1999
Household Internet Use Survey
Microdata User Guide

Special Surveys Division
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1.0 Introduction

Information and its manipulation through communications networks and computers is becoming a key strategic resource that determines the competitiveness of firms and nations[1]. Harnessing the potential of the Internet could unleash a wave of creativity that affords businesses, governments and citizens tremendous opportunities. Innovative applications may trigger unprecedented interaction across and within sectors, which will determine the wealth of nations and the quality of life of citizens[2].

The proportion of households making use of the Internet is rising rapidly. As developments usher in this new era, questions arise regarding the use of the Internet and the economic and societal impacts. Future policies can be shaped by the answers to such questions and by the analysis of socioeconomic impacts. Thus, indicators of connectedness help to facilitate the monitoring of progress.

The Household Internet Use Survey (HIUS) was conducted for the third time by the Special Surveys Division of Statistics Canada in November 1999 for Science, Innovation and Electronic Information Division at Statistics Canada. The annual HIUS collects detailed data on the Internet activities of Canadian household. It reports on Canadians using the Internet and measures the extent of their use, location of use, frequency of use and their reasons for using or not using the Internet. The 1999 HIUS will for the first time provide data on electronic commerce. This will track the extent to which households order, purchase, or use the Internet to influence the acquisition of products or services using the Internet from home.

This manual has been produced to facilitate the manipulation of the micro data file of the survey results. In addition to this, a household Internet use reference tool outlining content of surveys conducted by Statistics Canada will be available April 2000 free of charge at http://www.statcan.ca/cgi-bin/downpub/freepub.cgi.

[1] IHAC (1997) "Preparing Canada for a Digital World", Final Report of the Information Highway Advisory Council, September.

[2] OECD (1998) "Global Electronic Commerce: Realizing the Potential", Forward by the Right Honourable Jean Chretian, Prime Minister of Canada, October.

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2.0 Background

The Household Internet Use Survey (HIUS) was conducted in October 1997 and October 1998 by Statistics Canada. In November 1999 the survey examined Canadian households' access to the Internet at home, in the workplace and in a number of other locations. The resulting data and analysis that follows will shed light on relationships between usage and location of use, household income, as well as other demographic factors. The 1999 survey included a more detailed module on electronic commerce.

The 1999 survey showed that:

- Internet use from home increased from 16% in 1997, 22.6% in 1998 to 28.7% in 1999. As a result, the year over year change between 1998 and 1999 was an increase of 27%.
- Use of the Internet by household members from their place of work has remained relatively unchanged between 1998 and 1999.
- All provinces exhibited increased use of the Internet from home with British Columbia, Alberta and Ontario showing household penetration rates above the national average of 28.7%.
- Households in Alberta, British Columbia and Ontario surpass the national average (21.9%) for use in the workplace.
- Households in Alberta, Prince Edward Island, Newfoundland, Saskatchewan and Ontario report higher household use penetration rates from school than the national average of 14.9%.

3.0 Objectives

The main objectives of this survey were to :

- gain a better understanding of how Canadian households use the Internet ;
- measure the demand for Internet services by Canadian households;
- identify the types of Internet services used at home;
- determine the reasons why some households are not using the Internet;
- determine what factors would influence households to start using the Internet;
- assess the extent to which former typical user households no longer use the Internet on a regular basis;
- understand the influence of the Internet on purchases of products and services from home;
- track the purchase of goods and services, from home, over the Internet for households, and;
- determine the extent to which households are concerned about security and privacy issues when engaging the Internet.

In assessing the demand, we measured the frequency and intensity of use of the Internet. This was done by asking questions relating to the accessibility of the Internet by Canadian households both at home, the workplace and a number of other locations. Frequency and intensity questions were asked for the use from home.

4.0
Concepts and Definitions

This chapter outlines concepts and definitions of interest to the users. Users are referred to Chapter 12 of this document for a copy of the actual survey questions used.

The Household Internet Use Survey (HIUS) is a supplementary survey collected in combination with the Labour Force Survey (LFS). As such, some variables contained on the HIUS file may be based on data collected through the Labour Force Survey for the household and/or members of the household.

FAMTYPE: This variable identifies households by "family type": one-person households, single family households without unmarried children under the age of 18, single family household with unmarried children under the age of 18, and multi-family households. Multi-family households are identified according to the LFS criteria for "Economic families": a group of two or more persons who live in the same dwelling and who are related by blood, marriage (including common-law) or adoption. A person living alone or who is related to no one else in the dwelling where he or she lives is classified as an unattached individual.

UNDER18: The LFS collects socio-demographic data such as age, sex, marital status for each household member living in a selected LFS household. The UNDER18 variable is defined by the LFS "age" variable that is collected for all household members and defines households that have household members that are less than 18 years of age and households that do not have members that are less than 18 years of age.

HOUSEHOLD: Any person or group of persons living in a dwelling. A household may consist of any combination of: one person living alone, one or more family, a group of people who are not related but who share the same dwelling.

HEAD OF HOUSEHOLD: For the purposes of this report, the head of a household is determined as follows: in families consisting of married couples with or without children, the husband is considered the head; in lone-parent families with unmarried children, the parent is the head; in lone-parent families with married children, the member who is mainly responsible for the maintenance of the family becomes the head; in families where relationships are other than husband-wife or parent-child, normally the eldest in the family is considered the head; and in one person households, the individual is the head.

HHSIZE: Data for this variable are collected by the LFS and indicates the household size by household members of all ages for the survey month.

CMATAB: A Census Metropolitan Area (CMA) refers to a labour market area with an urbanized core (or continuously built-up area) having at least 100,000 inhabitants. A CMA is generally known by the name of the urban area forming the urbanised core. CMA's include: (1) municipalities completely or partly inside the urbanized core; and (2) other municipalities if (a) at least 40% of the employed labour force living in the municipality works in the urbanized core (commuting flow to the urbanized core), or (b) at least 25% of the employed labour force working in the municipality lives in the urbanized core (commuting flow from the urbanized core).

The variable CMATAB defines the 15 largest CMAs in Canada. Selected LFS households that are outside these 15 CMAs or are in non-CMA areas are coded as "not applicable". The variable NEWCMA is similar to CMATAB except that the selected LFS households in "Ottawa-Hull" are combined in NEWCMA, and the smaller CMAs are grouped as a separate category for the NEWCMA variable.

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

HAGE: Data for this variable are collected by the LFS and indicates the age (in four ranges) of the Head of Household.

HAGE2: Data for this variable are collected by the LFS and indicates the age (in six ranges) of the Head of Household.

HSEX: Data for this variable are collected by the LFS and indicates the sex of the Head of Household.

HMARSTAT: Data for this variable are collected by the LFS and indicates the marital status reported by the Head of Household. The classification of single is reserved for those who have never married, otherwise, respondents are classified as either widowed or separated/divorced.

HEDUCLEV: Data for this variable are collected by the LFS and indicates the highest level of education attained by the Head of Household. Beginning January 1990: data on primary and secondary education reflects the highest grade completed. This provides a more consistent measure for those who accelerate or fail a grade than did years of school. A question on high school graduation has also been added since it is generally believed that persons who have never completed their secondary education have greater difficulty competing in the labour market. With the new questions, any education that could be counted towards a degree, certificate or diploma from an educational institution is taken as post-secondary education. The change allows more persons into the post-secondary education category. For example, trades programs offered through apprenticeship, vocational schools or private trade schools do not always require high school graduation. Such education is now considered as post-secondary while only primary or secondary would have been recognized prior to 1990. Finally, more information is collected on the type of post-secondary education: 1) some post-secondary; 2) trades certificate

or diploma from a vocational or apprenticeship training; 3) Non-university certificate or diploma from a community college, CEGEP, school of nursing, etc.; 4) University certificate below bachelors degree; 5) Bachelors degree; and 6) University degree or certificate above bachelors degree.

HEDUCL: Data for this variable are collected by the LFS and indicates the highest level of education attained by the Head of Household (in three ranges).

HEDUCL2: Data for this variable are collected by the LFS and indicates the highest level of education attained by the Head of Household (in five ranges).

HHLD_ED: Data for this variable are collected by the LFS and indicates the highest level of education attained by any member of the LFS household.

STUDENTF: Data for this variable are collected by the LFS and indicate the presence of full-time college/university student in the household.

STUDENTP: Data for this variable are collected by the LFS and indicate the presence of part-time college/university student in the household..

MEM0_5, MEM6_12, MEM13_15, MEM16_17, MEM13_17, MEM18_25: Data for this variable are collected by the LFS and indicate the presence of household members of different age ranges. For example, MEM0_5 indicates the presence of household member(s) aged 0-5 years.

EMPLSTAT: Data for this variable are collected by the LFS and indicate the employment status of the household members aged 18 years and older. (1) Employed (if any members are employed). Employed persons are those who, during the reference week did any work for pay or profit, or had a job and were absent from work. (2) Unemployed (if all members are unemployed). Unemployed persons are those who, during reference week were available for work and were either on temporary layoff, had looked for work in the past four weeks or had a job to start within the next four weeks. (3) Not in the labour force (if all members are not in the labour force. Persons not in the labour force are those who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets, that is, they were neither employed nor unemployed. (4) No member older than 17.

EMPLOYER: Data for this variable are collected by the LFS and indicates whether the household has any members (aged 18 or older) who are employed by an employer. EMPLOYER refers to those who work as employees of a private firm or business or those who work for a local, provincial, or federal government, for a government service or agency, a crown corporation, or a government owned public establishment such as a school or a hospital.

SELF_EMP: Data for this variable are collected by the LFS and indicates whether the household has any members (aged 18 or older) who are self-

employed. SELF_EMP includes: Working owners of incorporated businesses: Working owners of an incorporated business, farm or professional practice. This group is further subdivided as follows: “With paid help”, “Without paid help”. Working owners of unincorporated businesses and other self-employed: Working owners of a business, farm or professional practice that is not incorporated and self-employed persons who do not have a business (for example, baby-sitters, newspaper carriers). This group is further subdivided as follows: “With paid help”, “Without paid help”. Unpaid family workers: Persons who work without pay on a farm or in a business or professional practice owned and operated by another family member living in the same dwelling.

URURAL: Data for this variable are determined from the LFS sample file. The variable is an indicator of rural/urban status based on survey frame data used to stratify the LFS sample.

All households: Household count 1998: 11,913,370. Household count 1999: 11,631,995. The HIUS is a sample survey weighted to the entire count of households in Canada. The yearly figure for the number of households in Canada is projected from the Census of population. 1998 HIUS used a population projection based on 1991 Census of population and 1999 HIUS used a population projection based on 1996 Census of population. As a result, if one is doing a comparison across HIUS survey years, there is a drop of over 300,000 households from 1998 to 1999. Caution should be used when comparing household counts for a given characteristic among survey years. Direct comparison of household penetration rates, due to the definition of penetration rates, are comparable because they inherently take into consideration the number of households by year.

Penetration rate: The proportion or percentage of a population adopting a particular activity A penetration rate answers the question, to what extent has an activity permeated a specified population.

Regular User: Households with at least one person that uses computer communications in a typical month, regardless of whether that use was from work, home, school, a public library, or some other location)

Any location: Includes use from home, school, work, library, or other and designates a household as only using once, irrespective of use from multiple locations.

Labour Force Survey: The Canadian Labour Force Survey (LFS) was developed following the Second World War to satisfy a need for reliable and timely data on the labour market. Information was urgently required on the massive labour market changes involved in the transition from a war-time to a peace-time economy. The survey was designed to provide estimates of employment by industry and occupation at the regional as well as the national level. The LFS is the only source of monthly estimates of total employment including the self-employed, full and part-time employment, and unemployment. It publishes monthly standard labour market indicators such as the unemployment rate, the employment rate

and the participation rate. The LFS is a major source of information on the personal characteristics of the working-age population, including age, sex, marital status, education attainment, and family characteristics.

Influence and "window shopping": Refers to the effect that the Internet may or may not have on the purchase of products and services by the household.

Typical User: A household responding yes to the question "Has anyone in this household ever used the Internet from home, work, school or any other location?" and responding yes to the question "In a typical month, does anyone in the household use the Internet (from any location)?" In other words, a household that uses regularly.

Non-Typical/Ever User: A household responding yes to the question "Has anyone in this household ever used the Internet from home, work, school or any other location?" and responding no to the question "In a typical month, does anyone in the household use the Internet (from any location)?" In other words, a household that has used the Internet but does not use typically.

Drop-out: A household responding yes to the question "Has anyone in this household ever used the Internet from home, work, school or any other location?" responding no to the question "In a typical month, does anyone in the household use the Internet (from any location)?" and responding yes to the question "In the past, has any member of this household used the Internet in a typical month, from any location?" In other words, a household that does not presently use regularly but did use regularly in the past.

Never User: A household responding no to the question "Has anyone in this household ever used the Internet from home, work, school or any other location?" In other words, a household that has never used the Internet.

Internet: The Internet connects computers to the global network of networks for electronic mail services, file transfer, and information search and retrieval.

Surfing - Browsing the Internet: Surfing or browsing the Internet is a commonly used phrase which refers to the activity of a computer user who enters into the global network with a modem to search for and/or retrieve information on various topics. For the purpose of this survey time spent "surfing the net" is considered computer communication.

E-Mail: Electronic Mail is a service allowing the transmission of files or text messages between two or more computer stations.

Typical month: Typical month refers to a month that is not out of the ordinary for the household. Typical month is always in relation to a certain period of time, usually in the past year. The period of time to be used for defining a typical month was left for the respondent to determine.

