THE LABOUR MARKET ACTIVITY SURVEY

CROSS SECTIONAL

AND

LONGITUDINAL FILE

CD-ROM MICRODATA USER'S GUIDE

THE SPECIAL SURVEYS GROUP

STATISTICS CANADA

DEDICATED: To our interviewers, without whose patience and skill none of what follows would have been possible.

The Labour Market Activity Survey **Microdata User's Guide**

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T A B L E O F C O N T E N T S (Cont.)

1. INTRODUCTION

The Labour Market Activity Survey (LMAS) was conducted by Statistics Canada with the cooperation and support of Employment and Immigration Canada. This manual has been reproduced to facilitate the manipulation of the Labour Market Activity Survey (LMAS) microdata files on CD-ROM. Examples will make reference to the 1986 and 1987 cross-sectional files and the 1986-1987 longitudinal file. This manual provides the user documentation required to manipulate the following LMAS files:

Cross-sectional microdata files
- 1986 person and job files
- 1987 person and job files
- 1988 person and job files
- 1989 person and job files
- 1990 person and job files

Longitudinal microdata files
- 1986 - 1987
- 1988 - 1989 - 1990

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2. BACKGROUND

From 1978 to 1981 and 1983 to 1985, Statistics Canada conducted the Annual Work Patterns Survey (AWPS) to provide information on the length and timing of periods of employment and unemployment in a calendar year. The AWPS was designed to complement the stock estimates obtained from the monthly Labour Force Survey (LFS) by providing flow estimates that are compatible and consistent with LFS concepts and definitions. The AWPS has been most useful in estimating the frequency and duration of labour market activities. However, the month-specific estimates of employment and unemployment have a high degree of error when compared to the monthly LFS. This is largely due to the month-specific activity-based recall methodology used by the AWPS.

In 1982, the AWPS was replaced by the Survey of 1981 Work History (SWH81). This survey was jointly sponsored by Labour Canada, Employment and Immigration Canada and Statistics Canada. The SWH81 was designed to yield information on the length and timing of periods of employment and the characteristics of all jobs held in 1981. Unlike the AWPS, no attempt was made in the SWH81 to account for time not working. The dual focus of the SWH81 on employment patterns and characteristics of jobs lead to the use of an employer-specific methodology wherein data was collected on up to four jobs held with different employers.

Analysis revealed that this employer-specific approach yielded significantly more reliable estimates of employment than those obtained from the AWPS.

In 1984, a third survey, the Survey of Union Membership (SUM), was conducted by Statistics Canada on behalf of Labour Canada. The SUM was designed to provide estimates of selected job characteristics, such as union membership and wage rates, for the current or most recently held paid job in 1984.

The Labour Market Activity Survey (LMAS) has been designed as a replacement for the AWPS. The LMAS questionnaires collected information on the annual labour market participation of Canadians and the characteristics of up to five jobs held in each of the calendar years from 1986 to 1990. Two longitudinal files (1986-1987, and 1988-1989-1990) provide information on the labour market participation and job characteristics of Canadians over a two and three year period. Up to five new employment experiences per year for each individual are tracked between calendar years in the longitudinal file.

PCX files for the following surveys are provided within the CD-ROM package for each survey year 1986-1990.

Acronym	Survey Form
AWPS	Annual Work Patterns Survey 1984
SWH81	Survey of 1981 Work History
SUM	Survey of Union Membership 1984
LFS	Labour Force Survey 1990
LMAS	Labour Market Activity Survey:
	1986 LMAS (Form 08)
	1987 LMAS (Forms 08 and 09)
	1988 LMAS (Form 09)
	1989 LMAS (Forms 08 and 09)
	1990 LMAS (Forms 08 and 09)

* Three CD-ROM's are produced from the five LMAS cross-sectional survey years and the two longitudinal files, CD-ROMs A, B or C. Detailed information on size of questionnaire, file names and CD-ROM location can be obtained from the main menu under the item `Survey Instruments'.

3. OBJECTIVES

The primary objectives of the Labour Market Activity Survey are:

- to provide measures of the dynamic nature of the Canadian labour market which are conceptually consistent with the Labour Force Survey;

- to provide information on the characteristics of paid jobs which are not available from the Labour Force Survey.

The secondary objectives of the survey were:

- to develop socio/economic/demographic profiles of "market segments" for specific programs offered by Employment and Immigration Canada (EIC);

- to identify participation in specific EIC programs.

4. CONCEPTS AND DEFINITIONS

The following section outlines the key concepts and definitions upon which the Labour Market Activity Survey was based. Readers should note that, throughout this manual, surveys are referred to by the reference year to which the data pertain rather than when the actual data was collected. Thus, data for the 1986 LMAS, which relates to the 1986 calendar year, was actually collected in January, February and March 1987.

4.1 Work

In the LMAS, "work" refers to any duties performed for pay or profit, including unpaid work in a family farm or business. Pay includes cash payments and "payment in kind", whether or not the payment was received in the year the duties were performed. Work included any periods of paid leave, paid sabbatical, paid sick leave, etc.

In the LMAS, the respondent must have worked at least one day at a job or a business to be counted as having held a job in any given calendar year.

4.2 Jobs and Job Change

One of the key constructs used in the LMAS is that of the job, where a job is defined in terms of usual duties performed at a usual wage or salary. In the LMAS, a job change occurred if the respondent changed their employer or experienced a change in both usual duties and usual wage or salary. The LMAS questionnaires collected detailed information on up to five different jobs held in a calendar year or reference year. Where a respondent held more than five jobs in either reference year, information was collected for only the first five at which the respondent worked.

For each job identified in the LMAS, information was collected on the start date of the first spell of employment experienced in the reference year (e.g. 1986 reference year) and the date most recently worked at the job, and, if applicable, the reason for leaving the job. In the terminology of the LMAS, the individual is said to have "held" the job between these two dates. As a result, the 1987 LMAS collected similar detail on any job held at the end of the 1986 reference year, as well as on any "new" jobs held in 1987 up to a maximum of five. In the LMAS, jobs could be held for as little as one day. This example holds true for all LMAS reference years.

4.3 Employers

A second construct used by the LMAS is that of the employer. In this case, the definition used is identical to that used by the Labour Force Survey. Self-employed respondents who performed a variety of duties during their period of employment under the same company name would count as one employer. For self-employed persons with more than one business, each business was treated as a separate employer.

4.4 Work Interruptions

In the LMAS, a "work interruption" is an unpaid absence from a job for one week or more. Work interruptions must be followed by a return to the same job.

Reasons for work interruptions include temporary layoffs due to the seasonal nature of a job or temporary production/staff cut-backs, strikes, unpaid maternity leave, unpaid sick leave and the like.

If a respondent returned to work for the same employer and was engaged in the same job activities or duties as were performed before leaving the job, with or without a change in the usual wage or salary received by the respondent, the situation was considered a work interruption.

Persons with generic job descriptions who returned to work after an unpaid absence and who found themselves with the same general type of duties but not necessarily the same specific projects or co-workers were considered to have experienced a work interruption rather than having a new or different job.

If an employer continued to pay a respondent wages and salaries during an absence from or a stoppage of work, this period was not considered a work interruption. Examples are paid sick leave, paid vacation leave or any other paid leave of absence. Periods for which a respondent did not receive wages and salaries from the employer, but did receive compensation from other sources such as unemployment insurance, worker's compensation, disability insurance benefits, or government training allowances, were treated as work interruptions.

If a respondent attended school, college or university while holding a job and during that time did not receive wages or salaries from the employer, the absence would be treated as a work interruption.

Since a work interruption is defined as an unpaid absence from a job, it is possible that multiple job holders (persons who had more than one job at a particular point in time) could be working at one job while experiencing a work interruption in a second.

4.5 Labour Force Status

The LMAS collected sufficient information to assign a labour force status of employed, unemployed, or not in the labour force to each week of a reference year. These labour force statuses were assigned using a hierarchical logic similar to that used in the monthly Labour Force Survey. Thus, weeks in which a respondent reported any work at any job were assigned a code of "employed". A code of "employed" was also assigned in a small number of weeks where no work was reported because the respondent's usual monthly work schedule at a job did not involve work in every week of the month.

For persons working in on-call arrangements the determination of labour force status is slightly more complex and the treatment of these workers differed between 1986 and 1987 on. In the LFS persons working on-call are counted as being employed if there is a schedule of work and there is an assurance from the employer of work each month.

In the 1986 LMAS respondents may have reported work schedules at on-call jobs as alternating periods of working and interruptions or as continuous employment with an unusual work schedule. On-call workers were only explicitly identified in question Q57 as a reason for variation in the number of hours worked per month.

In the 1987 LMAS, on-call workers were explicitly identified (in questions Q44 and Q45) and skipped around the block of questions on work interruptions. Thus, all on-call workers identified in 1987, and any reference year thereafter, are shown as having continuous employment with an unusual work schedule.

If a code of "employed" could not be assigned in a given week, respondents were assigned a code of "unemployed (official definition)" if they were both looking for work and available for work; "unemployed (alternate definition)" if, in the absence of job search, they wanted work; or "not in the labour force" if they neither looked for nor wanted work.

4.6 Full-time/Part-time

In the LMAS, a job is classified as full-time if the usual monthly work schedule involved 120 or more hours, and part-time if the job would normally require less hours of work per month.

A person may have more than one part-time job with a cumulative total of 120 hours or more per month but they do not technically have a full-time job according to the LMAS definition. Users should note that this differs considerably from the definition used in the monthly LFS, in which a respondent is classified as "full-time" if they usually work 30 or more hours per week at all jobs, and "part-time" if they

usually work fewer hours.

An equivalent of the LFS definition can be derived from LMAS data for a given week by summing the total hours worked per week (1986 question Q59 x Q60) for all jobs at which the respondent worked in that week.

5. SURVEY DESIGN

The Labour Market Activity Survey was administered to a sub-sample of the dwellings in the 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. Section 5.5 describes how the LMAS cross-sectional surveys departed from the basic LFS design. The cross-sectional survey design explanation will use 1986 LMAS examples. These examples hold true for other LMAS cross-sectional surveys.

In the LMAS longitudinal survey for 1986-1987, the respondents to the 1986 survey were recontacted in order to obtain information about labour market activities for the 1987 calendar year. Section 5.6 describes the methodology of this recontact procedure. The longitudinal survey design explanation will use 1986-1987 longitudinal LMAS examples, however, these examples hold true for other LMAS longitudinal surveys.

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 and Northwest Territories, persons living on Indian Reserves, full-time members of the Canadian Armed Forces and inmates of institutions. These groups together represent an exclusion of approximately 2% of the population aged 15 or over.

5.2 Sample Design

The LFS 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, 'Sample Design Stages', is included as a hyperlinked file.

5.2.1 Primary Stratification

Provinces are first stratified into economic regions - geographic areas of more or less homogeneous economic structure formed on the basis of federal provincial agreements and which are relatively stable over time. (Figure AB1 shows the province of Alberta)

These economic regions are treated as primary strata and further stratification is carried out within them (see section 5.2.3).

5.2.2 Types of Areas

Economic regions are further disaggregated into 3 categories: self-representing unit areas (SRU's)(Figure A2), non-self-representing unit areas (NSRU's)(Figure B2) and special areas (not shown). Generally SRU's are urban areas whose population as of the 1981 Census exceeds 15,000 persons or whose unique labour force characteristics demand their establishment as SRU's. For the most part, SRU boundaries are coincident with delineations established for the Census.

All SRU's in each economic region are included in the survey and, as the name implies, each is represented by its own sample.

NSRU's are the areas lying outside the SRU's and they consist largely of small urban centres and rural areas. Each economic region contains one NSRU which is represented by its own sample.

In special areas a small proportion (approximately 1%) of the LFS population is found in institutions (for example, live-in staff of hospitals or schools or permanent residents of hotels or motels), on military bases (civilian personnel only) or in remote areas of provinces which are not readily accessible to LFS interviewers. For administrative purposes, this portion of the population is sampled separately through the special area frame. This portion of the sample is selected on a province-wide basis, without reference to the stratification used for SRU and NSRU areas.

5.2.3 Secondary Stratification

SRU areas (Figure A3) are next individually delineated into design strata, which reflect areas of similar socio-economic status as identified in the 1981 Census. The extent of the stratification (i.e. number of strata) depends upon the size of the SRU.

In economic regions in which the NSRU population (Figure B3) constitutes a significant proportion of the economic region population, the NSRU is next delineated into separate urban and rural strata. Within each of these strata, further stratification is used to reflect differences on a number of labour force characteristics.

In special areas, strata are formed on a province-wide basis. The strata reflect the main types of special groups in the population which require special administrative sampling procedures. These are: military establishments, institutions and remote areas.

5.2.4 Cluster Delineation and Selection

Within each of the secondary strata found in SRU areas, a number of geographic contiguous groups of dwellings, or clusters, are formed based upon a combination of 1981 Census counts or field enumeration. These clusters generally are coincident with city blocks or block faces.

The selection of a sample of clusters (generally 6 or 12 clusters) from each of these secondary strata represents the first stage of sampling in SRU areas (Figure A4).

Within each of the secondary strata in NSRU areas, a number of large geographic areas are delineated in such a way that each one reflects the composition of the stratum within which it is located with respect to a number of socio-economic characteristics. Two or four of these areas, known as primary sampling units (or PSU's) are selected into the sample from each secondary stratum.

Within each selected PSU, a number of smaller geographically contiguous groups of dwellings, or clusters, are then formed using well-defined physical features which are recognizable both on maps and in the field (Figure B4).

In special areas, census enumeration areas (geographic areas covered by individual enumerators for the Census) represent the first stage of selection. Within those selected, where necessary, geographically contiguous groups of dwellings or clusters are formed and the selection of a sample of these represents the second stage of sampling.

5.2.5 Dwelling Selection

In all three types of areas (SRU Figure A5, NSRU Figure B5 and special 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 6 dwellings (on average) is then selected. This represents the final stage of sampling.

In the 17 largest SRU's, a sample of apartments in large apartment buildings is selected from a separate register based upon information supplied by CMHC. 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.

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 (Figure A6 and Figure B6).

5.3 Sample Size

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

The monthly LFS sample consists of approximately 53,000 dwellings. After excluding dwellings found to be vacant, dwellings demolished or converted to non-residential uses, dwellings containing ineligible persons, dwellings under construction, and seasonal dwellings, about 47,400 dwellings remain which are occupied by eligible persons. From these dwellings, LFS information is obtained for approximately 98,400 civilians aged 15 or over.

The distribution of approximate sample sizes by province is shown below.

LFS Sample Distributions by Province, 1986

Province	# of Dwellings	# of Eligible Dwellings	# of Individuals
Newfoundland	3,025	2,625	6,600
Prince Edward Island	1,650	1,425	3,175
Nova Scotia	4,000	3,525	7,425
New Brunswick	3,950	3,525	7,700
Quebec	7,875	7,025	14,600
Ontario	10,025	9,200	19,150
Manitoba	3,875	3,700	7,200
Saskatchewan	5,400	4,675	9,575
Alberta	7,475	6,750	13,375
British Columbia	5,550	4,950	9,425
Total	52,925	47,400	98,425

5.4 Sample Rotation

The LFS employs a panel design whereby the entire monthly sample of dwellings can be considered to consist of 6 panels, or rotation groups, of approximately equal size. Each of these panels can be considered by itself to be 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 ensure that the sample of dwellings constantly reflects changes in the current housing stock and to minimize any problems of the 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.

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 Sample Design Modifications for the Labour Market Activity Surveys

The LMAS was based upon a sub-sample of the LFS design, being administered to a total of 5 of the 6 LFS rotation groups. In the 1986 LMAS two rotation groups were interviewed in January and three rotation groups were interviewed in February. In all remaining LMAS, the interviews begin for all rotation groups

in January.

In addition to the usual LFS sample exclusions, the Labour Market Activity Survey was not administered to persons 15 years of age or persons 70 years of age or older to further minimize respondent burden within selected households.

Consequently, the surveyed population for the 1986 Labour Market Activity Survey is considered to consist of all civilian, non-institutionalized persons 16 to 69 years of age inclusive, who were residents of the ten provinces in January 1987.

1987 cross-sectional sample:
The original sample of dwellings from 1986 was the principal component of the sample. Naturally, in most cases the same individuals lived in these dwellings as in 1986. A second component, a small sample of dwellings constructed since the time of the 1986 interview was added to make the original sample representative of the 1988 January population. Thirdly, to improve the reliability of estimates of employment designated groups, a supplement of 500 additional dwellings in eight selected cities was added to the sample.

1988 cross-sectional sample:
Similarly to the 1986 survey, the LMA sample was based upon a sub-sample of the LFS design, being administered to a total of 5 of the 6 LFS rotation groups of January 1989.

1989 and 1990 cross-sectional sample:
The original sample of dwellings from 1988 formed the 1989 1990 LMA sample. Because in most cases the same individuals would be living there as in 1988, the same individuals represented the 1988 1989 and the 1990 population to a great extent.

The populations encompassed in the files are as follows:

LMAS File	Population Represented
1986	17,711,300
1987	17,767,195
1988	17,973,625
1989	18,181,456
1990	18,400,148

5.6 Follow-up Methodology for Labour Market Activity Survey Longitudinal Files

All responding individuals aged 16-69 in the 1986 survey were eligible respondents for the 1987 survey in order to provide a complete 2-year snapshot of their labour market activities. All households with at least one responding individual aged 16-69 in the 1988 survey were part of the 1988-90 longitudinal sample and hence were eligible respondents for the 1989 and 1990 interviews to obtain a complete three-year history of labour market activity.

