

1998 Adult Education and Training Survey

Microdata User Guide

Special Surveys Division



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1.0 Introduction

The Adult Education and Training Survey 1998 was conducted by Statistics Canada with the cooperation and support of Human Resources Development Canada. The reference year for this survey was 1997. This manual has been produced to facilitate the manipulation of the microdata file of the survey results.

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2.0 Background

The 1998 Adult Education and Training Survey is the sixth in a series of similar surveys designed to measure adult¹ participation in education and training. Statistics Canada conducted the Adult Education Survey (AES) in 1984 on behalf of the Department of the Secretary of State and the Adult Training Survey (ATS) in 1986, on behalf of Employment and Immigration Canada. In the late 1980s, as the number of adult Canadians pursuing education and training programs increased, there was a renewed interest in education and retraining as economic development issues. These concerns resulted in Employment and Immigration Canada commissioning Statistics Canada to conduct the Adult Education and Training Survey (AETS) in November 1990, and again in 1992.

The main objective of all four surveys was to measure participation rates. In general, each successive questionnaire evolved into a more detailed and comprehensive survey instrument, with greater emphasis on profiling the role of the employer and identifying barriers to training. In 1994, the AETS was modified to explore areas such as access to training.

The 1998 Adult Education and Training Survey (AETS) is comparable to the 1994 survey. A few new questions on motivations and expectations have been added. And, for the first time, the survey was conducted using computer-assisted interviewing. As in 1994, Statistics Canada conducted the survey on behalf of Human Resources Development Canada.

¹ Adults include all people aged 17 and older.

3.0 Objectives

The objectives of the 1998 Adult Education and Training Survey were:

- C to measure the incidence of adult education and training in Canada in a comprehensive manner
- C to provide a socioeconomic and demographic profile of individuals who participate and do not participate in adult education and training
- C to profile the types, duration and location of training and education that individuals receive
- C to profile employer involvement in the training and education process
- C to identify barriers faced by individuals who wish to take some form of education and training but cannot.

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 are described in section 4.1 while those specific to the Adult Education and Training Survey are given in section 4.2. Users are referred to Chapter 12 of this document for a copy of the actual survey forms used.

4.1

Labour Force Survey Concepts and Definitions

Labour Force Status

Status of the respondent in the labour market : a member of the non-institutional population 15 years and over is designated as either **employed**, **unemployed** or **not in the labour force**.

Employed

Employed persons are those who, during the reference week:

- (a) did any work² at all
- (b) had a job but were not at work due to:
 - own illness or disability
 - personal or family responsibilities
 - bad weather
 - labour dispute
 - vacation
 - other reason not specified above (excluding persons on layoff and persons whose job attachment was to a job starting at a definite date in the future).

Unemployed

Unemployed persons are those who, during the reference week:

² 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 where unpaid family work is defined as unpaid work which contributed directly to the operation of a farm, business or professional practice owned or operated by a related member of the 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.

- (a) were without work, had actively looked for work in the past four weeks (ending with reference week), and were available for work³;
- (b) had not actively looked for work in the past four weeks but had been on layoff⁴ and were available for work;
- (c) had not actively looked for work in the past four weeks but had a new job to start in four weeks or less from the reference week, and were available for work.

Not in the Labour Force

Those persons in the civilian non-institutional population 15 years of age and over who, during the reference week, 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 five years. Since 1984, these statistics have been based on the 1980 Standard Occupational Classification and the 1980 Standard Industrial Classification. Prior to 1984, the 1971 Standard Occupational Classification and the 1970 Standard Industrial Classification were used.

Reference week

Entire calendar week 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

Full-time employment consists of persons who usually work 30 hours or more per week, plus those who usually work less than 30 hours but consider themselves to be employed full-time (e.g. airline pilots).

³ Persons in this group meeting the following criteria are regarded as available:

- (i) were full-time students seeking part-time work who also met condition (ii) below. (Full-time students looking for full-time work are classified as not available for work in the reference week.)
- (ii) reported that there was no reason why they could not take a job in reference week, or if they could not take a job it was because of "own illness or disability", "personal or family responsibilities", or "already had a job".

⁴ Persons are classified as being on layoff only when they expect to return to the job from which they were laid off.

Part-time

Part-time employment consists of all other persons who usually work less than 30 hours per week.

4.2 **Adult Education and Training Survey Concepts and Definitions**

Blue-Collar Occupations

Includes such occupations as construction, fabricating, farming, fishing, forestry, materials handling, mining, processing, service, transportation and other crafts.

College program

College programs include those diploma or certificate programs taken at postsecondary, non-degree granting institutions such as colleges of applied arts and technology or CAATS (in Ontario), general and vocational colleges (Collèges d'enseignement général et professionnel, CÉGEP in Quebec) and technical institutes and other establishments that provide university transfer programs or specialized training in fields such as agriculture, the arts and forestry. Enrolment in these programs normally requires successful completion of secondary school.

Commercial or business school

These are private schools licensed by the province which are profit oriented and are engaged in providing professional and vocational training.

Correspondence or distance education

Any form of education in which the teachers and students are not at the same place is considered distance education. Examples include correspondence education and teaching by T.V. and radio. The AETS also considers courses taken by internet as distance education. Students usually study from their own home, on a part-time basis. Instruction is received via mail, in the form of reading assignments or exercises and/or electronic media (such as television, audio-visual tapes, audio cassettes, etc.). In British Columbia, programs taken through the Open Learning Institute qualify as distance education.

NOTE: The student must have been registered in the program or course to be included.

Current or future job

The main reason for taking training is for a current or future job when the training/education is taken to learn new skills for a current or future job, increase earnings, improve job opportunities in current or other field, improve opportunities for advancement/promotion, etc.

Educational leave

Educational leave is granted to any employee for educational or training purposes (i.e., general upgrading, new skills, post-secondary education, etc.). Educational leave is usually considered for courses/programs taken on a full-time basis and lasting for one month or more. Such leave may be either paid or unpaid.

Educational software

A respondent is considered to have used educational software when a computer was used to learn any subject, as in computer-based tutorials. The computer must do some teaching to be considered a teaching tool. Computers are not considered teaching tools when they are used for tasks such as typing assignments or finding books in a library.

Elementary / high school program

Elementary or high school programs include those diploma or certificate programs taken at a public or private elementary or high school. Grade levels for elementary and high schools vary from province to province. If the respondent and interviewer are not aware of the distinction in their province, grades 1-8 are assumed to be elementary and grades 9-13 are assumed to be high school.

The Adult Education and Training Survey uses six different major subjects or fields of study to classify elementary and high school programs:

1. Elementary
2. High school (general academic)
3. High school (technical/vocational)
4. Literacy/basic skills
5. Second language
6. Other

Employer

Throughout the interview, employer referred to the employer at the time the education/training was taken. If no education/training was taken, then employer was considered to be the employer at the last main job held.

Full-time program/Part-time program

In the Adult Education and Training Survey, the full-time or part-time student status was supplied by the respondent. In some cases, this status may be at variance with the status as determined by a particular educational institution. All institutions classify their students as full-time or part-time students depending on the number of courses in which they are enrolled. Full-time and part-time status can vary by program, type of institution and province.

Full-time training

Training on a full-time basis is defined as time spent in a training course/program which occupied most of each work week.

Hobby, recreational, or interest courses

Hobby, recreational, and interest courses are taken for the purpose of learning a hobby; physical, social or psychological development; or personal interest in a particular subject matter.

Internet programs and courses

Educational sources sometimes offer courses/training through the Internet. A respondent may access an educational web site with the use of a modem. The respondent must be officially registered with the educational institution offering the course/training.

Literacy / basic skills (elementary/high school program)

An elementary/high school program where respondents learn to function in current society by developing abilities at a basic level in listening, speaking, reading, writing, arithmetic and social skills.

Long-term physical condition, mental condition or health problem

A physical condition, mental condition or health problem lasting six months or more.

On-the-job training

On-the-job training is training received under normal working conditions that enables employees to acquire new knowledge or skills that enhance job performance. The training could be provided by a colleague or under the direction of supervisory personnel.

Personal interest

The main reason for taking training/education is personal when the training/education is taken for reasons not related to an individual's job or career. This would also include courses or programs designed to improve social skills and courses taken for reasons of personal development.

Program

A selection of several courses or a combination of courses usually chosen from a syllabus, a calendar or a list. Courses within a program are usually taken for credit towards a degree, diploma or certificate.

Registered apprenticeship program

A registered apprenticeship program combines on-the-job training (by observation and practice) with shorter periods of related in-class training (by attending technical courses where the more theoretical aspects are taught) to produce a fully qualified journeyman trades person. The employer undertakes, by contract, to employ and train an apprentice under the supervision of a qualified journeyman. In Quebec, it is possible to receive apprenticeship training without related in-class training.

Second language (elementary/high school program)

An elementary/high school program of "Second Language" is applicable to anyone enrolled in a program to learn one of Canada's official languages. It does not include people enrolled in a high school English or French class. It is usually taken by people who are fluent in one official language and wish to learn the other. It also includes people new to Canada who are literate in another language and wish to learn English or French.

Seminars or Workshops

Seminars and workshops are short courses or conferences in which a specific subject is studied and debated by participants.

Sponsor/Sponsorship

The program or course sponsor is the person or organization paying for tuition or other expenses such as transportation, course material, or time off on behalf of the student.

Time-off

It is considered time-off when the respondent took training during usual working hours and received all or part of their salary. Depending on respondent perception, it may also include flexible hours and vacation leave.

Trade-vocational program

A trade or vocational school is a public educational institution that offers diplomas and certificates at the trade level. This term is used to classify skill courses that prepare trainees for occupations not at the professional or semi-professional levels. The emphasis is on manipulative skills with varying degrees of complexity and the performance of established procedures and techniques. Although entrance requirements vary, they frequently require less than a high school diploma for admission.

Trade-vocational programs also includes diploma and certificate programs at the trade level taken at technical schools. Trade-vocational and technical training generally refer to the same type of training, although the name varies between and within provinces.

Training centre


Large companies, the federal government, and some franchisers own or rent special facilities (training centres) where they train their employees. Respondents working in a regional or branch office may consider the Head Office as the training centre or as having special facilities.

Tuition

Tuition is a fee paid for instruction.

Tutorials

Tutorials are personal instruction or guidance given to a trainee by a professional instructor. Tutorials can also refer to the "hands-on" component



of a course (i.e., computer lab) or a group of exercises/problems designed to give a trainee practice in doing something that has been taught.

University program

A university is a degree/diploma/certificate granting institution which usually offers programs in at least the arts and sciences. Admission to university is usually dependent upon graduating from secondary school.

White-Collar Occupations

An occupational classification which includes people in the artistic, clerical, managerial, medical, natural science, religion, sales, social science and teaching occupations.



5.0 Survey Methodology

The Adult Education and Training Survey (AETS) was administered in January and March 1998⁵ to a sub-sample of the dwellings in the Labour Force Survey (LFS) sample. Therefore, the AETS' sample design is closely tied to that of the LFS. The LFS design is briefly described in Sections 5.1 to 5.4⁶. Sections 5.5 and 5.6 describe how the AETS departed from the basic LFS design.

5.1 Population Coverage

The LFS is a monthly household survey whose sample of individuals is 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 Yukon⁷ and Northwest Territories, 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 appears at the end of this section.

⁵ The survey was conducted as planned in January 1998 in all provinces except Quebec. Due to the 1998 ice storm, the survey was postponed in Quebec and conducted two months later in March 1998.

⁶ A detailed description of the LFS design is available in the Statistics Canada publication entitled **Methodology of the Canadian Labour Force Survey** (catalogue #71-526, 1998).