5.0 Survey Methodology

The HIUS was administered in November 1999 to a sub-sample of the dwellings in the Labour Force Survey (LFS) sample, and therefore its sample design is closely tied to that of the LFS. The LFS design is briefly described in Sections 5.1 to 5.4[3]. Sections 5.5 and 5.6 describe how the HIUS departed from the basic LFS design in November 1999.

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 Yukon[4], Northwest, and Nunavut 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 a 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.

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

[4] 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.

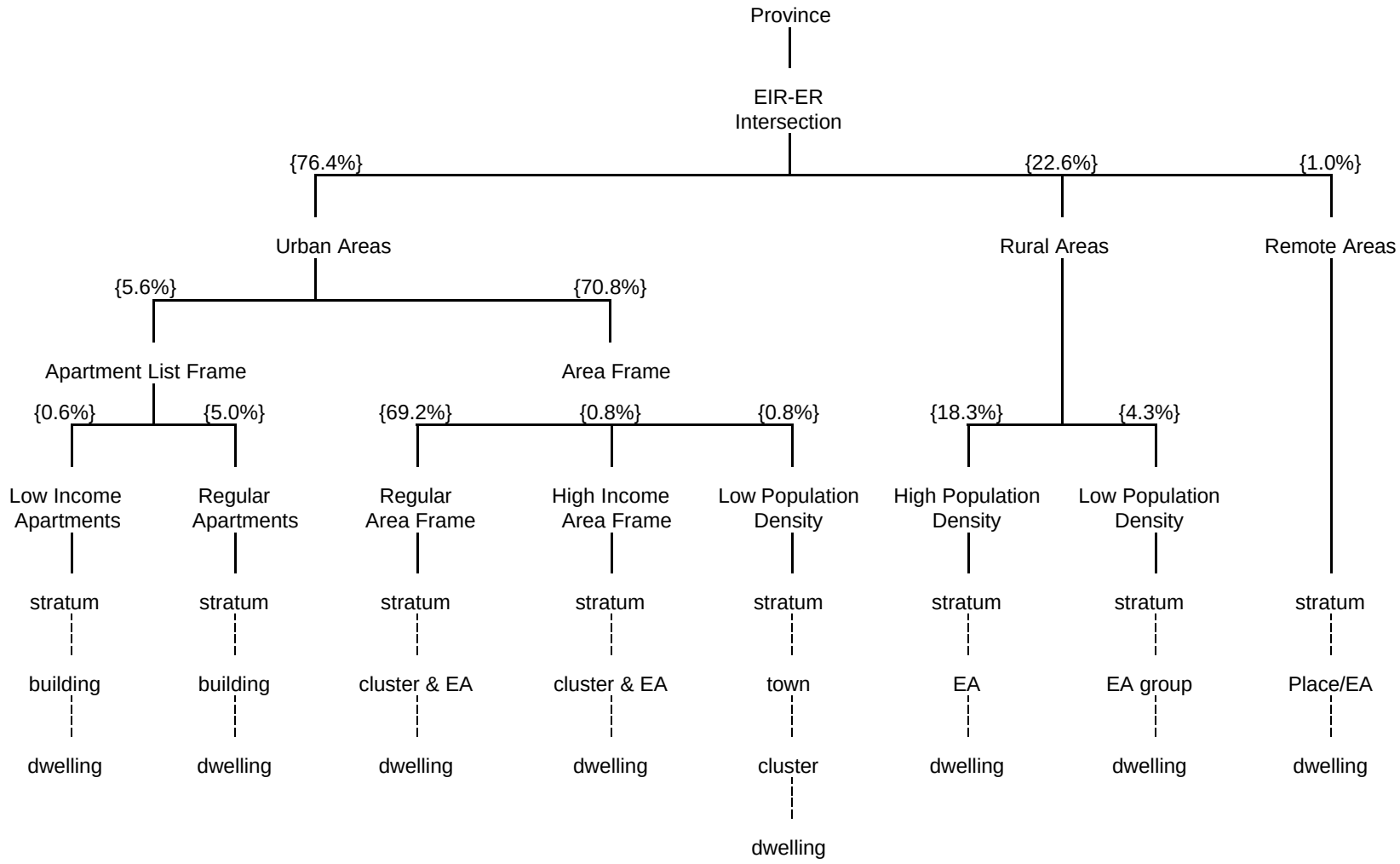
5.2.5 Dwelling Selection

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

= stage of sampling

EIR - Employment Insurance Region
ER - Economic Region
{%} - percentage of total sample

EA - Census Enumeration Area
cluster - set of block faces

5.3 Sample Size

The sample size of eligible persons in the LFS is determined so as to meet the statistical precision requirements for various labour force characteristics at the provincial and sub-provincial level, and 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 Supplement

The HIUS used five of the six rotation groups in the November 1999 LFS sample. For the HIUS, the coverage of the LFS was set at the household level. Unlike the LFS where information is collected for all eligible household members, the HIUS only collected information from one household member who reported the information at the household level.

5.6 Sample size by Province for the Supplement

The following table shows the number of households in the LFS sampled rotations who were eligible for the HIUS supplement.

PROVINCE	SAMPLE SIZE
Newfoundland	1555
Prince Edward Island	1138
Nova Scotia	2838
New Brunswick	2439
Quebec	8409
Ontario	12770
Manitoba	3273
Saskatchewan	3338
Alberta	3291
British Columbia	3983
CANADA	43034

6.0 Data Collection

Data collection for the LFS is carried out each month using the computer-assisted method 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. All interviews are conducted using a notebook computer. 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 six 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 for Household Internet Use Survey

Information for the HIUS was obtained from a knowledgable household member. Upon completion of the Labour Force Survey interview, the interviewer introduced the HIUS and proceeded with the interview with the respondent’s permission. The 1999 HIUS was administered by interviewers as a paper and pencil questionnaire. The interviews were conducted by telephone.

6.5 Non-Response to the Household Internet Use Survey

For households responding to the LFS, the next stage of data collection was to administer the HIUS. In total, 43,034 households were eligible for the supplementary survey; the HIUS interview was completed for 36,241 of these households for a response rate of 84.2%. More detailed information on response rates is presented in Chapter 8 (Data Quality).

7.0 Data Processing

The main output of the HIUS is a "clean" microdata file. This section presents a brief summary of the processing steps involved in producing this file.

7.1 Data Capture

The completed HIUS questionnaires were transmitted to the nearest Statistics Canada Regional Office where the collected data were data captured. During this process any document containing at least one interviewer-completed item was captured. Several pre-identified data fields were independently re-keyed as part of a data capture verification procedure. An unedited version of the computer record was electronically transmitted to Ottawa for further processing.

7.2 Editing

A series of edits were performed on the restructured capture file to check for data paths and flows and internal consistency. The first type of error treated were errors of questionnaire flow where questions that did not apply to the respondent and therefore should not have been answered were found to contain answers. In this case, a computer edit automatically eliminated the superfluous data by following the flow of the questionnaire implied by answers to previous, and in certain cases, subsequent questions.

A second type of error treated were errors involving 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 small number of data items on the questionnaire were recorded by interviewers and later data captured in an open-ended (text) format. These data items were related to such things as: other locations where household members typically used the Internet, additional reasons for using the Internet, and other types of products/services ordered over the Internet, etc. Using automated coding techniques and manual verification, many of

these open-ended responses were recoded back into existing data items on the questionnaire, or in some cases (where sufficient responses were indicated) new derived variable fields were created for the datafile.

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 and tabulations. CMA, for example, is actually a combination of Census Metropolitan Area (CMA) and Census Agglomeration(CA). The CAs have been recoded to 0, while the CMAs remain the same.

The income quartile variable was also constructed from income information collected during the interview and from information collected for the Canadian Travel Survey conducted on the same sample. Imputation was used to create income for records that had that information missing (see section 8.2.4 on imputation of income for more details on the method that was used).

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 same principle also applies to households.

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 households typically using computer communication from home is to be estimated, it is done by selecting the records referring to those households 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.

Province - Suppression of Geographic Identifiers

The survey master data file includes explicit geographic identifiers for province, urban/rural and Census Metropolitan Area. The survey public-use microdata files usually do not contain any geographic identifiers below the provincial level. However, since the HIUS is a household based survey, the variables CMA and urban/rural will be on the 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 HIUS in November 1999
.

	Household response rate for full LFS (11, 99) (*1)	Household response rate for LFS rotations (1, 2, 3, 4, 6) (*1)	Household response rate to Household Internet Use Survey (*2)
Newfoundland	89.1%	91.4%	87.1%
Prince Edward Island	87.3%	87.2%	89.0%
Nova Scotia	87.2%	88.1%	84.2%
New Brunswick	86.4%	86.4%	83.6%
Quebec	86.1%	87.6%	88.9%
Ontario	84.2%	85.3%	81.3%
Manitoba	92.5%	93.5%	85.7%
Saskatchewan	92.4%	92.8%	83.9%
Alberta	91.1%	92.4%	83.4%
British Columbia	85.1%	86.2%	81.2%
CANADA	87.0%	88.0%	84.2%

Note:

(*1) Response rate is number of responding households as a percentage of number of eligible households.

(*2) Response rate is number of households responding to the Household Internet Use Survey as a percentage of number of households 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 HIUS was a supplement to the LFS, the frame used was the LFS frame. Any non-response to the LFS had an impact on the HIUS 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 HIUS sample consisted of five rotation groups from the LFS. No records were dropped due to missing rotation group number or any other type of sampling variable.

Note that the LFS frame excludes about 2% of all households in the 10 provinces of Canada. Therefore, the HIUS 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 in the LFS frame are updated monthly.

Some variables on the sampling frame play a critical role with respect to software application used in the survey. For example, in the HIUS, each record must have accurate stratum, cluster and rotation group codes. These variables are always of very high quality each month in the LFS.

8.2.2 Data Collection

Interviewer training consisted of reading the HIUS Interviewer Guide, practicing with the HIUS self-study package, and discussing any questions with senior interviewers before the start of the survey. A description of the background and objectives of the survey was provided, as well as a glossary of terms and a set of questions and answers. Interviewers collected HIUS information at the same time that LFS information was collected. The collection period ran from November 15 to 20, 1999.

8.2.3 Imputation of income

The HIUS collected information on household income for all five LFS rotation groups. Respondents were asked for a best numerical estimate of household income and, failing that, for the best categorical estimate among 11 possible categories (from less than $10,000 to $100,000+). If an estimate was not given but personal income information was available, personal income was used as household income provided there was only one adult in the household and all children, if any, were under the age of 13; otherwise income was coded as missing.

Households in the HIUS for which income was coded as missing were linked to the Canadian Travel Survey (CTS), an LFS supplement also conducted in November 1999. Respondents were asked for the best estimate of household income among five broad categories (from less than $20,000 to $80,000+). If an estimate was not given, income was coded as missing.

Overall, 33 % of the households reported income as numerical, 51 % as an HIUS category, and 2 % as a CTS category. Thus for 14 % of the households, income was coded as missing.

In order to produce income quartiles, categorical and missing values of income were converted to numerical values. The conversion involved a three-step imputation process in which (i) income for a given household reporting a categorical HIUS value was substituted by the income of a household which reported a numerical HIUS value and shared the most similar characteristics (e.g., hourly earnings, geographic region), provided the numerical value was consistent with the HIUS category; (ii) income for a given household reporting a categorical CTS value was substituted by the income of a household which reported a numerical HIUS value or whose income had been converted to a numerical value via step (i) and shared the most similar characteristics, provided the numerical value was

consistent with the CTS category; and (iii) missing income for a given household was substituted by the income of a household which reported a numerical HIUS value or whose income had been converted to a numerical value via steps (i) or (ii) and shared the most similar characteristics.

8.2.4 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.

Item non-response was very low for the HIUS. Most questions had non-response rates which were less than .01%.

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

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

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

For example, suppose that, based upon the survey results, one estimates that 50.8% of Canadian households had never used computer communications from home, work, school or any other location in November 1999, and this estimate is found to have a standard error of .00406. Then the coefficient of variation of the estimate is calculated as:

$$\left(\frac{.00406}{.508}\right) \times 100\% \text{ ' } 0.8\%$$

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 file. 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 this microdata file 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 HIUS 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 file 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 HIUS 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 HIUS.

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 households which have never used computer communications or the proportion of households for which one or more members have used a computer at home for E-mail are examples of such estimates. An estimate of the number of households possessing a certain characteristic may also be referred to as an estimate of an aggregate.

Examples of Categorical Questions:

Q: How often do members of your household use computer communications at home in a typical month?
R: At least 7 times per week, at least 4 times per month, etc.

Q: In 1996, what was your total annual family income before taxes and deductions?
R: Less than $5,000, $5,000 to $10,000, and so on.

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/ì 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. Note that there were no true quantitative questions in the HIUS application.

An example of a quantitative estimate is the average number of weeks for which unemployment insurance was collected for absences due to illness (taken from an unemployment survey). The numerator is an estimate of the total number of weeks for which unemployment insurance was collected for all persons experiencing an absence due to illness, and its denominator is the number of persons reporting an absence due to illness.

Examples of Quantitative Questions :

Q: How many consecutive weeks was this last absence?
R: |_|_| Weeks

Q: How many separate periods of 2 or more weeks were you unable to work due to your own illness, accident or pregnancy?
R: |_|_| Periods

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
© 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, using an unemployment survey, to obtain an estimate of the total number of weeks of employment insurance received by people whose last absence was due to pregnancy, multiply the value reported for weeks received EI by the final weight for the record, then sum this value over all records which report last absence due to pregnancy.

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 weeks EI was received by people whose last absence was due to pregnancy,

(a) estimate the total number of weeks as described above,
(b) estimate the number of people in this category by summing the final weights of all records which report last absence due to pregnancy, then
© divide estimate (a) by estimate (b).