Interviewers were instructed to attempt to contact these individuals at their 1986, 1988 or 1989 address (or telephone number) and trace any eligible respondents who had moved in the intervening year. Individuals who moved out of Canada, were found to have moved into an institutional setting or who passed away were considered to be out-of scope for the longitudinal panel.

The populations represented by the longitudinal samples are as follows:

Survey Year	Population Represented
1986-87	17,376,011
1988-89-90	17,896,085

6. DATA COLLECTION

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

6.1 Interviewing for the LFS

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

Dwellings new to the sample are contacted through a personal visit. The interviewer first obtains socio-demographic information for each household member and then obtains labour force information for all eligible members. Provided there is a telephone in the dwelling and permission has been granted, subsequent interviews are conducted by telephone. As a result, approximately 85% of all dwellings are interviewed by telephone. In these subsequent month 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 8 Statistics Canada regional offices.

6.3 Data Collection Modifications for the Labour Market Activity Survey

Given the nature and extent of the information being sought by the LMAS, three modifications to the standard LFS collection strategy were effected:

(i) LFS data release schedules require that all interviewing for the LFS be completed in one week. Normally, information for LFS supplementary surveys is collected immediately following the LFS interview. In the case of the 1986 LMAS the data collection period was extended two weeks beyond the normal LFS cut-offs in January and February 1987 to ensure that the collection of the regular LFS data was not delayed. For the 1987 survey collection began the second week of January and continued until the end of the second week of February 1989.

(ii) The LFS practice of collecting information for all household members through proxy interview with one knowledgeable and responsible member was modified to allow more information to be collected directly from the individual concerned. The following shows the percentage of respondents which were interviewed directly:

	Survey Years				
	1986	1987	1988	1989	1990
Percent Direct Interviews	61.0%	61.1%	65.6%	60.5%	59.0%

(iii) 1986 LMAS interviews were not conducted in dwellings that had experienced a complete turnover in household membership since the previous month (this differs considerably from the LFS, as noted in Section 6.1). This was done to avoid the response burden that would have been imposed on such households by first requiring completion of the household membership and demographic information, followed by the labour force information required for the LFS, followed finally by the LMAS

information.

This procedure resulted in a reduction to the 1986 LMAS sample of 788 dwellings nationally, or 1.8% of the total sample of 44,560 dwellings.

6.4 Non-response to the LMAS

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 to call back at a more convenient time is set up. 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, even 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.

The LFS response rate is defined as the households responding to the survey expressed as a percentage of all eligible households that should have responded (i.e.., after the exclusion of out-of-scope or ineligible dwellings).

For the 5 rotation groups used by the LMAS Survey in 1986, the LFS recorded a total of 44,560 sample dwellings of which 39,578 were in-scope (i.e., contained dwellings occupied by eligible persons). For the 5 rotation groups and the age range used by the LMAS survey, 74,065 individual interviews were obtained by the LFS (including cases of non-response for which data was brought forward from previous months) of which 66,934 were also successfully interviewed for the 1986 LMAS and are on the 1986 person level microdata file.

LMAS Response Rates (Cross-sectional Survey Years)

Years	Number of Eligible Dwellings	Dwellings Responding*	Number of Rate of Response (Percent)
1986	39,578	39,061	92.6%
1987	45,584	38,769	85.0%
1988	34,392	30,973	90.1%
1989	34,291	31,114	90.7%
1990	34,622	30,954	89.4%

LMAS Response Rates (Longitudinal Survey Years)

Years	Number of Eligible Dwellings	Dwellings Responding*	Number of Rate of Response (Percent)
1986-87	71,456	63,945	88.8%
1988-89-90	70,482	57,498	81.6%

* This includes those respondents for whom it has been determined that they are institutionalized, deceased, or no longer living in Canada at the time their dwellings were selected into the sample. Actual response, with respect to the LMAS questionnaire was 63,432 for the 1986-87 Survey and 57,244 for the 1988-90 Survey.

6.5 Non-response to the LMAS Longitudinal Files

The LMAS longitudinal file consists of records for individuals responding in all the years covered by each of the longitudinal surveys. As a result, elaborate procedures were developed to locate and interview those respondents changing their usual place of residence during the course of each of the longitudinal surveys.

First, interviewers attempted to trace respondents by:

(1) calling the telephone number provided by the original occupants (where available);

(2) checking local telephone books and with local and long distance directory assistance;

(3) telephoning the contact person identified by the respondent during the course of the previous interview (see 1986, form 08, question Q108 for an example);

(4) visiting the originally sampled dwelling and or neighbours.

Where interviewers were unable to locate a longitudinal respondent, further tracing was attempted from the Regional Office using various tracing tools at their disposal.

The disposition of sample cases by province (dwellings) is presented in Appendix A. (1986, 1987, 1988, 1989, 1990). The disposition of sample cases by province for individuals for 1986 only is presented in Appendix A. (1986).

7. DATA PROCESSING

The main output of this survey are a number of "clean" cross-sectional and longitudinal microdata files. This section presents a brief summary of the processing steps involved in producing these files.

7.1 Data Capture

Capture of LMAS data was accomplished using minicomputers located in each of Statistics Canada's Regional Offices. During this process any document containing at least one interviewer-completed item was captured and an unedited version of the computer record electronically transmitted to Ottawa for further processing. The number of documents and bytes of information that were captured and transmitted are;

Year	Documents	Bytes of Information
1986	67,506	9,645,398
1987	148,807	17,901,446

7.2 Editing and Correction of the LMAS

The first stage of survey processing undertaken at head office was the replacement of any 'out-of-range' values on the data file with blanks. This process was designed to make further editing easier.

The second stage of survey processing involved subjecting individual survey records to a computer edit to determine which of the jobs reported by respondents had sufficient information to be retained. At this point certain jobs and records were dropped because they did not meet the specified minimum requirement. The number of records and jobs dropped by year can be found at the end of this section.

The third stage of survey processing involved editing all remaining survey records to identify errors, gaps and inconsistencies in the survey data. Four particular types of errors were treated, each of which are described below, and are followed by a table indicating the number of corrections:

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

The second type of errors treated were also errors of questionnaire flow, but in this case involved a lack of information in questions which should have been answered. Errors of this type were flagged in a computer edit and

responses randomly imputed from similar records matched on a set of characteristics chosen to reflect likely variations in survey response.

The third type of errors treated involved incomplete reporting of job start dates, job end dates, and the dates of any work interruptions. Errors of this type were identified by a separate computer edit and missing values randomly imputed from similar records matched on a set of characteristics chosen to reflect underlying patterns of survey response. In this case, however, the incomplete dates were used to further restrict the possible set of donor records to those records with spells of similar durations.

Errors of the fourth type involved cases where the information reported for individual jobs was found to be inconsistent or to leave periods in the reference year unaccounted for. These errors were identified by a third computer edit which derived and compared a weekly labour force status vector for all reported jobs. Wherever possible, this computer edit used other dates reported on the questionnaire to force agreement automatically. The balance of errors of this type were reviewed and corrected manually by a senior analyst. In each such case the record was cycled back through the edit to identify any residual errors.

Error Types by Survey Years

	1986	1987	1988	1989	1990
Person records dropped	266	N/A	N/A	N/A	766
Jobs dropped	582	N/A	N/A	1,361	576
Second error type:					
# of records	5,018	N/A	7,229	5,157	10,424
# of imputations	12,143	N/A	9,811	7,109	14,492
Third error type:					
# of dates imputed	9,945	N/A	16,174	7,916	10,052
Fourth error type:					
inter-job corrections done automatically	2,160	N/A	1,880	2,229	1,830

Note: The transfer of job information from year 1 into year 2 for longitudinal jobs necessitated less imputing of job related characteristics.
N/A - Not Available

7.3 Editing and Correction of the Longitudinal LMAS files

The processing system for the second and subsequent years of longitudinal file preparation (1987, 1989, and 1990) differed in many respects from that used in first years (1986 and 1988) in order to accommodate the longitudinal nature of the file.

7.3.1 The Demographic Edit for 1987, 1989, and 1990

Demographic characteristics for individuals that were sampled again in the succeeding survey years, 1987, 1989, and 1990, such as age, gender, marital status, and educational attainment and family composition variables such as relationship to head of family were edited with simultaneous regard for other individuals in the family and the previous year's data. Thus, for example, longitudinal respondents, as a matter of course, were aged by one year for the 1987 reporting year and were required to maintain their 1986 gender. In addition, any illogical change in status such as a decrease in level of educational attainment or a shift from married to single (never married), was disallowed. Simultaneously, each person's age and gender as reported for any succeeding year's data were not permitted to conflict with the person's reported relationship to the head of the family of which he/she was currently a member. Inconsistencies were manually corrected in such a manner as to minimize the number of data fields altered. To the extent possible, the logical relationships used to edit these data were those used by the Labour Force Survey in its editing of demographic and family variables.

7.3.2 Longitudinal Job Linkage

One of the problems which plagues interview-based longitudinal surveys is the reconciliation of discrepancies which occur at the "seam" between survey reference periods. These errors arise from faulty recall, differing information sources for the two years (such as may occur in the case of proxy reporting), or as a result of errors introduced during capture or processing. In order to minimize inter-survey discrepancies, the 1987, 1989, and 1990 LMAS included a document called the Longitudinal Confirmation Card (Form 09) which was used to confirm the existence of any job held across the reference period boundary between any two years 1986 to 1987, 1988 to 1989, and 1989 to 1990. Where the respondent was unable to confirm the existence of a given job, an attempt was made to determine if and when they had last worked for that employer. For example in 1987 a total 39,359 Form 09's, containing 41,072 jobs, were provided to interviewers prior to the interview for confirmation. Of these jobs, 40,054 (97.5%) were

subsequently confirmed by respondents. To avoid terminating all unconfirmed jobs for a specific year on the same date, an end date was imputed based on similar records.

A second problem which plagues interview-based longitudinal surveys is the problem created by the reappearance of jobs which were reported to have ended during the course of the previous reference year. In order to avoid overstating estimates of jobs created in 1987, 1989, and 1990, all "new" jobs (e.g., jobs with start dates in 1987) were compared to jobs which ended in the previous year. Where the "new" jobs could be matched on employer name, kind of business, kind of work, usual activities and duties, class of worker, and wage rate, the "new" job was deemed to be a continuation of the "old" job. A total of 4,087 1987 jobs were manually linked to 1986 jobs in this fashion.

The balance of the succeeding year's survey processing system closely resembled the system used in the first year (1986 or 1988, depending on the longitudinal file in question). Thus in 1987, for example, a total of 19,477 imputations were performed on a total of 10,008 records to correct errors of questionnaire flow; 7,188 incomplete dates were imputed and 2,411 edit failures involving inconsistencies between jobs were corrected automatically by an edit program.

7.4 Weighting

The principle behind estimation in a probability sample such as the LFS is that each person in the sample "represents", besides himself or herself, several other persons not in the sample. For example in a simple random 2% sample of the population, each person in the sample represents 50 persons in the population. The weighting phase is a step which calculates, for each record, what this number is and places it on the microdata file for each record. This weight must be used to derive estimates from the microdata file. For example, if the number of persons who are married is to be estimated, it is done by selecting the records referring to those persons in the sample with that characteristic and summing the weights entered on those records.

Details of the method used to calculate these sampling weights are presented in Appendix B.

7.5 Creation of Derived Variables

A number of data items on the microdata file have either been coded from open-ended responses recorded by interviewers or derived by combining a number of items on the questionnaire. The following section outlines how each of these variables was derived.

7.5.1 Coding of Industry and Occupation

For each job held by a respondent, the LMAS questionnaire collected information on the name of the employer, the kind of business, industry or service the employer was in, the kind of work done and the usual duties or responsibilities of the respondent in the job. This information was used to assign industry and occupation codes to each job using the 1980 version of Statistics Canada's Standard Industrial and Occupational Classifications.

Three different methods were used to assign these codes, the use of each of these methods is displayed in a chart below. If a particular job was the main job held by the respondent during the previous month (as identified from the previous month's LFS interview), the three-digit industry and the four digit occupation codes assigned by the regular LFS processing system were accepted.

Where a particular job was not assigned in this manner, the information on the name of the employer, etc. was put through the automated coding system used by the LFS and where a match to the database of descriptions was obtained, the appropriate industry and/or occupation codes were assigned.

The remaining jobs were coded manually by a staff of experienced coders and the coded values linked to the survey data file.

Year	# Coded by LFS Previous Month Code*	# Coded by LFS Data Base Search	# Coded Manually
1986	49,828	5,034	8,115
1987	N\A	6,119	11,325

* Includes Jobs that were continued from previous year.

7.5.2 Labour Force Status Variables

A week in the LMAS is defined as starting on Sunday and ending on Saturday. The first week for a survey year ends on the first Saturday of the year, the last week starts on the last Sunday of the year. A cross-sectional year is normally composed of 53 weeks. Given the definition of first and last week, some overlap days for the preceding and following year will be captured. The exception to this is the 1989 cross-sectional file which happens to have all the days fully falling within the 52 weeks of the calendar year.

The longitudinal file labour force status variables for 1986-87 only require 105 individual variables or weeks to cover every day for the calendar years 1986 and 1987. Week 53 of 1986 and week one of 1987 are the same week.

The LMAS microdata consists of two types of Labour Force Status (LFS) Variables: "Job Status" variables and "Composite Labour Force Status" variables.

The Job Status Variable

The LFS variables (known as job status variables) provide the labour force status for each of the possible five jobs by survey week within the survey year. An example of a LFS variable by job would be LFS18601 to LFS18653 for the 1986 cross-sectional file. There will be a "00" for every week before the start of a job or after the termination of a job. A week where work was performed for a job is indicated by a "01" (working). One day of work in a week is sufficient to classify that week as a week of working at the job.

An exception to the "one day working constitutes the entire week worked code 01" status was applied to the 1987 cross-sectional files, where an a absence was so short, e.g. 7 days, that some work was performed in both calendar weeks straddled by the absence. In these cases the second calendar week of the absence was assigned one of the nineteen reasons for interruption.

Similarly, when a person returned for only one day of work and returned to another absence, the 1987 Job status variables will show a continuous absence, ignoring the day of work. Because absence information was not collected on the 1987 LMAS for on-call workers, this latter situation should be a rare occurrence. The pattern of work of on-call workers is measured in another way, that is, by monthly schedule information, e.g., weeks per month and days per week worked.

For weeks in which a person was on an interruption from

a job or absent without pay, a different coding system was used to represent the reason for the interruption among survey years. Appendix C (1986 and 1987, 1986-87, 1988 and 1989) provides an equivalency table for interruption codes among years.

A set of interruption variables for job spells also uses a similar coding structure to explain the main reason for temporarily stopping work for a given job. In the 1986 cross-sectional file Q34, Q41 and Q48. These variables are coded the same way as the labour force status by job by week (second type of LFS variable).

The first non-zero (00's) value in a set of job status variables for a given job is a 01 code except where the respondent indicated January 1, 1986 as the job start date and also as an interruption start date. In this case the not working status at the beginning of the reference period is reflected by the appropriate code (11 to 42) in the job status variables for all appropriate weeks.

Since the LMAS collects detailed information for a maximum of four interruptions per job per reference year we have, for the part of the reference year covered by these interruptions, based the labour force status variables on fact. For the small percentage of respondents experiencing more than three interruptions in 1986 (0.6%) or more than four interruptions in 1987 (0.06%), we have chosen to simulate the work pattern between the end of the fourth non-working spell and the date last worked using the individual's average spell duration as a basis for assignment. In these cases the interruption code for the fourth interruption is replicated in the fifth and any subsequent interruption.

Composite Labour Force Status Variables:

To permit analysis of annual activity patterns and week-to-week transitions in labour force activity, a group of composite labour force status variables by week were derived from information on all jobs, job interruptions, and inter-job non-working periods. The composite labour force status variables provide a unique account of the labour force activity for every job, by survey week within the survey year (normally 53 weeks). An example of a cumulative LFS variables would be, CLFS8601 to CLFS8653 for the 1986 cross-sectional year. These variables classify each week into one of the following labour force categories:

1. working at a job or self-employed (code 1).

2. not working , and looking for work or on temporary lay-off (code 2).

3. not working or looking for work but wanting a job (code 3). (Commonly referred to as discouraged worker syndrome).

4. not working and not wanting a job, inactive (code 4).

Calculation of the composite labour force status vector begins with setting to 1's positions corresponding to any week in which work was done, even for a day, in any of the person's jobs. If the respondent did not work any job code 2's, 3's and 4's assigned based on whether job search was reported, length of continuous job search, whether there was a desire to work, and the reason for termination or stopping of work.

When calculating the composite labour force status for an individual with more than one job, information on individual jobs by week is combined using an LFS type hierarchical classification scheme. Thus work at one job overrides an absence from work at another job, given that both activities occur during the same week. Similarly job search activity before a job predominates over an absence from another job with no job search activity when determining a labour force category for a given week. For the part of the reference year after the end of the most recently held job, monthly data on job search and desire for work (1986, form 08 questions Q74-Q101, 1987 form 08 questions Q98-Q104) were converted to weekly statuses of 2,3,4's.

Note to previous LMAS tape users: Names and structure of some variables have been changed to facilitate the production of the CD-ROM product. For example the tape product treated the Labour Force Status variables as a vector, one variable string 106 positions wide representing the labour force status as one variable for all 53 weeks.