⁷ Since 1992, the LFS has been administered in the Yukon, using an alternative methodology that accommodates some of the operational difficulties inherent to remote locales. To improve reliability due to small sample size, estimates are available on a three month average basis only. These estimates are not included in national totals.

5.2.1 Primary Stratification

Provinces are divided into economic regions and employment insurance regions. Economic regions (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. Employment insurance economic regions (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 EIER regions 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 (CMAs), 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 3 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 (1000 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.

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 which is based upon information supplied by CMHC and is maintained in 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 6 or a multiple of 6 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 (EAs) 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 six 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

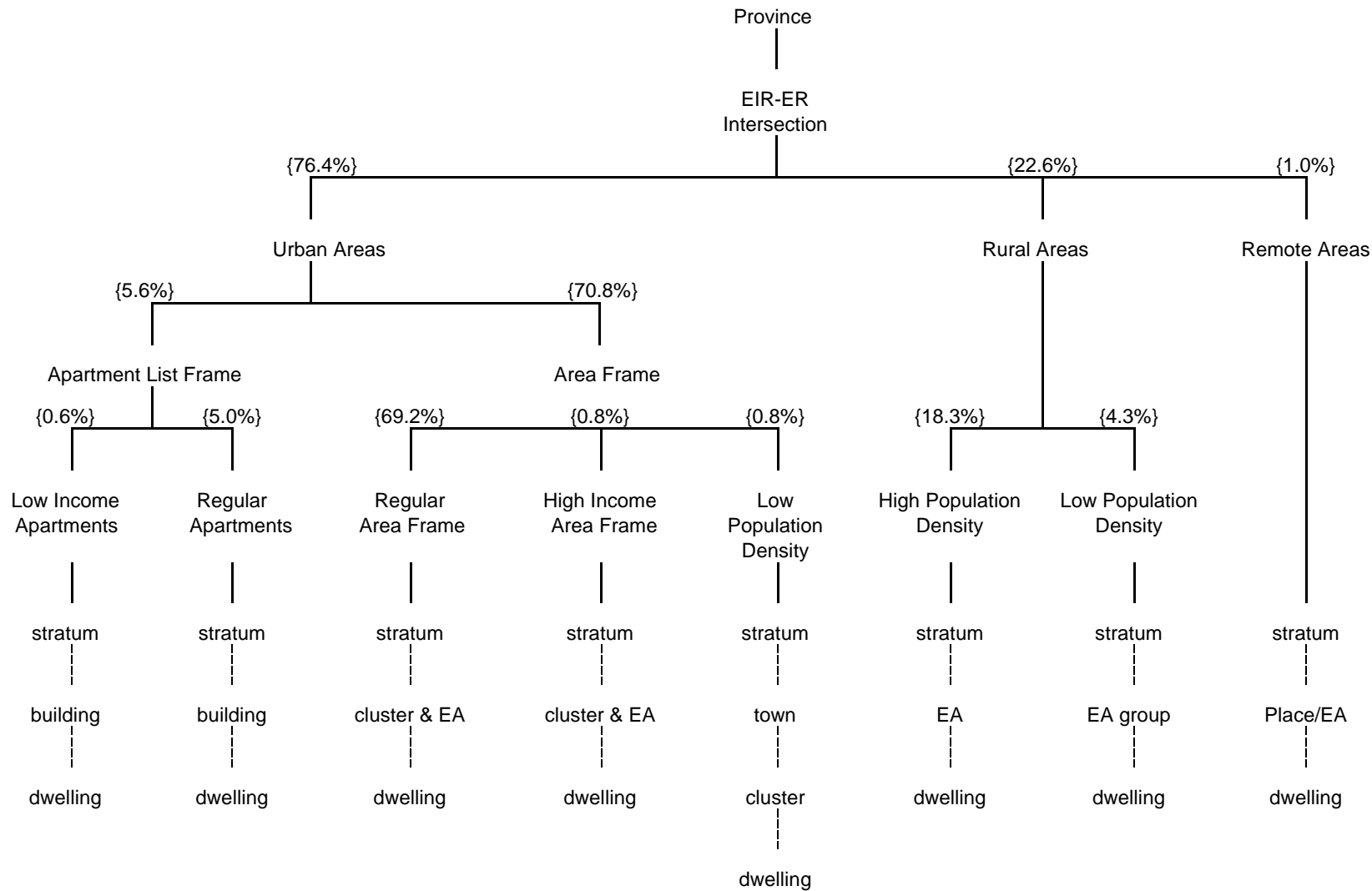


selected. The sample yield depends on the type of stratum. For example, in the urban area frame, sample yields are either 6 or 8 dwellings, depending on the size of the city. In the urban apartment frame, each cluster yields 5 dwellings, while in the rural areas and EA parts of cities, each cluster yields 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 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. Response burden is minimized for the elderly (70 years of age or older) by carrying forward their responses for the initial interview to the subsequent five months in the survey.

Labour Force Survey Sample Design - 1995+



| = level of stratification

EIR - Employment Insurance Region

EA - Census Enumeration Area

ER - Economic Region

cluster - set of blockfaces

{%} - percentage of total sample

| = stage of sampling



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 subprovincial 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 59,000 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 52,350 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 employs a panel design whereby the entire monthly sample of dwellings consists of 6 panels, or rotation groups, of approximately equal size. Each of these panels is, by itself, representative of the entire LFS population. All dwellings in a rotation group remain in the LFS sample for 6 consecutive months after which time they are replaced (rotated out of the sample) by a new panel of dwellings selected from the same or similar clusters.

This rotation pattern was adopted to minimize any problems of non-response or respondent burden that would occur if households were to remain in the sample for longer than 6 months. It also has the statistical advantage of providing a common sample base for short-term month-to-month comparisons of LFS characteristics, since five of the six rotation groups in the LFS sample are common from month to month.

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 L.F.S design for the AETS**

The AETS used five of the six rotation groups in the January 1998 and March 1998 LFS samples. As noted earlier, the survey was collected in January 1998 in all provinces except Quebec. Due to the 1998 ice storm, the survey was postponed in Quebec and conducted two months later in March 1998. For the

AETS, the coverage of the LFS was modified to include all members of the household aged 17 years of age and older (including household members over 70). However, unlike the LFS where information is collected for all eligible household members, the AETS only collected information from one randomly pre-selected household member and proxy responses were not permitted.

5.6 Sample size by Province for the AETS

The following table provides the sample size of the LFS/AETS sample. The AETS was administered to one individual per household so the sample size is effectively the number of sampled households for five rotation groups of the LFS.

PROVINCE	SAMPLE SIZE
Newfoundland	1,530
Prince Edward Island	1,150
Nova Scotia	2,732
New Brunswick	2,487
Quebec	7,650
Ontario	10,597
Manitoba	3,070
Saskatchewan	2,984
Alberta	3,236
British Columbia	3,781
CANADA	39,217



6.0 Data Collection

Data collection for the LFS is carried out each month during the week following the LFS reference week, usually the third week of the month.

6.1 Interviewing for the LFS

Statistics Canada interviewers, who are part-time employees hired and trained specifically to carry out the LFS, contact each of the sampled dwellings to obtain the required labour force information. Each interviewer contacts approximately 70 dwellings per month.

Dwellings new to the sample are contacted through a personal visit. The interviewer first obtains socio-demographic information for each household member and then obtains labour force information for all eligible members. Provided there is a telephone in the dwelling and permission has been granted, subsequent interviews are conducted by telephone. As a result, approximately 85% of all dwellings are interviewed by telephone. In these subsequent monthly interviews, as they are called, the interviewer confirms the socio-demographic information collected in the first month and collects the labour force information for the current month.


In all dwellings, information about all household members is obtained from a knowledgeable household member - usually the person at home when the interviewer calls. Such 'proxy' reporting, which accounts for approximately 55% 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.

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.

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.

6.2 Supervision and 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 6 Statistics Canada regional offices.

6.3 **Non-Response to the LFS**

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 to the Adult Education and Training Survey**

The AETS was administered to one randomly selected individual per household. The random selection was carried out, by the computer, upon completion of the demographic portion of the LFS.

Upon completion of the Labour Force Survey interview, the interviewer asked to speak to the selected person for the AETS. If the selected person was not available, the interviewer arranged for a convenient time to phone back. Proxy response was not allowed, hence the collection period was extended by one week to allow the interviewers time to contact the selected individuals.



6.5



Non-Response to the Adult Education and Training Survey

For households responding to the LFS, the next stage of data collection was to administer the Adult Education and Training Survey. In total, 39,217 individuals were eligible for the supplementary survey; the AETS interview was completed for 33,410 of these individuals for a response rate of 85.2%. More detailed information on response rates is presented in Chapter 8 (Data Quality).



7.0 Data Processing

The main output of the Adult Education and Training Survey is a "clean" microdata file. This section presents a brief summary of the processing steps involved in producing this file.

7.1 Data Capture

Capture of survey data was done directly on notebook computers by interviewers at the time of collection. A partly edited version of the computer record was electronically transmitted to Ottawa for further processing. In total 46,816 interviews were captured and transmitted for the survey.

7.2 Editing

The first type of error treated was errors in questionnaire flow, where questions which did not apply to the respondent (and should therefore not have been answered) were found to contain answers. In this case a computer edit automatically eliminated superfluous data by following the flow of the questionnaire implied by answers to previous, and in some cases, subsequent questions.

The second type of error involved a lack of information in questions which should have been answered. For this type of error, a non-response or "not stated" code was assigned to the item.

7.3 Coding of Open-ended Questions

A few data items on the questionnaire were recorded by interviewers in an open-ended format. These were items relating to field of study or specialization of the program and title or name of courses taken during 1997. A total of 14 open-ended questions relating to the name of the courses and programs taken by respondents were included in the survey.

The 12,927 responses to the open-ended questions were coded using Automated Coding by Text Recognition (ACTR), a generalized automated coding system. Questions which could not be coded by ACTR were coded manually. The automated and manual coding results were double checked for reliability and disagreements were resolved through discussion. A complete

list of the education codes used for coding the texts can be found in Appendix A.

In addition, 1,255 records required industry and occupation coding. Respondents whose main job in 1997 was not the same as their main job in the LFS reference week were asked to supply information on the kind of business or industry for which they worked and the kind of work they did. The coding of these open-ended questions was done by Operations and Intergration Division.

7.4 **Creation of Derived Variables**

A number of data items on the microdata file have been derived by combining items on the questionnaire in order to facilitate data analysis. Users who wish to compare derived variables from the 1998 AETS to the 1994 AETS should be aware of one change. Due to modifications to the 1998 questionnaire, the derivation of “employer-sponsored” and “non-employer-sponsored” is slightly different from that of the 1994 AETS.