9.3 Guidelines for Statistical Analysis

The HIUS 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 CV Release Guidelines

Before releasing and/or publishing any estimate from the Residential HIUS, 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	Estimates have: a sample size of 30 or more, and low coefficients of variation in the range 0.0% - 16.5% No warning is required.
2. Marginal	Estimates have: a sample size of 30 or more, and high coefficients of variation in the range 16.6% - 33.3%. Estimates should be flagged with the letter M (or some similar identifier). They should be accompanied by a warning to caution subsequent users about the high levels of error, associated with the estimates.
3. Unacceptable	Estimates have: a sample size of less than 30, or very high coefficients of variation in excess of 33.3%. Statistics Canada recommends not to release estimates of unacceptable quality. However, if the user chooses to do so then estimates should be flagged with the letter U (or some similar identifier) and the following warning should accompany the estimates: "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."

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.

PROVINCE	DESIGN EFFECT	SAMPLE SIZE	POPULATION
Newfoundland	1.19	1354	192764
Prince Edward Island	1.65	1013	51914
Nova Scotia	1.72	2390	362803
New Brunswick	1.25	2040	284602
Quebec	1.96	7473	2989519
Ontario	1.96	10387	4294676
Manitoba	1.34	2804	427165
Saskatchewan	1.34	2802	383347
Alberta	1.66	2744	1088028
British Columbia	1.52	3234	1557177
Atlantic Provinces	1.54	6797	892083
Prairies	2.05	8350	1898540

Canada	2.04	36241	11631995

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.

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 "households which have never used computer communications" is more reliable than the estimated number of "households which have never used computer communications". (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 sex or age group), reference should be made to the proportion or percentage (across the top of the table) and to the numerator of the proportion or percentage (down the left side of the table). The intersection of the appropriate row and column gives the coefficient of variation.

Rule 3: Estimates of Differences Between Aggregates or Percentages

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

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

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

Rule 4: Estimates of Ratios

In the case where the numerator is a subset of the denominator, the ratio should be converted to a percentage and Rule 2 applied. This would apply, for example, to the case where the denominator is the number of “households which have never used computer communications” and the numerator is the number of "households which have never used computer communications and have a computer at home".

In the case where the numerator is not a subset of the denominator, as for example, the ratio of the number of "households in Quebec which use a computer at home for electronic banking in a typical month” as compared to the number of "households in Ontario which use a computer at home for electronic banking in a typical month", 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 multiplied by R. That is, the standard error of a ratio ($\hat{R} = \hat{X}_1 / \hat{X}_2$) is:

$$s_{\hat{R}} \approx \hat{R}\sqrt{a_1^2 + a_2^2}$$

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

Rule 5: Estimates of Differences of Ratios

In this case, Rules 3 and 4 are combined. The 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 : Estimates of Numbers Possessing a Characteristic (Aggregates)

Suppose that a user estimates that 5,909,700 households have never used computer communications. How does the user determine the coefficient of variation of this estimate?

(1) Refer to the CV table for CANADA.

(2) The estimated aggregate (5,909,700) 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 6,000,000.

(3) The coefficient of variation for an estimated aggregate is found by referring to the first non-asterisk entry on that row, namely, 0.6%.

(4) So the approximate coefficient of variation of the estimate is 0.6%.

The finding that there are 5,909,700 households which have never used computer communications is publishable with no qualifications.

Example 2 : Estimates of Proportions or Percentages Possessing a Characteristic

Suppose that the user estimates that 1,542,681/5,909,700=26.1% of households which have never used computer communications reported that they have a computer at home. How does the user determine the coefficient of variation of this estimate?

(1) Refer to the table for CANADA.

(2) Because the estimate is a percentage which is based on a subset of the total population (i.e.,households which have never used computer communications), it is necessary to use both the percentage (26.1%) and the numerator portion of the percentage (1,542,681) in determining the coefficient of variation.

(3) The numerator, 1,542,681, does not appear in the left-hand column (the 'Numerator of Percentage' column) so it is necessary to use the figure closet to it, namely 1,500,000. Similarly, the percentage estimate does not appear as any of the column headings, so it is necessary to use the figure closest to it, 25.0%.

(4) The figure at the intersection of the row and column used, namely 1.8% is the coefficient of variation to be used.

(5) So the approximate coefficient of variation of the estimate is 1.8%. The finding that 26.1% of households which have never used computer communications have a computer at home can be published with no qualifications.

Example 3 : Estimates of Differences Between Aggregates or Percentages

Suppose that a user estimates that 543,408/2,989,519=18.2% of households in Quebec reported that one or more members of their household use computer at home for E-mail in a typical month, while 1,264,742/4,294,676= 29.4% of households in Ontario reported that one or more members of their household use computer at home for E-mail in a typical month. How does the user determine the coefficient of variation of the difference between these two estimates?

(1) Using the QUEBEC and ONTARIO CV table in the same manner as described in example 1 gives the CV of the estimate for households in Quebec as 3.5%, and the CV of the estimate for households in Ontario as 1.9%.

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

$$s_{\hat{d}} = \sqrt{(\hat{X}_1 a_1)^2 + (\hat{X}_2 a_2)^2}$$

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

That is, the standard error of the difference $\hat{d} = |.182 - .294| = .112$ is:

$$s_{\hat{d}} = \sqrt{[(.182)(.035)]^2 + [(.294)(.019)]^2}$$

$$= \sqrt{(.0000406 + (.0000312)}$$

$$= .0085$$

(3) The coefficient of variation of $\hat{d}$ is given by $F_{\hat{d}}/\hat{d} = .0085/.112 = .076$

(4) So the approximate coefficient of variation of the difference between the estimates is 7.6%. This estimate is publishable with no qualifications.

Example 4 : Estimates of Ratios

Suppose that the user estimates that 543,408 households in Quebec reported that one or more members of their household use computer at home for E-mail in a typical month, while while 1,264,742 households in Ontario reported that one or more members of their household use computer at home for E-mail in a typical month. The user is interested in comparing the estimate of Quebec households versus that of Ontario households in the form of a ratio. How does the user determine the coefficient of variation of this estimate?

(1) First of all, this estimate is a ratio estimate, where the numerator of the estimate (= $\hat{X}_1$) is the number of households in Quebec which reported that one or more members of their household use computer at home for E-mail in a typical month. The denominator of the estimate (= $\hat{X}_2$) is the number of households in Ontario which reported that one or more members of their household use computer at home for E-mail in a typical month.

(2) Refer to the tables for QUEBEC and ONTARIO.

(3) The numerator of this ratio estimate is 543,408. The figure closest to it is 500,000. The coefficient of variation for this estimate is found by referring to the first non-asterisk entry on that row in the QUEBEC table, namely, 3.5%.

(4) The denominator of this ratio estimate is 1,264,742. 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 in the ONTARIO table, namely, 1.9%.

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

$$a_{\hat{R}} = \sqrt{a_1^2 + a_2^2}$$

where $"_1$ and $"_2$ are the coefficients of variation of $\bar{X}_1$ and $\bar{X}_2$ respectively.

That is ,

$$a_{\hat{R}} = \sqrt{(.035)^2 + (.019)^2}$$

$$= 0.040$$

The obtained ratio of Quebec versus Ontario households which reported that one or more members of their household use computer at home for E-mail in a typical month is 543,408/1,264,742 - which is 0.43:1. The coefficient of variation of this estimate is 4.0%, which is releasable with no qualifications.

10.2 How to use the CV tables to obtain Confidence Limits

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

If sampling of the population is repeated indefinitely, each sample leading to a new confidence interval for an estimate, then in 95% of the samples the interval will cover the true population value.

Using the standard error of an estimate, confidence intervals for estimates may be obtained under the assumption that under repeated sampling of the population, the various estimates obtained for a population characteristic are normally distributed about the true population value. Under this assumption, the chances are about 68 out of 100 that the difference between a sample estimate and the true population value would be less than one standard error, about 95 out of 100 that the difference would be less than two standard errors, and about 99 out of 100 that the differences would be less than three standard errors. These different degrees of confidence are referred to as the confidence levels.

Confidence intervals for an estimate, $\hat{X}$, are generally expressed as two numbers, one below the estimate and one above the estimate, as ($\hat{X}$-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:

$$CI_X = [\hat{X} - t\hat{X}a_{\hat{X}}, \hat{X} + t\hat{X}a_{\hat{X}}]$$

where a_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 CV tables to obtain confidence limits

A 95% confidence interval for the estimated proportion of households which have never used computer communications and have a computer at home (from Example 2, section 10.1.1) would be calculated as follows.

$\hat{X}$ = 26.1% (or expressed as a proportion = .261)

t = 2

$\alpha_{\hat{X}}$ = 1.8% (.018 expressed as a proportion) is the coefficient of variation of this estimate as determined from the tables.

CI_X = {.261 - (2) (.261) (.018), .261 + (2) (.261) (.018)}

CI_X = {.261 - .009, .261 + .009}

CI_X = {.252, .270}

With 95% confidence it can be said that between 25.2% and 27.0% of households which have never used computer communications reported that they have a computer at home.

10.3 How to use the CV 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 $\hat{X}_1 - \hat{X}_2$ be $s_{\hat{d}}$.

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

10.3.1 Example of using the CV tables to do a t-test

Let us suppose we wish to test, at a 5% level of significance, the hypothesis that there is no difference between the proportion of households in Quebec which reported that one or more members of their household use computer at home for E-mail in a typical month, and the proportion of households in Ontario which reported that one or more members of their household use computer at home for E-mail in a typical month. From example 3, section 10.1.1, the standard error of the difference between these two estimates was found to be = .0072. Hence,

$$t = \frac{\hat{X}_1 - \hat{X}_2}{s_{\hat{d}}} = \frac{.182 - .294}{.0085} = -\frac{.112}{.0085} = -13.2.$$

Since t = -13.2 is less 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 all of the variables for the HIUS 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, in an absence from work survey, the coefficient of variation of the total number of weeks absent from work would be greater than the coefficient of variation of the corresponding proportion of paid workers with an absence. 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 Household Internet Use 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.

HIUS Table of Release Cut-offs

Province	Acceptable	Marginal	Unacceptable
Newfoundland	6,000 & +	1,500-5,900	under 1,500
Prince Edward Island	3,000 & +	1,000-2,900	under 1,000
Nova Scotia	9,500 & +	2,500 - 9,400	under 2,500
New Brunswick	6,500 & +	1,500 - 6,400	under 1,500
Quebec	28,500 & +	7,000 -28,400	under 7,000
Ontario	29,500 & +	7,500 -29,400	under 7,500
Manitoba	7,500 & +	2,000 - 7,400	under 2,000
Saskatchewan	6,500 & +	1,500 -6,400	under 1,500
Alberta	23,500 & +	6,000 - 23,400	under 6,000
British Columbia	26,500 & +	6,500 -26,400	under 6,500
Atlantic Provinces	7,500 & +	2,000 - 7,400	under 2,000
Prairie Provinces	17,000 & +	4,000 - 16,900	under 4,000
CANADA	24,000 & +	6,000 -23,900	under 6,000

10.6 CV Tables

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for NEWFOUNDLAND

NUMERATOR OF PERCENTAGE ('000)	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	40.8	40.6	40.0	38.9	37.8	36.7	35.5	34.3	33.1	31.8	29.0	22.5	13.0
2	**********	28.7	28.3	27.5	26.7	25.9	25.1	24.3	23.4	22.5	20.5	15.9	9.2
3	**********	23.4	23.1	22.5	21.8	21.2	20.5	19.8	19.1	18.3	16.7	13.0	7.5
4	**********	20.0	19.5	18.9	18.3	17.8	17.2	16.5	15.9	14.5	11.2	6.5
5	**********	17.9	17.4	16.9	16.4	15.9	15.3	14.8	14.2	13.0	10.0	5.8
6	**********	16.3	15.9	15.4	15.0	14.5	14.0	13.5	13.0	11.8	9.2	5.3
7	**********	15.1	14.7	14.3	13.9	13.4	13.0	12.5	12.0	11.0	8.5	4.9
8	**********	14.1	13.8	13.4	13.0	12.6	12.1	11.7	11.2	10.3	7.9	4.6
9	**********	13.3	13.0	12.6	12.2	11.8	11.4	11.0	10.6	9.7	7.5	4.3
10	**********	12.3	12.0	11.6	11.2	10.9	10.5	10.0	9.2	7.1	4.1
11	**********	11.7	11.4	11.1	10.7	10.3	10.0	9.6	8.7	6.8	3.9
12	**********	11.2	10.9	10.6	10.3	9.9	9.5	9.2	8.4	6.5	3.7
13	**********	10.8	10.5	10.2	9.9	9.5	9.2	8.8	8.0	6.2	3.6
14	**********	10.4	10.1	9.8	9.5	9.2	8.8	8.5	7.8	6.0	3.5
15	**********	10.0	9.8	9.5	9.2	8.9	8.5	8.2	7.5	5.8	3.3
16	**********	9.7	9.5	9.2	8.9	8.6	8.3	7.9	7.3	5.6	3.2
17	**********	9.4	9.2	8.9	8.6	8.3	8.0	7.7	7.0	5.4	3.1
18	**********	9.2	8.9	8.6	8.4	8.1	7.8	7.5	6.8	5.3	3.1
19	**********	8.9	8.7	8.4	8.1	7.9	7.6	7.3	6.7	5.2	3.0
20	**********	8.5	8.2	7.9	7.7	7.4	7.1	6.5	5.0	2.9
21	**********	8.3	8.0	7.8	7.5	7.2	6.9	6.3	4.9	2.8
22	**********	8.1	7.8	7.6	7.3	7.1	6.8	6.2	4.8	2.8
23	**********	7.9	7.6	7.4	7.2	6.9	6.6	6.0	4.7	2.7
24	**********	7.7	7.5	7.3	7.0	6.7	6.5	5.9	4.6	2.6
25	**********	7.6	7.3	7.1	6.9	6.6	6.4	5.8	4.5	2.6
30	**********	6.7	6.5	6.3	6.0	5.8	5.3	4.1	2.4
35	**********	6.2	6.0	5.8	5.6	5.4	4.9	3.8	2.2
40	**********	5.6	5.4	5.2	5.0	4.6	3.6	2.1
45	**********	5.3	5.1	4.9	4.7	4.3	3.3	1.9
50	**********	4.9	4.7	4.5	4.1	3.2	1.8
55	**********	4.6	4.5	4.3	3.9	3.0	1.7
60	**********	4.3	4.1	3.7	2.9	1.7
65	**********	4.1	3.9	3.6	2.8	1.6
70	**********	3.8	3.5	2.7	1.6
75	**********	3.7	3.3	2.6	1.5
80	**********	3.2	2.5	1.5
85	**********	3.1	2.4	1.4
90	**********	3.1	2.4	1.4
95	**********	3.0	2.3	1.3
100	**********	2.2	1.3
125	**********	2.0	1.2
150	**********	1.1