7.5.3 Calculation of Total Hours Worked per Job, All Jobs

For each job held, the number of hours worked in the reference year is derived by summing the number of hours worked in each employment spell, assuming the usual work schedule reported (1986, form 08 questions Q58, Q59 and Q60, 1987, form 08, questions Q77, Q78, Q79) for the four week 28 day 'lunar' month. A month-specific correction factor has been incorporated into the calculation to reflect the actual number of days in the month as compared to a 'lunar' month. These job-specific totals are subsequently summed to yield a total hours worked at all jobs in the reference year. A similar variable is provided which sums the total for both reference years.

To calculate average hourly wage rates at the aggregate level or for particular sub-groups of the population (for example, by age, sex, industry, occupation, etc.), the following method is recommended:

$$\text{Average Hourly Wage Rates} = \frac{\ä[R(i)*W(i)*H(i)]}{\ä[W(i)*H(i)]}$$

Where:
R(i) is the hourly wage rate for person i
W(i) is the record weight for person i
H(i) is the number of usual hours worked per week at the main job for person i

This method compensates for the variation in hours worked among individuals by giving greater weight to those working longer hours. LMAS tabulations and analytical studies originating from Statistics Canada will be based on this method of calculating average hourly wage rates.

An alternative methodology is to omit the hours worked variable H(i) from the linked formula. This may be a more appropriate technique for some applications.

7.5.4 Calculation of Hourly Wage Rates for Paid Workers

For analytic convenience, any usual wage or salary which was not reported on an hourly basis has been converted to an hourly-equivalent wage rate. The following table shows the various calculations used in this conversion when the period to which the reported value applied was known. In addition to the basic hourly rate provided for each job held in 1987, a second hourly rate has been provided which incorporates the amount of tips, bonuses

or paid overtime received in the year (as reported in Q89) divided by the total number of hours worked in the reference year.

Formula Used to Calculate Hourly Wage Rates

Reported Pay Period	1986	1987
Daily	Q67/Q60	Q90/Q79
Weekly	Q67/(Q59xQ60)	Q90/(Q78xQ79)
Bi-weekly	Q67/[(Q58xQ59xQ60)/2]	Q90/[(Q77xQ78xQ79)/2]
Twice a month	Q67/ [(A.F.xQ58xQ59xQ60)/2]	Q90/ [(A.F.xQ77xQ78xQ79)/2]
Monthly	Q67/(A.F.xQ58xQ59xQ60)	Q90/(A.F.xQ77xQ78xQ79)
Yearly	Q67/ [(A.F.xQ58xQ59xQ60)x12]	Q90/ [A.F.xQ77xQ78xQ79)x12]

Where:
Q67 and Q90 = dollar amount, to two decimal places
Q58 and Q77 = number of weeks worked per month (1-4)
Q59 and Q78 = number of days worked per week (1-7)
Q60 and Q79 = number of hours worked per day (1-24)
A.F. = adjustment factor of 1.08631, i.e. 365/12x4x7 carried to five decimal places

7.5.5 Calculation of Total Reference Year Earnings from Paid Employment - All Paid Workers Jobs

To derive total Reference Year earnings from paid employment for all jobs, the total earnings from each job is first computed by multiplying the hourly wage rate by the total hours worked in the reference year. These values are then summed to yield the 'all jobs' total. A similar total is provided which relates to both reference years.

7.5.6 Derivation of Path Flag

For each job reported on the LMAS, an indicator has been created which defines the nature of the work pattern experienced in the reference year with regard to that job. Each of the different work patterns possible is described as a 'path', indicating essentially the chronological flow of questions used in the interview. The following illustration shows how this indicator relates to the LMAS questionnaire used in each reference year and derived variables on the microdata files.

7.5.7 Derivation of Visible Minority Status, Q121A, 1987

The 1987 LMAS contained a series of questions (Q121, Q122, Q125, Q126 and Q127) designed to identify persons who would be counted as visible minorities under the Employment Equity Act, Bill C-62 and its associated regulations.

On the LMA microdata files an individual is identified as a visible minority if:

a) he/she answered "yes" to any element of Q121 parts A through N;
b) he/she reported an ethnic or cultural group in Q122 which was, on manual inspection, deemed to meet the criteria set out for visible minorities under Bill C-62;
c) he/she indicated a religion or mother tongue which, on manual review in conjunction with his/her response to Q121 and Q122, would qualify as a visible minority under Bill C-62.

7.5.8 Derivation of Migration Variables

As mentioned earlier in this document, the 1987 LMAS attempted to trace and interview all respondents to the 1986 survey, as did the 1989 LMAS, and the 1990 LMAS. Where a 1986 respondent was successfully recontacted, the 1987 questionnaire collected a number of items including a current address (Q129). This variable has been used to derive a migration variable for each of these years for those individuals who move, PROV87, PROV89, and PROV90 which specifies the current province of usual residence. Both of these variables have been created using postal codes. Since not all respondents were willing, or able, to provide a postal code for the new address, a small percentage of records do not have a value.

7.6 Creation of 'Public-use' Microdata Files

7.6.1 Cross-Sectional files

Two files have been created to facilitate analysis of data from the cross sectional component of the Labour Market Activities Survey. The first of these files, called the 'person file' contains all information pertaining to a particular respondent on one physical record. This file would be used to estimate person level characteristics, such as the number of persons experiencing unemployment in the reference year or the number of persons holding at least one unionized job in 1986.

The second file, called the 'job file', contains all the information pertaining to a job held by an individual in 1986, as well as the same personal characteristics and summary variables carried on the person file.

The 'job file' was created to simplify tabulation in studies for which the job, rather than the person, is to be the unit of analysis. This file would be used to generate estimates such as the number of jobs which are paying at or below the minimum wage, the number of jobs which are covered by a pension plan or a collective agreement or the number of jobs held by students.

7.6.2 Longitudinal Files

In order to facilitate analysis of data from the longitudinal component of the Labour Market Activity Survey a single public-use microdata file has been created.

File Organization

The longitudinal component file includes a separate record for each job held in the survey reference period, with a set of personal characteristics and summary variables duplicated on each record. Thus an individual holding three jobs during the reference period would have three separate records on which the same set of personal characteristics and summary variables would appear. A 'dummy' record has been included for any individual not having held a job in either 1986 or 1987. These records are the only records to have blanks in the variable JOBID-01.

Units of Analysis

The LMAS microdata file will support analyses based on several units of analysis including persons, jobs and paid work jobs. The balance of this section provides the appropriate record selection criteria for each of these units of analysis.

Jobs

For tabulations where jobs are the unit of analysis select all records with the class of worker variable COWJ1 equal to a numeric value. Such analysis would include the generation of estimates such as average weeks of employment by occupation.

Paid Work Jobs

For tabulations where paid work jobs are the unit of analysis, such as average wage rates, pension coverage, union density, etc., users should select all records with the Class of Worker Variable = Paid (COWJ1=1).

Self-employed Jobs

For tabulations where the self employed are the unit of analysis users should select records with the class of worker variable = 2 - 6 (COWJ1=2-6).

Persons

For most tabulations where persons are the unit of analysis, such as average weeks of employment or unemployment by province, users should select records with the variable PERFLAG=1.

This selection is not appropriate, however, for person level analysis where the user wants to express a job characteristic at the person level, e.g., the number of persons who worked at one or more unionized jobs in the reference period.

In cases such as the one above, the user must resort to reading all of a particular individual's job records to pick up the relevant variables on each. In SAS, this can be easily achieved as follows:

```
DATA MASTER (KEEP=OLDID NU);
        * INITIALIZE OLDID AND NU;
    RETAIN OLDID  '         ' NU 0;
        * READ DATA FROM LMADAT;
    INFILE LMADAT END=LASTREC;
    INPUT   @ 0863 UJ86     $CHAR01.
        @ 0885 UJ87     $CHAR01.
        @ 0001 PID      $CHAR06.;
        * LOOK FOR NEW RESPONDENT;
    IF PID ª = OLDID
    THEN DO;
          * CREATE AN OBSERVATION IF ANY UNION JOBS
          * FOUND;
          * (ON FIRST RECORD, NU IS 0);
        IF NU > 0
        THEN OUTPUT;
        ELSE;
          * RESET NU AND OLDID;
        NU = 0;
        OLDID = PID;
     END;
    ELSE;
        * LOOK FOR UNION JOB FOR CURRENT RESPONDENT;
    IF UJ86 = '1' OR UJ87 = '1'
    THEN NU + 1;
    ELSE;
        * CREATE OBSERVATION FOR LAST RECORD ON FILE
        IF
        * NU > 0;
    IF LASTREC AND NU > 0
    THEN OUTPUT;
    ELSE;
```

OR, if file needs to be sorted by PID,

```
DATA MASTER (KEEP=PID);
        * READ DATA FROM LMADAT;
```

```
    INFILE LMADAT;
    INPUT   @ 0863 UJ86     $CHAR01.
       @ 0885 UJ87     $CHAR01.
       @ 0001 PID      $CHAR06.;
       * OUTPUT IF UNION JOB;
    IF UJ86 = '1' OR UJ87 = '1'
    THEN OUTPUT;
    ELSE;

PROC SORT;
       * SORT OBSERVATIONS BY PID FOR FUTURE
       PROCESSING;
    BY PID;

DATA UJCOUNT;
       * USE SORTED OBSERVATIONS;
    SET MASTER;
    BY PID;
       * INITIALIZE TUJ FOR NEW PID;
    IF FIRST.PID
    THEN TUJ = 0;
    ELSE;
       * INCREMENT TUJ BY 1;
    TUJ + 1;
       * CREATE OBSERVATION FOR LAST PID ONLY;
    IF LAST.PID
    THEN OUTPUT;
    ELSE DELETE;
```

7.7 Suppression of Confidential Information

It should be noted that the 'Public Use' microdata files described above differ in a number of important respects from the survey 'master' files held by Statistics Canada. These differences are the result of actions taken to protect the anonymity of individual survey respondents. Users requiring access to information excluded from the microdata files may purchase custom tabulations. Estimates generated will be released to the user subject to meeting the publication and release guidelines outlined in section 10 of this document.

1) Suppression of Geographic Identifiers

The LMAS master data files include explicit geographic identifiers for province, economic regions and Census Metropolitan Areas. It is also possible to obtain, where sample sizes permit, estimates by urban size class, for Census Divisions or for Canada Employment Centre service territories.

The LMAS public-use microdata files do not contain any geographic identifiers below the provincial level.

2) Suppression of Family Identifiers

The LMAS master data files allow the aggregation of individuals into economic families, and economic families into households. The LMAS public-use microdata files do not allow for such aggregation.

3) Grouping of Industry and Occupation Codes

Each job reported on the LMAS master data files have been assigned a three-digit 1980 Standard Industrial Code and a four-digit 1980 Standard Occupational Code. On the public-use microdata files each of these detailed codes have been collapsed into 52 and 49 groups respectively (see Appendices D2 and E2). For detailed SIC and SOC codes, see Appendix D and E respectively.

4) Suppression of Actual Dates

The dates upon which jobs and interruptions began and ended have not been included on the public-use microdata file. Actual dates have been replaced with a value which represents the week in which the event occurred, using the week beginning Sunday, December 31, 1900 as the reference point.

In summary, the formula used to convert the various dates reported on the LMAS questionnaire into the number of weeks that have passed since Sunday, December 31, 1900 is an algorithm which calculated the number of days since Sunday, December 31, 1900, then divided the resulting number of days by 7 to get the number of weeks. For example:

Week 01 of 1986 = Week 4435
Week 53 of 1986 = Week 4487

Week 01 of 1987 = Week 4487
Week 53 of 1987 = Week 4539

The exact algorithm is as follows:

```
IF YEAR = "00"
THEN OUT = "00"
ELSE DO:
    DAYS_UP_TO_THIS_YEAR = (YEAR - 1) * 365
    LEAP_DAYS = TRUNC(YEAR/4)
    DAYS_THIS_YEAR = DAYS_IN_PREVIOUS_MONTHS_ARY(MONTH)
    DAYS_THIS_MONTH = DAY

    IN THE FOLLOWING EQUATION, THE '+1'
    REFERS TO THE DAY OF DECEMBER 31, 1900

    OUT = (DAYS_UP_TO_THIS_YEAR + LEAP_DAYS +
        DAYS_OF_THIS_YR
        + DAYS_THIS_MONTH + 1)

    IF THIS IS A LEAP YEAR BUT THE DATE IS
    BEFORE MARCH, SUBTRACT 1 TO REPRESENT
    FEBRUARY 29

    IF (TRUNC(YEAR/4) = YEAR/4) AND MONTH < 3 THEN
    OUT = OUT - 1
    WEEKS = TRUNC(OUT/7)
```

5) Capping of Extreme Wage Rates and Associated Variables

Cross-sectional files

Two records with computed total earnings from all jobs in 1986 in excess of $150,000.00 have had their hourly wage rates reduced to values which yield yearly totals close to $150,000.00. In 1987 hourly rates which led to wage rates in excess of $150,000 were also adjusted to yield yearly totals close to $150,000.00. The 1988, 1989, and 1990 cross sectional files had wage rates capped at $110.00 per hour, and a small number of wage rates below this point were adjusted so that computed job-specific earnings do not exceed $220,000.00 per year.

Longitudinal files

Hourly equivalent wage rates have been "capped" in the 1986-87 longitudinal file at a maximum of $50.00, i.e. any hourly rate exceeding $50.00 has been set to $50.00. In addition, a small number of wage rates below this $50.00 per hour threshold have been reduced to the point where computed job-specific earnings from all jobs do not exceed $100,000 per year. In the 1988-1989-1990 longitudinal file, hourly wage rates were capped at $110.00 per hour, and again a small number of wage rates below this point were adjusted so that computed job-specific earnings do not exceed $220,000.00 per year.

6) Selective Masking of Firm Size

Cross-sectional file

In order not to identify unique firms within industry and province, a single variable has been created which reflects the firm size for single location employers, and the establishment size for multi-location employers in 1986, this takes the place of Q70. For 1986, Q68 and Q69 have been suppressed completely, as have the corresponding questions from the rest of the survey years.

In addition to these suppressions, the derived firm size variable has been selectively masked in 4 cases where a work interruption due to strike or lockout would have uniquely identified a particular firm within industry and province.

Longitudinal file

Firm size for single-establishment firms has been selectively masked where it describes a firm which is unique in terms of industry within province. This masking has been effected by recoding the firm size variable for particular jobs to the nearest higher or lower value.

7) Grouping of Actual Age

Actual age on the LMAS survey master file have been grouped into five year ranges.

8) Grouping of Educational Attainment

1986 and 1987 Cross-Sectional and 1986-87 Longitudinal Files

Detail on actual years of primary and secondary schooling has been grouped into a five-category educational-attainment variable.

1988, 1989, and 1990 Cross-Sectional and 1988-89-90 Longitudinal Files

For 1988, "graduations from high school" was approximated based on years in school and province forming a sixth category of education. For 1989 and 1990, the new LFS questions on educational attainment were used and "graduations from high school" reflects an actual response. Further a seventh category "trades certificate or diploma" was added. Users should note that the codes differ from those included on the regular LFS microdata files.

9) Grouping of Marital Status

The master file marital status categories of "widowed", "separated or divorced" and "other" have been collapsed into one category.

8. SAMPLING ERROR

The estimates that can be derived from this survey are based on a sample of individuals. Somewhat different estimates might be 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 those resulting from a complete count taken under similar conditions is called the sampling error of the estimates.

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 such as this, 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 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 .06 of persons aged 16-69 were unemployed throughout 1986 and that this estimate is found to have standard error of .009. Then the coefficient of variation of the estimate is calculated as:

$$\frac{.009}{.06} \times 100\% = 15\%$$

Before discussing how these measures can be obtained it is useful to describe the two main types of point estimates of population characteristics which can be generated from the microdata files for the Labour Market Activity Survey.

(1) Qualitative Estimates

Qualitative estimates are estimates of the number, the portion or percentage of the surveyed population possessing certain characteristics or falling into some defined category. The number of persons aged 16-69 who were employed at some time in 1986 or the proportion of Ontario's population that consists of females earning more than $40,000 in wages and salaries from

paid employment in 1986 are examples of such estimates.

In this context, an estimate of the number of persons possessing a certain characteristic is referred to as an estimate of an aggregate.

(2) Quantitative Estimates

Quantitative estimates are estimates of totals or of means, median and other measures of central tendency based upon some or all of the members of the surveyed population. They also specifically involve estimates of the form A/B where A is an estimate of the surveyed population total and B is an estimate of the number of persons in the surveyed population contributing to that total.

An example of a quantitative estimate based upon all members in the surveyed population is the mean age in 1986 of Canadians aged 16-69. Similarly, the mean weekly wage or salary of female paid employees aged 16-69 is an example of a quantitative estimate since its numerator is an estimate of the total wages/salaries for all female paid employees in the surveyed population and its denominator is an estimate of the number of female paid employees in the surveyed population.

8.1 Where to Obtain Coefficients of Variation for Qualitative Estimates

In order to supply coefficients of variation which would be applicable to a wide variety of qualitative estimates produced from this microdata tape and which could be readily accessed by the user, a set of 'look up' tables, referred to as Sampling Variability Tables, has been produced and included as Appendix F. (1986, 1987, 1986-87, 1988, 1989, 1990).

There is one set of tables pertaining to person characteristics (which are to be used in conjunction with estimates derived for persons and a second set of tables pertaining to job characteristics (which are to be used in conjunction with estimates derived for jobs. Within each set, there are individual tables for each of the provinces as well as for Canada. It is to be noted that all coefficients of variation in these tables are approximate and, therefore, unofficial.