Type of Training

- C Training status
 - 1 Employer-sponsored training only
 - 2 Non-employer-sponsored training only
 - 3 Both employer- and non-employer-sponsored training
 - 5 No training
- C Respondent took a program in Section B
- C Respondent took a course in Section C or D
- C Respondent took employer-sponsored training
- C Respondent took non-employer-sponsored training

Total Number of Courses and Programs Taken

- C Total number of programs and courses taken in Sections B, C and D
- C Total number of programs taken in Section B
- C Total number of courses taken in Sections C and D
- C Total number of courses taken in Section C
- C Total number of courses taken in Section D
- C Total number of employer-sponsored programs taken in Section B

- C Total number of employer-sponsored courses taken in Sections C and D
- C Total number of non-employer-sponsored programs taken in Section B
- C Total number of non-employer-sponsored courses taken in Sections C and D

Socio-Economic and Demographic Characteristics

- C Respondent worked in 1997 or January 1998
 - 1 Yes
 - 2 No
- C Total income
- C Occupation 1
 - 1 White collar
 - 2 Blue collar
 - 3 Not in labour force
- C Occupation 2
 - 1 Professional, managerial
 - 2 Clerical, sales, service
 - 3 Blue collar worker
 - 4 Not in labour force
- C Occupation 3
 - 01 Managerial, administrative and related
 - 02 Natural sciences, engineering and mathematics
 - 03 Social sciences and religion
 - 04 Teaching and related
 - 05 Medicine and health
 - 06 Artistic, literary, recreational and related
 - 07 Clerical and office operation
 - 08 Sales
 - 09 Services to community and individuals n.e.c.
 - 10 Primary (farming, fishing, trapping, forestry, mining, etc.)
 - 11 Manufacturing and processing
 - 12 Construction and transportation
 - 13 Materials handling and other
 - 14 Never worked before/permanently unable to work/worked more than one year ago
- C Job tenure
 - 01 1 to 6 months
 - 02 7-12 months
 - 03 1 year (13-24 months)
 - 04 2 years (25-36 months)
 - 05 3 years (37-48 months)
 - 06 4 years (49-60 months)
 - 07 5 years (61-72 months)
 - 08 6 years (73-84 months)
 - 09 7 years (85-96 months)

- 
- 10 8 years (97-108 months)
 - 11 9 years (109-120 months)
 - 12 10 years (121-132 months)
 - 13 11 years (133-144 months)
 - 14 12 years (145-156 months)
 - 15 13 years (157-168 months)
 - 16 14 years (169-180 months)
 - 17 15 years (181-192 months)
 - 18 16 years (193-204 months)
 - 19 17 years (205-216 months)
 - 20 18 years (217-228 months)
 - 21 19 years (229-240 months)
 - 22 20 years and over (241-999 months)

C Industry

- 01 Agriculture
- 02 Other primary
- 03 Manufacturing
- 04 Construction
- 05 Utilities
- 06 Transportation and communications
- 07 Trade
- 08 Finance, insurance and real estate
- 09 Education, health and welfare
- 10 Business, commercial, personal and miscellaneous services
- 11 Public administration
- 12 Unemployed/not in labour force

C Type of Industry

- 1 Goods producing industries
- 2 Service producing industries
- 3 Unemployed/not in labour force

C Type of Employee

- 1 Private sector employees
- 2 Public sector employees
- 3 Unemployed/not in labour force

C Geographical Aggregation

- 1 Urban
- 2 Rural
- 3 Remote

C Dwelling Type

- 1 Single
- 2 Multiple
- 3 Other

C Age Groups

- 1 17-19 years of age
- 2 20-24 years of age
- 3 25-34 years of age
- 4 35-44 years of age
- 5 45-54 years of age

- 6 55-64 years of age
- 7 65-69 years of age
- 8 70 years of age or over

- 1 17-24 years of age
- 2 25-34 years of age
- 3 35-44 years of age
- 4 45-54 years of age
- 5 55-64 years of age
- 6 65 years of age or over

C Number of Preschool Children

- 0 No preschoolers
- 1 1 Preschooler (age 0-5)
- 2 2 or more preschoolers

Major Field of Study

Major field of study responses are coded and then aggregated into fifteen major groupings. The major groupings are:

- 01 Educational, Recreational, Counseling Services
- 02 Fine and Applied Arts
- 03 Humanities and Related Fields
- 04 Social Sciences and Related Fields
- 05 Commerce, Management and Business Administration
- 06 Agricultural and Biological Sciences/Technologies
- 07 Engineering and Applied Sciences
- 08 Engineering and Applied Sciences, Technologies and Trades
- 09 Health Professions, Sciences and Technologies
- 10 Mathematics and Physical Sciences
- 11 Other (e.g. high school, specialization not known)
- 12 Upgrading (Academic)
- 13 Personal Development
- 14 Recreational Activity
- 15 Uncodable

There are three major field of study variables:

- C Program major field of study (Section B)
- C Course major field of study (Section C)
- C Course major field of study (Section D)

Reasons for Taking Training

- C Number of courses or programs taken for “current or future job” reasons
- C Number of courses or programs taken for “personal interest” reasons
- C Number of courses or programs taken for “other” reasons or reasons not known



Duration of Training

- C Duration of programs, courses in hours
 - Section B employer-sponsored
 - Section B non-employer-sponsored
 - Section C employer-sponsored
 - Section C non-employer-sponsored
 - Section D employer-sponsored
 - Section D non-employer-sponsored

- C Total duration of all courses and programs, in hours

- C Duration of training by main reason (number of hours of training taken for current or future job, taken for personal interest, taken for other reasons, taken for reasons not given by respondent)
 - Section B employer-sponsored
 - Section B non-employer-sponsored
 - Section C employer-sponsored
 - Section C non-employer-sponsored
 - Section D employer-sponsored
 - Section D non-employer-sponsored

Other Variables – Summation

For sections B, C and D, many derived variables have been created which sum responses across the employer-sponsored and non-employer-sponsored programs or courses in a particular section, where relevant. For example, two derived variables were created for question BQ13:

- C total number of employer-supported programs listed in Section B taken by internet
- C total number of non-employer-supported programs listed in Section B taken by internet.

Similar derived variables were also created for Section C and Section D.

This type of derived variable has been created for the following questions.

- C Nature of employer support (BQ06, CQ06, DQ05)
- C Who else paid / who paid (BQ07/BQ08, CQ07/CQ08, DQ06/DQ07)
- C Where training was taken (BQ09, CQ09, DQ08)
- C Who gave training (BQ10, CQ10, DQ09)
- C How training was provided (BQ11, CQ11, DQ10)
- C Whether training was taken by correspondence (BQ12, CQ12, DQ11)
- C Whether training was taken by internet (BQ13, CQ13, DQ12)
- C Main reason for taking training (BQ14, CQ14, DQ13)
- C Importance of reasons for taking training for current or future job (BQ15, CQ15, DQ14)
- C Importance of reasons for taking training for personal interest or other reasons (BQ16, CQ16, DQ15)
- C Extent to which training met expectations (BQ17, CQ17, DQ16)

- C Extent to which respondent is using the training at work (BQ18, CQ18, DQ17)
- C Extent to which respondent is using the training in personal life (BQ19, CQ19, DQ18)
- C Whether training was taken full-time only, part-time only, or both (BQ20, BQ23)
- C Whether training was taken 6 hours or more a day only, 6 hours or less a day only, or both (CQ20, CQ22, DQ19, DQ21)
- C Who suggested training (BQ26, CQ24, DQ23)

7.5 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 individuals enrolled in full-time programs at a university during the past 12 months 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.


7.6 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 Section 9 of this document.

Variables from the Labour Force Survey (LFS)

1. **PROVINCE/MCMATAB** - Suppression of Geographic Identifiers

The AETS master data file includes explicit geographic identifiers for province, economic region and Census Metropolitan Area (CMA). 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 except the three largest CMA.

2. IND12 (Type of Industry) and SOC14, SOC22, SPSOC22 (Type of Occupation)

Each record on the AETS master data file has been assigned a three-digit 1980 Standard Industrial Code and a four-digit Standard Occupational Code. On the public-use microdata file, each of these detailed codes has been collapsed into two-digit codes. There are 12 types of industry codes and 22 types of occupation codes.

3. AGEGRP6/AGEGRP8/SPAGEGRP - Age Groups

Actual age of the respondent on the AETS master data file has been grouped into six and eight age ranges on the public-use microdata file. The variable age of spouse has been grouped into six age ranges. The master file does not contain the actual age of the spouse.

4. MEDUCLEV/MSP_EDUC - Educational Attainment

The highest education level obtained by the respondent has been grouped into seven categories. The same grouping has been applied to the variable “education of spouse”. The master data file contains the finer level of detail for both the respondent and the spouse. The master file also contains variables for education of father and education of mother that are not available on the public use microdata file.

Variables from the Adult Education and Training Survey

5. BQ02B; CQ03; DQ02. These questions collect text information about the major field of study.

Each relevant record on the AETS master file has been assigned a three-digit major field of study code. There are approximately 500 codes in place. On the public-use microdata file, these codes have been collapsed to about 100 three-digit codes. A guide to the major field of study codes can be found in Appendix A.

6. EQ19. The question collects information on the respondent’s ethnic origin. The data are suppressed on the public microdata file.

7. EQ20. This question asks if the respondent was born in Canada. The data are suppressed on the public microdata file.

8. EQ21. This questions asks respondents who were not born in Canada their age when they moved to Canada. The data are suppressed on the public microdata file.

9. EQ22. This question collects information on whether the respondent has a long-term disability. The data are suppressed on the public microdata file.

8.0 Data Quality

8.1 Response Rates

The following table summarizes the response rates to the Labour Force Survey and to the Adult Education and Training Survey.

Note: Response rates for Quebec reflect data collection for March 1998.

	Household response rate for full LFS January 1998 (*1)	Household response rate for LFS rotations 2,3,4,5,6 (*1)	Number of respondents in AETS 1998	Person response rate to AETS 1998 (*2)
Newfoundland	95.7%	96.1%	1,387	90.6%
Prince Edward Island	95.1%	95.9%	1,032	89.7%
Nova Scotia	92.9%	93.6%	2,451	89.7%
New Brunswick	94.4%	94.8%	2,171	87.3%
Québec	93.3%	93.6%	6,848	89.5%
Ontario	94.7%	95.2%	8,595	81.1%
Manitoba	96.3%	96.7%	2,630	85.7%
Saskatchewan	95.2%	96.0%	2,513	84.2%
Alberta	96.2%	96.9%	2,604	80.5%
British Columbia	93.3%	93.9%	3,179	84.1%
CANADA	94.8%	95.3%	33,410	85.2%

Note:

- (*1) Response rate is number of responding households as a percentage of number of eligible households.
- (*2) Response rate is number of individuals responding to AETS as a percentage of number of individuals responding to LFS in rotations sampled.

8.2 Survey Errors

The estimates derived from this survey are based on a sample of households. Somewhat different figures might have been obtained if a complete census had been taken using the same questionnaire, interviewers, supervisors, processing methods, etc. as those actually used. The difference between the estimates obtained from the sample and the results 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.

8.2.1 The Frame

Because the AETS was a supplement to the Labour Force Survey (LFS), the frame used was the LFS frame. Any non-response to the LFS had an impact on the AETS frame. Because non-response to the LFS is quite low (usually less than 5%) this impact was minimal. The quality of the sampling variables in the frame was very high. The AETS sample consisted of five rotation groups from the LFS.

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

All variables on the LFS frame are updated monthly.

8.2.2 Data Collection

Data collection was to have taken place in all ten provinces between January 19 and January 30, 1998. However, the ice storm of January 1998 made it impossible to collect AETS data for a large part of Quebec. Therefore, it was decided to delay AETS data collection in all of Quebec until March 1998. Collection in all other provinces proceeded as scheduled in January.

8.2.3

Non-response

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 included 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.

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.

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 (C.V) 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 15.9% of adults took employer-sponsored training and that this estimate is found to have standard error of .003. Then the coefficient of variation of the estimate is calculated as:


$$\left(\frac{.0}{.9} \right) \times 0 \% = 1.9\%$$

9.0

Guidelines for Tabulation, Analysis and Release

This section 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 tapes. 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 tapes 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 Adult Education and Training Survey 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.

9.2.1 **Definitions of types of estimates: Categorical vs. Quantitative**

Before discussing how the AETS 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 survey.

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 adults who received employer-sponsored training or the proportion of adults receiving training who took that training full-time are examples of such estimates. An estimate of the number of persons

possessing a certain characteristic is also referred to as an estimate of an aggregate.