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for PRINCE EDWARD ISLAND

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	**********		28.5	28.1	27.3	26.5	25.8	24.9	24.1	23.2	22.3	20.4	15.8	9.1
2	**********		19.8	19.3	18.8	18.2	17.6	17.0	16.4	15.8	14.4	11.2	6.4	
3	**********		15.8	15.3	14.9	14.4	13.9	13.4	12.9	11.8	9.1	5.3		
4	**********		13.7	13.3	12.9	12.5	12.0	11.6	11.2	10.2	7.9	4.6		
5	**********		12.2	11.9	11.5	11.2	10.8	10.4	10.0	9.1	7.1	4.1		
6	**********		10.8	10.5	10.2	9.8	9.5	9.1	8.3	6.4	3.7			
7	**********		10.0	9.7	9.4	9.1	8.8	8.4	7.7	6.0	3.4			
8	**********		9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2				
9	**********		8.6	8.3	8.0	7.7	7.4	6.8	5.3	3.0				
10	**********		8.1	7.9	7.6	7.3	7.1	6.4	5.0	2.9				
11	**********		7.5	7.3	7.0	6.7	6.1	4.8	2.7					
12	**********		7.2	7.0	6.7	6.4	5.9	4.6	2.6					
13	**********		6.7	6.4	6.2	5.6	4.4	2.5						
14	**********		6.4	6.2	6.0	5.4	4.2	2.4						
15	**********		6.2	6.0	5.8	5.3	4.1	2.4						
16	**********		5.8	5.6	5.1	3.9	2.3							
17	**********		5.6	5.4	4.9	3.8	2.2							
18	**********		5.5	5.3	4.8	3.7	2.1							
19	**********		5.1	4.7	3.6	2.1								
20	**********		5.0	4.6	3.5	2.0								
21	**********		4.4	3.4	2.0									
22	**********		4.3	3.4	1.9									
23	**********		4.2	3.3	1.9									
24	**********		4.2	3.2	1.9									
25	**********		4.1	3.2	1.8									
30	**********		2.9	1.7										
35	**********		2.7	1.5										
40	**********		1.4											
45	**********		1.4											

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for NOVA SCOTIA

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	50.7	50.4	49.6	48.3	47.0	45.6	44.1	42.6	41.1	39.4	36.0	27.9	16.1
2	********	35.8	35.7	35.1	34.2	33.2	32.2	31.2	30.1	29.0	27.9	25.5	19.7	11.4
3	********	29.3	29.1	28.7	27.9	27.1	26.3	25.5	24.6	23.7	22.8	20.8	16.1	9.3
4	**********		25.2	24.8	24.2	23.5	22.8	22.1	21.3	20.5	19.7	18.0	13.9	8.1
5	**********		22.5	22.2	21.6	21.0	20.4	19.7	19.1	18.4	17.6	16.1	12.5	7.2
6	**********		20.6	20.3	19.7	19.2	18.6	18.0	17.4	16.8	16.1	14.7	11.4	6.6
7	**********		19.1	18.8	18.3	17.7	17.2	16.7	16.1	15.5	14.9	13.6	10.5	6.1
8	**********		17.6	17.1	16.6	16.1	15.6	15.1	14.5	13.9	12.7	9.9	5.7	
9	**********		16.5	16.1	15.7	15.2	14.7	14.2	13.7	13.1	12.0	9.3	5.4	
10	**********		15.7	15.3	14.8	14.4	13.9	13.5	13.0	12.5	11.4	8.8	5.1	
11	**********		15.0	14.6	14.2	13.7	13.3	12.8	12.4	11.9	10.9	8.4	4.9	
12	**********		14.3	13.9	13.6	13.1	12.7	12.3	11.9	11.4	10.4	8.1	4.6	
13	**********		13.8	13.4	13.0	12.6	12.2	11.8	11.4	10.9	10.0	7.7	4.5	
14	**********		13.3	12.9	12.5	12.2	11.8	11.4	11.0	10.5	9.6	7.5	4.3	
15	**********		12.8	12.5	12.1	11.8	11.4	11.0	10.6	10.2	9.3	7.2	4.2	
16	**********		12.4	12.1	11.7	11.4	11.0	10.7	10.3	9.9	9.0	7.0	4.0	
17	**********		12.0	11.7	11.4	11.0	10.7	10.3	10.0	9.6	8.7	6.8	3.9	
18	**********		11.7	11.4	11.1	10.7	10.4	10.0	9.7	9.3	8.5	6.6	3.8	
19	**********		11.1	10.8	10.5	10.1	9.8	9.4	9.1	8.3	6.4	3.7		
20	**********		10.8	10.5	10.2	9.9	9.5	9.2	8.8	8.1	6.2	3.6		
21	**********		10.5	10.2	9.9	9.6	9.3	9.0	8.6	7.9	6.1	3.5		
22	**********		10.3	10.0	9.7	9.4	9.1	8.8	8.4	7.7	5.9	3.4		
23	**********		10.1	9.8	9.5	9.2	8.9	8.6	8.2	7.5	5.8	3.4		
24	**********		9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.4	5.7	3.3		
25	**********		9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2		
30	**********		8.8	8.6	8.3	8.1	7.8	7.5	7.2	6.6	5.1	2.9		
35	**********		8.2	7.9	7.7	7.5	7.2	6.9	6.7	6.1	4.7	2.7		
40	**********		7.4	7.2	7.0	6.7	6.5	6.2	5.7	4.4	2.5			
45	**********		7.0	6.8	6.6	6.4	6.1	5.9	5.4	4.2	2.4			
50	**********		6.6	6.4	6.2	6.0	5.8	5.6	5.1	3.9	2.3			
55	**********		6.1	5.9	5.7	5.5	5.3	4.9	3.8	2.2				
60	**********		5.9	5.7	5.5	5.3	5.1	4.6	3.6	2.1				
65	**********		5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0				
70	**********		5.4	5.3	5.1	4.9	4.7	4.3	3.3	1.9				
75	**********		5.1	4.9	4.7	4.6	4.2	3.2	1.9					
80	**********		4.9	4.8	4.6	4.4	4.0	3.1	1.8					
85	**********		4.8	4.6	4.5	4.3	3.9	3.0	1.7					
90	**********		4.6	4.5	4.3	4.2	3.8	2.9	1.7					
95	**********		4.4	4.2	4.0	3.7	2.9	1.7						
100	**********		4.3	4.1	3.9	3.6	2.8	1.6						
125	**********		3.7	3.5	3.2	2.5	1.4							
150	**********		2.9	2.3	1.3									
200	**********		2.0	1.1										
250	**********		1.8	1.0										
300	**********		0.9											

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for NEW BRUNSWICK

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	41.4	41.2	40.6	39.5	38.4	37.2	36.0	34.8	33.5	32.2	29.4	22.8	13.2
2	********	29.3	29.1	28.7	27.9	27.1	26.3	25.5	24.6	23.7	22.8	20.8	16.1	9.3
3	**********		23.8	23.4	22.8	22.1	21.5	20.8	20.1	19.4	18.6	17.0	13.2	7.6
4	**********		20.6	20.3	19.7	19.2	18.6	18.0	17.4	16.8	16.1	14.7	11.4	6.6
5	**********		18.4	18.1	17.7	17.2	16.6	16.1	15.6	15.0	14.4	13.2	10.2	5.9
6	**********		**********	16.6	16.1	15.7	15.2	14.7	14.2	13.7	13.2	12.0	9.3	5.4
7	**********		**********	15.3	14.9	14.5	14.1	13.6	13.2	12.7	12.2	11.1	8.6	5.0
8	**********		**********	14.3	14.0	13.6	13.2	12.7	12.3	11.9	11.4	10.4	8.1	4.7
9	**********		**********	13.5	13.2	12.8	12.4	12.0	11.6	11.2	10.7	9.8	7.6	4.4
10	**********		**********	12.8	12.5	12.1	11.8	11.4	11.0	10.6	10.2	9.3	7.2	4.2
11	**********		**********	12.2	11.9	11.6	11.2	10.9	10.5	10.1	9.7	8.9	6.9	4.0
12	**********		**********	11.7	11.4	11.1	10.7	10.4	10.0	9.7	9.3	8.5	6.6	3.8
13	**********		**********	11.2	10.9	10.6	10.3	10.0	9.7	9.3	8.9	8.2	6.3	3.6
14	**********		**********	10.8	10.6	10.3	9.9	9.6	9.3	9.0	8.6	7.9	6.1	3.5
15	**********		**********	10.2	9.9	9.6	9.3	9.0	8.7	8.3	7.6	5.9	3.4	
16	**********		**********	9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.4	5.7	3.3	
17	**********		**********	9.6	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2	
18	**********		**********	9.3	9.0	8.8	8.5	8.2	7.9	7.6	6.9	5.4	3.1	
19	**********		**********	9.1	8.8	8.5	8.3	8.0	7.7	7.4	6.8	5.2	3.0	
20	**********		**********	8.8	8.6	8.3	8.1	7.8	7.5	7.2	6.6	5.1	2.9	
21	**********		**********	8.6	8.4	8.1	7.9	7.6	7.3	7.0	6.4	5.0	2.9	
22	**********		**********	8.4	8.2	7.9	7.7	7.4	7.2	6.9	6.3	4.9	2.8	
23	**********		**********	8.2	8.0	7.8	7.5	7.3	7.0	6.7	6.1	4.8	2.7	
24	**********		**********	8.1	7.8	7.6	7.4	7.1	6.8	6.6	6.0	4.7	2.7	
25	**********		**********	7.9	7.7	7.4	7.2	7.0	6.7	6.4	5.9	4.6	2.6	
30	**********		**********	7.0	6.8	6.6	6.4	6.1	5.9	5.4	4.2	2.4		
35	**********		**********	6.5	6.3	6.1	5.9	5.7	5.4	5.0	3.9	2.2		
40	**********		**********	6.1	5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1		
45	**********		**********	5.5	5.4	5.2	5.0	4.8	4.4	3.4	2.0			
50	**********		**********	5.3	5.1	4.9	4.7	4.6	4.2	3.2	1.9			
55	**********		**********	5.0	4.9	4.7	4.5	4.3	4.0	3.1	1.8			
60	**********		**********	4.7	4.5	4.3	4.2	3.8	2.9	1.7				
65	**********		**********	4.5	4.3	4.2	4.0	3.6	2.8	1.6				
70	**********		**********	4.3	4.2	4.0	3.9	3.5	2.7	1.6				
75	**********		**********	4.0	3.9	3.7	3.4	2.6	1.5					
80	**********		**********	3.9	3.8	3.6	3.3	2.5	1.5					
85	**********		**********	3.8	3.6	3.5	3.2	2.5	1.4					
90	**********		**********	3.5	3.4	3.1	2.4	1.4						
95	**********		**********	3.4	3.3	3.0	2.3	1.4						
100	**********		**********	3.2	2.9	2.3	1.3							
125	**********		**********	2.6	2.0	1.2								
150	**********		**********	1.9	1.1									
200	**********		**********	0.9										
250	**********		**********	0.8										