These coefficients of variation are derived using the variance formula for simple random sampling and incorporating a factor which reflects the multi-stage, clustered nature of the sample design. This factor, known as the design effect, has been determined by first calculating design effects for a wide range of characteristics and then choosing from among these a conservative value which will not give a false impression of high precision. Estimates of actual variance for specific variables may be obtained from Statistics Canada on a cost-recovery basis. As noted in Section 10.3, use of actual variance estimates allows users to release estimates otherwise

unable to be released, i.e. estimates with coefficients of variation in the 'restricted' range.

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 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 unit of analysis (person or job) and 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, particularly if the percentages are .5 or (50%) or more. (Note that in the tables the cv's decline in value reading from left to right).

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

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

Rule 3: Estimates of Differences Between Aggregates or Percentages

The standard error of a difference between two estimates is approximately equal to the square root of the sum of squares of each standard error considered separately. That is, the

standard error of a difference (D = A - B) is:

å(D) = SQRT [(A à)** 2 + (B á)** 2]

where A is estimate 1, B is estimate 2, à and á are the coefficients of variation of A and B respectively, and (X)** 2 and SQRT (X) denote the square and square root functions of any value X. The coefficients of variation of D is given by å(D)/D. This formula is accurate for the difference between separate and uncorrelated characteristics but is only approximate otherwise.

Rule 4: Estimates of Ratios

In the case where the numerator is a subset of the denominator, the ratio should be converted to a percentage and Rule 2 applied. This would apply, for example, to the case where the denominator is the number of males and the numerator is the number of males who had a full-time job (for a given reference period).

In the case where the numerator is not a subset of the denominator, the standard error of the ratio of the 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 ratio (R = A / B) is:

å(R) = SQRT [(A à)** 2 + (B á)** 2]

where A is the numerator, B the denominator, à and á are the coefficients of variation of A and B respectively, and (X)** 2 and SQRT (X) denote the square and square root functions of any value X.

The estimate of the coefficient of variation of R is given by å(R)/R. The formula will tend to overstate the error, if A and B are positively correlated and understate the error if A and B 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. The following two 'real life' examples are included to assist users in applying the preceding rules.

Example 1

Suppose that a user estimates from the microdata file that 27,300 females in Manitoba employed part-time at one job in 1986 had no work interruptions from that job in 1986. How does the user determine the coefficient of variation of this estimate?

(1) Refer to the person characteristics table for Manitoba.

(2) The estimated aggregate, 27,300, 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 25,000.

(3) The coefficient of variation for an estimated aggregate is found by referring to the first non-asterisk entry on that row, namely, 7.7%.

(4) Therefore, the approximate coefficient of variation of the estimate is 7.7%.

Example 2

Suppose that the user estimates that 85.3 % of females in Manitoba employed part-time at one job in 1986 had no work interruptions from that job in 1986. This is the expression of the estimate obtained in Example 1 as a percentage of all Manitoba women aged 16-69 and employed part-time. How does the user determine the coefficient of variation of this estimate?

(1) Refer to the person characteristic table for Manitoba.

(2) Since the estimate is a percentage which is based on a subset of the total population (i.e., females employed part-time), it is necessary to use both the percentage (85.3%) and the numerator portion of the percentage (27,300) in determining the coefficient of variation.

(3) The numerator, 27,300, 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 25,000.

Similarly, the percentage estimate does not appear as any of the column headings, so it is necessary to use the figure closest to it, namely, 90.0%.

(4) The figure at the intersection of the row and column used, namely, 2.5% is the coefficient of variation to be used.

(5) Therefore, the approximate coefficient of variation of the estimate is 2.5%.

8.2 How to Obtain Coefficients of Variation for Quantitative Estimates

For quantitative estimates, special tables would have to be produced to determine their sampling error. Since the variables for the Labour Market Activity Survey are primarily qualitative 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 qualitative estimate (i.e., the estimate of the number of persons contributing to the quantitative estimates). If the corresponding qualitative estimate is not releasable, the quantitative estimate will not be either.

Coefficients of variation of such estimates can be derived as required for a specific estimate using a technique known as pseudo replication. This involves randomly 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.

8.3 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 and each sample leads 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, A, are generally expressed as two numbers, one below the estimate and one above the estimate, as (A-k, A+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 Sampling Variability Tables by first determining from the appropriate table the coefficient of variation of the estimate A, and then using the following formula to convert to a confidence interval CI:

$$CI(A) = \{A - t(A)\grave{a}(A), A + t(A)\grave{a}(A)\}$$

where $\grave{a}(A)$ is the determined coefficient of variation of A

t = 1 if a 68% confidence interval is desired
t = 2 if a 95% confidence interval is desired
t = 3 if a 99% confidence interval is desired

9. NON-SAMPLING ERROR

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

Over a large number of observations, randomly occurring errors will have little effect on estimates derived from the survey. However, errors occurring systematically will contribute to biases in the survey estimates. Considerable time and effort has been made to reduce non-sampling errors in the LMAS. Quality control measures have been implemented at each step of the data collection and processing cycle to monitor the quality of the data. These measures include the use of highly skilled interviewers, extensive training of interviewers with respect to the LMAS procedures and questionnaire, observation of interviewers to detect problems of questionnaire design or misunderstanding of instructions, procedures to ensure that data capture errors are minimized and coding and edit quality checks to verify the processing logic. Despite these efforts non-sampling error is bound to have some impact on LMAS estimates. The following section outlines the most likely sources of this error and its probable impact on the survey estimates.

9.1 Total Non-response

Total non-response is a major source of non-sampling error in many surveys. In the LMAS total non-response occurs because the household could not be contacted, no member of the household was able to provide the information, or members of the household refused to participate in the survey in either survey year. Total non-response is handled by adjusting the household sampling weight of responding households to compensate for missing households or missing individuals within responding households. Analysis of the characteristics of LMAS non-respondents suggests that total non-response is not a major source of non-sampling error.

9.2 Partial Non-response

Partial non-response in the LMAS may occur if the respondent refuses to answer a question, does not understand a question or, in the case of proxy reporting, if the person reporting does not know the answer to a question. Generally, partial non-response was not a problem in the LMAS. As a result, it is unlikely that partial non-response contributed significantly to non-sampling error. Two notable exceptions are discussed below.

Missing "Days"

The LMAS asks questions requiring detailed information regarding the dates that certain work activities began and ended. During processing, dates which contained at least the month and year were considered to be valid. "Day" values missing from any pair of dates defining a spell of labour market activity were imputed randomly from spells of similar duration drawn from donor records matched on demographic and labour market characteristics. This procedure was designed to preserve the distribution of spell durations within the demographic/labour market classes used, but does not guarantee that the distribution of the actual start or stop dates will be preserved. As a result, users interested in the exact timing of certain events, such as seasonal lay-offs, should contact Statistics Canada for more information about the impact of this imputation on their analysis.

Missing "Wage or Salary"

The item non-response rates for LMAS items pertaining to wage or salary information are considerably higher than observed for any other variables collected. Non-response rates are as follows:

Year	Item Non Response Rate
1986	9.0%
1987	11.0%
1988	14.5%
1989	14.2%
1990	21.5%

The method used to impute a value in these cases was designed to preserve the distributions of hourly wage equivalents within broad demographic and labour market groups. As a result, users may notice a blurring of the wage distribution within the detailed occupational or industrial codes provided.

9.3 Other Sources of Non-sampling Error

A number of other known sources of non-sampling error have been identified during the course of data processing and evaluation.

Although the impact on the overall quality of the estimates is thought to be small, detailed analysis of specific groups, such as "students", may be influenced to a much greater extent.

Estimates Based on "Usual Work Schedule" Items

The questions pertaining to the work schedule (Q58, Q59, Q60 in 1986, Q77, Q78, Q79 in 1987) require a response rounded to a whole number. Thus, persons who reported working 7.5 hours a day would have had this value rounded to 8 hours per day. This could cause an overestimate of the total number of hours worked in the year of up to 7% for a five days per week full year worker. In the absence of evidence to the contrary, however, one might expect that errors due to rounding up in the work schedule items will tend to be offset by those due to rounding down.

The work schedule questions also require respondents to report a usual work schedule for the entire period they held the job. This can be a very difficult task for those respondents who experienced repeated periods of overtime and/or short hours, and a certain amount of "averaging" error is to be expected.

Estimates Based on "Usual Wage or Salary" Items for 1986

Item Q67 of the 1986 LMAS questionnaire asked respondents to report their usual gross wage or salary, including tips and commissions, for each paid job held in the reference year. In cases in which respondents reported a dollar amount, a rate and some form of secondary remuneration without placing an absolute value on the secondary source (e.g., $40/day plus a share of the catch, $450/week + 5% commission) the hourly rate of pay reflects only the dollar amount reported. As a result, hourly wage rates will be biased downward for these groups. In 1987 the inclusion of Q91 allowed the respondent's total annual earnings at the job to be used in the computation of an actual hourly rate for these jobs.

Cases were also encountered in 1986 in which respondents reported a piece rate without specifying the number of units to which it applied (e.g., $40/cord cut, $1/pint picked, $0.35/mile driven). Although such cases were randomly imputed from donor records with similar demographic and labour market characteristics, the matching criteria used in this imputation did not control for the very specific industries and occupations involved. As in the previous case, this problem was rectified in the 1987 survey.

LMAS also identified a small number of cases of individuals working in sheltered workshops in which the wage rate was

considerably below that being paid by the "open" market. Inclusion of these individuals in calculations of average wage rates will tend to draw down the calculated averages.

A small number of individuals reported having jobs which required being "on duty" 24 hours a day (e.g., priests, camp counsellors, offshore roustabouts). Inclusion of these individuals in average wage rate calculations will also tend to draw down the calculated averages.

It should also be noted that fringe benefits, outside of payment in kind, were not covered by this survey. An individual's effective wage or salary is usually more accurately reflected by the total compensation received, since more extensive fringe benefits are often granted in lieu of higher earnings.

Estimates of Participation in Canadian Jobs Strategy Programs

Items Q104 in 1986 and Q116 in 1987 were designed to identify participation in programs sponsored by Employment and Immigration Canada under the Canadian Jobs Strategy. Such identification is notoriously difficult, largely due to the fact that participants have difficulty recalling the exact name of the program in which they are enrolled. The LMAS proved to be no exception to this rule with 173 1986 respondents reporting participation in the non-existent "Work Experience Program", which had been added to provide a measure of response quality. As a result, users should exercise caution when analyzing individual CJS programs.

Simulated Labour Force Status Vectors for the Period After the Fourth Interruption

As mentioned in Section 7.3.2 we have chosen, for the sake of completeness, to simulate work patterns for the period of time between the end of the fourth interruption and the job end date. Although one could expect the bias to be small given the small number of records involved, any bias which does exist will tend to be concentrated towards the end of the reference year. Users with a particular interest in the timing and duration of spells may test the sensitivity of their analysis by excluding jobs with J(N)PATH=4.

Estimates of Changes for Demographic and Job Characteristics

It is possible to estimate rates of change for a number of demographic and job characteristics from the 1986-1987 and 1988-1990 longitudinal files. For example, one can estimate the number of individuals getting married or separated between the two reference years, or the number of jobs becoming unionized from one year to the next. Users should approach such analysis with caution, particularly where the incidence of the event is low. In these cases "noise" from the various sources of non-sampling error may, in fact, be equal or greater in magnitude than the actual phenomenon of interest.

10. PUBLICATION AND RELEASE GUIDELINES

IT IS IMPORTANT FOR USERS TO BECOME FAMILIAR WITH THE CONTENTS OF THIS SECTION BEFORE PUBLISHING OR OTHERWISE RELEASING ANY ESTIMATES DERIVED FROM THE MICRODATA TAPES OF THE LABOUR MARKET ACTIVITY SURVEY.

This section of the documentation outlines the guidelines to be adhered to by users publishing or otherwise releasing any data derived from the survey microdata tapes. With the aid of these guidelines, users of microdata should be able to produce the same figures as those produced by Statistics Canada and, at the same time, will be able to develop currently unpublished figures in a manner consistent with these established guidelines. This section consists basically of four sub-sections: rounding guidelines; sample weighting guidelines; sampling variability guidelines and guidelines for statistical analysis.

10.1 Rounding Guidelines

In order that estimates for publication or other release derived from these microdata tapes will 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 thousand 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 1000, if the last three digits are between 000 and 499, they are changed to 000 and the preceding digit (the thousands digit) is left unchanged. If the last digits are between 500 and 999 they are changed to 000 and the preceding digit is increased 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 1000 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 1000 units or the nearest one decimal using normal rounding.

e) In instances where, due to technical or other limitations, a rounding technique other than normal rounding is used resulting in estimates to be published or otherwise released which differ from corresponding estimates published by Statistics Canada, users are urged to note the reason for such differences in the publication or release document(s).

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

10.2 Sample Weighting Guidelines for Tabulation

The sample design used for the Labour Market Activity Survey was not self-weighting. When producing sample estimates, including the production of ordinary statistical tables, users must apply the sampling weights placed on the individual microdata tape records. Otherwise, the estimates derived from the microdata tapes 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, because of their treatment of the weight field, may not allow the generation of estimates that exactly match those available from Statistics Canada.

10.3 Sampling Variability Guidelines

Before releasing and/or publishing any estimate from these microdata tapes, users should determine its coefficient of variation and follow the guidelines below.

Sampling Variability Guidelines for
The Labour Market Activity Survey

Type of Estimate	cv (in %)	Guidelines
1. Unqualified	0.0 - 16.5	Estimates can be considered for general unrestricted release. Requires no special notation.
2. Qualified	16.6 - 25.0	Estimates can be considered for general unrestricted release but should be accompanied by a warning cautioning subsequent users of the high sampling variability associated with the estimates. Such estimates should be identified by the letter Q (or in some other similar fashion).
3. Confidential	25.1 - 33.3	Estimates can be considered for general unrestricted release only when sampling variabilities are obtained using an exact variance calculation procedure. Unless such variances are obtained, such estimates should be deleted and replaced by dashes (---) in statistical tables.
4. Not for Release	(i) 33.4 or greater OR	Estimates cannot be released in any form under any circumstances. In statistical tables, such estimates should be deleted and replaced by dashes (---).
	(ii) any estimate less than 4,000 (after rounding) regardless of cv	

Note: These sampling variability guidelines should be applied to rounded estimates.

10.4 Guidelines for Statistical Analysis

The LMAS is based upon a complex design involving stratification and 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.

While many analytical 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. In many cases, the estimates produced by the packages are correct but the variances that are calculated are almost meaningless.

For many analytical techniques (for example linear regression, logistic regression, estimation of rates and proportions and analysis of variance), a method exists which can make the variances calculated by the standard packages more meaningful.

If the weights on the data are rescaled so that the average weight is one (1), then the variances produced by the standard packages will be more reasonable. The variance will still not take into account the stratification and clustering of the sample's design, but they will take into account the unequal probabilities of selection. The rescaling can be accomplished by dividing each weight by the overall average weight before the analysis is conducted.

Appendix G provides a short list of publications which have used the Labour Market Activity Survey data.