Examples of Categorical Questions:

Q: At any time during 1997, did you take any of this program on a full-time basis?
R: Yes / No

Q: Other than the employer/business, who paid for this program?
R: Self, family / Government / Union or professional organization / Other / No one else / No fees

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 X/i where X is an estimate of surveyed population quantity total and 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 mean (average) number of courses taken by adults who received employer-supported training. Writing this mean in the form of X/Y , the numerator (X) is an estimate of the total number of courses taken by adults who received employer-supported training, and its denominator (Y) is an estimate of the number of adults who received employer-supported training.

Examples of Quantitative Questions :

Q: For how many days did you take this course?
R: |_|_|_| Days

Q: For 1997, what was your total income from wages and salaries before taxes or deductions?
R: |_|_|_|_|_| .00

9.2.2 **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 X/Y are obtained by:

- (a) summing the final weights of records having the characteristic of interest for the numerator (X),
- (b) summing the final weights of records having the characteristic of interest for the denominator (Y), then

- (c) dividing the numerator estimate by the denominator estimate.

9.2.3 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 number of training and education programs taken by adults who received only employer-supported training, multiply the value reported in BQ02BALL (total number of programs taken in Section B) by the final weight for the record, then sum this value for those records with TRNGSTAT=1 (respondent took only employer-supported training).


To obtain a weighted average of the form X/Y , the numerator (X) is calculated as for a quantitative estimate and the denominator (Y) is calculated as for a categorical estimate. For example, to estimate the average number of training and education programs taken by adults who received only employer-supported training:

- (a) estimate the total number of training and education programs taken by adults who received only employer-supported training, as described above,
- (b) estimate the number of adults who received only employer-supported training by summing the final weights of all records with TRNGSTAT=1, then
- (c) divide estimate (a) by estimate (b).

9.3 Guidelines for Statistical Analysis

The Adult Education and Training Survey 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. Variances for simple estimates such as totals, proportions and ratios (for qualitative variables) are provided in the accompanying 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:

- select all respondents from the file who reported SEX=male
- Calculate the AVERAGE weight for these records by summing the original person weights from the microdata file for these records and then dividing by the number of respondents who reported SEX=male
- for each of these respondents, calculate a RESCALED weight equal to the original person weight divided by the AVERAGE weight
- perform the analysis for these respondents 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 truly meaningful 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.

9.4 C.V. Release Guidelines

Before releasing and/or publishing any estimate from the Adult Education and Training Survey, 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 section 8. 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 section 8 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	<p>Estimates have: a sample size of 30 or more, and low coefficients of variation in the range 0.0% - 16.5%</p> <p>No warning is required.</p>
2. Marginal	<p>Estimates have: a sample size of 30 or more, and high coefficients of variation in the range 16.6% - 33.3%.</p> <p>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.</p>
3. Unacceptable	<p>Estimates have: a sample size of less than 30, or very high coefficients of variation in excess of 33.3%.</p> <p>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:</p> <p>"The user is advised that . . . (specify the data) . . . do not meet Statistics Canada's quality standards for this statistical program. Conclusions based on these data will be unreliable, and most likely invalid. These data and any consequent findings should not be published. If the user chooses to publish these data or findings, then this disclaimer must be published with the data."</p>

10.0

Approximate Sampling Variability Tables

In order to supply coefficients of variation 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 "look-up" 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 (C.V) 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 to be used in the look-up tables which would then apply to the entire set of characteristics.

The table below shows the design effects, sample sizes and population counts by province which were used to produce the Approximate Sampling Variability Tables.

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. The use of actual variance estimates would allow users to release otherwise unreleaseable estimates, i.e. estimates with coefficients of variation in the 'confidential' range.

Remember: if the number of observations on which an estimate is based is less than 30, the weighted estimate should not be released regardless of the value of the coefficient of variation for this estimate. This is because the formulas used for estimating the variance do not hold true for small sample sizes.

Much of the collected data for the AETS is related to person-level information such as participation rates or importance of training and education to individuals. The AETS also collects information pertaining to the characteristics and nature of programs and courses taken. Even though these data are collected from sampled persons, the data more appropriately reflect 'activities' (ie. programs and courses); for example, the number of training courses and programs taken by Major Field of Study. To enable users to better disseminate and analyse the data contained on the microdata files, two sets of tables with the design effects, sample sizes and population sizes, as well as two sets of cv tables, are provided. The first set of tables is labelled 'Person-level Data' and the second one 'Activity-level Data'. Examples of how to use the cv tables for both types of data are provided in Section 10.1.

Person-level Data

PROVINCE / REGION	DESIGN EFFECT	SAMPLE SIZE	POPULATION
Newfoundland	1.8	1,387	430,998
Prince Edward Island	1.3	1,032	103,108
Nova Scotia	2.1	2,451	720,035
New Brunswick	1.5	2,171	584,057
Quebec	2.3	6,848	5,755,407
Ontario	2.6	8,595	8,760,453
Manitoba	1.9	2,630	831,087
Saskatchewan	1.6	2,513	731,709
Alberta	1.7	2,604	2,109,999
British Columbia	1.6	3,179	3,032,199
Atlantic Provinces	1.9	7,041	1,838,198
Prairies	2.1	7,747	3,672,795
Canada	2.7	33,410	23,059,052

Activity-level Data

PROVINCE / REGION	DESIGN EFFECT	SAMPLE SIZE	POPULATION
Newfoundland	2.1	391	161,654
Prince Edward Island	2.0	386	41,519
Nova Scotia	2.2	1,050	357,985
New Brunswick	1.9	778	230,637
Quebec	2.3	2,053	1,922,363
Ontario	2.8	4,044	4,436,514
Manitoba	2.0	1,084	392,756
Saskatchewan	2.0	1,085	347,084
Alberta	2.0	1,297	1,091,330
British Columbia	2.0	1,648	1,646,292
Atlantic Provinces	2.2	2,605	791,796
Prairies	2.3	3,466	1,831,170
Canada	2.9	13,816	10,628,134

10.1

How to use the C.V. tables for Categorical Estimates

The following rules should enable the user to determine the approximate coefficients of variation from the 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 Possessing a Characteristic (Aggregates)

The coefficient of variation depends only on the size of the estimate itself. On the 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 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 proportion of adults who received full-time employer-supported training out of all those who received any employer-supported training is more reliable than the estimated total number of adults who received full-time employer-supported training. (Note that in the tables the cv's 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 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 ($d = X_1 - X_2$) is:

$$F_d = \sqrt{(\hat{X}_1 \cdot \sigma_1)^2 + (\hat{X}_2 \cdot \sigma_2)^2}$$

where X_1 is estimate 1, X_2 is estimate 2, and σ_1 and σ_2 are the coefficients of variation of X_1 and X_2 respectively. The coefficient of variation of d is given by F_d/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 "adults who received employer-supported training" and the numerator is the number of "adults who received full-time employer-supported training".

In the case where the numerator is not a subset of the denominator, as for example, the ratio of the number of "adults who received full-time employer-supported training" as compared to the number of "adults who received part-time employer-supported training", the standard deviation 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 and then multiplied by R. That is, the standard error of a ratio ($R = X_1 / X_2$) is:

$$F_R = R \sqrt{\sigma_1^2 + \sigma_2^2}$$

where σ_1 and σ_2 are the coefficients of variation of X_1 and X_2 respectively. The coefficient of variation of R is given by F_R/R . The formula will tend to overstate the error, if X_1 and X_2 are positively correlated and understate the error if X_1 and X_2 are negatively correlated.

Rule 5: Estimates of Differences of Ratios

In this case, Rules 3 and 4 are combined. The cv's 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 C.V. tables for Categorical Estimates

The following 'real life' examples are included to assist users in applying the foregoing rules.

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

Suppose that a user estimates that 3,670,763 *adults* received employer-supported training in 1997. How does the user determine the coefficient of variation of this estimate?

- (1) Refer to the cv table for CANADA, Person-level Data.
- (2) The estimated aggregate (3,670,763) 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, 1.9%.
- (4) So the approximate coefficient of variation of the estimate is 1.9%.

The finding that there were 3,670,763 adults who received employer-supported training in 1997 is publishable with no qualifications.

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

Suppose that a user estimates that 375,119 programs and courses were taken in 1997 for personal development. How does the user determine the coefficient of variation of this estimate?

- (1) Refer to the cv table for CANADA, Activity-level Data.
- (2) The estimated aggregate (375,119) 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 400,000.
- (3) The coefficient of variation for an estimated aggregate is found by referring to the first non-asterisk entry on that row, namely, 7.3%.
- (4) So the approximate coefficient of variation of the estimate is 7.3%.

The finding that there were 375,119 programs and courses taken in 1997 for personal development is publishable with no qualifications.

Example 2(a) : Estimates of Proportions or Percentages Possessing a Characteristic

Suppose that the user estimates that $919,218 / 3,670,763 = 25.0\%$ of adults who received employer-supported training took at least one educational program. How does the user determine the coefficient of variation of this estimate?

- (1) Refer to the table for CANADA, Person-level Data.
- (2) Because the estimate is a percentage which is based on a subset of the total population (i.e., adults who received employer-supported training), it is necessary to use both the percentage (25.0%) and the numerator portion of the percentage (919,218) in determining the coefficient of variation.
- (3) The numerator 919,218 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 1,000,000. The percentage estimate appears as a column heading, so use the column marked 25.0%.
- (4) The figure at the intersection of the row and column used, namely 3.7%, is the coefficient of variation to be used.
- (5) So the approximate coefficient of variation of the estimate is 3.7%.

The finding that 25.0% of adults who received employer-supported training took at least one educational program can be published with no qualifications.

Example 2(b) : Estimates of Proportions or Percentages Possessing a Characteristic

Suppose that the user estimates that $221,068 / 375,119 = 58.9\%$ of training taken for personal development was employer-sponsored. How does the user determine the coefficient of variation of this estimate?

- (1) Refer to the table for CANADA, Activity-level Data.
- (2) Because the estimate is a percentage which is based on a subset of the total population (i.e., programs and courses taken for personal development), it is necessary to use both the percentage (58.9%) and the numerator portion of the percentage (221,068) in determining the coefficient of variation.

- (3) The numerator 221,068 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 200,000. The percentage estimate (58.9%) doesn't appear as a column heading, so use the column marked 50.0%.
- (4) The figure at the intersection of the row and column used, namely 7.5%, is the coefficient of variation to be used.
- (5) So the approximate coefficient of variation of the estimate is 7.5%.

The finding that 58.9% of training taken for personal development was employer-sponsored can be published with no qualifications.

Note: The remaining examples in this section refer to person-level data.

Example 3 : Estimates of Differences Between Aggregates or Percentages

Suppose that a user estimates that $919,218 / 3,670,763 = 25.0\%$ of adults who received employer-supported training took at least one educational program. The user then estimates that $2,562,747 / 4,252,106 = 60.3\%$ of adults who received non-employer-supported training took at least one educational program. How does the user determine the coefficient of variation of the difference between these two estimates?

- (1) Using the CANADA cv table in the same manner as described in example 2 gives the cv of the estimate for people receiving employer-supported training as 3.7% and the cv of the estimate for people receiving non-employer-supported training as 1.4%.
- (2) Using rule 3, the standard error of a difference ($d = X_1 - X_2$) is:

$$F = \sqrt{(\hat{X}_1 \cdot c_1)^2 + (\hat{X}_2 \cdot c_2)^2}$$

where X_1 is estimate 1, X_2 is estimate 2, and c_1 and c_2 are the coefficients of variation of X_1 and X_2 respectively.