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for QUEBEC

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	88.4	88.0	87.5	86.2	83.9	81.5	79.1	76.6	74.0	71.3	68.5	62.5	48.4	28.0
2	62.5	62.2	61.9	61.0	59.3	57.7	55.9	54.2	52.3	50.4	48.4	44.2	34.3	19.8
3	********	50.8	50.5	49.8	48.4	47.1	45.7	44.2	42.7	41.2	39.6	36.1	28.0	16.1
4	********	44.0	43.8	43.1	41.9	40.8	39.6	38.3	37.0	35.7	34.3	31.3	24.2	14.0
5	********	39.4	39.2	38.5	37.5	36.5	35.4	34.3	33.1	31.9	30.6	28.0	21.7	12.5
6	********	35.9	35.7	35.2	34.3	33.3	32.3	31.3	30.2	29.1	28.0	25.5	19.8	11.4
7	********	33.3	33.1	32.6	31.7	30.8	29.9	28.9	28.0	26.9	25.9	23.6	18.3	10.6
8	********	31.1	31.0	30.5	29.7	28.8	28.0	27.1	26.2	25.2	24.2	22.1	17.1	9.9
9	********	29.3	29.2	28.7	28.0	27.2	26.4	25.5	24.7	23.8	22.8	20.8	16.1	9.3
10	********	27.8	27.7	27.3	26.5	25.8	25.0	24.2	23.4	22.5	21.7	19.8	15.3	8.8
11	********	26.5	26.4	26.0	25.3	24.6	23.8	23.1	22.3	21.5	20.7	18.9	14.6	8.4
12	********	25.4	25.3	24.9	24.2	23.5	22.8	22.1	21.4	20.6	19.8	18.1	14.0	8.1
13	********	24.4	24.3	23.9	23.3	22.6	21.9	21.2	20.5	19.8	19.0	17.3	13.4	7.8
14	********	23.5	23.4	23.0	22.4	21.8	21.1	20.5	19.8	19.1	18.3	16.7	12.9	7.5
15	********	22.7	22.6	22.3	21.7	21.1	20.4	19.8	19.1	18.4	17.7	16.1	12.5	7.2
16	********	22.0	21.9	21.5	21.0	20.4	19.8	19.1	18.5	17.8	17.1	15.6	12.1	7.0
17	********	21.3	21.2	20.9	20.3	19.8	19.2	18.6	17.9	17.3	16.6	15.2	11.7	6.8
18	********	20.7	20.6	20.3	19.8	19.2	18.6	18.1	17.4	16.8	16.1	14.7	11.4	6.6
19	********	20.2	20.1	19.8	19.2	18.7	18.1	17.6	17.0	16.4	15.7	14.3	11.1	6.4
20	********	19.7	19.6	19.3	18.8	18.2	17.7	17.1	16.5	15.9	15.3	14.0	10.8	6.3
21	********	19.2	19.1	18.8	18.3	17.8	17.3	16.7	16.1	15.6	14.9	13.6	10.6	6.1
22	********	18.8	18.7	18.4	17.9	17.4	16.9	16.3	15.8	15.2	14.6	13.3	10.3	6.0
23	********	18.3	18.3	18.0	17.5	17.0	16.5	16.0	15.4	14.9	14.3	13.0	10.1	5.8
24	********	18.0	17.9	17.6	17.1	16.6	16.1	15.6	15.1	14.6	14.0	12.8	9.9	5.7
25	********	17.6	17.5	17.2	16.8	16.3	15.8	15.3	14.8	14.3	13.7	12.5	9.7	5.6
30	**********	16.0	15.7	15.3	14.9	14.4	14.0	13.5	13.0	12.5	11.4	8.8	5.1	
35	**********	14.8	14.6	14.2	13.8	13.4	12.9	12.5	12.1	11.6	10.6	8.2	4.7	
40	**********	13.8	13.6	13.3	12.9	12.5	12.1	11.7	11.3	10.8	9.9	7.7	4.4	
45	**********	13.1	12.8	12.5	12.2	11.8	11.4	11.0	10.6	10.2	9.3	7.2	4.2	
50	**********	12.4	12.2	11.9	11.5	11.2	10.8	10.5	10.1	9.7	8.8	6.9	4.0	
55	**********	11.8	11.6	11.3	11.0	10.7	10.3	10.0	9.6	9.2	8.4	6.5	3.8	
60	**********	11.1	10.8	10.5	10.2	9.9	9.6	9.2	8.8	8.1	6.3	3.6		
65	**********	10.7	10.4	10.1	9.8	9.5	9.2	8.8	8.5	7.8	6.0	3.5		
70	**********	10.3	10.0	9.7	9.5	9.2	8.8	8.5	8.2	7.5	5.8	3.3		
75	**********	10.0	9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2		
80	**********	9.6	9.4	9.1	8.8	8.6	8.3	8.0	7.7	7.0	5.4	3.1		
85	**********	9.3	9.1	8.8	8.6	8.3	8.0	7.7	7.4	6.8	5.3	3.0		
90	**********	9.1	8.8	8.6	8.3	8.1	7.8	7.5	7.2	6.6	5.1	2.9		
95	**********	8.8	8.6	8.4	8.1	7.9	7.6	7.3	7.0	6.4	5.0	2.9		
100	**********	8.6	8.4	8.2	7.9	7.7	7.4	7.1	6.9	6.3	4.8	2.8		
125	**********	7.7	7.5	7.3	7.1	6.9	6.6	6.4	6.1	5.6	4.3	2.5		
150	**********	6.9	6.7	6.5	6.3	6.0	5.8	5.6	5.1	4.0	2.3			
200	**********	5.9	5.8	5.6	5.4	5.2	5.0	4.8	4.4	3.4	2.0			
250	**********	5.3	5.2	5.0	4.8	4.7	4.5	4.3	4.0	3.1	1.8			
300	**********	4.7	4.6	4.4	4.3	4.1	4.0	3.6	2.8	1.6				
350	**********	4.4	4.2	4.1	4.0	3.8	3.7	3.3	2.6	1.5				
400	**********	4.1	4.0	3.8	3.7	3.6	3.4	3.1	2.4	1.4				
450	**********	3.7	3.6	3.5	3.4	3.2	2.9	2.3	1.3					
500	**********	3.5	3.4	3.3	3.2	3.1	2.8	2.2	1.3					
750	**********	2.7	2.6	2.5	2.3	1.8	1.0							
1000	**********	2.3	2.2	2.0	1.5	0.9								
1500	**********	1.3	0.7											
2000	**********	1.1	0.6											

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for ONTARIO

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	89.9	89.5	89.0	87.6	85.3	82.9	80.4	77.9	75.2	72.5	69.6	63.6	49.2	28.4
2	63.5	63.3	62.9	62.0	60.3	58.6	56.9	55.1	53.2	51.3	49.2	45.0	34.8	20.1
3	51.9	51.7	51.4	50.6	49.2	47.9	46.4	45.0	43.4	41.9	40.2	36.7	28.4	16.4
4	44.9	44.7	44.5	43.8	42.6	41.4	40.2	38.9	37.6	36.2	34.8	31.8	24.6	14.2
5	********	40.0	39.8	39.2	38.1	37.1	36.0	34.8	33.6	32.4	31.1	28.4	22.0	12.7
6	********	36.5	36.3	35.8	34.8	33.8	32.8	31.8	30.7	29.6	28.4	26.0	20.1	11.6
7	********	33.8	33.6	33.1	32.2	31.3	30.4	29.4	28.4	27.4	26.3	24.0	18.6	10.7
8	********	31.6	31.5	31.0	30.2	29.3	28.4	27.5	26.6	25.6	24.6	22.5	17.4	10.1
9	********	29.8	29.7	29.2	28.4	27.6	26.8	26.0	25.1	24.2	23.2	21.2	16.4	9.5
10	********	28.3	28.1	27.7	27.0	26.2	25.4	24.6	23.8	22.9	22.0	20.1	15.6	9.0
11	********	27.0	26.8	26.4	25.7	25.0	24.2	23.5	22.7	21.9	21.0	19.2	14.8	8.6
12	********	25.8	25.7	25.3	24.6	23.9	23.2	22.5	21.7	20.9	20.1	18.4	14.2	8.2
13	********	24.8	24.7	24.3	23.7	23.0	22.3	21.6	20.9	20.1	19.3	17.6	13.7	7.9
14	********	23.9	23.8	23.4	22.8	22.2	21.5	20.8	20.1	19.4	18.6	17.0	13.2	7.6
15	********	23.1	23.0	22.6	22.0	21.4	20.8	20.1	19.4	18.7	18.0	16.4	12.7	7.3
16	********	22.4	22.3	21.9	21.3	20.7	20.1	19.5	18.8	18.1	17.4	15.9	12.3	7.1
17	********	21.7	21.6	21.3	20.7	20.1	19.5	18.9	18.2	17.6	16.9	15.4	11.9	6.9
18	********	21.1	21.0	20.7	20.1	19.5	19.0	18.4	17.7	17.1	16.4	15.0	11.6	6.7
19	********	20.5	20.4	20.1	19.6	19.0	18.4	17.9	17.3	16.6	16.0	14.6	11.3	6.5
20	********	20.0	19.9	19.6	19.1	18.5	18.0	17.4	16.8	16.2	15.6	14.2	11.0	6.4
21	********	19.5	19.4	19.1	18.6	18.1	17.5	17.0	16.4	15.8	15.2	13.9	10.7	6.2
22	********	19.1	19.0	18.7	18.2	17.7	17.1	16.6	16.0	15.5	14.8	13.6	10.5	6.1
23	********	18.7	18.6	18.3	17.8	17.3	16.8	16.2	15.7	15.1	14.5	13.3	10.3	5.9
24	********	18.3	18.2	17.9	17.4	16.9	16.4	15.9	15.4	14.8	14.2	13.0	10.1	5.8
25	********	17.9	17.8	17.5	17.1	16.6	16.1	15.6	15.0	14.5	13.9	12.7	9.8	5.7
30	********	16.3	16.3	16.0	15.6	15.1	14.7	14.2	13.7	13.2	12.7	11.6	9.0	5.2
35	********	15.1	15.0	14.8	14.4	14.0	13.6	13.2	12.7	12.3	11.8	10.7	8.3	4.8
40	********	14.1	14.1	13.9	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5
45	**********	13.3	13.1	12.7	12.4	12.0	11.6	11.2	10.8	10.4	9.5	7.3	4.2	
50	**********	12.6	12.4	12.1	11.7	11.4	11.0	10.6	10.3	9.8	9.0	7.0	4.0	
55	**********	12.0	11.8	11.5	11.2	10.8	10.5	10.1	9.8	9.4	8.6	6.6	3.8	
60	**********	11.5	11.3	11.0	10.7	10.4	10.1	9.7	9.4	9.0	8.2	6.4	3.7	
65	**********	11.0	10.9	10.6	10.3	10.0	9.7	9.3	9.0	8.6	7.9	6.1	3.5	
70	**********	10.6	10.5	10.2	9.9	9.6	9.3	9.0	8.7	8.3	7.6	5.9	3.4	
75	**********	10.3	10.1	9.8	9.6	9.3	9.0	8.7	8.4	8.0	7.3	5.7	3.3	
80	**********	10.0	9.8	9.5	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2	
85	**********	9.7	9.5	9.3	9.0	8.7	8.4	8.2	7.9	7.6	6.9	5.3	3.1	
90	**********	9.2	9.0	8.7	8.5	8.2	7.9	7.6	7.3	6.7	5.2	3.0		
95	**********	9.0	8.8	8.5	8.3	8.0	7.7	7.4	7.1	6.5	5.1	2.9		
100	**********	8.8	8.5	8.3	8.0	7.8	7.5	7.2	7.0	6.4	4.9	2.8		
125	**********	7.8	7.6	7.4	7.2	7.0	6.7	6.5	6.2	5.7	4.4	2.5		
150	**********	7.2	7.0	6.8	6.6	6.4	6.1	5.9	5.7	5.2	4.0	2.3		
200	**********	6.2	6.0	5.9	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0		
250	**********	5.4	5.2	5.1	4.9	4.8	4.6	4.4	4.0	3.1	1.8			
300	**********	4.9	4.8	4.6	4.5	4.3	4.2	4.0	3.7	2.8	1.6			
350	**********	4.6	4.4	4.3	4.2	4.0	3.9	3.7	3.4	2.6	1.5			
400	**********	4.3	4.1	4.0	3.9	3.8	3.6	3.5	3.2	2.5	1.4			
450	**********	3.9	3.8	3.7	3.5	3.4	3.3	3.0	2.3	1.3				
500	**********	3.7	3.6	3.5	3.4	3.2	3.1	2.8	2.2	1.3				
750	**********	2.9	2.8	2.7	2.6	2.5	2.3	1.8	1.0					
1000	**********	2.5	2.4	2.3	2.2	2.0	1.6	0.9						
1500	**********	1.9	1.8	1.6	1.3	0.7								
2000	**********	1.4	1.1	0.6										
3000	**********	0.9	0.5											