APPENDIX A

LMAS Dwelling Sample Dispositions by Province

Dwelling Sample Disposition by Province, LMAS, 1986

Province	Total Sample of Dwellings	Eligible Dwellings	%	Non-responding Households	%	Responding Households	%
Newfoundland	2550	2184	85.6	68	3.2	2116	96.9
Prince Edward Island	1370	1187	86.6	12	1.0	1175	99.0
Nova Scotia	3323	2909	87.5	97	3.3	2812	96.7

New Brunswick	3307	2949	89.2	108	3.7	2841	96.3
Quebec	6684	5849	87.5	203	3.5	5645	96.5
Ontario	8388	7658	91.3	269	3.5	7389	96.5
Manitoba	3362	3067	91.2	152	5.0	2915	95.0
Saskatchewan	4515	4034	89.3	179	4.4	3855	95.6
Alberta	6366	5624	88.3	270	4.8	5354	95.2
British Columbia	4695	4118	87.7	159	3.9	3959	96.1
CANADA	44560	39579	88.8	1517	3.8	38061	96.2

Person Sample Disposition by Province, LMAS, 1986

Province	Total sample of eligible persons for whom LMAS data should have been obtained	Eligible persons for whom LMAS data was obtained	Individual response rate on micro file (percent)
Newfoundland	4772	4627	4556	97.0
Prince Edward Island	2254	2173	2150	96.4
Nova Scotia	5224	5073	5010	97.1
New Brunswick	5520	5399	5331	97.8
Quebec	11222	10559	10511	94.1
Ontario	14079	12960	12888	92.1
Manitoba	5004	4767	4735	95.3
Saskatchewan	6693	6364	6304	95.1
Alberta	9710	9079	8990	93.5
British Columbia	6998	6515	6459	93.4
CANADA	71456	67516	66934	94.5

* These are eligible persons for whom LMAS data was obtained minus those persons dropped during data processing

The difference between column 1 and column 2 is due to non-response

Dwelling Sample Disposition by Province, LMAS, 1987

Province	Total Sample of Dwellings	Eligible Dwellings %	Non-responding Households %	Responding Households %
Newfoundland	2578	2260 87.7	281 12.4	1979 87.6
Prince Edward Island	1409	1237 87.8	203 16.6	1034 83.4
Nova Scotia	3723	3375 90.7	517 15.3	2858 84.7
New Brunswick	3400	3093 91.0	468 10.1	2625 89.9
Quebec	7623	6907 90.6	818 11.8	6089 88.2
Ontario	9204	8728 94.8	1266 14.5	7462 85.5
Manitoba	3967	3749 94.5	626 16.7	3123 83.3
Saskatchewan	4879	4476 91.7	828 18.5	3648 81.5
Alberta	7454	6972 93.5	1030 14.8	5942 85.2
British Columbia	5213	4787 91.8	778 16.3	4009 83.7
CANADA	49450	45584 92.2	6815 15.0	38769 85.0

Dwelling Sample Disposition by Province, LMAS, 1988

Province	Total Sample of Dwellings	Eligible Dwellings %	Non-responding Households %	Responding Households %
Newfoundland	2586	1988 76.9	94 4.7	1894 95.3
Prince Edward Island	1428	1022 71.6	94 9.2	928 90.8
Nova Scotia	3355	2505 74.7	209 8.3	2296 91.7
New Brunswick	3362	2603 77.4	182 7.0	2421 93.0
Quebec	6942	5179 74.6	265 5.1	4914 94.9
Ontario	8509	6697 78.7	862 12.9	5835 87.1
Manitoba	3607	2534 70.2	339 13.4	2195 86.6
Saskatchewan	4566	3255 71.3	337 10.4	2918 89.6
Alberta	6423	5054 78.7	652 12.9	4402 87.1
British Columbia	4673	3555 76.1	385 10.3	3170 89.7
CANADA	45451	34392 75.7	3419 9.9	31003 90.1

Dwelling Sample Disposition by Province, LMAS, 1989

Province	Total Sample of Dwellings	Eligible Dwellings %	Non-responding Households %	Responding Households %
Newfoundland	2586	1998 77.3	162 7.6	1836 92.4
Prince Edward Island	1428	1017 71.2	92 8.0	925 92.0
Nova Scotia	3355	2520 75.1	218 8.7	2302 91.3
New Brunswick	3362	2625 78.1	213 8.1	2412 91.9
Quebec	6942	5178 74.6	285 5.5	4893 94.5
Ontario	8509	6678 78.5	832 12.5	5846 87.5
Manitoba	3607	2480 68.8	233 9.4	2247 90.6
Saskatchewan	4566	3150 69.0	259 8.2	2891 91.8
Alberta	6423	5102 79.4	603 11.8	4499 88.2
British Columbia	4673	3543 75.8	280 7.9	3263 92.1
CANADA	45451	34291 75.4	3177 9.3	31114 90.7

Dwelling Sample Disposition by Province, LMAS, 1990

Province	Total Sample of Dwellings	Eligible Dwellings	%	Non-responding Households	%	Responding Households	%
Newfoundland	2586	2034	78.6	134	6.6	1900	93.4
Prince Edward Island	1428	984	69.9	113	11.5	871	88.5
Nova Scotia	3355	2145	74.4	351	14.1	2145	85.4
New Brunswick	3362	2604	77.4	259	10.0	2345	90.0
Quebec	6942	5300	76.3	501	9.5	4799	90.5
Ontario	8509	6759	79.4	783	11.6	5976	88.4
Manitoba	3607	2384	66.1	262	11.0	2122	89.0
Saskatchewan	4566	3193	70.0	308	9.6	2885	90.4
Alberta	6423	5166	80.4	635	12.3	4531	87.7
British	4673	3702	79.2	322	8.7	3380	91.3
CANADA	45451	34622	76.2	3668	10.6	30954	89.4

Eligible dwellings are defined as in-scope and containing persons eligible to be interviewed.

Calculation of non-reponding and responding households is based on dwellings in-scope and not the total sample of dwellings.

APPENDIX B

Weighting Procedures for the 1986 Labour Market Activity Survey

Since the 1986 Labour Market Activity Survey used a subsample of the LFS sample, the derivation of weights for the survey records for the year is clearly tied to the weighting procedure used for the LFS. The LFS weighting procedure is briefly described below.

B.1 LFS Weighting

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, the rural-urban factor and the province-age-sex ratio adjustment factor. Each is described

below.

B.2 Basic Weight

In a probability sample, the sample design itself determines weights which must be used to produce unbiased estimates of the population. Each record must be weighted by the inverse of the probability of selecting the person to whom the record refers (in the example of a 2% simple random sample, this probability would be .02 for each person and the records must be weighted by 1/.02=50). Because all eligible individuals in a dwelling are interviewed (directly or by proxy), this probability is essentially the same as the probability with which the dwelling is selected.

B.3 Cluster Sub-weight

The cluster delineation is such that the number of dwellings in the sample increases very slightly with moderate growth in the housing stock. Substantial growth can be tolerated in an isolated cluster before the additional sample represents a field collection problem.

However, if growth takes place in more than one cluster in an interviewer assignment, the cumulative effect of all increases may create a workload problem. In clusters where substantial growth has taken place, sub-sampling is used as a means of keeping interviewer assignments manageable. The cluster sub-weight represents the inverse of this sub-sampling ratio in clusters where sub-sampling has occurred.

B.4 Non-response

Notwithstanding the strict controls of the LFS, some non-response is inevitable, despite all the attempts made by the interviewers. The LFS non-response rate is approximately 5%. For certain types of non-response (household temporarily absent, refusal), data from a previous month's interview with the household if any, is brought forward and used as the current month's data for the household.

In other cases, non-response is compensated for by proportionally increasing the weights of responding households. The weight of each responding record is increased by the ratio of the number of households that should have been interviewed, divided by the number that were actually interviewed. This adjustment is done separately for geographic areas called balancing units. It is based on the assumption that the households that have been interviewed represent the characteristics of those that should have been interviewed. To the extent that this assumption is not true, the estimates will be somewhat biased.

B.5 Rural-urban Factor

In NSRU's without sufficient rural and urban population for explicit urban and rural strata to be formed, each primary sampling unit (PSU) is composed of both urban and rural parts. Information concerning the total population in rural and urban areas is

available from the 1981 Census for each PSU as well as for each economic region (ER) in which explicit urban/rural stratification is not done. Comparison by ER with the actual 1981 rural or urban census counts indicates whether the selected PSU's over- or under-represent the respective areas. The ratio of actual rural-urban counts is divided by the corresponding estimates. These two factors are computed for each relevant ER at the time of selection of the PSU's and are entered on each sample record according to the appropriate area (rural or urban) of the NSRU. Changes in these factors are incorporated at the time of PSU rotations.

B.6 Subprovincial and Province-Age-Sex Adjustments

By applying the previously described four weighting factors, a valid estimate can be derived for any characteristic for which information is collected by the LFS. In particular, estimates are produced of the total number of persons 15+ in provincial economic regions and the 24 large metropolitan areas as well as of designated age-sex groups in each of the ten provinces.

Independent estimates are available monthly for each of these classes from projections based upon the 1981 Census counts. By using an interactive 'raking ratio' adjustment procedure, the weights derived to this point are adjusted by a multiplying factor to correspond to the independent estimate for the various classes. This factor is the ratio of the independent estimate to the survey estimate based upon the first four weighting factors. The effect of this final adjustment is to insure that basic provincial and total population counts for economic regions, and that age/sex distribution data published from the LFS correspond to other Statistics Canada data sources as well as to increase the precision of all estimates derived from the LFS.

B.7 Weighting for the 1986 Labour Market Activity Survey

The principals behind the calculation of the weights for the LMAS are identical to those for the LFS. However, three adjustments are made to the LFS weights in order to derive a final weight for the individual records on the LMAS microdata files.

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

(2) An adjustment to account for the additional non-response to the LMAS i.e., non-response to the LMAS for households which do respond to the LFS or for which previous month's LFS data is brought forward.

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

Adjustments (1) and (2) are taken into account by multiplying the LFS sub-weight (i.e., the weight resulting from the first four LFS weighting factors) for each responding LMAS record by:

$$\frac{\text{sum of LFS subweights of hhlds considered responding to LFS}}{\text{sum of LFS subweights of hhlds considered responding to LMAS}}$$

Weighting Procedures for the 1987 Labour Market Activity Survey

Since the 1987 Labour Market Activity Survey is based upon a sub-sample of the 1986 survey, the derivation of weights for survey records is based upon adjustments to the weight used in the 1986 survey. This weighting adjustment procedure is as follows:

B.8 Basic Weight

The basic weight for each eligible individual in 1987 is the final person weight for that individual from the 1986 master file (i.e, the final weight used to produce estimates for the 1986 survey).

B.9 Non-response

To account for eligible individuals who did not respond to the 1987 survey - for reasons such as a refusal to respond, an inability to contact or an inability to interview - the 1986 basic weight is adjusted to calculate a longitudinal weight. This adjustment is done at the LFS design stratum level as follows:

$$LW(87) = FW(86) \times \frac{NL}{Nh}$$

Where LW(87) is the longitudinal weight calculated for each eligible individual

FW(86) is the person's final weight in 1986

Nh is the number of persons in design stratum h who were eligible in 1986

NL is the number of eligible persons in design stratum l who responded to the 1987 survey.

Persons who were eligible in the 1986 survey but who became deceased, moved out of Canada, moved into an institution or became a member of the Canadian Armed Forces were considered to be members of the survey population for the two-year period and their 1986 sampling weights were also adjusted as described above (ie, they were included in the count of Nh).

APPENDIX C

Equivalency Tables for Reason for Interruptions/Job Termination

1986 and 1987 Cross Sectional Surveys:

A 11 Own illness or disability
B 12 Personal or family responsibilities (including changes in family circumstances, serious family illness, etc.)
C 13 Going to school
D 14 Quit job for no specific reason
E 15 Bad weather
F 16 Labour dispute (strike or lockout)
G 17 Unpaid vacation
H 18 Changed residence
I 19 Retired
J 21 Seasonal nature of job
K 22 Non-seasonal economic or business conditions
L 23 Company moving or going out of business
M 24 Installation of or conversion to new equipment
N 25 An on-call arrangement
O 26 End of a temporary non-seasonal job

P 27 Dismissal by the employer
Q 28 Sale of the business or farm
R 29 Other
S 31 Low pay
T 32 No opportunity for advancement
U 33 No opportunity to use training or skills
V 34 Working conditions (physical conditions, transportation problems, or hours of work)
W 35 Other
X 40 Worried about job security, reduction in hours, or layoff
Y 41 Found a new job
Z 42 Other

1986-87 Longitudinal Survey:

A 11 Own illness or disability
B 12 Personal or family responsibilities (including changes in family circumstances, serious family illness, etc.)
C 13 Going to school
G 16 Labour dispute (strike or lockout)
H 17 Unpaid vacation
N 18 Changed residence
P 19 Retired
D 20 Seasonal nature of job
F 22 Non-seasonal economic or business conditions
O 23 Company moving or going out of business
K 25 An on-call arrangement
E 26 End of a temporary non-seasonal job
M 27 Dismissal by the employer
L 31 Low pay
Q 32 No opportunity for advancement
J 34 Working conditions (physical conditions, transportation problems, or hours of work)
R 40 Worried about job security, reduction in hours, or layoff
I 41 Found a new job
S 42 Other

Reasons for Job Interruptions: 1988, 1989

LFSV LFSVW54, Q29, Q60, Q70, Q80, Q90

51 A Own illness
52 B Accident
53 C Pregnancy
54 D Personal or family responsibilities
13 E Going to school
21 F Temporary layoff due to seasonal conditions
22 G Temporary layoff due to non-seasonal conditions
16 H Labour dispute
55 I Fully paid vacation
17 J Unpaid or partly paid vacation
56 K Fully paid education leave
41 L Found a new job
25 M An on-call arrangement
42 N Other

Reasons for Job Termination: 1988, 1989

Q100

11 A Own illness or disability
12 B Personal or family responsibilities
13 C Going to school
41 D Found a new job
34 E Working conditions
31 F Low pay
18 G Moved to a new residence
19 H Retirement
32 I No opportunity for advancement
40 J Worried about job security or reduction in hours
42 K,Q Other, left job, job ended
23 L Company moving or going out of business
21 M Seasonal nature of job
22 N Permanent layoff
16 O Labour Dispute
27 P Dismissal by employer

Note: Code 11 from 1986 has been split into codes 51 and 52 for 1988, 1989, and 1990 Cross Sectional files, and the 1988-1990 Longitudinal file.

Code 12 from 1986 has been split into codes 53 and 54 for 1988, 1989, and 1990 Cross Sectional files, and the 1988-1990 Longitudinal file.

APPENDIX D

1980 Standard Industrial Classification (SIC) Detailed Legend

List of Divisions, Major Groups and Groups

DIVISION A - AGRICULTURAL AND RELATED SERVICE INDUSTRIES

Major Group 01 - Agricultural Industries

011-017 Agricultural Industries

Major Group 02 - Service Industries Incidental to Agriculture

021-023 Service Industries Incidental to Agriculture

DIVISION B - FISHING AND TRAPPING INDUSTRIES

Major Group 03 - Fishing and Trapping Industries

031 Fishing Industries
032 Services Incidental to Fishing
033 Trapping

DIVISION C - LOGGING AND FORESTRY INDUSTRIES

Major Group 04 - Logging Industry

041 Logging Industry

Major Group 05 - Forestry Services Industry

051 Forestry Services Industry

DIVISION D - MINING (INCLUDING MILLING), QUARRYING AND OIL WELL INDUSTRIES

Major Group 06 - Mining Industries

061 Metal Mines
062 Non-metal Mines (Except Coal)
063 Coal Mines

Major Group 07 - Crude Petroleum and Natural Gas Industries

071 Crude Petroleum and Natural Gas Industries

Major Group 08 - Quarry and Sand Pit Industries

081 Stone Quarries
082 Sand and Gravel Pits

Major Group 09 - Service Industries Incidental to Mineral Extraction

091 Service Industries Incidental to Crude Petroleum and Natural Gas
092 Service Industries Incidental to Mining

DIVISION E - MANUFACTURING INDUSTRIES

Major Group 10 - Food Industries

101 Meat and Poultry Products Industries
102 Fish Products Industry
103 Fruit and Vegetable Industries
104 Dairy Products Industries
105 Flour, Prepared Cereal Food and Feed Industries
106 Vegetable Oil Mills (Except Corn Oil)
107 Bakery Products Industries
108 Sugar and Sugar Confectionery Industries
109 Other Food Products Industries

Major Group 11 - Beverage Industries

111 Soft Drink Industry
112 Distillery Products Industry
113 Brewery Products Industry
114 Wine Industry

Major Group 12 - Tobacco Products Industries

121 Leaf Tobacco Industry
122 Tobacco Products Industry

Major Group 15 - Rubber Products Industries

151 Tire and Tube Industry
152 Rubber Hose and Belting Industry
159 Other Rubber Products Industries

Major Group 16 - Plastic Products Industries

161 Foamed and Expanded Plastic Products Industry
162 Plastic Pipe and Pipe Fittings Industry
163 Plastic Film and Sheeting Industry
169 Other Plastic Products Industries

Major Group 17 - Leather and Allied Products Industries

171 Leather and Allied Products Industries

Major Group 18 - Primary Textile Industries

181 Man-made Fibre and Filament Yarn Industry
182 Spun Yarn and Woven Cloth Industries
183 Broad Knitted Fabric Industry

Major Group 19 - Textile Products Industries

191 Natural Fibres Processing and Felt Products Industry
192 Carpet, Mat and Rug Industry
193 Canvas and Related Products Industry
199 Other Textile Products Industries

Major Group 24 - Clothing Industries

243 Men's and Boys' Clothing Industries
244 Women's Clothing Industries
245 Children's Clothing Industry
249 Other Clothing and Apparel Industries

Major Group 25 - Wood Industries

251 Sawmill, Planing Mill and Shingle Mill Products Industries
252 Veneer and Plywood Industries
254 Sash, Door and Other Millwork Industries
256 Wooden Box and Pallet Industry
258 Coffin and Casket Industry
259 Other Wood Industries

Major Group 26 - Furniture and Fixture Industries

261 Household Furniture Industries
264 Office Furniture Industries
269 Other Furniture and Fixture Industries

Major Group 27 - Paper and Allied Products Industries

271 Pulp and Paper Industries
272 Asphalt Roofing Industry
273 Paper Box and Bag Industries
279 Other Converted Paper Products Industries

Major Group 28 - Printing, Publishing and Allied Industries

281 Commercial Printing Industries
282 Platemaking, Typesetting and Bindery Industry
283 Publishing Industries
284 Combined Publishing and Printing Industries

Major Group 29 - Primary Metal Industries

291 Primary Steel Industries
292 Steel Pipe and Tube Industry
294 Iron Foundries
295 Non-ferrous Metal Smelting and Refining Industries
296 Aluminum Rolling, Casting and Extruding Industry
297 Copper and Copper Alloy Rolling, Casting and Extruding Industry
299 Other Rolled, Cast and Extruded Non-ferrous Metal Products Industries

Major Group 30 - Fabricated Metal Products Industries (Except Machinery and Transportation Equipment Industries)

301 Power Boiler and Heat Exchanger Industry
302 Fabricated Structural Metal Products Industries
303 Ornamental and Architectural Metal Products Industries
304 Stamped, Pressed and Coated Metal Products Industries
305 Wire and Wire Products Industries
306 Hardware, Tool and Cutlery Industries
307 Heating Equipment Industry
308 Machine Shop Industry
309 Other Metal Fabricating Industries

Major Group 31 - Machinery Industries (Except Electrical Machinery)

311 Agricultural Implement Industry
312 Commercial Refrigeration and Air Conditioning Equipment Industry
319 Other Machinery and Equipment Industries