That is, the standard error of the difference $\hat{d} = (.603 - .250) = .353$ is:

$$F_{\hat{d}} = \sqrt{[(.03)(.03)] + [(.01)(.01)]}$$

$$= \sqrt{(.0009) + (.0001)}$$

$$= .013$$

- (3) The coefficient of variation of \hat{d} is given by $F_{\hat{d}}/\hat{d} = .013/.353 = 0.036$.
- (4) So the approximate coefficient of variation of the difference between the estimates is 3.6%. This estimate can be published without qualifications.

Example 4 : Estimates of Ratios

Suppose that the user estimates that 1,934,884 males took employer-supported training, while 1,735,879 females took employer-supported training. The user is interested in comparing the estimate of females versus that of males 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 ($= X_1$) is the number of females who took employer-supported training. The denominator of the estimate ($= X_2$) is the number of males who took employer-supported training.
- (2) Refer to the table for CANADA, Person-level Data.
- (3) The numerator of this ratio estimate is 1,735,879. The figure closest to it is 1,500,000. The coefficient of variation for this estimate is found by referring to the first non-asterisk entry on that row, namely, 3.3%.
- (4) The denominator of this ratio estimate is 1,934,884. 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, 2.9%.
- (5) So the approximate coefficient of variation of the ratio estimate is given by rule 4, which is,

$$" = \sqrt{"_1^2 + "_2^2}$$

where $"_1$ and $"_2$ are the coefficients of variation of X_1 and X_2 respectively.

That is ,

$$= \sqrt{(.04)^2} = .04$$

The obtained ratio of females versus males who received employer-supported training is 1,735,879/1,934,884 which is 0.90 : 1. The coefficient of variation of this estimate is 4.4%, which is releasable with no qualifications.

10.2 How to use the C.V. 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 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 $(\hat{X}-k, \hat{X}+k)$ 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 CI:

$$CI = [\hat{X} - t \hat{X} \cdot CV, \hat{X} + t \hat{X} \cdot CV]$$

where \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 = 3 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 C.V. tables to obtain confidence limits

A 95% confidence interval for the estimated proportion of adults who took at least one educational program out of those adults who received employer-supported training (from Example 2a, section 10.1.1) would be calculated as follows.

$$\begin{aligned}\hat{X} &= 25.0\% \text{ (or expressed as a proportion} = .250) \\ t &= 2 \\ \hat{x} &= 3.7\% \text{ (.037 expressed as a proportion) is the coefficient} \\ &\text{of variation of this estimate as determined from the} \\ &\text{tables.} \\ CI_x &= \{.250 - (2) (.250) (.037), .250 + (2) (.250) (.037)\} \\ CI_x &= \{.250 - .019, .250 + .019\} \\ CI_x &= \{.231, .269\}\end{aligned}$$

With 95% confidence it can be said that between 23.1% and 26.9% of adults who received employer-supported training took at least one educational program.

10.3 How to use the C.V. 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 X_1 and X_2 be sample estimates for 2 characteristics of interest. Let the standard error on the difference $X_1 - X_2$ be F_d .

If $\frac{\hat{X}_1 - \hat{X}_2}{F_d}$ 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 characteristics are significant.

10.3.1

Example of using the C.V. tables to do a t-test

Let us suppose we wish to test, at 5% level of significance, the hypothesis that there is no difference between the proportion of adults receiving employer-supported training who took at least one educational program and the proportion of adults receiving non-employer-supported training who took at least one educational program. From example 3, section 10.1.1, the standard error of the difference between these two estimates was found to be = .013. Hence,

$$t = \frac{\hat{X}_1 - \hat{X}_2}{F_d} = \frac{.6 - .3}{.013} = 27.5$$

Since $t = 27.15$ 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 Adult Education and Training Survey 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 of the total number of weeks of training would be

greater than the coefficient of variation of the corresponding proportion of adults who received training. Hence if the coefficient of variation of the proportion is not releasable, then the coefficient of variation of the corresponding quantitative estimate will also not be 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 Release Cut-offs for the Adult Education and Training Survey

The minimum size of the estimate at the provincial, regional and Canada levels are specified in the table below. Estimates smaller than the minimum size given in the "Not Releasable" column may not be released under any circumstances.

Person- level Data

Province	Publishable	Releasable with Qualification	Not Releasable
Newfoundland	20,000	9,000	5,000
Prince Edward Island	5,000	2,000	1,000
Nova Scotia	22,000	10,000	6,000
New Brunswick	15,000	7,000	4,000
Quebec	69,000	30,000	17,000
Ontario	96,000	42,000	24,000
Manitoba	22,000	10,000	6,000
Saskatchewan	17,000	7,000	4,000
Alberta	48,000	21,000	12,000
British Columbia	56,000	25,000	14,000
Atlantic Provinces	19,000	8,000	5,000
Prairie Provinces	36,000	16,000	9,000
CANADA	68,000	30,000	17,000

Activity-level Data

Province	Publishable	Releasable with Qualification	Not Releasable
Newfoundland	27,000	13,000	8,000
Prince Edward Island	7,000	3,000	2,000
Nova Scotia	25,000	12,000	7,000
New Brunswick	19,000	9,000	5,000
Quebec	77,000	35,000	20,000
Ontario	112,000	50,000	28,000
Manitoba	26,000	12,000	7,000
Saskatchewan	22,000	10,000	6,000
Alberta	57,000	26,000	15,000
British Columbia	71,000	32,000	18,000
Atlantic Provinces	24,000	11,000	6,000
Prairie Provinces	44,000	20,000	11,000
CANADA	82,000	36,000	20,000

10.6

C.V. Tables

1. Person-level data

[CVPERE.WPD](#)

[CVPERE.PDF](#)

2. Activity-level data

[CVACTE.WPD](#)

[CVACTE.PDF](#)



11.0 Weighting

Since the Adult Education and Training Survey used a sub-sample of the 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 LFS

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 balancing factor for non-response, and the province-age-sex 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 .02 for each person and the records must be weighted by $1/.02=50$. 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.

Non-response

Notwithstanding the strict controls of the LFS, some non-response is inevitable, despite all the attempts made by the interviewers. The LFS non-response rate is approximately 5%. For certain types of non-response (eg. 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 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. To the extent that this assumption is not true, the estimates will be somewhat biased.

LFS 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.

Subprovincial 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. In particular, estimates are produced of the total number of persons 15+ in provincial economic regions and the 24 large metropolitan areas as well as of designated age-sex groups in each of the ten provinces.

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 various age-sex groups, economic regions, census metropolitan areas, and rotation groups.

This weighting procedure ensures consistency with external Census counts and that each rotation group is representative of the population, and also ensures that every member of the economic family is assigned the same weight.

11.2 **Weighting Procedures for the Adult Education and Training Survey**

The principles behind the calculation of the weights for the Adult Education and Training Survey are identical to those for the LFS. However, further adjustments are made to the LFS weights in order to derive a final weight for



the individual records on the Adult Education and Training Survey microdata file.

- (1) An adjustment to account for the additional non-response to the supplementary survey i.e., non-response to the Adult Education and Training Survey for individuals who did respond to the LFS or for which previous month's LFS data was brought forward.
- (2) An adjustment to account for the use of a five-sixth sub-sample, instead of the full LFS sample.
- (3) An adjustment to account for selecting one person per household.
- (4) A readjustment to account for independent province-age-sex and economic region - census metropolitan area projections, after the above adjustments are made.

Adjustment (1) is calculated the same way as described for the LFS. A non-response factor is created for each responding AETS record.

Adjustments(1), (2) and (3) are taken into account by multiplying the LFS sub-weight for each responding AETS record by the non-response factor, the factor 6/5, and number of eligible adults in the responding household.

Adjustment 4 is calculated by multiplying the adjusted weight for each AETS respondent by :


$$\frac{w_{i,j} \cdot \frac{6}{5} \cdot \frac{1}{n_{i,j}} \cdot \frac{1}{N_{i,j}} \cdot \frac{1}{R_{i,j}} \cdot \frac{1}{M_{i,j}}}{w_{i,j} \cdot \frac{1}{n_{i,j}} \cdot \frac{1}{N_{i,j}} \cdot \frac{1}{R_{i,j}} \cdot \frac{1}{M_{i,j}}}$$

and:

$$\frac{w_{i,j} \cdot \frac{1}{n_{i,j}} \cdot \frac{1}{N_{i,j}} \cdot \frac{1}{R_{i,j}} \cdot \frac{1}{M_{i,j}}}{w_{i,j} \cdot \frac{1}{n_{i,j}} \cdot \frac{1}{N_{i,j}} \cdot \frac{1}{R_{i,j}} \cdot \frac{1}{M_{i,j}}}$$

These steps were repeated iteratively until the adjustment factors converged to 1. The resulting weight is the final weight which appears on the AETS microdata file.

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. Using a linear regression model auxiliary information is used to arrive at the final weight. The regression is set up to ensure that the final weights it produces



sum to the census projections for the auxiliary variables, namely various age-sex groups, economic regions and census metropolitan areas. This improves the reliability of estimates that can be produced by the AETS.

At the same time as ensuring consistency with external Census counts, the weighting procedure also ensures that every member of the economic family is assigned the same weight.

The resulting weight (WEIGHT) is the final weight which appears on the Adult Education and Training Survey microdata file.

12.0 Questionnaires and Code Sheets

- o Household Record Docket
- o The Labour Force Questionnaire
- o Supplementary Questionnaire

12.1 The Household Record Docket

The Household Record Docket is used to list all household members whose usual place of residence is the selected dwelling. It is both a survey operations control document and a record of socio-demographic information on household members.

12.2 The Labour Force Questionnaire

The Labour Force Questionnaire is used to collect information on the current and most recent labour market activity of all household members 15 years of age or older. The Labour Force Questionnaire 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.

12.3 The Supplementary Survey Questionnaire

The Adult Education and Training questionnaire was used in January 1998 in all provinces, except Quebec, and in March 1998 in Quebec only to collect the information for the supplementary survey.⁸

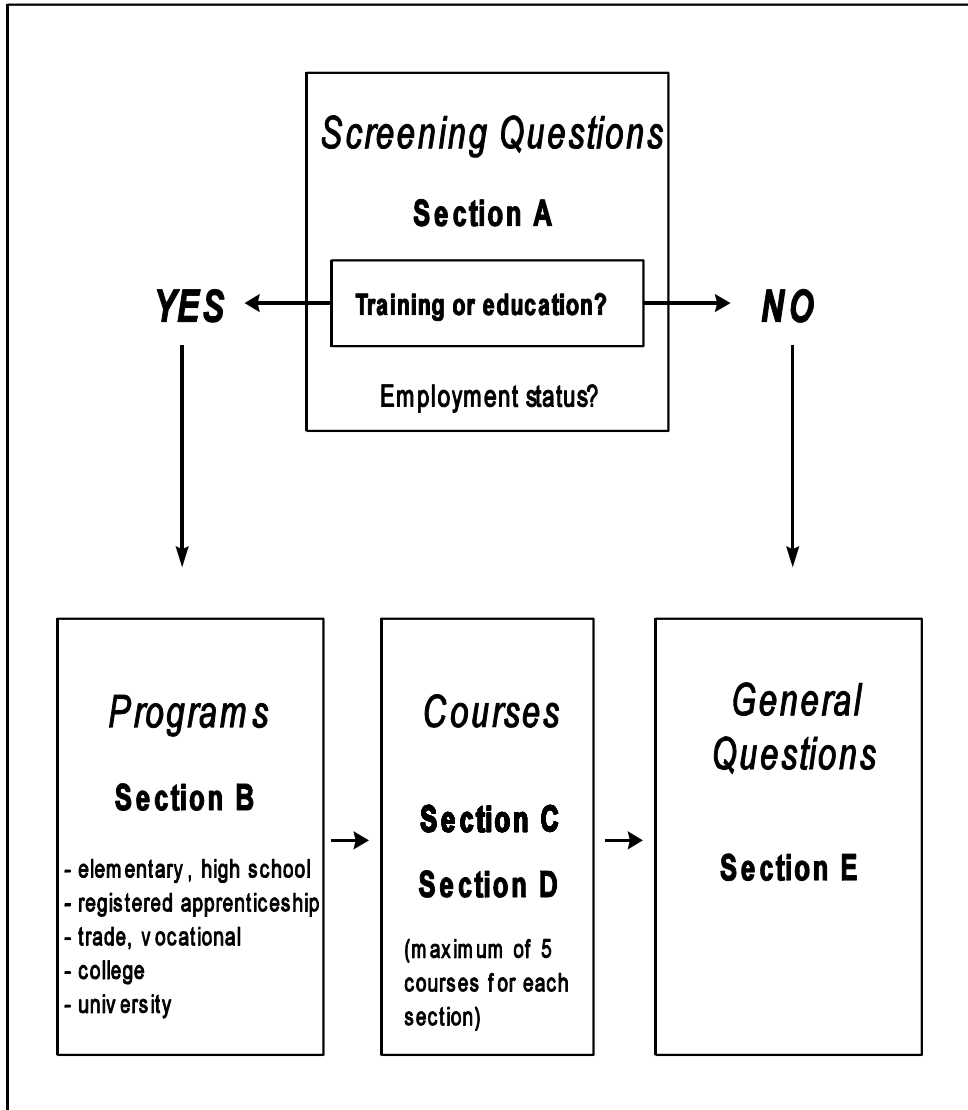
The 1998 Adult Education and Training Survey contains a total of 110 questions organized into five sections (A-E). The first section (A) has a series


