.8	2.2
95	**********	5.3	4.8	3.7	2.2
100	**********	5.2	4.7	3.6	2.1
125	**********	4.2	3.3	1.9
150	**********	3.0	1.7
200	**********	1.5

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - Alberta

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	110.6	110.0	108.3	105.4	102.5	99.4	96.3	93.0	89.6	86.1	78.6	60.9	35.1
2	********	78.2	77.8	76.6	74.6	72.5	70.3	68.1	65.8	63.4	60.9	55.6	43.0	24.9
3	********	63.8	63.5	62.5	60.9	59.2	57.4	55.6	53.7	51.7	49.7	45.4	35.1	20.3
4	********	55.3	55.0	54.2	52.7	51.2	49.7	48.1	46.5	44.8	43.0	39.3	30.4	17.6
5	********	49.5	49.2	48.4	47.2	45.8	44.5	43.0	41.6	40.1	38.5	35.1	27.2	15.7
6	********	45.1	44.9	44.2	43.0	41.8	40.6	39.3	38.0	36.6	35.1	32.1	24.9	14.3
7	********	41.8	41.6	40.9	39.9	38.7	37.6	36.4	35.1	33.9	32.5	29.7	23.0	13.3
8	**********	38.9	38.3	37.3	36.2	35.1	34.0	32.9	31.7	30.4	27.8	21.5	12.4	
9	**********	36.7	36.1	35.1	34.2	33.1	32.1	31.0	29.9	28.7	26.2	20.3	11.7	
10	**********	34.8	34.3	33.3	32.4	31.4	30.4	29.4	28.3	27.2	24.9	19.3	11.1	
11	**********	33.2	32.7	31.8	30.9	30.0	29.0	28.0	27.0	26.0	23.7	18.4	10.6	
12	**********	31.8	31.3	30.4	29.6	28.7	27.8	26.8	25.9	24.9	22.7	17.6	10.1	
13	**********	30.5	30.0	29.2	28.4	27.6	26.7	25.8	24.9	23.9	21.8	16.9	9.7	
14	**********	29.4	29.0	28.2	27.4	26.6	25.7	24.9	23.9	23.0	21.0	16.3	9.4	
15	**********	28.4	28.0	27.2	26.5	25.7	24.9	24.0	23.1	22.2	20.3	15.7	9.1	
16	**********	27.1	26.4	25.6	24.9	24.1	23.2	22.4	21.5	19.6	15.2	8.8		
17	**********	26.3	25.6	24.9	24.1	23.3	22.6	21.7	20.9	19.1	14.8	8.5		
18	**********	25.5	24.9	24.2	23.4	22.7	21.9	21.1	20.3	18.5	14.3	8.3		
19	**********	24.9	24.2	23.5	22.8	22.1	21.3	20.6	19.8	18.0	14.0	8.1		
20	**********	24.2	23.6	22.9	22.2	21.5	20.8	20.0	19.3	17.6	13.6	7.9		
21	**********	23.6	23.0	22.4	21.7	21.0	20.3	19.6	18.8	17.1	13.3	7.7		
22	**********	23.1	22.5	21.8	21.2	20.5	19.8	19.1	18.4	16.8	13.0	7.5		
23	**********	22.6	22.0	21.4	20.7	20.1	19.4	18.7	18.0	16.4	12.7	7.3		
24	**********	22.1	21.5	20.9	20.3	19.6	19.0	18.3	17.6	16.0	12.4	7.2		
25	**********	21.7	21.1	20.5	19.9	19.3	18.6	17.9	17.2	15.7	12.2	7.0		
30	**********	19.8	19.3	18.7	18.1	17.6	17.0	16.4	15.7	14.3	11.1	6.4		
35	**********	18.3	17.8	17.3	16.8	16.3	15.7	15.1	14.6	13.3	10.3	5.9		
40	**********	16.7	16.2	15.7	15.2	14.7	14.2	13.6	12.4	9.6	5.6			
45	**********	15.7	15.3	14.8	14.3	13.9	13.4	12.8	11.7	9.1	5.2			
50	**********	14.9	14.5	14.1	13.6	13.2	12.7	12.2	11.1	8.6	5.0			
55	**********	14.2	13.8	13.4	13.0	12.5	12.1	11.6	10.6	8.2	4.7			
60	**********	13.6	13.2	12.8	12.4	12.0	11.6	11.1	10.1	7.9	4.5			
65	**********	13.1	12.7	12.3	11.9	11.5	11.1	10.7	9.7	7.6	4.4			
70	**********	12.6	12.2	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2			
75	**********	12.2	11.8	11.5	11.1	10.7	10.3	9.9	9.1	7.0	4.1			
80	**********	11.5	11.1	10.8	10.4	10.0	9.6	8.8	6.8	3.9				
85	**********	11.1	10.8	10.4	10.1	9.7	9.3	8.5	6.6	3.8				
90	**********	10.8	10.5	10.1	9.8	9.4	9.1	8.3	6.4	3.7				
95	**********	10.5	10.2	9.9	9.5	9.2	8.8	8.1	6.2	3.6				
100	**********	10.2	9.9	9.6	9.3	9.0	8.6	7.9	6.1	3.5				
125	**********	8.9	8.6	8.3	8.0	7.7	7.0	5.4	3.1					
150	**********	8.1	7.9	7.6	7.3	7.0	6.4	5.0	2.9					
200	**********	6.6	6.3	6.1	5.6	4.3	2.5							
250	**********	5.7	5.4	5.0	3.9	2.2								
300	**********	5.0	4.5	3.5	2.0									
350	**********	4.2	3.3	1.9										
400	**********	3.0	1.8											
450	**********	2.9	1.7											
500	**********	2.7	1.6											