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for MANITOBA

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	44.8	44.6	43.9	42.7	41.5	40.3	39.0	37.7	36.3	34.9	31.8	24.7	14.2
2	********	31.7	31.5	31.0	30.2	29.4	28.5	27.6	26.6	25.7	24.7	22.5	17.4	10.1
3	********	25.9	25.7	25.3	24.7	24.0	23.3	22.5	21.8	21.0	20.1	18.4	14.2	8.2
4	********	22.4	22.3	21.9	21.4	20.8	20.1	19.5	18.8	18.2	17.4	15.9	12.3	7.1
5	**********	19.9	19.6	19.1	18.6	18.0	17.4	16.8	16.2	15.6	14.2	11.0	6.4	
6	**********	18.2	17.9	17.4	16.9	16.4	15.9	15.4	14.8	14.2	13.0	10.1	5.8	
7	**********	16.8	16.6	16.1	15.7	15.2	14.7	14.2	13.7	13.2	12.0	9.3	5.4	
8	**********	15.8	15.5	15.1	14.7	14.2	13.8	13.3	12.8	12.3	11.3	8.7	5.0	
9	**********		14.6	14.2	13.8	13.4	13.0	12.6	12.1	11.6	10.6	8.2	4.7	
10	**********		13.9	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5	
11	**********		13.2	12.9	12.5	12.1	11.8	11.4	10.9	10.5	9.6	7.4	4.3	
12	**********		12.7	12.3	12.0	11.6	11.3	10.9	10.5	10.1	9.2	7.1	4.1	
13	**********		12.2	11.8	11.5	11.2	10.8	10.4	10.1	9.7	8.8	6.8	3.9	
14	**********		11.7	11.4	11.1	10.8	10.4	10.1	9.7	9.3	8.5	6.6	3.8	
15	**********		11.3	11.0	10.7	10.4	10.1	9.7	9.4	9.0	8.2	6.4	3.7	
16	**********		11.0	10.7	10.4	10.1	9.7	9.4	9.1	8.7	8.0	6.2	3.6	
17	**********		10.6	10.4	10.1	9.8	9.5	9.1	8.8	8.5	7.7	6.0	3.5	
18	**********		10.3	10.1	9.8	9.5	9.2	8.9	8.6	8.2	7.5	5.8	3.4	
19	**********		10.1	9.8	9.5	9.2	8.9	8.6	8.3	8.0	7.3	5.7	3.3	
20	**********		9.8	9.6	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2	
21	**********		9.6	9.3	9.1	8.8	8.5	8.2	7.9	7.6	6.9	5.4	3.1	
22	**********			9.1	8.9	8.6	8.3	8.0	7.7	7.4	6.8	5.3	3.0	
23	**********			8.9	8.7	8.4	8.1	7.9	7.6	7.3	6.6	5.1	3.0	
24	**********			8.7	8.5	8.2	8.0	7.7	7.4	7.1	6.5	5.0	2.9	
25	**********			8.5	8.3	8.1	7.8	7.5	7.3	7.0	6.4	4.9	2.8	
30	**********			7.8	7.6	7.4	7.1	6.9	6.6	6.4	5.8	4.5	2.6	
35	**********			7.2	7.0	6.8	6.6	6.4	6.1	5.9	5.4	4.2	2.4	
40	**********			6.8	6.6	6.4	6.2	6.0	5.7	5.5	5.0	3.9	2.3	
45	**********				6.2	6.0	5.8	5.6	5.4	5.2	4.7	3.7	2.1	
50	**********				5.9	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0	
55	**********				5.6	5.4	5.3	5.1	4.9	4.7	4.3	3.3	1.9	
60	**********				5.4	5.2	5.0	4.9	4.7	4.5	4.1	3.2	1.8	
65	**********					5.0	4.8	4.7	4.5	4.3	3.9	3.1	1.8	
70	**********					4.8	4.7	4.5	4.3	4.2	3.8	2.9	1.7	
75	**********					4.7	4.5	4.4	4.2	4.0	3.7	2.8	1.6	
80	**********					4.5	4.4	4.2	4.1	3.9	3.6	2.8	1.6	
85	**********					4.4	4.2	4.1	3.9	3.8	3.5	2.7	1.5	
90	**********						4.1	4.0	3.8	3.7	3.4	2.6	1.5	
95	**********						4.0	3.9	3.7	3.6	3.3	2.5	1.5	
100	**********						3.9	3.8	3.6	3.5	3.2	2.5	1.4	
125	**********							3.4	3.2	3.1	2.8	2.2	1.3	
150	**********									2.8	2.6	2.0	1.2	
200	**********										2.3	1.7	1.0	
250	**********											1.6	0.9	
300	**********												0.8	
350	**********												0.8	

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for SASKATCHEWAN

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	42.4	42.2	41.6	40.5	39.3	38.2	36.9	35.7	34.4	33.0	30.2	23.4	13.5
2	********	30.0	29.9	29.4	28.6	27.8	27.0	26.1	25.2	24.3	23.4	21.3	16.5	9.5
3	********	24.5	24.4	24.0	23.4	22.7	22.0	21.3	20.6	19.9	19.1	17.4	13.5	7.8
4	**********	21.1	20.8	20.2	19.7	19.1	18.5	17.8	17.2	16.5	15.1	11.7	6.7	
5	**********	18.9	18.6	18.1	17.6	17.1	16.5	16.0	15.4	14.8	13.5	10.4	6.0	
6	**********	17.2	17.0	16.5	16.1	15.6	15.1	14.6	14.0	13.5	12.3	9.5	5.5	
7	**********	16.0	15.7	15.3	14.9	14.4	14.0	13.5	13.0	12.5	11.4	8.8	5.1	
8	**********	14.7	14.3	13.9	13.5	13.1	12.6	12.2	11.7	10.7	8.3	4.8		
9	**********	13.9	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.1	7.8	4.5		
10	**********	13.1	12.8	12.4	12.1	11.7	11.3	10.9	10.4	9.5	7.4	4.3		
11	**********	12.5	12.2	11.9	11.5	11.1	10.8	10.4	10.0	9.1	7.0	4.1		
12	**********	12.0	11.7	11.4	11.0	10.7	10.3	9.9	9.5	8.7	6.7	3.9		
13	**********	11.5	11.2	10.9	10.6	10.2	9.9	9.5	9.2	8.4	6.5	3.7		
14	**********	11.1	10.8	10.5	10.2	9.9	9.5	9.2	8.8	8.1	6.2	3.6		
15	**********	10.7	10.4	10.2	9.9	9.5	9.2	8.9	8.5	7.8	6.0	3.5		
16	**********	10.4	10.1	9.8	9.5	9.2	8.9	8.6	8.3	7.5	5.8	3.4		
17	**********	10.1	9.8	9.5	9.3	9.0	8.7	8.3	8.0	7.3	5.7	3.3		
18	**********	9.8	9.5	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2		
19	**********	9.5	9.3	9.0	8.8	8.5	8.2	7.9	7.6	6.9	5.4	3.1		
20	**********	9.0	8.8	8.5	8.3	8.0	7.7	7.4	6.7	5.2	3.0			
21	**********	8.8	8.6	8.3	8.1	7.8	7.5	7.2	6.6	5.1	2.9			
22	**********	8.6	8.4	8.1	7.9	7.6	7.3	7.0	6.4	5.0	2.9			
23	**********	8.4	8.2	8.0	7.7	7.4	7.2	6.9	6.3	4.9	2.8			
24	**********	8.3	8.0	7.8	7.5	7.3	7.0	6.7	6.2	4.8	2.8			
25	**********	8.1	7.9	7.6	7.4	7.1	6.9	6.6	6.0	4.7	2.7			
30	**********	7.4	7.2	7.0	6.7	6.5	6.3	6.0	5.5	4.3	2.5			
35	**********	6.8	6.6	6.4	6.2	6.0	5.8	5.6	5.1	3.9	2.3			
40	**********	6.2	6.0	5.8	5.6	5.4	5.2	4.8	3.7	2.1				
45	**********	5.9	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0				
50	**********	5.6	5.4	5.2	5.0	4.9	4.7	4.3	3.3	1.9				
55	**********	5.3	5.1	5.0	4.8	4.6	4.5	4.1	3.2	1.8				
60	**********	4.9	4.8	4.6	4.4	4.3	3.9	3.0	1.7					
65	**********	4.7	4.6	4.4	4.3	4.1	3.7	2.9	1.7					
70	**********	4.6	4.4	4.3	4.1	3.9	3.6	2.8	1.6					
75	**********	4.4	4.3	4.1	4.0	3.8	3.5	2.7	1.6					
80	**********	4.1	4.0	3.8	3.7	3.4	2.6	1.5						
85	**********	4.0	3.9	3.7	3.6	3.3	2.5	1.5						
90	**********	3.9	3.8	3.6	3.5	3.2	2.5	1.4						
95	**********	3.8	3.7	3.5	3.4	3.1	2.4	1.4						
100	**********	3.6	3.4	3.3	3.0	2.3	1.3							
125	**********	3.1	3.0	2.7	2.1	1.2								
150	**********	2.7	2.5	1.9	1.1									
200	**********	1.7	1.0											
250	**********	1.5	0.9											
300	**********	0.8												

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

HOUSEHOLD INTERNET USE SURVEY - 199

Approximate Sampling Variability Tables for ALBERTA

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	81.0	80.6	80.2	79.0	76.9	74.7	72.5	70.2	67.8	65.3	62.8	57.3	44.4	25.6
2	********	57.0	56.7	55.8	54.4	52.8	51.2	49.6	47.9	46.2	44.4	40.5	31.4	18.1
3	********	46.5	46.3	45.6	44.4	43.1	41.8	40.5	39.1	37.7	36.2	33.1	25.6	14.8
4	********	40.3	40.1	39.5	38.4	37.4	36.2	35.1	33.9	32.7	31.4	28.6	22.2	12.8
5	********	36.1	35.9	35.3	34.4	33.4	32.4	31.4	30.3	29.2	28.1	25.6	19.8	11.5
6	********	32.9	32.7	32.2	31.4	30.5	29.6	28.6	27.7	26.7	25.6	23.4	18.1	10.5
7	********	30.5	30.3	29.9	29.1	28.2	27.4	26.5	25.6	24.7	23.7	21.7	16.8	9.7
8	********	28.5	28.4	27.9	27.2	26.4	25.6	24.8	24.0	23.1	22.2	20.3	15.7	9.1
9	********	26.9	26.7	26.3	25.6	24.9	24.2	23.4	22.6	21.8	20.9	19.1	14.8	8.5
10	********	25.5	25.4	25.0	24.3	23.6	22.9	22.2	21.4	20.7	19.8	18.1	14.0	8.1
11	**********	24.2	23.8	23.2	22.5	21.9	21.2	20.4	19.7	18.9	17.3	13.4	7.7	
12	**********	23.2	22.8	22.2	21.6	20.9	20.3	19.6	18.9	18.1	16.5	12.8	7.4	
13	**********	22.2	21.9	21.3	20.7	20.1	19.5	18.8	18.1	17.4	15.9	12.3	7.1	
14	**********	21.4	21.1	20.5	20.0	19.4	18.8	18.1	17.5	16.8	15.3	11.9	6.8	
15	**********	20.7	20.4	19.8	19.3	18.7	18.1	17.5	16.9	16.2	14.8	11.5	6.6	
16	**********	20.1	19.7	19.2	18.7	18.1	17.5	16.9	16.3	15.7	14.3	11.1	6.4	
17	**********	19.5	19.2	18.6	18.1	17.6	17.0	16.4	15.8	15.2	13.9	10.8	6.2	
18	**********	18.9	18.6	18.1	17.6	17.1	16.5	16.0	15.4	14.8	13.5	10.5	6.0	
19	**********	18.4	18.1	17.6	17.1	16.6	16.1	15.6	15.0	14.4	13.1	10.2	5.9	
20	**********	17.9	17.7	17.2	16.7	16.2	15.7	15.2	14.6	14.0	12.8	9.9	5.7	
21	**********	17.5	17.2	16.8	16.3	15.8	15.3	14.8	14.3	13.7	12.5	9.7	5.6	
22	**********	16.8	16.4	15.9	15.5	15.0	14.5	13.9	13.4	12.2	9.5	5.5		
23	**********	16.5	16.0	15.6	15.1	14.6	14.1	13.6	13.1	11.9	9.3	5.3		
24	**********	16.1	15.7	15.2	14.8	14.3	13.8	13.3	12.8	11.7	9.1	5.2		
25	**********	15.8	15.4	14.9	14.5	14.0	13.6	13.1	12.6	11.5	8.9	5.1		
30	**********	14.4	14.0	13.6	13.2	12.8	12.4	11.9	11.5	10.5	8.1	4.7		
35	**********	13.3	13.0	12.6	12.3	11.9	11.5	11.0	10.6	9.7	7.5	4.3		
40	**********	12.5	12.2	11.8	11.5	11.1	10.7	10.3	9.9	9.1	7.0	4.1		
45	**********	11.8	11.5	11.1	10.8	10.5	10.1	9.7	9.4	8.5	6.6	3.8		
50	**********	11.2	10.9	10.6	10.2	9.9	9.6	9.2	8.9	8.1	6.3	3.6		
55	**********	10.4	10.1	9.8	9.5	9.1	8.8	8.5	7.7	6.0	3.5			
60	**********	9.9	9.6	9.4	9.1	8.8	8.4	8.1	7.4	5.7	3.3			
65	**********	9.5	9.3	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2			
70	**********	9.2	8.9	8.7	8.4	8.1	7.8	7.5	6.8	5.3	3.1			
75	**********	8.9	8.6	8.4	8.1	7.8	7.5	7.2	6.6	5.1	3.0			
80	**********	8.6	8.4	8.1	7.8	7.6	7.3	7.0	6.4	5.0	2.9			
85	**********	8.3	8.1	7.9	7.6	7.4	7.1	6.8	6.2	4.8	2.8			
90	**********	8.1	7.9	7.6	7.4	7.1	6.9	6.6	6.0	4.7	2.7			
95	**********	7.9	7.7	7.4	7.2	7.0	6.7	6.4	5.9	4.6	2.6			
100	**********	7.7	7.5	7.2	7.0	6.8	6.5	6.3	5.7	4.4	2.6			
125	**********	6.7	6.5	6.3	6.1	5.8	5.6	5.1	4.0	2.3				
150	**********	6.1	5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1				
200	**********	5.1	5.0	4.8	4.6	4.4	4.1	3.1	1.8					
250	**********	4.4	4.3	4.1	4.0	3.6	2.8	1.6						
300	**********	3.9	3.8	3.6	3.3	2.6	1.5							
350	**********	3.5	3.4	3.1	2.4	1.4								
400	**********	3.1	2.9	2.2	1.3									
450	**********	2.7	2.1	1.2										
500	**********	2.6	2.0	1.1										
750	**********	1.6	0.9											