⁸ As noted earlier, the survey was conducted as planned in January 1998 in all provinces except Quebec. Due to the 1998 ice storm, the survey was postponed in Quebec and conducted two months later in March 1998.



of screening questions to ensure that respondents will answer only the questions that are relevant to their situation. The next section (B) asks about training and education programs. Section C asks about specific education and training courses. Section D contains questions on hobby, recreational or interest courses. It also acts as a residual category for any overflow from the previous section. The final section (E) asks questions of a more general nature to profile individual backgrounds, work situations and barriers to education and training.

The 1998 AETS Questionnaire Structure





The following are short summaries of the contents of each of the five sections.

Section A: Screening Questions

The questions in this section are designed to determine whether a respondent received any education or training. Based on the answers to these questions, the respondent is directed to the appropriate section of the questionnaire. The screening questions also determine the respondent's employment status.

Section B: Training and Education Programs⁹

This section includes respondents who took programs towards an elementary or high school diploma, an apprenticeship certificate, a trade-vocational diploma or certificate, a college diploma or certificate, or a university degree, diploma or certificate. Questions in this section ask about major field of study, financial support, employer support, location of training, method of training, main reason for taking the training, use of learned skills, duration of training, and program completion.

Section C: Training and Education Courses

This section includes respondents who took courses, workshops, seminars or tutorials. Questions in this section ask about course title or name, financial support, employer support, location of training, method of training, main reason for taking the training, use of learned skills, duration of training, and course completion.

Section D: Hobby, Recreational or Interest Courses

These questions ask about hobby, recreational, interest and personal development courses or residual courses not covered in section C. The questions follow the same pattern as section C.

Section E: General Questions

The questions in this section collect information about industry, occupation, firm size, union membership, adequacy of training, barriers to training, ethnicity, and income.

The 1998 Adult Education and Training Survey was conducted using computer assisted interviewing (CAI). A copy of the CAI questionnaire is shown on the following page. Questions like AC04, CC01, etc. are instructions for the programmer to control the flow of the questions. During the interview, the name of the course or program for which data was being collected was shown at the top of the screen.

⁹ A program is a selection of several courses or a combination of courses normally chosen from a syllabus, a calendar or a list. Courses within a program are usually taken for credit towards a degree, diploma or certificate.



Adult Education and Training Survey 1998

QUESTENG.WPD
[QUESTENG.PDF](#)



13.0 Record Layout and Univariates

The record layout describes in detail the information found on the AETS microdata file. The information that is used to create the microdata file comes from three questionnaires:

- The Labour Force Survey **Household Record Docket** is used to describe the various members of the household;
- The **Labour Force Survey Questionnaire** is used to collect information on household members' labour force activity;
- The **1998 Adult Education and Training Survey Questionnaire** is used to collect information about the education and training received by adults in Canada during 1997.

The information from these questionnaires is brought together to create the microdata file.

In view of the nature of the data from the Adult Education and Training Survey, the microdata file consists of a number of subfiles that can be grouped into two categories: (1) person files and (2) activity files. There is little duplication across the subfiles. The variable UNIQUEID can be used to link the files.

(1) Person Files

The **Person Files** contain one record per respondent. The files provide the data for questionnaire Section A (screening questions) and Section E (general questions) as well as variables from the Labour Force Survey (socio-demographic data and labour force status) and most of the derived variables.

(2) Activity Files

The **Activity Files** contain data about all the training and education programs and courses reported by a respondent in Sections B, C and D of the questionnaire. There are three files -- one for Section B, one for Section C and one for Section D.

Each respondent generated a variable number of records in each of the three activity files depending on the number of programs and courses reported in each particular section. Respondents who did not report a program or course in a particular section are not included in the corresponding file. For example, a respondent who reported one program in Section B, two courses in Section C and no courses in Section D would have one, two and no records on the files for Sections B, C and D, respectively. The maximum number of programs

or courses allowed for each of these three sections of the questionnaire is five.

Users can link between the three activity files as well as to the person files using the variable UNIQUEID. However, users should keep in mind that respondents can have more than one record at the program or course level and should interpret any linked person file data accordingly.

13.1 Using the Microdata Files

The 1998 Adult Education and Training Survey microdata file is accompanied by a data extraction software. This software allows users to browse the survey variables, create personalized data sets in a variety of formats and run simple frequencies.

Users are encouraged to use the data extraction software to create personalized data sets that can then be used with software such as SPSS, SAS or Excel. However, if users wish to access the microdata files directly, they have two options. The data is available in both databases (DBF) and flat file (ASCII) format.

If a user wishes to work directly with the database files, there are eleven database files: eight person-level files and three activity-level files. The variable UNIQUEID can be used to link the files. Details about the database files are presented in the following table.

AETS 1998 Microdata Files: Database (DBF) Files

File name	Contents	Details
Person-level:		
AETS.DBF	Section A - Screening Questions Section E - General Questions Related derived variables	33,410 records 98 variables
LFS.DBF	Labour Force Survey data (socio-demographic indicators and labour force status) Related derived variables	33,410 records 123 variables
PROGEMDV.DBF	Derived variables for employer- sponsored programs recorded in Section B	986 records 139 variables

File name	Contents	Details
PROGNEDV.DBF	Derived variables for non-employer-sponsored programs recorded in Section B	2,761 records 124 variables
COUREMDV.DBF	Derived variables for employer-sponsored courses recorded in Section C	4,184 records 139 variables
COURNEDV.DBF	Derived variables for non-employer-sponsored courses recorded in Section C	1,724 records 124 variables
HOBBEMDV.DBF	Derived variables for employer-sponsored courses recorded in Section D	214 records 139 variables
HOBBNEDV.DBF	Derived variables for non-employer-sponsored courses recorded in Section D	1,538 records 124 variables
Activity-Level:		
PROGRAM.DBF	Section B	4,328 records 79 variables
COURSE.DBF	Section C	7,510 records 77 variables
HOBBY.DBF	Section D	1,978 records 77 variables

If a user wishes to work with the flat files, there are four flat files: one person-level file and three activity-level files (Section B - programs, Section C - courses, Section D - hobbies). SAS cards and SPSS cards are available for these files. The variable UNIQUEID can be used to link the files. Details about the files are presented in the following table.

AETS 1998 Microdata Files: Flat (ASCII) Files

File name	Contents	Details
Person-level:		
AETSFLAT.TXT	<ul style="list-style-type: none"> ⌄ Section A (screening questions) ⌄ Section E (general questions) ⌄ Labour Force Survey data (socio-demographic indicators and labour force status) ⌄ derived variables 	33,410 records 996 variables
Activity-Level:		
PROGRAM.TXT	Section B	4,328 records 79 variables
COURSE.TXT	Section C	7,510 records 77 variables
HOBBY.TXT	Section D	1,978 records 77 variables

13.2 Using the Record Layout

The record layout found at the end of this section provides a description of each variable on the AETS microdata file. The user is provided with the variable name, description, values, and where necessary brief notes about the variable. The record layout also provides weighted and unweighted control counts for each variable.

Users should be aware that for certain variables which give total numbers of courses or programs (i.e. TOTCRS, TOTPGMNE, EMBQ06A, etc.) the counts shown are for the number of respondents who took at least one course or program. On the file itself, however, the variable will indicate the total number of programs or courses taken by a given respondent.

Users also should be aware that the counts will vary depending on how respondents flow through the questionnaire. To the extent possible, the skip patterns have been identified in the record layout. However, there are instances where the user should consult the questionnaire to determine the exact flow pattern.

In addition, some cells have very small unweighted counts. The user should be sure to read “Publication and Release Guidelines”, Chapter 9 before releasing any data.

The user will note that some variables have been collapsed to maintain the respondent’s confidentiality. In some instances it is possible for Statistics Canada to create a custom tabulation should a user require a particular variable that has been suppressed on the microdata file. Requests for custom tabulations are conducted on a cost-recoverable basis. Users interested in custom tabulations should contact Special Surveys Division at (613) 951-7355 or 1-888-297-7355 (North America only) or through e-mail to ssd@statcan.ca.

It should also be noted that the record layout is the same for both the Adult Education and Training Survey master file (for use within Statistics Canada only) and the public microdata file. Therefore, it may appear to the user that there is apparent duplication of variables and also an excessive amount of collapsing or regrouping of variables. For a number of the variables shown on the record layout no data are available on the microdata file. When fields have been suppressed, the actual data have been deleted and replaced with a valid skip code.

Record Layout

AETS.WP6 AETS.PDF	Section A -Screening Questions Section E - General Questions Related derived variables
LFS.WP6 LFS.PDF	Labour Force Survey data (socio-demographic indicators and labour force status) Related derived variables
PROGEMDV.WP6 PROGEMDV.PDF	Derived variables for employer-sponsored programs recorded in Section B
PROGNEDV.WP6 PROGNEDV.PDF	Derived variables for non-employer-sponsored programs recorded in Section B
COUREMDV.WP6 COUREMDV.PDF	Derived variables for employer-sponsored courses recorded in Section C
COURNEDV.WP6 COURNEDV.PDF	Derived variables for non-employer-sponsored courses recorded in Section C
HOBEMDV.WP6 HOBEMDV.PDF	Derived variables for employer-sponsored courses recorded in Section D
HOBINEDV.WP6 HOBINEDV.PDF	Derived variables for non-employer-sponsored courses recorded in Section D
PROGRAM.WP6 PROGRAM.PDF	Section B



COURSE.WP6 COURSE.PDF	Section C
HOBBY.WP6 HOBBY.PDF	Section D

14.0

Appendix A: Education Codes

The education codes found on this file are based on the Major Field of Study codes used by the Census, and some additional codes developed to reflect the unique character of the Adult Education and Training Survey (AETS). The collapsing of codes reduces the problems of small cell sizes and allows for comparisons with the 1992 and 1994 Adult Education and Training Survey. Users interested in the classification structure of the Major Field of Study codes should refer to Statistics Canada publication 99-130 "User's Guide To 1986 Census Data On Major Field of Study".