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

Survey of Approaches to Educational Planning, 2002

Approximate Sampling Variability Tables for the Child Estimates - British Columbia

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	128.9	128.2	126.2	122.9	119.4	115.9	112.2	108.4	104.4	100.3	91.6	70.9	41.0
2	********	91.1	90.7	89.3	86.9	84.4	81.9	79.3	76.6	73.8	70.9	64.8	50.2	29.0
3	********	74.4	74.0	72.9	70.9	68.9	66.9	64.8	62.6	60.3	57.9	52.9	41.0	23.6
4	********	64.4	64.1	63.1	61.4	59.7	57.9	56.1	54.2	52.2	50.2	45.8	35.5	20.5
5	********	57.6	57.3	56.5	55.0	53.4	51.8	50.2	48.5	46.7	44.9	41.0	31.7	18.3
6	********	52.6	52.3	51.5	50.2	48.8	47.3	45.8	44.2	42.6	41.0	37.4	29.0	16.7
7	********	48.7	48.5	47.7	46.4	45.1	43.8	42.4	41.0	39.5	37.9	34.6	26.8	15.5
8	********	45.6	45.3	44.6	43.4	42.2	41.0	39.7	38.3	36.9	35.5	32.4	25.1	14.5
9	********	43.0	42.7	42.1	41.0	39.8	38.6	37.4	36.1	34.8	33.4	30.5	23.6	13.7
10	**********	40.5	39.9	38.9	37.8	36.6	35.5	34.3	33.0	31.7	29.0	22.4	13.0	
11	**********	38.7	38.1	37.1	36.0	34.9	33.8	32.7	31.5	30.3	27.6	21.4	12.4	
12	**********	37.0	36.4	35.5	34.5	33.4	32.4	31.3	30.1	29.0	26.4	20.5	11.8	
13	**********	35.6	35.0	34.1	33.1	32.1	31.1	30.1	29.0	27.8	25.4	19.7	11.4	
14	**********	34.3	33.7	32.8	31.9	31.0	30.0	29.0	27.9	26.8	24.5	19.0	10.9	
15	**********	33.1	32.6	31.7	30.8	29.9	29.0	28.0	27.0	25.9	23.6	18.3	10.6	
16	**********	32.1	31.6	30.7	29.9	29.0	28.0	27.1	26.1	25.1	22.9	17.7	10.2	
17	**********	31.1	30.6	29.8	29.0	28.1	27.2	26.3	25.3	24.3	22.2	17.2	9.9	
18	**********	30.2	29.8	29.0	28.1	27.3	26.4	25.5	24.6	23.6	21.6	16.7	9.7	
19	**********	29.0	28.2	27.4	26.6	25.7	24.9	24.0	23.0	21.0	16.3	9.4		
20	**********	28.2	27.5	26.7	25.9	25.1	24.2	23.4	22.4	20.5	15.9	9.2		
21	**********	27.5	26.8	26.1	25.3	24.5	23.6	22.8	21.9	20.0	15.5	8.9		
22	**********	26.9	26.2	25.5	24.7	23.9	23.1	22.3	21.4	19.5	15.1	8.7		
23	**********	26.3	25.6	24.9	24.2	23.4	22.6	21.8	20.9	19.1	14.8	8.5		
24	**********	25.8	25.1	24.4	23.6	22.9	22.1	21.3	20.5	18.7	14.5	8.4		
25	**********	25.2	24.6	23.9	23.2	22.4	21.7	20.9	20.1	18.3	14.2	8.2		
30	**********	23.0	22.4	21.8	21.2	20.5	19.8	19.1	18.3	16.7	13.0	7.5		
35	**********	21.3	20.8	20.2	19.6	19.0	18.3	17.7	17.0	15.5	12.0	6.9		
40	**********	20.0	19.4	18.9	18.3	17.7	17.1	16.5	15.9	14.5	11.2	6.5		
45	**********	18.8	18.3	17.8	17.3	16.7	16.2	15.6	15.0	13.7	10.6	6.1		
50	**********	17.4	16.9	16.4	15.9	15.3	14.8	14.2	13.0	10.0	5.8			
55	**********	16.6	16.1	15.6	15.1	14.6	14.1	13.5	12.4	9.6	5.5			
60	**********	15.9	15.4	15.0	14.5	14.0	13.5	13.0	11.8	9.2	5.3			
65	**********	15.2	14.8	14.4	13.9	13.4	13.0	12.4	11.4	8.8	5.1			
70	**********	14.7	14.3	13.8	13.4	13.0	12.5	12.0	10.9	8.5	4.9			
75	**********	14.2	13.8	13.4	13.0	12.5	12.1	11.6	10.6	8.2	4.7			
80	**********	13.7	13.4	13.0	12.5	12.1	11.7	11.2	10.2	7.9	4.6			
85	**********	13.3	13.0	12.6	12.2	11.8	11.3	10.9	9.9	7.7	4.4			
90	**********	13.0	12.6	12.2	11.8	11.4	11.0	10.6	9.7	7.5	4.3			
95	**********	12.3	11.9	11.5	11.1	10.7	10.3	9.4	7.3	4.2				
100	**********	11.9	11.6	11.2	10.8	10.4	10.0	9.2	7.1	4.1				
125	**********	10.7	10.4	10.0	9.7	9.3	9.0	8.2	6.3	3.7				
150	**********	9.5	9.2	8.8	8.5	8.2	7.5	5.8	3.3					
200	**********	7.9	7.7	7.4	7.1	6.5	5.0	2.9						
250	**********	6.9	6.6	6.3	5.8	4.5	2.6							
300	**********	6.0	5.8	5.3	4.1	2.4								
350	**********	5.4	4.9	3.8	2.2									
400	**********	4.6	3.5	2.0										
450	**********	4.3	3.3	1.9										
500	**********	3.2	1.8											
750	**********	1.5												