Major Group 32 - Transportation Equipment Industries

321 Aircraft and Aircraft Parts Industry
323 Motor Vehicle Industry
324 Truck and Bus Body and Trailer Industries
325 Motor Vehicle Parts and Accessories Industries
326 Railroad Rolling Stock Industry
327 Shipbuilding and Repair Industry
328 Boatbuilding and Repair Industry
329 Other Transportation Equipment Industries

Major Group 33 - Electrical and Electronic Products Industries

331 Small Electrical Appliance Industry
332 Major Appliance Industry (Electric and Non-electric)
333 Electric Lighting Industries
334 Record Player, Radio and Television Receiver Industry
335 Communication and Other Electronic Equipment Industries
336 Office, Store and Business Machine Industries
337 Electrical Industrial Equipment Industries
338 Communications and Energy Wire and Cable Industry
339 Other Electrical Products Industries

Major Group 35 - Non-metallic Mineral Products Industries

351 Clay Products Industries
352 Hydraulic Cement Industry
354 Concrete Products Industries
355 Ready-mix Concrete Industry
356 Glass and Glass Products Industries
357 Abrasives Industry
358 Lime Industry
359 Other Non-metallic Mineral Products Industries

Major Group 36 - Refined Petroleum and Coal Products Industries

361 Refined Petroleum Products Industries
369 Other Petroleum and Coal Products Industries

Major Group 37 - Chemical and Chemical Products Industries

371 Industrial Chemicals Industries, n.e.c.
372 Agricultural Chemical Industries
373 Plastic and Synthetic Resin Industry
374 Pharmaceutical and Medicine Industry
375 Paint and Varnish Industry
376 Soap and Cleaning Compounds Industry
377 Toilet Preparations Industry
379 Other Chemical Products Industries

Major Group 39 - Other Manufacturing Industries

391 Scientific and Professional Equipment Industries
392 Jewellery and Precious Metal Industries
393 Sporting Goods and Toy Industries
397 Sign and Display Industry
399 Other Manufactured Products Industries

DIVISION F - CONSTRUCTION INDUSTRIES

Major Group 40 - Building, Developing and General Contracting Industries

401 Residential Building and Development
402 Non-residential Building and Development

Major Group 41 - Industrial and Heavy (Engineering) Construction Industries

411 Industrial Construction (Other Than Buildings)
412 Highway and Heavy Construction

Major Group 42 - Trade Contracting Industries

421 Site Work
422 Structural and Related Work
423 Exterior Close-in Work
424 Plumbing, Heating and Air Conditioning, Mechanical Work
425 Mechanical Specialty Work
426 Electrical Work
427 Interior and Finishing Work
429 Other Trade Work

Major Group 44 - Service Industries Incidental to Construction

441 Project Management, Construction
449 Other Services Incidental to Construction

DIVISION G - TRANSPORTATION AND STORAGE INDUSTRIES

Major Group 45 - Transportation Industries

451 Air Transport Industries
452 Service Industries Incidental to Air Transport
453 Railway Transport and Related Service Industries
454 Water Transport Industries
455 Service Industries Incidental to Water Transport
456 Truck Transport Industries
457 Public Passenger Transit Systems Industries
458 Other Transportation Industries
459 Other Service Industries Incidental to Transportation

Major Group 46 - Pipeline Transport Industries

461 Pipeline Transport Industries

Major Group 47 - Storage and Warehousing Industries

471 Grain Elevator Industry
479 Other Storage and Warehousing Industries

DIVISION H - COMMUNICATION AND OTHER UTILITY INDUSTRIES

Major Group 48 - Communication Industries

481 Telecommunication Broadcasting Industries
482 Telecommunication Carriers Industry
483 Other Telecommunication Industries
484 Postal and Courier Service Industries

Major Group 49 - Other Utility Industries

491 Electric Power Systems Industry
492 Gas Distribution Systems Industry
493 Water Systems Industry
499 Other Utility Industries, n.e.c.

DIVISION I - WHOLESALE TRADE INDUSTRIES

Major Group 50 - Farm Products Industries, Wholesale

501 Farm Products, Wholesale

Major Group 51 - Petroleum Products Industries, Wholesale

511 Petroleum Products, Wholesale

Major Group 52 - Food, Beverage, Drug and Tobacco Industries, Wholesale

521 Food, Wholesale
522 Beverages, Wholesale
523 Drugs and Toilet Preparations, Wholesale
524 Tobacco Products, Wholesale

Major Group 53 - Apparel and Dry Goods Industries, Wholesale

531 Apparel, Wholesale
532 Dry Goods, Wholesale

Major Group 54 - Household Goods Industries, Wholesale

541 Electrical and Electronic Household Appliances and Parts, Wholesale
542 Household Furniture, Wholesale
543 Household Furnishings, Wholesale

Major Group 55 - Motor Vehicle, Parts and Accessories Industries, Wholesale

551 Motor Vehicles, Wholesale
552 Motor Vehicle Parts and Accessories, Wholesale

Major Group 56 - Metals, Hardware, Plumbing, Heating and Building Materials Industries, Wholesale

561 Metal and Metal Products, Wholesale
562 Hardware and Plumbing, Heating and Air Conditioning Equipment and Supplies, Wholesale
563 Lumber and Building Materials, Wholesale

Major Group 57 - Machinery, Equipment and Supplies Industries, Wholesale

571 Farm Machinery, Equipment and Supplies, Wholesale
572 Construction, Forestry and Mining Machinery, Equipment and Supplies, Wholesale
573 Industrial Machinery, Equipment and Supplies, Wholesale
574 Electrical and Electronic Machinery, Equipment and Supplies, Wholesale
579 Other Machinery, Equipment and Supplies, Wholesale

Major Group 59 - Other Products Industries, Wholesale

591 Waste Materials, Wholesale
592 Paper and Paper Products, Wholesale
593 Agricultural Supplies, Wholesale
594 Toys, Amusement and Sporting Goods, Wholesale
595 Photographic Equipment and Musical Instruments and Supplies, Wholesale
596 Jewellery and Watches, Wholesale
597 Industrial and Household Chemicals, Wholesale
598 General Merchandise, Wholesale
599 Other Products, n.e.c., Wholesale

DIVISION J - RETAIL TRADE INDUSTRIES

Major Group 60 - Food, Beverage and Drug Industries, Retail

601 Food Stores

602 Liquor, Wine and Beer Stores
603 Prescription Drugs and Patent Medicine Stores

Major Group 61 - Shoe, Apparel, Fabric and Yarn Industries, Retail

611 Shoe Stores
612 Men's Clothing Stores
613 Women's Clothing Stores
614 Clothing Stores, n.e.c.
615 Fabric and Yarn Stores

Major Group 62 - Household Furniture, Appliances and Furnishings Industries, Retail

621 Household Furniture Stores
622 Appliance, Television, Radio and Stereo Stores
623 Household Furnishings Stores

Major Group 63 - Automotive Vehicles, Parts and Accessories Industries, Sales and Service

631 Automobile Dealers
632 Recreational Vehicle Dealers
633 Gasoline Service Stations
634 Automotive Parts and Accessories Stores
635 Motor Vehicle Repair Shops
639 Other Motor Vehicle Services

Major Group 64 - General Retail Merchandising Industries

641 General Merchandise Stores

Major Group 65 - Other Retail Store Industries

651 Book and Stationery Stores
652 Florists, Lawn and Garden Centres
653 Hardware, Paint, Glass and Wallpaper Stores
654 Sporting Goods and Bicycle Shops
655 Musical Instrument and Record Stores
656 Jewellery Stores and Watch and Jewellery Repair Shops
657 Camera and Photographic Supply Stores
658 Toy, Hobby, Novelty and Souvenir Stores
659 Other Retail Stores

Major Group 69 - Non-store Retail Industries

691 Vending Machine Operators
692 Direct Sellers

DIVISION K - FINANCE AND INSURANCE INDUSTRIES

Major Group 70 - Deposit Accepting Intermediary Industries

701-709 Deposit Accepting Intermediary Industries

Major Group 71 - Consumer and Business Financing Intermediary Industries

711-712 Consumer and Business Financing Intermediary Industries

Major Group 72 - Investment Intermediary Industries

721-729 Investment Intermediary Industries

Major Group 73 - Insurance Industries

731-733 Insurance Industries

Major Group 74 - Other Financial Intermediary Industries

741-749 Other Financial Intermediary Industries

DIVISION L - REAL ESTATE OPERATOR AND INSURANCE AGENT INDUSTRIES

Major Group 75 - Real Estate Operator Industries (Except Developers)

751 Operators of Buildings and Dwellings
759 Other Real Estate Operators

Major Group 76 - Insurance and Real Estate Agent Industries

761 Insurance and Real Estate Agencies

DIVISION M - BUSINESS SERVICE INDUSTRIES

Major Group 77 - Business Service Industries

771 Employment Agencies and Personnel Suppliers
772 Computer and Related Services
773 Accounting and Bookkeeping Services
774 Advertising Services
775 Architectural, Engineering and Other Scientific and Technical Services
776 Offices of Lawyers and Notaries
777 Management Consulting Services
779 Other Business Services

DIVISION N - GOVERNMENT SERVICE INDUSTRIES

Major Group 81 - Federal Government Service Industries

811 Defence Services
812-817 Other Federal Government Service Industries

Major Group 82 - Provincial and Territorial Government Service Industries

822-827 Provincial and Territorial Government Service Industries

Major Group 83 - Local Government Service Industries

832-837 Local Government Service Industries

Major Group 84 - International and Other Extra-territorial Government Service Industries

841 International and Other Extra-territorial Agencies

DIVISION O - EDUCATIONAL SERVICE INDUSTRIES

Major Group 85 - Educational Service Industries

851 Elementary and Secondary Education
852 Post-secondary Non-university Education
853 University Education
854 Library Services
855 Museums and Archives
859 Other Educational Services

DIVISION P - HEALTH AND SOCIAL SERVICE INDUSTRIES

Major Group 86 - Health and Social Service Industries

861 Hospitals
862 Other Institutional Health and Social Services
863 Non-institutional Health Services
864 Non-institutional Social Services
865 Offices of Physicians, Surgeons and Dentists, Private Practice
866 Offices of Other Health Practitioners
867 Offices of Social Services Practitioners
868 Medical and Other Health Laboratories
869 Health and Social Service Associations and Agencies

DIVISION Q - ACCOMMODATION, FOOD AND BEVERAGE SERVICE INDUSTRIES

Major Group 91 - Accommodation Service Industries

911 Hotels, Motels and Tourist Courts
912 Lodging Houses and Residential Clubs
913 Camping Grounds and Travel Trailer Parks
914 Recreation and Vacation Camps

Major Group 92 - Food and Beverage Service Industries

921 Food Services
922 Taverns, Bars and Night Clubs

DIVISION R - OTHER SERVICE INDUSTRIES

Major Group 96 - Amusement and Recreational Service Industries

961 Motion Picture, Audio and Video Production and Distribution
962 Motion Picture Exhibition
963 Theatrical and Other Staged Entertainment Services
964 Commercial Spectator Sports
965 Sports and Recreation Clubs and Services
966 Gambling Operations
969 Other Amusement and Recreational Services

Major Group 97 - Personal and Household Service Industries

971 Barber and Beauty Shops
972 Laundries and Cleaners
973 Funeral Services
974 Private Households
979 Other Personal and Household Services

Major Group 98 - Membership Organization Industries

981 Religious Organizations
982 Business Associations
983 Professional Membership Associations
984 Labour Organizations
985 Political Organizations
986 Civic and Fraternal Organizations

Major Group 99 - Other Service Industries

991 Machinery and Equipment Rental and Leasing Services
992 Automobile and Truck Rental and Leasing Services
993 Photographers
994 Other Repair Services
995 Services to Buildings and Dwellings
996 Travel Services
999 Other Services, n.e.c.

APPENDIX D2

Specifications for Mapping 3 Digit Standard Industrial Codes into 52 Groups

1980 SIC Code Range	Grouped SIC	SIC Description
011-023	01	Agriculture
041-051	02	Forestry
031-033	03	Fishing and trapping
061	04	Metal mines
063-071	05	Mineral fuels
062	06	Non-metal mines
081-082	07	Quarries and sand pits
091-092	08	Services incidental to mining
101-114	09	Food and beverage industries
121-122	10	Tobacco products industries
151-169	11	Rubber and plastics industries
171	12	Leather industries
181-199	13	Textile industries
243-249	15	Clothing industries
251-259	16	Wood industries
261-269	17	Furniture and fixture industries
271-279	18	Paper and allied industries
281-284	19	Printing, publishing and allied industries
291-299	20	Primary metal industries
301-309	21	Metal fabricating industries
311-319	22	Machinery industries
321-329	23	Transportation equipment industries
331-339	24	Electrical products industries
351-359	25	Non-metallic mineral products industries
361-369	26	Petroleum and coal products industries
371-379	27	Chemical and chemical products industries
391-399	28	Miscellaneous manufacturing industries

401-412	29	General contractors
421-429	30	Special-trade contractors
451-461	31	Transportation
471-479	32	Storage
481-484	33	Communication
491-499	34	Electric power, gas and water utilities
501-599	35	Wholesale trade
601-692	36	Retail trade
701-729	37	Finance industries
741-749	37	Finance industries
731-733	38	Insurance carriers
751-761	39	Insurance agencies, real estate industries
851-859	40	Education and related services
861-869	41	Health and welfare services
981	42	Religious organizations
961-969	43	Amusement and recreation services
771-779	44	Services to business management
971-979	45	Personal services
911-922	46	Accommodation and food services
982-999	47	Miscellaneous services
811-812	48	Federal administration
822	49	Provincial administration
832	50	Local administration
841	51	Other government offices
441-449	52	Service industries incidental to construction

Note: For definition of detailed 1980 SIC codes, see "Standard Industrial Classification", Statistics Canada, December, 1980, Catalogue No. 12-501E.

APPENDIX E
1980 STANDARD OCCUPATIONAL CLASSIFICATION

List of Major Groups, Minor Groups and Unit Groups

MAJOR GROUP 11 - MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS

111 Officials and Administrators Unique to Government

1111 Members of Legislative Bodies
1113 Government Administrators
1115 Post Office Management Occupations
1116 Inspectors and Regulatory Officers, Government
1119 Officials and Administrators Unique to Government, n.e.c.

113/114 Other Managers and Administrators

1130 General Managers and Other Senior Officials
1131 Management Occupations, Natural Sciences and Engineering

1132 Management Occupations, Social Sciences and Related Fields
1133 Administrators in Teaching and Related Fields
1134 Administrators in Medicine and Health
1135 Financial Management Occupations
1136 Personnel and Industrial Relations Management Occupations
1137 Sales and Advertising Management Occupations
1141 Purchasing Management Occupations
1142 Services Management Occupations
1143 Production Management Occupations
1145 Management Occupations, Construction Operations
1146 Farm Management Occupations
1147 Management Occupations, Transport and Communications Operations
1149 (1151-1158) Other Managers and Administrators, n.e.c. (in the following industries):
1151 Mines (Including Milling), Quarries and Oil Wells
1152 Durable Goods Manufacturing(1)
1153 Non-durable Goods Manufacturing(2)
1154 Construction
1155 Transportation, Communication and Other Utilities
1156 Trade
1157 Community, Business and Personal Service Industries
1158 Other Industries and Unspecified(3)

117 Occupations Related to Management and Administration

1171 Accountants, Auditors and Other Financial Officers
1173 Organization and Methods Analysts
1174 Personnel and Related Officers
1175 Purchasing Officers and Buyers, Except Wholesale and Retail Trade
1176 Inspectors and Regulatory Officers, n.e.c.
1179 Occupations Related to Management and Administration, n.e.c.

MAJOR GROUP 21 - OCCUPATIONS IN NATURAL SCIENCES, ENGINEERING AND MATHEMATICS

211 Occupations in Physical Sciences

2111 Chemists
2112 Geologists
2113 Physicists
2114 Meteorologists
2117 Physical Sciences Technologists and Technicians
2119 Occupations in Physical Sciences, n.e.c.

213 Occupations in Life Sciences

2131 Agriculturists and Related Scientists
2133 Biologists and Related Scientists
2135 Life Sciences Technologists and Technicians
2139 Occupations in Life Sciences, n.e.c.

214/215 Architects, Engineers and Community Planners

2141 Architects
2142 Chemical Engineers
2143 Civil Engineers
2144 Electrical Engineers
2145 Industrial Engineers
2146 Agricultural Engineers
2147 Mechanical Engineers
2151 Metallurgical Engineers
2153 Mining Engineers
2154 Petroleum Engineers
2155 Aerospace Engineers
2156 Nuclear Engineers
2157 Community Planners
2159 Professional Engineers, n.e.c.

216 Other Occupations in Architecture and Engineering

2160 Supervisors: Other Occupations in Architecture and Engineering
2161 Surveyors
2163 Draughting Occupations
2164 Architectural Technologists and Technicians
2165 Engineering Technologists and Technicians
2169 Other Occupations in Architecture and Engineering, n.e.c.

218 Occupations in Mathematics, Statistics, Systems Analysis and Related Fields

2181 Mathematicians, Statisticians and Actuaries
2183 Systems Analysts, Computer Programmers and Related Occupations
2189 Occupations in Mathematics, Statistics, Systems Analysis and Related Fields, n.e.c.

MAJOR GROUP 23 - OCCUPATIONS IN SOCIAL SCIENCES AND RELATED FIELDS

231 Occupations in Social Sciences

2311 Economists
2313 Sociologists, Anthropologists and Related Social Scientists
2315 Psychologists
2319 Occupations in Social Sciences, n.e.c.