Major Groupings for AETS Coding Structure

The major groupings refers to the broad areas within which more detailed codes are identified in the three-digit codes. The major groupings have been used exclusively for apprenticeship coding due to small sample sizes. Some special derived variables have been created based on the major groupings. These variables are self-evident on the file.

01	Educational, Recreational and Counselling Services
02	Fine and Applied Arts
03	Humanities and Related Fields
04	Social Sciences and Related Fields
05	Commerce, Management and Business Administration
06	Agricultural and Biological Sciences/Technologies
07	Engineering and Applied Sciences
08	Engineering and Applied Science Technologies and Trades
09	Health Professions, Sciences and Technologies
10	Mathematics and Physical Sciences
11	Other (i.e. high school, not known, etc.)
12	Upgrading (Academic)
13	Personal Development
14	Recreational Activity
97	Uncodable



Three-digit Coding Structure

EDUCATIONAL, RECREATIONAL AND COUNSELLING SERVICES

- 001 **Education - General**
- Education - General
- NOTE: Includes co-operative learning (all levels); tutoring (level unknown).
- 002 **Elementary - Primary Education**
- Elementary School Teaching - General
- Elementary School Teaching - Specialized
- Pre-school, Kindergarten and Early Childhood Education
- 003 **Secondary Education**
- Secondary School Teaching
- English Language Teaching
- French Language Teaching
- Other Language Teaching
- Mathematics - Science Teaching
- Mathematics - Computer Science Teaching
- Social Studies Teaching
- Secondary Basic Curriculum - Other
- Adult/Continuing Education
- Art and Fine Art Education
- Commercial/Business Education
- Family/Life Education
- Industrial/Vocational Education
- Music Education
- Religious Education
- Secondary Specialties - Other
- 004 **Special Education**
- Special Education Teaching
- Highly Gifted or Exceptional Children
- Multicultural Education - Native
- Multicultural Education - Other
- Remedial Reading
- Special Education - Other
- 005 **Non-teaching Educational Fields/Counselling Services and Personal Development**
- Audio-visual Educational Media
- Educational Administration and Organization
- Educational Psychology
- Educational Statistics and Sociology
- History, Philosophy and Theory of Education
- Paraprofessional Teacher Aide/Educational Support
- Counselling Services - General
- Counselling Psychology
- Marriage/Family/Life Skills Counselling

- Vocational Guidance and Counselling
- Counselling Services and Personal Development - Other

- 006 **Physical Education, Health and Recreation**
- Physical Education and Health
 - Kinesiology and Kinanthropology
 - Recreology, Recreation and Leisure Services
 - Parks/Forest/Wildlife Recreation
 - Travel and Tourism
 - Sports Technology
 - Physical Education, Health and Recreation - Other

- 007 **Other Education**
- Education, n.e.c. - Other
 - Postsecondary Teacher Training

NOTE: Includes distance education, global education, home schooling, training for instructors and training officers.

FINE AND APPLIED ARTS

- 008 **Fine Arts**
- Fine Arts - General
 - Aesthetics and Art Appreciation, Art Studies
 - Art History
 - Painting and Drawing
 - Pottery and Ceramics
 - Sculpture

- 009 **Music**
- Music, Musicology
 - Composition and Conducting
 - Musical Instruments
 - Music History and Music Theory
 - Vocal Music, Singing, Opera

- 010 **Other Performing Arts**
- Performing Arts - General
 - Dance
 - Drama
 - Theatre

- 011 **Commercial and Promotional Arts/Graphic and Audio-visual Arts**
- Commercial Art/Promotional Art - General
 - Advertising Art
 - Modelling
 - Graphic Art and Design
 - Lithography and Print Making
 - Photography
 - Recorded Music Arts
 - Printing and Publishing



- Audio-Visual Arts

NOTE: Includes learning such software as Ventura, GEM Draw, Pagemaker, etc.

012

Creative and Design Arts

- Creative and Design Arts - General
- Handicrafts (Arts and Crafts)
- Interior Design and Decorating

NOTE: Includes quilting, tatting, rug hooking; wood carving and stained glass.

013

Other Applied Arts

- Applied Arts - General
- Barbering
- Beauty Culture and Cosmetology
- Hairdressing
- Upholstery and Furniture
- Applied Arts - Repair and Renovation

HUMANITIES AND RELATED FIELDS

014

Classics, Classical and Dead Languages

- Classics, Classical Studies
- Ancient Greek, Latin and Roman
- Classical Languages - Other

015

History

- History - General
- Canadian History
- Medieval and Ancient History
- Modern History
- History - Other

016

Library and Records Science

- Library/Documentation Science
- Museology, Museum Technology

017

Mass Media Studies

- Mass Media Studies - General
- Cinematography, Film Studies
- Radio-television
- Journalism, News Reporting

018

English, French and Other Languages and Literature

- English Language and Literature - General
- American Literature
- British Literature
- Canadian (English) Literature
- English Language and Literature - Other
- French Language and Literature - General

- French Canadian Literature
- European French Literature
- French Language and Literature - Other
- Comparative Literature
- Asian Languages and Literature
- Germanic Language and Literature
- Italian Language and Literature
- Slavic or East European Languages and Literature
- Linguistics
- Languages and Literature - Other

019

Philosophy

- Philosophy - General
- Ethical Philosophy
- Modern Philosophy
- Political Philosophy
- Philosophy - Other

020

Religious Studies

- Religion, Religious Studies
- Comparative Religion
- Divinity
- Theology
- Religious Studies - Other

NOTE: Includes training in the lay ministry and bishop's training.

021

Other Humanities and Related Fields

- Humanities - General (General Arts)
- Second Language Training
- Translation and Interpretation
- Creative Writing
- Humanities and Related Fields, n.e.c. - Other

SOCIAL SCIENCES AND RELATED FIELDS

022

Anthropology and Archaeology

- Anthropology - General
- Ethnology and Related Fields
- Physical Anthropology, Anthropometry
- Social and Cultural Anthropology
- Anthropology - Other
- Archaeology

024

Area Studies (Non Languages or Literature)

- Asian Studies
- Canadian Studies
- Germanic Studies
- Latin American and Caribbean Studies
- Near and Middle Eastern Studies

- 
- Slavic or East European Studies
 - Area Studies - Other

025

Economics

- Economics - General
- Agricultural Economics
- Econometrics
- International Economics
- Labour/Human Resources Economics
- Economics - Other

026

Geography

- Geography - General
- Cartography
- Economic Geography
- Historical and Political Geography
- Human Geography
- Natural Resources Geography
- Physical Geography
- Urban/Rural Geography
- Geography - Other

027

Law and Jurisprudence

- Law and Jurisprudence - General
- Civil, Criminal, Family, Common Law
- Commercial/Business, Company Law
- Constitutional/International Law
- Law - Other

028

Man/Environment Studies

- Man/Environment Studies - General
- Human Ecology
- Resource Planning and Management
- Urban, Rural, Regional Planning and Development

029

Political Science

- Political Science - General
- Canadian Politics
- Comparative Politics
- International Relations, Foreign Policy
- Political Science - Other

030

Psychology


- Psychology - General
- Child, Adolescent, Developmental Psychology
- Clinical Psychology
- Social Psychology
- Psychology - Other

NOTE: Includes human relations.

031

Sociology

- Sociology - General

- 
- Criminology, Penology, Deviance
 - Demography, Population Studies
 - Ethnic Sociology
 - Family Sociology
 - Sociology - Other

NOTE: Includes the study of multiculturalism and minorities.

032

Social Work and Social Services

- Social Work/Welfare - General
- Child Care Services, Youth Services
- Correctional Technologies
- Gerontology, Applied
- Police and Para-legal Technologies
- Protection Services
- Social Services and Welfare Technologies - Other

NOTE: Includes search and rescue training, ski patrol training, avalanche safety training, etc.

034

War and Military Studies and Other Social Sciences and Related Fields

- War and Military Studies
- Social Sciences - General
- Social Sciences and Related Fields, n.e.c. - Other

NOTE: Includes gender studies.

COMMERCE, MANAGEMENT AND BUSINESS ADMINISTRATION

035

Business and Commerce

- Business and Commerce - General
- Business Administration
- International Business and Commerce
- Business and Commerce - Other

036

Financial Management

- Financial Management - General
- Accounting and Auditing
- Assessment and Appraisal
- Financial Management - Other

037

Industrial Management and Administration

- Industrial Management and Relations
- Labour Management and Relations
- Public Administration
- Personnel/Human Resources Management
- Industrial Management and Administration - Other

NOTE: Includes shop steward training; conflict management; training in interviewing skills; payroll training; Workmans Compensation training for managers; project management;

performance management; time management; risk management; human relations.

- 038 **Institutional Management and Administration**
- Health Care and Services Management
 - Hotel and Food Administration
 - Funeral Directing and Embalming
 - Tourism and Resort Management
 - Institutional Management - Other

- 039 **Marketing, Merchandising, Retailing and Sales**
- Customer/Public Relations
 - Marketing
 - Merchandising
 - Retailing and Sales
 - Marketing and Sales - Other

NOTE: Includes customer service; shoplifting prevention training.

- 040 **Secretarial Science - General Fields**
- Secretarial Science - General
 - Bank and Financial Clerk
 - Business Machine Operations
 - Court Reporting and Recording
 - Health/Medical Records Technology
 - Legal Secretary
 - Medical Secretary
 - Office Accounting/Bookkeeping
 - Word Processing
 - Secretarial/Clerical - Other

NOTE: Includes keyboarding; dispatcher training; training in the use of answering machines; software packages such as ACCPAC, Bedford, Peachtree, etc.; training in Wordperfect, Wordstar, MacWord Pro, etc.; Postmaster training.

AGRICULTURAL AND BIOLOGICAL SCIENCES/TECHNOLOGIES

- 041 **Agricultural Science and Technology**
- Agricultural Science
 - Animal Science - General
 - Crop Science, Crops, Crop Farming
 - Food Science
 - Horticulture
 - Plant Science - General
 - Poultry Science
 - Soil Science
 - Agricultural Science - Other
 - Agricultural Technology
 - Agricultural Business
 - General Farming Technology



- Agricultural Technology - Other

042

Animal Science Technologies

- Animal Science/Health Technology
- Cattle/Swine Technology
- Equine Studies/Horse Husbandry
- Veterinary Technologies/Animal Health and Care
- Animal Science Technologies - Other

NOTE: Includes horseback riding lessons.

043

Biochemistry, Biology and Biophysics

- Biochemistry
- Biology - General
- Genetic and Developmental Biology
- Microbiology
- Molecular Biology
- Biology - Other
- Biophysics

044

Botany

- Botany - General
- Botany - Other
- Plant Sciences - Specialized

045

Household Science and Related Fields

- Household and Domestic Science
- Consumer Studies
- Clothing and Textiles
- Food Nutrition, Dietetics and Dietary Technology
- Food Services and Preparation
- Home Economics

NOTE: Includes smocking, serging and knitting; wine tasting and wine appreciation courses.