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for BRITISH COLUMBIA

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	85.4	85.0	84.6	83.3	81.1	78.8	76.4	74.0	71.5	68.9	66.2	60.4	46.8	27.0
2	********	60.1	59.8	58.9	57.3	55.7	54.1	52.3	50.6	48.7	46.8	42.7	33.1	19.1
3	********	49.1	48.8	48.1	46.8	45.5	44.1	42.7	41.3	39.8	38.2	34.9	27.0	15.6
4	********	42.5	42.3	41.6	40.5	39.4	38.2	37.0	35.8	34.5	33.1	30.2	23.4	13.5
5	********	38.0	37.8	37.3	36.3	35.2	34.2	33.1	32.0	30.8	29.6	27.0	20.9	12.1
6	********	34.7	34.5	34.0	33.1	32.2	31.2	30.2	29.2	28.1	27.0	24.7	19.1	11.0
7	********	32.1	32.0	31.5	30.6	29.8	28.9	28.0	27.0	26.0	25.0	22.8	17.7	10.2
8	********	30.1	29.9	29.5	28.7	27.9	27.0	26.2	25.3	24.4	23.4	21.4	16.5	9.6
9	********	28.3	28.2	27.8	27.0	26.3	25.5	24.7	23.8	23.0	22.1	20.1	15.6	9.0
10	********	26.9	26.8	26.3	25.6	24.9	24.2	23.4	22.6	21.8	20.9	19.1	14.8	8.5
11	********	25.6	25.5	25.1	24.4	23.8	23.0	22.3	21.6	20.8	20.0	18.2	14.1	8.1
12	********	24.5	24.4	24.0	23.4	22.7	22.1	21.4	20.6	19.9	19.1	17.4	13.5	7.8
13	********	23.6	23.5	23.1	22.5	21.9	21.2	20.5	19.8	19.1	18.4	16.8	13.0	7.5
14	********	22.7	22.6	22.3	21.7	21.1	20.4	19.8	19.1	18.4	17.7	16.2	12.5	7.2
15	********	22.0	21.8	21.5	20.9	20.3	19.7	19.1	18.5	17.8	17.1	15.6	12.1	7.0
16	**********	21.2	20.8	20.3	19.7	19.1	18.5	17.9	17.2	16.5	15.1	11.7	6.8
17	**********	20.5	20.2	19.7	19.1	18.5	18.0	17.3	16.7	16.1	14.7	11.4	6.6
18	**********	19.9	19.6	19.1	18.6	18.0	17.4	16.9	16.2	15.6	14.2	11.0	6.4
19	**********	19.4	19.1	18.6	18.1	17.5	17.0	16.4	15.8	15.2	13.9	10.7	6.2
20	**********	18.9	18.6	18.1	17.6	17.1	16.5	16.0	15.4	14.8	13.5	10.5	6.0
21	**********	18.5	18.2	17.7	17.2	16.7	16.2	15.6	15.0	14.4	13.2	10.2	5.9
22	**********	18.0	17.8	17.3	16.8	16.3	15.8	15.2	14.7	14.1	12.9	10.0	5.8
23	**********	17.6	17.4	16.9	16.4	15.9	15.4	14.9	14.4	13.8	12.6	9.8	5.6
24	**********	17.3	17.0	16.5	16.1	15.6	15.1	14.6	14.1	13.5	12.3	9.6	5.5
25	**********	16.9	16.7	16.2	15.8	15.3	14.8	14.3	13.8	13.2	12.1	9.4	5.4
30	**********	15.4	15.2	14.8	14.4	14.0	13.5	13.1	12.6	12.1	11.0	8.5	4.9
35	**********	14.1	13.7	13.3	12.9	12.5	12.1	11.6	11.2	10.2	7.9	4.6
40	**********	13.2	12.8	12.5	12.1	11.7	11.3	10.9	10.5	9.6	7.4	4.3
45	**********	12.4	12.1	11.7	11.4	11.0	10.7	10.3	9.9	9.0	7.0	4.0
50	**********	11.8	11.5	11.1	10.8	10.5	10.1	9.7	9.4	8.5	6.6	3.8
55	**********	11.2	10.9	10.6	10.3	10.0	9.6	9.3	8.9	8.1	6.3	3.6
60	**********	10.8	10.5	10.2	9.9	9.6	9.2	8.9	8.5	7.8	6.0	3.5
65	**********	10.3	10.1	9.8	9.5	9.2	8.9	8.5	8.2	7.5	5.8	3.4
70	**********	10.0	9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2
75	**********	9.6	9.4	9.1	8.8	8.5	8.3	8.0	7.6	7.0	5.4	3.1
80	**********	9.1	8.8	8.5	8.3	8.0	7.7	7.4	6.8	5.2	3.0
85	**********	8.8	8.5	8.3	8.0	7.8	7.5	7.2	6.6	5.1	2.9
90	**********	8.5	8.3	8.1	7.8	7.5	7.3	7.0	6.4	4.9	2.8
95	**********	8.3	8.1	7.8	7.6	7.3	7.1	6.8	6.2	4.8	2.8
100	**********	8.1	7.9	7.6	7.4	7.2	6.9	6.6	6.0	4.7	2.7
125	**********	7.3	7.0	6.8	6.6	6.4	6.2	5.9	5.4	4.2	2.4
150	**********	6.6	6.4	6.2	6.0	5.8	5.6	5.4	4.9	3.8	2.2
200	**********	5.6	5.4	5.2	5.1	4.9	4.7	4.3	3.3	1.9
250	**********	4.8	4.7	4.5	4.4	4.2	3.8	3.0	1.7
300	**********	4.4	4.3	4.1	4.0	3.8	3.5	2.7	1.6
350	**********	4.0	3.8	3.7	3.5	3.2	2.5	1.4
400	**********	3.6	3.4	3.3	3.0	2.3	1.4
450	**********	3.4	3.2	3.1	2.8	2.2	1.3
500	**********	3.1	3.0	2.7	2.1	1.2
750	**********	2.2	1.7	1.0
1000	**********	1.5	0.9

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for ATLANTIC

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	********	44.6	44.3	43.7	42.5	41.3	40.1	38.8	37.5	36.1	34.7	31.7	24.5	14.2
2	********	31.5	31.4	30.9	30.0	29.2	28.3	27.4	26.5	25.5	24.5	22.4	17.3	10.0
3	********	25.7	25.6	25.2	24.5	23.8	23.1	22.4	21.6	20.8	20.0	18.3	14.2	8.2
4	********	22.3	22.2	21.8	21.2	20.6	20.0	19.4	18.7	18.1	17.3	15.8	12.3	7.1
5	********	19.9	19.8	19.5	19.0	18.5	17.9	17.3	16.8	16.1	15.5	14.2	11.0	6.3
6	********	18.2	18.1	17.8	17.3	16.9	16.4	15.8	15.3	14.7	14.2	12.9	10.0	5.8
7	********	16.8	16.8	16.5	16.1	15.6	15.1	14.7	14.2	13.6	13.1	12.0	9.3	5.4
8	********	15.8	15.7	15.4	15.0	14.6	14.2	13.7	13.2	12.8	12.3	11.2	8.7	5.0
9	**********		14.8	14.6	14.2	13.8	13.4	12.9	12.5	12.0	11.6	10.6	8.2	4.7
10	**********		14.0	13.8	13.4	13.1	12.7	12.3	11.8	11.4	11.0	10.0	7.8	4.5
11	**********		13.4	13.2	12.8	12.4	12.1	11.7	11.3	10.9	10.5	9.5	7.4	4.3
12	**********		12.8	12.6	12.3	11.9	11.6	11.2	10.8	10.4	10.0	9.1	7.1	4.1
13	**********		12.3	12.1	11.8	11.5	11.1	10.8	10.4	10.0	9.6	8.8	6.8	3.9
14	**********		11.8	11.7	11.4	11.0	10.7	10.4	10.0	9.7	9.3	8.5	6.6	3.8
15	**********		11.4	11.3	11.0	10.7	10.3	10.0	9.7	9.3	9.0	8.2	6.3	3.7
16	**********		11.1	10.9	10.6	10.3	10.0	9.7	9.4	9.0	8.7	7.9	6.1	3.5
17	**********		10.8	10.6	10.3	10.0	9.7	9.4	9.1	8.8	8.4	7.7	5.9	3.4
18	**********			10.3	10.0	9.7	9.4	9.1	8.8	8.5	8.2	7.5	5.8	3.3
19	**********			10.0	9.7	9.5	9.2	8.9	8.6	8.3	8.0	7.3	5.6	3.2
20	**********			9.8	9.5	9.2	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2
21	**********			9.5	9.3	9.0	8.7	8.5	8.2	7.9	7.6	6.9	5.4	3.1
22	**********			9.3	9.1	8.8	8.5	8.3	8.0	7.7	7.4	6.8	5.2	3.0
23	**********			9.1	8.9	8.6	8.4	8.1	7.8	7.5	7.2	6.6	5.1	3.0
24	**********			8.9	8.7	8.4	8.2	7.9	7.6	7.4	7.1	6.5	5.0	2.9
25	**********			8.7	8.5	8.3	8.0	7.8	7.5	7.2	6.9	6.3	4.9	2.8
30	**********			8.0	7.8	7.5	7.3	7.1	6.8	6.6	6.3	5.8	4.5	2.6
35	**********			7.4	7.2	7.0	6.8	6.6	6.3	6.1	5.9	5.4	4.1	2.4
40	**********			6.9	6.7	6.5	6.3	6.1	5.9	5.7	5.5	5.0	3.9	2.2
45	**********				6.3	6.2	6.0	5.8	5.6	5.4	5.2	4.7	3.7	2.1
50	**********				6.0	5.8	5.7	5.5	5.3	5.1	4.9	4.5	3.5	2.0
55	**********				5.7	5.6	5.4	5.2	5.1	4.9	4.7	4.3	3.3	1.9
60	**********				5.5	5.3	5.2	5.0	4.8	4.7	4.5	4.1	3.2	1.8
65	**********				5.3	5.1	5.0	4.8	4.6	4.5	4.3	3.9	3.0	1.8
70	**********				5.1	4.9	4.8	4.6	4.5	4.3	4.1	3.8	2.9	1.7
75	**********				4.9	4.8	4.6	4.5	4.3	4.2	4.0	3.7	2.8	1.6
80	**********				4.8	4.6	4.5	4.3	4.2	4.0	3.9	3.5	2.7	1.6
85	**********				4.6	4.5	4.3	4.2	4.1	3.9	3.8	3.4	2.7	1.5
90	**********					4.4	4.2	4.1	3.9	3.8	3.7	3.3	2.6	1.5
95	**********					4.2	4.1	4.0	3.8	3.7	3.6	3.2	2.5	1.5
100	**********					4.1	4.0	3.9	3.7	3.6	3.5	3.2	2.5	1.4
125	**********					3.7	3.6	3.5	3.4	3.2	3.1	2.8	2.2	1.3
150	**********					3.3	3.2	3.1	2.9	2.8	2.6	2.0	1.2	
200	**********						2.7	2.6	2.6	2.5	2.2	1.7	1.0	
250	**********							2.4	2.3	2.2	2.0	1.6	0.9	
300	**********								2.1	2.0	1.8	1.4	0.8	
350	**********									1.9	1.7	1.3	0.8	
400	**********										1.6	1.2	0.7	
450	**********											1.2	0.7	
500	**********											1.1	0.6	
750	**********												0.5	