233 Occupations in Social Work and Related Fields

2331 Social Workers
2333 Occupations in Welfare and Community Services
2339 Occupations in Social Work and Related Fields, n.e.c.

234 Occupations in Law and Jurisprudence

2341 Judges and Magistrates
2343 Lawyers and Notaries
2349 Occupations in Law and Jurisprudence, n.e.c.

235 Occupations in Library, Museum and Archival Sciences

2350 Supervisors: Occupations in Library, Museum and Archival Sciences
2351 Librarians, Archivists and Conservators
2353 Technicians in Library, Museum and Archival Sciences
2359 Occupations in Library, Museum and Archival Sciences, n.e.c.

239 Other Occupations in Social Sciences and Related Fields

2391 Educational and Vocational Counsellors
2399 Other Occupations in Social Sciences and Related Fields, n.e.c.

MAJOR GROUP 25 - OCCUPATIONS IN RELIGION

251 Occupations in Religion

2511 Ministers of Religion
2513 Nuns and Brothers
2519 Occupations in Religion, n.e.c.

MAJOR GROUP 27 - TEACHING AND RELATED OCCUPATIONS

271 University Teaching and Related Occupations

2711 University Teachers
2719 University Teaching and Related Occupations, n.e.c.

273 Elementary and Secondary School Teaching and Related Occupations

2731 Elementary and Kindergarten Teachers
2733 Secondary School Teachers
2739 Elementary and Secondary School Teaching and Related Occupations, n.e.c.

279 Other Teaching and Related Occupations

2791 Community College and Vocational School Teachers
2792 Fine Arts Teachers, n.e.c.
2793 Post-secondary School Teachers, n.e.c.
2795 Teachers of Exceptional Students, n.e.c.
2797 Instructors and Training Officers, n.e.c.
2799 Other Teaching and Related Occupations, n.e.c.

MAJOR GROUP 31 - OCCUPATIONS IN MEDICINE AND HEALTH

311 Health Diagnosing and Treating Occupations

3111 Physicians and Surgeons
3113 Dentists
3115 Veterinarians
3117 Osteopaths and Chiropractors
3119 Health Diagnosing and Treating Occupations, n.e.c.

313 Nursing, Therapy and Related Assisting Occupations

3130 Supervisors: Nursing, Therapy and Related Assisting Occupations
3131 Nurses, Registered, Graduate and Nurses-in-training
3132 Orderlies
3134 Registered Nursing Assistants
3135 Nursing Attendants
3136 Audio and Speech Therapists

3137 Physiotherapists
3138 Occupational Therapists
3139 Nursing, Therapy and Related Assisting Occupations, n.e.c.

315/316 Other Occupations in Medicine and Health

3151 Pharmacists
3152 Dietitians and Nutritionists
3153 Optometrists
3154 Dispensing Opticians
3155 Radiological Technologists and Technicians
3156 Medical Laboratory Technologists and Technicians
3157 Denturists
3158 Dental Hygienists and Dental Assistants
3161 Dental Laboratory Technicians
3162 Respiratory Technicians
3169 Other Occupations in Medicine and Health, n.e.c.

MAJOR GROUP 33 - ARTISTIC, LITERARY, RECREATIONAL AND RELATED OCCUPATIONS

331 Occupations in Fine and Commercial Art, Photography and Related Fields

3311 Painters, Sculptors and Related Artists
3313 Product and Interior Designers
3314 Advertising and Illustrating Artists
3315 Photographers and Camera Operators
3319 Occupations in Fine and Commercial Art, Photography and Related Fields, n.e.c.

333 Occupations in Performing and Audio-visual Arts

3330 Producers and Directors, Performing and Audio-visual Arts
3331 Conductors, Composers and Arrangers
3332 Musicians and Singers
3333 Occupations Related to Music and Musical Entertainment, n.e.c.
3334 Dancers and Choreographers
3335 Actors/Actresses
3337 Radio and Television Announcers
3339 Occupations in Performing and Audio-visual Arts, n.e.c.

335 Occupations in Writing

3351 Writers and Editors
3355 Translators and Interpreters
3359 Occupations in Writing, n.e.c.

336/337 Occupations in Sports and Recreation

3360 Supervisors: Occupations in Sports and Recreation
3370 Coaches, Trainers and Instructors, Sports and Recreation
3371 Referees and Related Officials
3373 Athletes
3375 Attendants, Sports and Recreation
3379 Occupations in Sports and Recreation, n.e.c.

MAJOR GROUP 41 - CLERICAL AND RELATED OCCUPATIONS

411 Stenographic and Typing Occupations

4110 Supervisors: Stenographic and Typing Occupations
4111 Secretaries and Stenographers
4113 Typists and Clerk-typists

413 Bookkeeping, Account-recording and Related Occupations

4130 Supervisors: Bookkeeping, Account-recording and Related Occupations
4131 Bookkeepers and Accounting Clerks
4133 Cashiers and Tellers
4135 Insurance, Bank and Other Finance Clerks
4137 Statistical Clerks
4139 Bookkeeping, Account-recording and Related Occupations, n.e.c.

414 Office Machine and Electronic Data-processing Equipment Operators

4140 Supervisors: Office Machine and Electronic Data-processing Equipment Operators
4141 Office Machine Operators
4143 Electronic Data-processing Equipment Operators

415 Material Recording, Scheduling and Distributing Occupations

4150 Supervisors: Material Recording, Scheduling and Distributing Occupations
4151 Production Clerks
4153 Shipping and Receiving Clerks
4155 Stock Clerks and Related Occupations
4157 Weighers
4159 Material Recording, Scheduling and Distributing Occupations, n.e.c.

416 Library, File and Correspondence Clerks and Related Occupations

4160 Supervisors: Library, File and Correspondence Clerks and Related Occupations
4161 Library and File Clerks
4169 Library, File and Correspondence Clerks and Related Occupations, n.e.c.

417 Reception, Information, Mail and Message Distribution Occupations

4170 Supervisors: Reception, Information, Mail and Message Distribution Occupations
4171 Receptionists and Information Clerks
4172 Mail Carriers
4173 Mail and Postal Clerks
4175 Telephone Operators
4177 Messengers
4179 Reception, Information, Mail and Message Distribution Occupations, n.e.c.

419 Other Clerical and Related Occupations

4190 Supervisors: Other Clerical and Related Occupations, n.e.c.
4191 Collectors
4192 Claim Adjusters
4193 Travel Clerks, Ticket, Station and Freight Agents
4194 Hotel Clerks
4195 Personnel Clerks
4197 General Office Clerks
4199 Other Clerical and Related Occupations, n.e.c.

MAJOR GROUP 51 - SALES OCCUPATIONS

513/514 Sales Occupations, Commodities

5130 Supervisors: Sales Occupations, Commodities
5131 Technical Sales Occupations and Related Advisers
5133 Commercial Travellers
5135 Sales Clerks and Salespersons, Commodities, n.e.c.
5141 Street Vendors and Door-to-door Sales Occupations
5143 Newspaper Carriers and Vendors
5145 Service Station Attendants
5149 Sales Occupations: Commodities, n.e.c.

517 Sales Occupations, Services

5170 Supervisors: Sales Occupations, Services
5171 Insurance Sales Occupations
5172 Real Estate Sales Occupations
5173 Sales Agents and Traders, Securities
5174 Advertising Sales Occupations
5177 Business Services Sales Occupations
5179 Sales Occupations: Services, n.e.c.

519 Other Sales Occupations

5190 Supervisors: Other Sales Occupations
5191 Buyers, Wholesale and Retail Trade
5193 Route Drivers
5199 Other Sales Occupations, n.e.c.

MAJOR GROUP 61 - SERVICE OCCUPATIONS

611 Protective Service Occupations

6111 Fire-fighting Occupations
6112 Police Officers and Detectives, Government
6113 Police Agents and Investigators, Private
6115 Guards and Related Security Occupations
6116 Commissioned Officers, Armed Forces
6117 Other Ranks, Armed Forces
6119 Protective Service Occupations, n.e.c.

612 Food and Beverage Preparation and Related Service Occupations

6120 Supervisors: Food and Beverage Preparation and Related Service Occupations
6121 Chefs and Cooks
6123 Bartenders
6125 Food and Beverage Serving Occupations
6129 Food and Beverage Preparation and Related Service Occupations, n.e.c.

613 Occupations in Lodging and Other Accommodation

6130 Supervisors: Occupations in Lodging and Other Accommodation
6133 Lodging Cleaners, Except Private Household
6135 Sleeping-car and Baggage Porters
6139 Occupations in Lodging and Other Accommodation, n.e.c.

614 Personal Service Occupations

6141 Funeral Directors, Embalmers and Related Occupations
6142 Housekeepers, Servants and Related Occupations
6143 Barbers, Hairdressers and Related Occupations
6144 Guides
6145 Travel and Related Attendants, Except Food and Beverage
6147 Child-care Occupations
6149 Personal Service Occupations, n.e.c.

616 Apparel and Furnishings Service Occupations

6160 Supervisors: Apparel and Furnishings Service Occupations
6162 Laundering and Dry Cleaning Occupations
6165 Pressing Occupations
6169 Apparel and Furnishings Service Occupations, n.e.c.

619 Other Service Occupations

6190 Supervisors: Other Service Occupations
6191 Janitors, Charworkers and Cleaners
6193 Elevator-operating Occupations
6198 Occupations in Labouring and Other Elemental Work: Other Services
6199 Other Service Occupations, n.e.c.

MAJOR GROUP 71 - FARMING, HORTICULTURAL AND ANIMAL HUSBANDRY OCCUPATIONS

711 Farmers

7113 Livestock Farmers
7115 Crop Farmers
7119 Farmers, n.e.c.

718/719 Other Farming, Horticultural and Animal Husbandry Occupations

7180 Foremen/women: Other Farming, Horticultural and Animal Husbandry Occupations
7183 Livestock Farm Workers
7185 Crop Farm Workers
7195 Nursery and Related Workers
7196 Inspecting, Testing, Grading and Sampling Occupations: Other Farming, Horticultural and Animal Husbandry
7197 Farm Machinery Operators
7199 Other Farming, Horticultural and Animal Husbandry Occupations, n.e.c.

MAJOR GROUP 73 - FISHING, TRAPPING AND RELATED OCCUPATIONS

731 Fishing, Trapping and Related Occupations

7311 Captains and Other Officers, Fishing Vessels
7313 Net, Trap and Line Fishing Occupations
7315 Trapping and Related Occupations
7319 Fishing, Trapping and Related Occupations, n.e.c.

MAJOR GROUP 75 - FORESTRY AND LOGGING OCCUPATIONS

751 Forestry and Logging Occupations

7510 Foremen/women: Forestry and Logging Occupations
7511 Forestry Conservation Occupations
7513 Timber Cutting and Related Occupations
7516 Log Inspecting, Grading, Scaling and Related Occupations
7517 Log Hoisting, Sorting, Moving and Related Occupations
7518 Occupations in Labouring and Other Elemental Work: Forestry and Logging
7519 Forestry and Logging Occupations, n.e.c.

MAJOR GROUP 77 - MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS

771 Mining and Quarrying Including Oil and Gas Field Occupations

7710 Foremen/women: Mining and Quarrying Including Oil and Gas Field Occupations
7711 Rotary Well-drilling and Related Occupations
7713 Rock and Soil Drilling Occupations
7715 Blasting Occupations
7717 Mining and Quarrying: Cutting, Handling and Loading Occupations
7718 Occupations in Labouring and Other Elemental Work: Mining and Quarrying Including Oil and Gas Fields
7719 Mining and Quarrying Including Oil and Gas Field Occupations, n.e.c.

MAJOR GROUP 81/82 - PROCESSING OCCUPATIONS

811 Mineral Ore Treating Occupations

8110 Foremen/women: Mineral Ore Treating Occupations
8111 Crushing and Grinding Occupations, Mineral Ores
8113 Mixing, Separating, Filtering and Related Occupations, Mineral Ores
8115 Melting and Roasting Occupations, Mineral Ores
8116 Inspecting, Testing, Grading and Sampling Occupations: Mineral Ore Treating
8118 Occupations in Labouring and Other Elemental Work: Mineral Ore Treating

8119 Mineral Ore Treating Occupations, n.e.c.

813/814 Metal Processing and Related Occupations

8130 Foremen/women: Metal Processing and Related Occupations
8131 Metal Smelting, Converting and Refining Occupations
8133 Metal Heat-treating Occupations
8135 Metal Rolling Occupations
8137 Moulding, Coremaking and Metal Casting Occupations
8141 Metal Extruding and Drawing Occupations
8143 Plating, Metal Spraying and Related Occupations
8146 Inspecting, Testing, Grading and Sampling Occupations, Metal Processing
8148 Occupations in Labouring and Other Elemental Work: Metal Processing
8149 Metal Processing and Related Occupations, n.e.c.

815 Clay, Glass and Stone Processing, Forming and Related Occupations

8150 Foremen/women: Clay, Glass and Stone Processing, Forming and Related Occupations
8151 Furnace and Kiln Workers: Clay, Glass and Stone
8153 Separating, Grinding, Crushing and Mixing Occupations: Clay, Glass and Stone
8155 Forming Occupations: Clay, Glass and Stone
8156 Inspecting, Testing, Grading and Sampling Occupations: Clay, Glass and Stone Processing and Forming
8158 Occupations in Labouring and Other Elemental Work: Clay, Glass and Stone Processing and Forming
8159 Clay, Glass and Stone Processing, Forming and Related Occupations, n.e.c.

816/817 Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations

8160 Foremen/women: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations
8161 Mixing and Blending Occupations, Chemicals and Related Materials
8163 Filtering, Straining and Separating Occupations, Chemicals and Related Materials
8165 Distilling, Subliming and Carbonizing Occupations, Chemicals and Related Materials
8167 Roasting, Cooking and Drying Occupations, Chemicals and Related Materials
8171 Crushing and Grinding Occupations, Chemicals and Related Materials
8173 Coating and Calendering Occupations, Chemicals and Related Materials
8176 Inspecting, Testing, Grading and Sampling Occupations: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing

8178 Occupations in Labouring and Other Elemental Work: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing
8179 Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations, n.e.c.

821/822 Food, Beverage and Related Processing Occupations

8210 Foremen/women: Food, Beverage and Related Processing Occupations
8211 Flour and Grain Milling Occupations
8213 Baking, Confectionery Making and Related Occupations
8215 Slaughtering and Meat Cutting, Canning, Curing and Packing Occupations
8217 Fish Canning, Curing and Packing Occupations
8221 Fruit and Vegetable Canning, Preserving and Packing Occupations
8223 Milk Processing and Related Occupations
8225 Sugar Processing and Related Occupations
8226 Inspecting, Testing, Grading and Sampling Occupations: Food, Beverage and Related Processing
8227 Beverage Processing and Related Occupations
8228 Occupations in Labouring and Other Elemental Work: Food, Beverage and Related Processing
8229 Food, Beverage and Related Processing Occupations, n.e.c.

823 Wood Processing Occupations, Except Pulp and Papermaking

8230 Foremen/women: Wood Processing Occupations, Except Pulp and Papermaking
8231 Sawmill Sawyers and Related Occupations
8233 Plywood Making and Related Occupations
8235 Wood Treating Occupations
8236 Inspecting, Testing, Grading and Sampling Occupations: Wood Processing, Except Pulp and Papermaking
8238 Occupations in Labouring and Other Elemental Work: Wood Processing, Except Pulp and Papermaking
8239 Wood Processing Occupations, Except Pulp and Papermaking, n.e.c.

825 Pulp and Papermaking and Related Occupations

8250 Foremen/women: Pulp and Papermaking and Related Occupations
8251 Cellulose Pulp Preparing Occupations
8253 Papermaking and Finishing Occupations
8256 Inspecting, Testing, Grading and Sampling Occupations: Pulp and Papermaking
8258 Occupations in Labouring and Other Elemental Work: Pulp and Papermaking
8259 Pulp and Papermaking and Related Occupations, n.e.c.

826/827 Textile Processing Occupations

8260 Foremen/women: Textile Processing Occupations
8261 Textile Fibre Preparing Occupations
8263 Textile Spinning and Twisting Occupations
8265 Textile Winding and Reeling Occupations
8267 Textile Weaving Occupations
8271 Knitting Occupations
8273 Textile Bleaching and Dyeing Occupations
8275 Textile Finishing and Calendering Occupations
8276 Inspecting, Testing, Grading and Sampling Occupations, Textile Processing
8278 Occupations in Labouring and Other Elemental Work: Textile Processing
8279 Textile Processing Occupations, n.e.c.

829 Other Processing Occupations

8290 Foremen/women: Other Processing Occupations
8293 Tobacco Processing Occupations
8295 Hide and Pelt Processing Occupations
8296 Inspecting, Testing, Grading and Sampling Occupations: Other Processing
8298 Occupations in Labouring and Other Elemental Work: Other Processing
8299 Other Processing Occupations, n.e.c.

MAJOR GROUP 83 - MACHINING AND RELATED OCCUPATIONS

831 Metal Machining Occupations

8310 Foremen/women: Metal Machining Occupations
8311 Tool and Die Making Occupations
8313 Machinist and Machine Tool Setting-up Occupations
8315 Machine Tool Operating Occupations
8316 Inspecting, Testing, Grading and Sampling Occupations: Metal Machining
8319 Metal Machining Occupations, n.e.c.