047

Veterinary Medicine/Science and Zoology

- Veterinary Medicine
- Veterinary Science
- Zoology - General
- Animal Anatomy, Ecology, Genetics or Histology
- Entomology
- Fisheries Biology
- Marine/Ocean Biology
- Zoology - Other

048

Other Agricultural and Biological Sciences/Technologies

- Fish Farming, Fish Technologies and Processing
- Food Processing Technologies - General
- Hunting and Trapping
- Agricultural and Biological Sciences/Technologies - Other



ENGINEERING AND APPLIED SCIENCES

- 049 **Architecture and Architectural Engineering**
- Architecture - General
- Architectural Engineering Design
- Architecture - Other
- 051 **Biological and Chemical Engineering**
- Biological Engineering, Bioengineering
- Biomedical or Clinical Engineering
- Chemical Engineering
- 052 **Civil Engineering**
- Civil Engineering
- 054 **Electrical/Electronic Engineering**
- Computer Engineering
- Electrical/Electronic Engineering
- Music and Recording Engineering
- 056 **Aeronautical and Aerospace Engineering, Industrial Engineering, and Mechanical Engineering**
- Aeronautical and Aerospace Engineering
- Industrial/Manufacturing Engineering
- Mechanical Engineering - General
- Instrumentation Engineering
- Power Engineering
- 057 **Mining, Metallurgical and Petroleum Engineering**
- Geological Engineering
- Metallurgical Engineering
- Mining Engineering
- Petroleum Engineering
- 058 **Resources and Environmental Engineering**
- Agricultural Engineering
- Environmental/Resource Engineering
- Fisheries, Marine, Ocean Engineering
- Water Resources and Watershed Engineering
- 059 **Design/Systems Engineering, Engineering Science and Engineering n.e.c.**
- Design/Systems Engineering
- Engineering Science
- Engineering Physics
- Engineering, n.e.c.
- 060 **Forestry**
- Forestry
- Forest Harvesting, Management, Protection
- Forest Wildlife Management
- Silviculture



- Forestry - Other

- 061 **Landscape Architecture**
- Landscape Architecture
- Garden Design
- Landscape Technology

ENGINEERING AND APPLIED SCIENCE TECHNOLOGIES AND TRADES

- 062 **Architectural Technology**
- Architectural Technology
- Architectural Drafting

- 063 **Chemical Technology**
- Chemical Technology
- Biochemical Technology
- Plastics, Fibreglass and Rubber Technology
- Textile Processing Technology (Dyes)

- 064 **Building Technologies**
- Boat, Shipbuilding and Naval Architecture
- Building Technology
- Construction Electrician
- Drywall, Plastering, Lathing
- Heat and Insulation
- Interior Finishing
- Masonry (Brick, Stone, Concrete)
- Plumbing and Pipe Trades
- Welding Technology
- Woodworking, Carpentry

NOTE: Includes woodturning, wood engraving, etc.

- 065 **Data Processing and Computer Science Technologies**
- Data Processing - General
- Computer Science Technology
- Computer Programming and Software
- Microcomputer and Information Systems

NOTE: Includes learning softwares such as DOS, UNIX, Basic, PL1, Rapid, Natural, Lotus, Excel, Paradox, Foxpro, Harvard Graphics, Windows, E-mail, SAS, Internet, etc. It also includes training as a LAN technician.

- 066 **Electronic and Electrical Technologies**
- Electronic Technology
- Electrical Technology
- Microwave and Radar Technology
- Radio and Television
- Telecommunications Technology
- Electronic and Electrical Technologies - Other

067 **Environmental and Conservation Technologies**

- Environmental Technology - General
- Earth Resources Technology
- Forest Conservation Technology
- Renewable Resources Technology
- Wildlife and Fisheries Conservation

NOTE: Includes learning about composting and recycling.

068 **General and Civil Engineering Technologies**

- Civil Engineering Technologies - General
- Construction Technologies
- Drafting - General
- Drafting - Specialized
- Engineering Design and Instrumentation Technology
- Piping Technologies (Non-Plumbing)
- Surveying and Photogrammetric Technology

069 **Industrial Engineering Technologies**

- Industrial Engineering Technology - General
- Air Conditioning and Refrigeration
- Clothing/Fabric Product Manufacturing
- Machinist/Machine Shop
- Pattern Making
- Power Sewing
- Sheet Metal
- Tool and Die
- Industrial Technologies - Other

070 **Mechanical Engineering Technologies**

- Mechanical Engineering Technology - General
- Aeronautical Engineering Technology
- Agricultural Equipment Mechanics
- Aircraft and Flight Mechanics Technology
- Automobile Mechanics Technology
- Heavy Equipment Mechanics
- Marine Mechanics Engineering
- Office/Business Machine Technology
- Small Engine Repairs
- Power/Stationary Engineering Technology

071 **Primary Industries/Resource Processing Technology**

- Forest Products Technology
- Mining and Metal Processing
- Petroleum Technologies
- Primary Industries/Resource Processing Technologies - Other

072 **Transportation Technologies**

- Transportation Technology - General
- Air Transportation Technology
- Marine Transportation Technology

- Motor - Commercial/Public Vehicle Transportation
- Motor - Other Motor Transportation
- Rail Transportation Technology

NOTE: Includes courses in the shipping of dangerous goods; power squadron training; boat safety; yatching; coast guard training (if it is related to operation of a ship).

073 **Other Engineering/Applied Science Technologies n.e.c.**

- Engineering/Applied Science Technologies - Other

NOTE: Includes training in snow and ice control, snow making, propane dispensing, bicycle repair, gas station attending, scaffold erection, etc.

HEALTH PROFESSIONS, SCIENCES AND TECHNOLOGIES

- 074 **Dentistry**
- Dentistry or Dental Medicine
 - Dental Sciences
 - Orthodontics
 - Paedodontics
 - Dentistry Specialties - Other


- 075 **Medicine - General and Basic Medical Science**
- General Practice Medicine
 - Medical Anatomy
 - Medical Biochemistry
 - Medical Biophysics
 - Medical Embryology/Genetics
 - Medical Neurophysiology
 - Medical Pharmacology
 - Medical Physiology
 - Basic Medical Sciences - Other

NOTE: Includes medical 'updating'.

- 076 **Medical Specializations (Non-surgical)**
- Neurology
 - Paediatrics
 - Psychiatry
 - Radiology
 - Medical Specializations (Non-surgical) - Other

NOTE: Includes oncology; ear, nose and throat; travel medicine; allergist, etc.

- 077 **Paraclinical Sciences**
- Paraclinical Medical Science
 - Medical Immunology
 - Medical Microbiology

- 
- Medical Pathology
 - Medical Parasitology, Virology and Bacteriology

NOTE: Includes AIDS (Acquired Immune Deficiency Syndrome).

078 **Surgery and Surgical Specializations**

- Surgery - General
- Obstetrics and Gynaecology
- Orthopaedic Surgery
- Plastic Surgery
- Surgical Specialties - Other

079 **Nursing and Nursing Assistance**

- Nursing - General
- Critical Care Nursing
- Geriatric Nursing
- Medical, Surgical, Hospital Nursing
- Obstetric Nursing
- Psychiatric Nursing and Mental Health Care
- Public Health and Community Nursing
- Nursing - Other
- Nursing Assistant, Assistant Nursing
- Health Care Aide/Support
- Long Term Care Aide
- Nursing Aide, Orderly

NOTE: Includes intensive care, coronary care and emergency care nursing; orthopaedic nursing; nursing the disabled; palliative care training; trauma and triage training.

080 **Optometry**

- Optometry

081 **Pharmacy and Pharmaceutical Sciences**


- Pharmacy
- Pharmaceutical Sciences/Technology

082 **Public Health**

- Public Health - General
- Community Medicine and Health
- Dental Public Health and Hygiene
- Epidemiology and Biostatistics
- Industrial Health, Medicine and Hygiene
- Preventive Medicine
- Veterinary Public Health

NOTE: Includes WHIMS training; water safety; marine emergency measures; handling dangerous or hazardous goods training.

083 **Rehabilitation Medicine**


- 
- Rehabilitation Medicine - General
 - Audiology and Speech Pathology and Therapy
 - Occupational and Physical Therapy
 - Physiotherapy

084

**Medical Laboratory and Diagnostic Technology and
Medical Treatment Technologies**

- Medical Laboratory Technology
- Biological Laboratory Technology
- Biomedical Electronic Technology
- Dental Laboratory Technology
- Radiological Technology
- Cardio-pulmonary Resuscitation
- Chiropractic Technology
- Dental Assistant
- Emergency Paramedical Technology
- Mental Health and Retardation Technology
- Respiratory Technology
- Ultrasound and Ultrasonography
- X-ray - Medical Technology/Radiography
- X-ray - Radiotherapy/Nuclear Medicine Technology
- Medical Treatment Technologies - Other

NOTE: Includes St. John's Ambulance courses, First Aid training and life saving courses; CPR for both medical and non-medical personnel; courses in dialysis, catheterization, IV, EKG, ECG, etc.

- 
- 086 **Medical Equipment and Prosthetics and Other Health Professions, Sciences and Technologies n.e.c.**
- Medical Equipment and Prosthetics
- Health Professions, Sciences and Technologies, n.e.c.
Other

NOTE: Includes palliative care for non health professionals; self-breast examination.

MATHEMATICS AND PHYSICAL SCIENCES

- 088 **Applied Mathematics**
- Applied Mathematics - General
- Computer Science - General
- Computer Science - Systems Design and Analysis
- Operations Research
- Applied Mathematics - Other
- 089 **Chemistry**
- Chemistry - General
- Analytical Chemistry
- Inorganic Chemistry
- Organic Chemistry
- Physical Chemistry
- Spectroscopy
- Chemistry Specialties - Other
- 090 **Geology and Related Fields**
- Geology, Geological and Earth Sciences
- Geochemistry and Geochronology
- Geophysics and Geomorphology
- Hydrogeology/Hydrology
- Mineral Geology
- Petrology and Petrography
- Stratigraphy and Sedimentology
- Geology and Related Fields, n.e.c. - Other
- 091 **Actuarial Science and Mathematical Statistics and Mathematics**
- Actuarial Science
- Mathematical Statistics
- Mathematics
- 094 **Oceanography and Marine Sciences**
- Oceanography
- Biological Oceanography
- Fisheries Oceanography
- Marine Sciences, n.e.c. - Other
- 095 **Physics**
- Physics - General
- Astrophysics and Astronomy

- Atomic and Nuclear Physics
- Chemical Physics
- High Energy and Particle Physics
- Solid State Physics
- Theoretical Physics
- Physics, n.e.c. - Other

096 **Metallurgy and Material Science, Meteorology and General Science**

- Metallurgy and Materials Science
- Meteorology
- General Science
- Science Lab Technology

ALL OTHER, N.E.C./NO SPECIALIZATION

097 **All Other N.E.C./No Specialization**

- All Other n.e.c.
- No specialization
- High School (Secondary) Credit (Grades 9-13)

ADDITIONAL EDUCATION CODES

098 **Upgrading**

- Upgrading - General
- Basic Education (Grades 1-8)
- General Education Development (G.E.D.)
- Postsecondary Upgrading
- Pre-vocational Upgrading
- Basic Training for Skill Development (B.T.S.D.)
- Basic Job Readiness Training (B.J.R.T.)
- Orientation
- Career Alternatives
- University Transfer

NOTE: Includes job re-entry, job search skills, interview skills, training provided by job finders clubs, etc.

099 **Personal Development**

- Personal Development - General
- Home and Family
- Consumer/Financial
- Coping Skills
- Communication Skills
- Religion and Morals
- Public Affairs, Community/Current Events
- Driver Instruction

NOTE: Includes training in lifeskills, self-awareness, stopping smoking; prenatal classes, marriage preparation, coping with abuse in the family; dealing with life and death, AIDS, Alzheimers, etc.



100

Recreational Activity

- Sports and Outdoor Recreation
- Physical Fitness
- Games

NOTE: Includes birdwatching lessons, wilderness training; self defense, martial arts; aerobics, dancersize; bridge, chess, calligraphy, etc.

OTHER CODES

- | | |
|-----|-------------------|
| 996 | Valid skip |
| 997 | Uncodable |
| 998 | Refusal |
| 999 | Not Stated |