NOTE: FOR CORRECT USAGE OF THESE TABLES, PLEASE REFER TO THE MICRODATA DOCUMENTATION.

11.0 Weighting

Since the Survey of Approaches to Educational Planning (SAEP) used a sub-sample of the Labour Force Survey (LFS) sample, the derivation of weights for the survey records is clearly tied to the weighting procedure used for the LFS. The LFS weighting procedure is briefly described below.

11.1 Weighting Procedures for the Labour Force Survey

In the LFS, the final weight attached to each record is the product of the following factors: the basic weight, the cluster sub-weight, the stabilization weight, the balancing factor for non-response, and the province-age-sex and sub-provincial area ratio adjustment factor. Each is described below.

Basic Weight

In a probability sample, the sample design itself determines weights which must be used to produce unbiased estimates of the population. Each record must be weighted by the inverse of the probability of selecting the person to whom the record refers. In the example of a 2% simple random sample, this probability would be 0.02 for each person and the records must be weighted by 1 / 0.02 = 50. Due to the complex LFS design, dwellings in different regions will have different basic weights. Because all eligible individuals in a dwelling are interviewed (directly or by proxy), this probability is essentially the same as the probability with which the dwelling is selected.

Cluster Sub-weight

The cluster delineation is such that the number of dwellings in the sample increases very slightly with moderate growth in the housing stock. Substantial growth can be tolerated in an isolated cluster before the additional sample represents a field collection problem. However, if growth takes place in more than one cluster in an interviewer assignment, the cumulative effect of all increases may create a workload problem. In clusters where substantial growth has taken place, sub-sampling is used as a means of keeping interviewer assignments manageable. The cluster sub-weight represents the inverse of this sub-sampling ratio in clusters where sub-sampling has occurred.

Stabilization Weight

Sample stabilization is also used to address problems with sample size growth. Cluster sub-sampling addressed isolated growth in relatively small areas whereas sample stabilization accommodates the slow sample growth over time that is the result of a fixed sampling rate along with a general increase in the size of the population. Sample stabilization is the random dropping of dwellings from the sample in order to maintain the sample size at its desired level. The basic weight is adjusted by the ratio of the sample size, based on the fixed sampling rate, to the desired sample size. This adjustment factor is known as the stabilization weight. The adjustment is done within stabilization areas defined as dwellings belonging to the same employment insurance economic region and the same rotation group.

Non-response

For certain types of non-response (i.e. household temporarily absent, refusal), data from a previous month's interview with the household if any, is brought forward and used as the current month's data for the household.