833 Metal Shaping and Forming Occupations, Except Machining

8330 Foremen/women: Metal Shaping and Forming Occupations, Except Machining
8331 Forging Occupations
8333 Sheet Metal Workers
8334 Metalworking-machine Operators, n.e.c.
8335 Welding and Flame Cutting Occupations
8336 Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining
8337 Boilermakers, Platers and Structural Metal Workers
8339 Metal Shaping and Forming Occupations, Except Machining, n.e.c.

835 Wood Machining Occupations

8350 Foremen/women: Wood Machining Occupations
8351 Wood Patternmaking Occupations
8353 Wood Sawing and Related Occupations, n.e.c.
8355 Planing, Turning, Shaping and Related Wood Machining Occupations
8356 Inspecting, Testing, Grading and Sampling Occupations: Wood Machining
8357 Wood Sanding Occupations
8359 Wood Machining Occupations, n.e.c.

837 Clay, Glass, Stone and Related Materials Machining Occupations

8370 Foremen/women: Clay, Glass, Stone and Related Materials Machining Occupations
8371 Cutting and Shaping Occupations: Clay, Glass, Stone and Related Materials
8373 Abrading and Polishing Occupations: Clay, Glass, Stone and Related Materials
8376 Inspecting, Testing, Grading and Sampling Occupations: Clay, Glass, Stone and Related Materials Machining
8379 Clay, Glass, Stone and Related Materials Machining Occupations, n.e.c.

839 Other Machining and Related Occupations, n.e.c.

8390 Foremen/women: Other Machining and Related Occupations, n.e.c.
8391 Engravers, Etchers and Related Occupations, n.e.c.
8393 Filing, Grinding, Buffing, Cleaning and Polishing Occupations, n.e.c.
8395 Patternmakers and Mouldmakers, n.e.c.
8396 Inspecting, Testing, Grading and Sampling Occupations: Other Machining and Related Occupations, n.e.c.
8399 Other Machining and Related Occupations, n.e.c.

MAJOR GROUP 85 - PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS

851/852 Fabricating and Assembling Occupations: Metal Products, n.e.c.

8510 Foremen/women: Fabricating and Assembling Occupations: Metal Products, n.e.c.
8511 Engine and Related Equipment Fabricating and Assembling Occupations, n.e.c.
8513 Motor Vehicle Fabricating and Assembling Occupations, n.e.c.
8515 Aircraft Fabricating and Assembling Occupations, n.e.c.
8523 Industrial, Farm, Construction and Other Mechanized Equipment and Machinery Fabricating and Assembling Occupations, n.e.c.
8525 Business and Commercial Machines Fabricating and Assembling Occupations, n.e.c.
8526 Inspecting, Testing, Grading and Sampling Occupations: Fabricating and Assembling Metal Products, n.e.c.
8527 Precision Instruments and Related Equipment Fabricating and Assembling Occupations, n.e.c.
8528 Occupations in Labouring and Other Elemental Work: Fabricating and Assembling Metal Products, n.e.c.
8529 Other Fabricating and Assembling Occupations: Metal Products, n.e.c.

853 Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment

8530 Foremen/women: Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment
8531 Electrical and Related Equipment Fabricating and Assembling Occupations
8533 Electrical and Related Equipment Installing and Repairing Occupations, n.e.c.
8534 Electronic and Related Equipment Fabricating and Assembling Occupations
8535 Electronic and Related Equipment Installing and Repairing Occupations, n.e.c.
8536 Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment
8537 Radio and Television Repairers
8538 Occupations in Labouring and Other Elemental Work: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment
8539 Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment, n.e.c.

854 Fabricating, Assembling and Repairing Occupations: Wood Products

8540 Foremen/women: Fabricating, Assembling and Repairing Occupations: Wood Products
8541 Cabinet and Wood Furniture Makers
8546 Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing Wood Products
8548 Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing Wood Products
8549 Fabricating, Assembling and Repairing Occupations: Wood Products, n.e.c.

855/856 Fabricating, Assembling and Repairing Occupations: Textile, Fur and Leather Products

8550 Foremen/women: Fabricating, Assembling and Repairing Occupations: Textile, Fur and Leather Products
8551 Patternmaking, Marking and Cutting Occupations: Textile, Fur and Leather Products
8553 Tailors and Dressmakers
8555 Furriers
8557 Milliners, Hat and Cap Makers
8561 Shoemaking and Repairing Occupations
8562 Upholsterers
8563 Sewing Machine Operators, Textile and Similar Materials
8566 Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing Textile, Fur and Leather Products
8568 Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing Textile, Fur and Leather Products
8569 Fabricating, Assembling and Repairing Occupations: Textile, Fur and Leather Products, n.e.c.

857 Fabricating, Assembling and Repairing Occupations: Rubber, Plastic and Related Products

8570 Foremen/women: Fabricating, Assembling and Repairing Occupations: Rubber, Plastic and Related Products
8571 Bonding and Cementing Occupations: Rubber, Plastic and Related Products
8573 Moulding Occupations: Rubber, Plastic and Related Products
8575 Cutting and Finishing Occupations: Rubber, Plastic and Related Products
8576 Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing Rubber, Plastic and Related Products
8578 Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing Rubber, Plastic and Related Products
8579 Fabricating, Assembling and Repairing Occupations: Rubber, Plastic and Related Products, n.e.c.

858 Mechanics and Repairers, n.e.c.

8580 Foremen/women: Mechanics and Repairers, n.e.c.
8581 Motor Vehicle Mechanics and Repairers
8582 Aircraft Mechanics and Repairers
8583 Rail Transport Equipment Mechanics and Repairers
8584 Industrial, Farm and Construction Machinery Mechanics and Repairers
8585 Business and Commercial Machine Mechanics and Repairers
8586 Inspecting, Testing, Grading and Sampling Occupations: Equipment Repair, n.e.c.
8587 Watch and Clock Repairers
8588 Precision Instrument Mechanics and Repairers
8589 Other Mechanics and Repairers, n.e.c.

859 Other Product Fabricating, Assembling and Repairing Occupations

8590 Foremen/women: Other Product Fabricating, Assembling and Repairing Occupations
8591 Jewellery and Silverware Fabricating, Assembling and Repairing Occupations
8592 Marine Craft Fabricating, Assembling and Repairing Occupations
8593 Paper Product Fabricating and Assembling Occupations
8595 Painting and Decorating Occupations, n.e.c.
8596 Inspecting, Testing, Grading and Sampling Occupations: Other Product Fabricating, Assembling and Repairing
8598 Occupations in Labouring and Other Elemental Work: Other Product Fabricating, Assembling and Repairing
8599 Other Product Fabricating, Assembling and Repairing Occupations, n.e.c.

MAJOR GROUP 87 - CONSTRUCTION TRADES OCCUPATIONS

871 Excavating, Grading, Paving and Related Occupations

8710 Foremen/women: Excavating, Grading, Paving and Related Occupations
8711 Excavating, Grading and Related Occupations
8713 Paving, Surfacing and Related Occupations
8715 Railway Section and Track Workers
8718 Occupations in Labouring and Other Elemental Work: Excavating, Grading, Paving and Related Activities
8719 Excavating, Grading, Paving and Related Occupations, n.e.c.

873 Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations

8730 Foremen/women: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations
8731 Electrical Power Line Workers and Related Occupations
8733 Construction Electricians and Repairers
8735 Wire Communications and Related Equipment Installing and Repairing Occupations
8736 Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing
8738 Occupations in Labouring and Other Elemental Work: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing
8739 Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations, n.e.c.

878/879 Other Construction Trades Occupations

8780 Foremen/women: Other Construction Trades Occupations
8781 Carpenters and Related Occupations
8782 Brick and Stone Masons and Tile Setters
8783 Concrete Finishing and Related Occupations
8784 Plasterers and Related Occupations
8785 Painters, Paperhangers and Related Occupations
8786 Insulating Occupations, Construction
8787 Roofing, Waterproofing and Related Occupations
8791 Pipefitting, Plumbing and Related Occupations
8793 Structural Metal Erectors
8795 Glaziers
8796 Inspecting, Testing, Grading and Sampling Occupations: Other Construction Trades
8798 Occupations in Labouring and Other Elemental Work: Other Construction Trades
8799 Other Construction Trades Occupations, n.e.c.

MAJOR GROUP 91 - TRANSPORT EQUIPMENT OPERATING OCCUPATIONS

911 Air Transport Operating Occupations

9110 Foremen/women: Air Transport Operating Occupations
9111 Air Pilots, Navigators and Flight Engineers
9113 Air Transport Operating Support Occupations
9119 Air Transport Operating Occupations, n.e.c.

913 Railway Transport Operating Occupations

9130 Foremen/women: Railway Transport Operating Occupations
9131 Locomotive Operating Occupations
9133 Conductors and Brake Workers, Railway
9135 Railway Transport Operating Support Occupations
9139 Railway Transport Operating Occupations, n.e.c.

915 Water Transport Operating Occupations

9151 Deck Officers
9153 Engineering Officers, Ship
9155 Deck Crew, Ship
9157 Engine and Boiler-room Crew, Ship
9159 Water Transport Operating Occupations, n.e.c.

917 Motor Transport Operating Occupations

9170 Foremen/women: Motor Transport Operating Occupations
9171 Bus Drivers
9173 Taxi Drivers and Chauffeurs
9175 Truck Drivers
9179 Motor Transport Operating Occupations, n.e.c.

919 Other Transport Equipment Operating Occupations

9190 Foremen/women: Other Transport Equipment Operating Occupations
9191 Subway and Street Railway Operating Occupations
9193 Rail Vehicle Operators, Except Rail Transport
9199 Other Transport Equipment Operating Occupations, n.e.c.

MAJOR GROUP 93 - MATERIAL HANDLING AND RELATED OCCUPATIONS, N.E.C.

931 Material Handling and Related Occupations, n.e.c.

9310 Foremen/women: Material Handling and Related Occupations, n.e.c.
9311 Hoisting Occupations, n.e.c.
9313 Longshore Workers, Stevedores and Freight Handlers
9314 Parcel Carriers, n.e.c.
9315 Material Handling Equipment Operators, n.e.c.
9317 Packaging Occupations, n.e.c.
9318 Occupations in Labouring and Other Elemental Work: Material Handling and Related Activities, n.e.c.
9319 Other Material Handling and Related Occupations, n.e.c.

MAJOR GROUP 95 - OTHER CRAFTS AND EQUIPMENT OPERATING OCCUPATIONS

951 Printing and Related Occupations

9510 Foremen/women: Printing and Related Occupations
9511 Typesetting and Composing Occupations
9512 Printing Press Occupations
9513 Stereotyping and Electrotyping Occupations
9514 Printing Engraving, Except Photoengraving, Occupations
9515 Photoengraving and Related Occupations
9517 Bookbinding and Related Occupations
9518 Occupations in Labouring and Other Elemental Work: Printing and Related Activities
9519 Printing and Related Occupations, n.e.c.

953 Stationary Engine and Utilities Equipment Operating and Related Occupations

9530 Foremen/women: Stationary Engine and Utilities Equipment Operating and Related Occupations
9531 Power Station Operators
9539 Stationary Engine and Utilities Equipment Operating and Related Occupations, n.e.c.

955 Electronic and Related Communications Equipment Operating Occupations, n.e.c.

9550 Foremen/women: Electronic and Related Communications Equipment Operating Occupations, n.e.c.
9551 Radio and Television Broadcasting Equipment Operators
9553 Telegraph Operators
9555 Sound and Video Recording and Reproduction Equipment Operators
9557 Motion Picture Projectionists
9559 Other Electronic and Related Communications Equipment Operating Occupations, n.e.c.

959 Other Crafts and Equipment Operating Occupations, n.e.c.

9590 Foremen/women: Other Crafts and Equipment Operating Occupations, n.e.c.
9591 Photographic Processing Occupations
9599 Other Crafts and Equipment Operating Occupations, n.e.c.

MAJOR GROUP 99 - OCCUPATIONS NOT ELSEWHERE CLASSIFIED

991 Occupations Not Elsewhere Classified

9910 Supervisors and Foremen/women, n.e.c.
9916 Inspecting, Testing, Grading and Sampling Occupations, n.e.c.
9918 (9921-9926) Occupations in Labouring and Other Elemental Work: n.e.c. (in the following industries):
- 9921 Manufacturing Industries
- 9922 Transportation, Communication and Other Utilities
- 9923 Trade
- 9924 Community, Business and Personal Service
- 9925 Public Administration and Defence
- 9926 Other Industries and Unspecified(4)

9919 Other Occupations, n.e.c.

FOOTNOTES

(1) Includes wood industries, furniture and fixture industries, primary metal industries, metal fabricating industries (except machinery and transportation equipment industries), machinery industries (except electrical machinery), transportation equipment industries, electrical products industries and non-metallic mineral products industries.

(2) Includes food and beverage industries, tobacco products industries, rubber and plastic products industries, leather industries, textile industries, knitting mills, clothing industries, paper and allied industries, printing, publishing and allied industries, petroleum and coal products industries, chemical and chemical products industries, and miscellaneous manufacturing industries.

(3) Includes industry unspecified or undefined, agriculture, forestry, fishing and trapping, finance, insurance and real estate and public administration and defence.

(4) Includes industry unspecified or undefined, agriculture, forestry, fishing and trapping, mines (including milling), quarries and oil wells, construction industry and finance, insurance and real estate.

ABBREVIATION

n.e.c. = not elsewhere classified.

APPENDIX E2

Mapping of 4 Digit SOC Codes into 49 Groups

1980 SOC Code Range	Grouped Code	SOC Description
111	01	Officials and administrators, government
113-114	02	Other managers and administrators
117	03	Management and administration related
211,213	04	Physical, life science
218	05	Maths, stats, systems analysis, related
214-215	06	Architects and engineers
216	07	Architecture and engineering related
231,239	08	Social sciences and related
233-235	08	Social sciences and related
251	09	Religion
271	10	University and related
273	11	Elementary, secondary and related
279	12	Other teaching and related
311	13	Health diagnosing and treating
313	14	Nursing, therapy and related
315-316	15	Medicine and health related

331,333	16	Artistic and recreational
335-337	16	Artistic and recreational
411	17	Stenographic and typing
413	18	Bookkeeping, account recording and related
414	19	Office machine and E.D.P. operators
415	20	Material recording, scheduling and distributing
417	21	Reception, inf., mail and message distribution
416,419	22	Library, file, correspondence, other clerical and related
513-514	23	Sales, commodities
517,519	24	Sales, services and other sales
611	25	Protective service
612-613	26	Food and beverage preparation and related lodging and accommodation
614,616	27	Personal, apparel and furnishing services
619	28	Other service occupations
711	29	Farmers (& farm management - 1970 only)
718-719	30	Other farming, horticultural and animal husbandry
731	31	Fishing, hunting, trapping and related
751	32	Forestry and logging
771	33	Mining and quarrying including gas and oil field
821-822	34	Food, beverage and related
823,829	35	Other processing occupations
825-827	35	Other processing occupations
813-817,811	35	Other processing occupations
833	36	Metal shaping and forming occupations
839,835	37	Other machining occupations
837,831	37	Other machining occupations
851-852	38	Metal products, N.E.C.
853	39	Electrical, electronic and related equipment
855-856	40	Textiles, furs and leather goods
854,857,859	41	Wood products, rubber, plastics and other related
858	42	Mechanics and repairmen, except electrical
871	43	Excavation, grading, paving and related
873	44	Electrical power, lighting and wire communications equipment, erecting, installing and repairing
878-879	45	Other construction trades
917	46	Motor transport operators
911,913	47	Other transportation equipment operators
915,919	47	Other transportation equipment operators
931	48	Material handling
959,951	49	Other crafts and equipment operators
953,955	49	Other crafts and equipment operators

Note: For definition of detailed 1980 SOC codes, see "Standard Occupational Classification", Statistics Canada, February, 1981, Catalogue No. 12-565E.

APPENDIX F

Sampling variability tables

APPENDIX G

Publications

Statistics Canada Publications

Canada's Women: A Profile of their 1986 Labour Market Experience, Statistics Canada, Catalogue No. 71-205, 1$10.00/$11.00.

Canada's Men: A Profile of their 1986 Labour Market Experience, Statistics Canada, Catalogue No. 71-206, $10.00/$11.00.

Canada's Youth: A Profile of their 1986 Labour Market Experience, Statistics Canada, Catalogue No. 71-207, $10.00/$11.00.

Canada's Older Workers: A Profile of their 1986 Labour Market Experience, Statistics Canada, Catalogue No. 71-208, $10.00/$11.00.

Labour Market Activity Survey Analytic Studies

Gauthier, M., Une ,tude de l'int,gration des jeunes dans le march, du travail qu,b,cois , L'Institut qu,b,cois de recherche sur la culture, Qu,bec, Qu,bec .

Kaliski, S., Abbott, M. and Beach, C., Characteristics of Labour Market Change: Preliminary Evidence from the LMAS, Queen's University, Department of Economics, Kingston, Ontario.

Myles, J., Picot, G. and Wannell, T., Wages and Jobs in the 1980s: Changing Youth Wages and the Declining Middle, Research Paper No. 17, Analytical Studies Branch, Statistics Canada.

Osberg, L., Is It Retirement or Unemployment?: The Constrained Labour Supply of Older Canadians, Dalhousie University, Department of Economics, Halifax, Nova Scotia.

Osberg, L. and Phipps, S., The Elasticity of Constrained Labour Supply, Dalhousie University, Department of Economics, Halifax, Nova Scotia.

Labour Market Activity Survey Bulletin, Vol. 1, No. 1, Fall 1988.

Labour Market Activity Survey Bulletin, Vol. 1, No. 2, Winter 1989.