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for PRAIRIES

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	68.1	67.8	67.4	66.4	64.6	62.8	60.9	59.0	57.0	54.9	52.8	48.2	37.3	21.5
2	********	47.9	47.7	46.9	45.7	44.4	43.1	41.7	40.3	38.8	37.3	34.1	26.4	15.2
3	********	39.1	38.9	38.3	37.3	36.3	35.2	34.1	32.9	31.7	30.5	27.8	21.5	12.4
4	********	33.9	33.7	33.2	32.3	31.4	30.5	29.5	28.5	27.5	26.4	24.1	18.7	10.8
5	********	30.3	30.2	29.7	28.9	28.1	27.2	26.4	25.5	24.6	23.6	21.5	16.7	9.6
6	********	27.7	27.5	27.1	26.4	25.6	24.9	24.1	23.3	22.4	21.5	19.7	15.2	8.8
7	********	25.6	25.5	25.1	24.4	23.7	23.0	22.3	21.5	20.8	19.9	18.2	14.1	8.1
8	********	24.0	23.8	23.5	22.8	22.2	21.5	20.9	20.2	19.4	18.7	17.0	13.2	7.6
9	********	22.6	22.5	22.1	21.5	20.9	20.3	19.7	19.0	18.3	17.6	16.1	12.4	7.2
10	********	21.4	21.3	21.0	20.4	19.9	19.3	18.7	18.0	17.4	16.7	15.2	11.8	6.8
11	********	20.4	20.3	20.0	19.5	18.9	18.4	17.8	17.2	16.6	15.9	14.5	11.2	6.5
12	********	19.6	19.5	19.2	18.7	18.1	17.6	17.0	16.5	15.9	15.2	13.9	10.8	6.2
13	********	18.8	18.7	18.4	17.9	17.4	16.9	16.4	15.8	15.2	14.6	13.4	10.3	6.0
14	********	18.1	18.0	17.7	17.3	16.8	16.3	15.8	15.2	14.7	14.1	12.9	10.0	5.8
15	********	17.5	17.4	17.1	16.7	16.2	15.7	15.2	14.7	14.2	13.6	12.4	9.6	5.6
16	********	16.9	16.9	16.6	16.2	15.7	15.2	14.7	14.2	13.7	13.2	12.0	9.3	5.4
17	********	16.4	16.4	16.1	15.7	15.2	14.8	14.3	13.8	13.3	12.8	11.7	9.0	5.2
18	********	16.0	15.9	15.6	15.2	14.8	14.4	13.9	13.4	12.9	12.4	11.4	8.8	5.1
19	**********	15.5	15.2	14.8	14.4	14.0	13.5	13.1	12.6	12.1	11.1	8.6	4.9	
20	**********	15.1	14.8	14.5	14.0	13.6	13.2	12.7	12.3	11.8	10.8	8.3	4.8	
21	**********	14.7	14.5	14.1	13.7	13.3	12.9	12.4	12.0	11.5	10.5	8.1	4.7	
22	**********	14.4	14.2	13.8	13.4	13.0	12.6	12.2	11.7	11.2	10.3	8.0	4.6	
23	**********	14.1	13.8	13.5	13.1	12.7	12.3	11.9	11.5	11.0	10.0	7.8	4.5	
24	**********	13.8	13.6	13.2	12.8	12.4	12.0	11.6	11.2	10.8	9.8	7.6	4.4	
25	**********	13.5	13.3	12.9	12.6	12.2	11.8	11.4	11.0	10.6	9.6	7.5	4.3	
30	**********	12.3	12.1	11.8	11.5	11.1	10.8	10.4	10.0	9.6	8.8	6.8	3.9	
35	**********	11.4	11.2	10.9	10.6	10.3	10.0	9.6	9.3	8.9	8.1	6.3	3.6	
40	**********	10.5	10.2	9.9	9.6	9.3	9.0	8.7	8.3	7.6	5.9	3.4		
45	**********	9.9	9.6	9.4	9.1	8.8	8.5	8.2	7.9	7.2	5.6	3.2		
50	**********	9.4	9.1	8.9	8.6	8.3	8.1	7.8	7.5	6.8	5.3	3.0		
55	**********	9.0	8.7	8.5	8.2	8.0	7.7	7.4	7.1	6.5	5.0	2.9		
60	**********	8.6	8.3	8.1	7.9	7.6	7.4	7.1	6.8	6.2	4.8	2.8		
65	**********	8.2	8.0	7.8	7.6	7.3	7.1	6.8	6.5	6.0	4.6	2.7		
70	**********	7.9	7.7	7.5	7.3	7.1	6.8	6.6	6.3	5.8	4.5	2.6		
75	**********	7.7	7.5	7.3	7.0	6.8	6.6	6.3	6.1	5.6	4.3	2.5		
80	**********	7.4	7.2	7.0	6.8	6.6	6.4	6.1	5.9	5.4	4.2	2.4		
85	**********	7.2	7.0	6.8	6.6	6.4	6.2	6.0	5.7	5.2	4.0	2.3		
90	**********	7.0	6.8	6.6	6.4	6.2	6.0	5.8	5.6	5.1	3.9	2.3		
95	**********	6.6	6.4	6.3	6.1	5.8	5.6	5.4	4.9	3.8	2.2			
100	**********	6.5	6.3	6.1	5.9	5.7	5.5	5.3	4.8	3.7	2.2			
125	**********	5.8	5.6	5.4	5.3	5.1	4.9	4.7	4.3	3.3	1.9			
150	**********	5.3	5.1	5.0	4.8	4.7	4.5	4.3	3.9	3.0	1.8			
200	**********	4.4	4.3	4.2	4.0	3.9	3.7	3.4	2.6	1.5				
250	**********	4.0	3.9	3.7	3.6	3.5	3.3	3.0	2.4	1.4				
300	**********	3.5	3.4	3.3	3.2	3.0	2.8	2.2	1.2					
350	**********	3.3	3.2	3.0	2.9	2.8	2.6	2.0	1.2					
400	**********	2.9	2.8	2.7	2.6	2.4	1.9	1.1						
450	**********	2.8	2.7	2.6	2.5	2.3	1.8	1.0						
500	**********	2.5	2.5	2.4	2.2	1.7	1.0							
750	**********	1.9	1.8	1.4	0.8									
1000	**********	1.2	0.7											
1500	**********	0.6												

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

HOUSEHOLD INTERNET USE SURVEY - 1999

Approximate Sampling Variability Tables for CANADA

NUMERATOR OF PERCENTAGE ('000)	ESTIMATED PERCENTAGE													
	0.1%	1.0%	2.0%	5.0%	10.0%	15.0%	20.0%	25.0%	30.0%	35.0%	40.0%	50.0%	70.0%	90.0%
1	80.8	80.4	80.0	78.7	76.6	74.5	72.3	70.0	67.6	65.1	62.6	57.1	44.3	25.5
2	57.1	56.8	56.6	55.7	54.2	52.7	51.1	49.5	47.8	46.1	44.3	40.4	31.3	18.1
3	46.6	46.4	46.2	45.5	44.3	43.0	41.7	40.4	39.0	37.6	36.1	33.0	25.5	14.8
4	40.4	40.2	40.0	39.4	38.3	37.2	36.1	35.0	33.8	32.6	31.3	28.6	22.1	12.8
5	36.1	35.9	35.8	35.2	34.3	33.3	32.3	31.3	30.2	29.1	28.0	25.5	19.8	11.4
6	33.0	32.8	32.7	32.1	31.3	30.4	29.5	28.6	27.6	26.6	25.5	23.3	18.1	10.4
7	30.5	30.4	30.2	29.8	29.0	28.2	27.3	26.4	25.5	24.6	23.7	21.6	16.7	9.7
8	28.5	28.4	28.3	27.8	27.1	26.3	25.5	24.7	23.9	23.0	22.1	20.2	15.6	9.0
9	26.9	26.8	26.7	26.2	25.5	24.8	24.1	23.3	22.5	21.7	20.9	19.0	14.8	8.5
10	25.5	25.4	25.3	24.9	24.2	23.6	22.9	22.1	21.4	20.6	19.8	18.1	14.0	8.1
11	24.3	24.2	24.1	23.7	23.1	22.5	21.8	21.1	20.4	19.6	18.9	17.2	13.3	7.7
12	********	23.2	23.1	22.7	22.1	21.5	20.9	20.2	19.5	18.8	18.1	16.5	12.8	7.4
13	********	22.3	22.2	21.8	21.3	20.7	20.0	19.4	18.7	18.1	17.4	15.8	12.3	7.1
14	********	21.5	21.4	21.0	20.5	19.9	19.3	18.7	18.1	17.4	16.7	15.3	11.8	6.8
15	********	20.8	20.7	20.3	19.8	19.2	18.7	18.1	17.5	16.8	16.2	14.8	11.4	6.6
16	********	20.1	20.0	19.7	19.2	18.6	18.1	17.5	16.9	16.3	15.6	14.3	11.1	6.4
17	********	19.5	19.4	19.1	18.6	18.1	17.5	17.0	16.4	15.8	15.2	13.9	10.7	6.2
18	********	18.9	18.9	18.6	18.1	17.6	17.0	16.5	15.9	15.4	14.8	13.5	10.4	6.0
19	********	18.4	18.3	18.1	17.6	17.1	16.6	16.1	15.5	14.9	14.4	13.1	10.2	5.9
20	********	18.0	17.9	17.6	17.1	16.7	16.2	15.6	15.1	14.6	14.0	12.8	9.9	5.7
21	********	17.5	17.5	17.2	16.7	16.3	15.8	15.3	14.8	14.2	13.7	12.5	9.7	5.6
22	********	17.1	17.1	16.8	16.3	15.9	15.4	14.9	14.4	13.9	13.3	12.2	9.4	5.4
23	********	16.8	16.7	16.4	16.0	15.5	15.1	14.6	14.1	13.6	13.0	11.9	9.2	5.3
24	********	16.4	16.3	16.1	15.6	15.2	14.8	14.3	13.8	13.3	12.8	11.7	9.0	5.2
25	********	16.1	16.0	15.7	15.3	14.9	14.5	14.0	13.5	13.0	12.5	11.4	8.9	5.1
30	********	14.7	14.6	14.4	14.0	13.6	13.2	12.8	12.3	11.9	11.4	10.4	8.1	4.7
35	********	13.6	13.5	13.3	13.0	12.6	12.2	11.8	11.4	11.0	10.6	9.7	7.5	4.3
40	********	12.7	12.6	12.5	12.1	11.8	11.4	11.1	10.7	10.3	9.9	9.0	7.0	4.0
45	********	12.0	11.9	11.7	11.4	11.1	10.8	10.4	10.1	9.7	9.3	8.5	6.6	3.8
50	********	11.4	11.3	11.1	10.8	10.5	10.2	9.9	9.6	9.2	8.9	8.1	6.3	3.6
55	********	10.8	10.8	10.6	10.3	10.0	9.7	9.4	9.1	8.8	8.4	7.7	6.0	3.4
60	********	10.4	10.3	10.2	9.9	9.6	9.3	9.0	8.7	8.4	8.1	7.4	5.7	3.3
65	********	10.0	9.9	9.8	9.5	9.2	9.0	8.7	8.4	8.1	7.8	7.1	5.5	3.2
70	********	9.6	9.6	9.4	9.2	8.9	8.6	8.4	8.1	7.8	7.5	6.8	5.3	3.1
75	********	9.3	9.2	9.1	8.9	8.6	8.3	8.1	7.8	7.5	7.2	6.6	5.1	3.0
80	********	9.0	8.9	8.8	8.6	8.3	8.1	7.8	7.6	7.3	7.0	6.4	4.9	2.9
85	********	8.7	8.7	8.5	8.3	8.1	7.8	7.6	7.3	7.1	6.8	6.2	4.8	2.8
90	********	8.5	8.4	8.3	8.1	7.9	7.6	7.4	7.1	6.9	6.6	6.0	4.7	2.7
95	********	8.2	8.2	8.1	7.9	7.6	7.4	7.2	6.9	6.7	6.4	5.9	4.5	2.6
100	********	8.0	8.0	7.9	7.7	7.4	7.2	7.0	6.8	6.5	6.3	5.7	4.4	2.6
125	**********	7.2	7.0	6.9	6.7	6.5	6.3	6.0	5.8	5.6	5.1	4.0	2.3	
150	**********	6.5	6.4	6.3	6.1	5.9	5.7	5.5	5.3	5.1	4.7	3.6	2.1	
200	**********	5.7	5.6	5.4	5.3	5.1	4.9	4.8	4.6	4.4	4.0	3.1	1.8	
250	**********	5.0	4.8	4.7	4.6	4.4	4.3	4.1	4.0	3.6	2.8	1.6		
300	**********	4.5	4.4	4.3	4.2	4.0	3.9	3.8	3.6	3.3	2.6	1.5		
350	**********	4.2	4.1	4.0	3.9	3.7	3.6	3.5	3.3	3.1	2.4	1.4		
400	**********	3.9	3.8	3.7	3.6	3.5	3.4	3.3	3.1	2.9	2.2	1.3		
450	**********	3.7	3.6	3.5	3.4	3.3	3.2	3.1	3.0	2.7	2.1	1.2		
500	**********	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.6	2.0	1.1		
750	**********	2.8	2.7	2.6	2.6	2.5	2.4	2.3	2.1	1.6	0.9			
1000	**********	2.4	2.4	2.3	2.2	2.1	2.1	2.0	1.8	1.4	0.8			
1500	**********	1.9	1.9	1.8	1.7	1.7	1.6	1.5	1.1	0.7				
2000	**********	1.6	1.6	1.5	1.5	1.4	1.3	1.0	0.6					
3000	**********	1.2	1.2	1.1	1.0	0.8	0.5							
4000	**********	1.0	1.0	0.9	0.7	0.4								
5000	**********	0.8	0.6	0.4										
6000	**********	0.6	0.3											
7000	**********	0.5	0.3											
8000	**********	0.5	0.3											
9000	**********	0.3												
10000	**********	0.3												

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

11.0 Weighting

Since the HIUS 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

Quality standard (i.e. the targeted c.v.) could be relaxed a bit to reduce the size of the required sample.

11.2 Weighting Procedures for the Household Internet Use Survey

The principles behind the calculation of the weights for the HIUS are nearly identical to those for the LFS. However, this survey is a household-weighted survey, not a person-weighted survey. Also, further adjustments are made to the LFS weights in order to derive a final weight for the individual records on the HIUS microdata file.

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

(2) An adjustment to account for the additional non-response to the supplementary survey, i.e., non-response to the HIUS for individuals who did respond to the LFS or for which previous month's LFS data was brought forward.

(3) A readjustment to account for independent province-stratum projections, after the above adjustments are made. These province-stratum totals

are simply the final weighted province-stratum totals from the LFS. Note that a stratum roughly corresponds to an EIR-ER region (described in section 5.2.2).

Adjustments (1) and (2) are taken into account by multiplying the LFS sub-weight for each responding HIUS record by:

$$\frac{\textit{sum of LFS subweights from each household responding to LFS}}{\textit{sum of LFS subweights from each household responding to the HIUS}}$$

to obtain a non-response adjusted HIUS sub-weight (WEIGHT1).

Adjustment (3) is calculated by multiplying WEIGHT1 for each HIUS respondent by :

$$\frac{\textit{population total for province\&stratum } i}{\textit{sum of WEIGHT1 for survey respondents in province\&stratum } i}$$

to give the resulting weight (FINWT), which is the final weight which appears on the HIUS microdata file.

Calibration Estimation Adjustments

The weights for each respondent were adjusted in Adjustment 3 by an iterative process using a calibrated estimation procedure. This procedure ensured that estimates produced for a province-stratum group would agree with the population totals for that province-stratum group. This adjustment was made by using a two-stage iterative weighting procedure, each time using the weight obtained from the previous step, until the set of estimates agreed with the LFS population totals (which were created using Census population projections). The final statistical weight can be found in the "WEIGHT" field on the microdata file. Note that this field has a decimal and should be read as (99999V9999) where V represents the location of the decimal place.

12.0 Questionnaires and Code Sheets

The HIUS questionnaire was used in November 1999 to collect the information for the supplementary survey.

13.0
Record Layout and Univariates