In other cases, non-response is compensated for by proportionally increasing the weights of responding households. The weight of each responding record is increased by the ratio of the number of households that should have been interviewed, divided by the number that were actually interviewed. This adjustment is done separately for non-response areas, which are

defined by employment insurance economic region, type of area, and rotation group. It is based on the assumption that the households that have been interviewed represent the characteristics of those that should have been interviewed within a non-response area.

Labour Force Survey Sub-weight

The product of the previously described weighting factors is called the LFS sub-weight. All members of the same sampled dwelling have the same sub-weight.

Sub-provincial and Province-Age-Sex Adjustments

The sub-weight can be used to derive a valid estimate of any characteristic for which information is collected by the LFS. However, these estimates will be based on a frame that contains some information that may be several years out of date and therefore not representative of the current population. Through the use of more up-to-date auxiliary information about the target population, the sample weights are adjusted to improve both the precision of the estimates and the sample's representation of the current population.

Independent estimates are available monthly for various age and sex groups by province. These are population projections based on the most recent Census data, records of births and deaths, and estimates of migration. In the final step, this auxiliary information is used to transform the sub-weight into the final weight. This is done using a calibration method. This method ensures that the final weights it produces sum to the census projections for the auxiliary variables, namely totals for various age-sex groups, economic regions, census metropolitan areas, rotation groups, household and economic family size. Weights are also adjusted so that estimates of the previous month's industry and labour status estimates derived from the present month's sample, sum up to the corresponding estimates from the previous month's sample. This is called composite estimation. The entire adjustment is applied using the generalized regression technique.

This final weight is normally not used in the weighting for a supplement to the LFS. Instead, it is the sub-weight which is used, as explained in the following paragraphs.

11.2 Weighting Procedures for the Survey of Approaches to Educational Planning

The principles behind the calculation of the weights for the SAEP are identical to those for the LFS. However, five adjustments are made to the LFS sub-weights in order to derive a final weight for the individual records on the SAEP microdata file.

1) An adjustment to account for the use of a five-sixth sub-sample, instead of the full LFS sample.

2) An adjustment to account for the additional non-response to the supplementary survey i.e., non-response to the SAEP for households with at least one child aged 0 to 18 years which did respond to the LFS or for which the previous month's LFS data was brought forward. The procedure is similar to the LFS non-response weight adjustment, but the groupings are based on province, employment insurance economic region, rotation group, design type, urban area versus rural area, census metropolitan area versus non-census metropolitan area, type of dwelling, economic family type, household size, and parent/guardian characteristics such as education, labour force status and occupation. Since households without children are out-of-scope (and therefore not selected into the SAEP), their weights are not affected by this step.

3) An adjustment for the total number of households (i.e., those with or without at least one child aged 0 to 18 years) by household size (1, 2 and 3+ people) and by province, according to independent estimates.[5]

4) An adjustment to account for the random selection of one child from the selected household. In particular, the weight of the selected child is multiplied by the number of children in the household, up to a maximum (cap) of four children.

5) An adjustment for the number of children by province, sex, and age group (i.e., 0 to 5, 6 to 12, 13 to 15 and 16 to 18 years), according to independent estimates.

The resulting weight, WTPM, is the final child weight which appears on the SAEP child master file. The final weight on the child public use microdata file is called WTPP.

[5] Independent estimates are available monthly for a number of auxiliary variables (e.g., household size, age group, sex, economic regions, census metropolitan area) by province. These estimates are population projections based on the most recent Census data, records of births and deaths, and estimates of migration. Using a linear regression model, auxiliary information is used to arrive at final weights. The regression is set up to ensure that the final weights it produces sum to the census projections for the auxiliary variables. This improves the reliability of estimates that can be produced by the SAEP.

12.0 Questionnaires

12.1 The Labour Force Survey Questionnaire

The Labour Force Survey questionnaire (LFS_QuestE.pdf) is used to collect information on the current and most recent labour market activity of all household members 15 years of age or older. It includes questions on hours of work, job tenure, type of work, reason for hours lost or absent, job search undertaken, availability for work, and school attendance.

12.2 The Survey of Approaches to Educational Planning Questionnaire

The Survey of Approaches to Educational Planning (SAEP) questionnaire was used in October and November 2002 to collect the information for the supplementary survey. The file SAEP2002_QuestE.pdf contains the English questionnaire.

13.0 Record Layout with Univariate Frequencies

Public Use Microdata File:

See SAEP2002_PUMF_Child_CdBk.pdf for the record layout with univariate counts for the child public use microdata file.

Master Files:

See SAEP2002_Master_Child_CdBk.pdf for the record layout with univariate counts for the child master file.

See SAEP2002_Master_LFS_CdBk.pdf for the record layout with univariate counts for the LFS (Labour Force Survey) master file.