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Microdata User's Guide

Survey of 1981 Work History

Statistics Canada Statistique Canada

Canada

Survey of 1981 Work History
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1. INTRODUCTION

This package should enable analysts to access and manipulate the microdata file for the Survey of 1981 Work History (SWH). Any questions about the data set or its use should he directed to:

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2. SURVEY OBJECTIVES

The Survey of 1981 Work History was jointly sponsored by the Canadian Employment and Immigration Commission (CEIC), Labour Canada and Statistics Canada. Both CEIC and Labour Canada were interested in obtaining data which would allow them to assess the impact of proposed changes to the Canadian Labour Code and the Unemployment Insurance Act and their attendant regulations. The proposed amendments were designed to correct inequities which were developing with respect to the benefit entitlements of part-time/part-year workers versus full-time/full-year workers under the existing legislation.

Both pieces of legislation define minimum entitlement thresholds on the basis of continuity and duration of employment. Historically these definitions have excluded only a small number of paid employees from qualifying for benefits. In recent years, however, part time employment has grown to represent 19% of all paid jobs held and it is estimated that a significant number of these employees do not qualify for benefits under existing legislation only because of the schedule and pattern of their employment.

The Survey of 1981 Work History was designed therefore to yield information on the length and timing of periods of employment experienced in 1981 for up to four different employers. Paid workers were then required to provide detailed information on their usual work schedule, union status and wage rate with each employer. Information was also collected on the reason for variability in usual hours, and, for part-time workers, the number of additional hours wanted.

3. POPULATION

The Survey of 1981 Work History is representative of the working age population of Canada (15+) with the exception of inmates of institutions, full-time members of the armed forces, and residents of Indian reserves, the Yukon, and the Northwest Territories.

4. SURVEY DESIGN

This section provides a brief overview of the methodology of the Labour Force Survey (LFS), highlighting those aspects of the design felt to be of general interest to users. A detailed description of the methodology is available in the Statistics Canada publication entitled Methodology of the Canadian Labour Force Survey, 1976 (Catalogue No. 71-526).

The LFS is a stratified multi-stage area sample which is based upon information from the 1971 Census of Canada. Basically, the sample consists of three main parts: self-representing units (SRU's), non-self-representing units (NSRU's) and special areas. Each of these parts is discussed separately below, following a brief discussion of the stratification.

4.1 Stratification

Stratification in an area frame is basically a process of classifying (usually compact) area units into certain collections called strata. Though the main advantage of stratified sampling is the possible increase in efficiency per unit cost in estimating the population characteristics, stratification also introduces considerable flexibility in the sense that, depending upon the information available, sampling and estimation procedures may differ from stratum to stratum. Further, in a continuous survey like the LFS, stratification provides an added flexibility of updating or redesigning the sample of a specified stratum or groups of strata, without affecting the design in the remaining strata.

Each of the ten provinces in Canada is divided into a number of economic regions (ER's). An ER has areas of similar economic structure, based on recent information, and is stable over a period of time.

These ER's are treated as primary strata and further stratification is carried out within the self-representing and non-self-representing parts independently in each ER.

4.2 Self-Representing Units (SRU's)

SRU's are those cities whose population exceeds a certain predetermined value, this value varying from region to region.[1] Some cities with population less than this lower limit are also classified as SRU'S, in cases where they possess unique labour force characteristics. Within all SRU's the sample is selected independently so that each of them is represented in the survey by a sample of its own population and hence the name 'self-representing'.

The larger SRU's are subdivided into subunits, the subunit size ranging from 1,000 to 12,000 dwellings. These subunits are classified as built-up, fringe or combinations of built-up and fringe, depending upon potential for future growth. This classification helps to ensure geographic representativeness, as households in core areas of larger cities are likely to have different labour force characteristics than those in fringe areas.

[1] For example, SRU's in Ontario and Quebec are generally cities whose 1971 population exceeded 24,000 persons. In the Prairies, the population criterion is 15,000 persons.

Within each subunit a sample of clusters (normally a city block or block face) is selected by a sampling procedure known as the random group method. Clusters are randomized and assigned to groups and then within each group a cluster is selected with probability proportional to the number of dwellings contained in it. Generally six clusters (and in some cases 12 clusters) are selected from each subunit.

The second and final stage of selection in the SRU's is the systematic selection of dwellings within selected clusters. This is done by first obtaining a listing of the dwellings in each cluster and then performing the selection. On average, approximately 5-6 dwellings are selected from a cluster.

In the 17 largest self-representing units a special selection is made of large apartment buildings (30 or more units and 5 or more stories) to improve the representativeness of the sample and to reduce the variance of the sample estimates. The sampling procedure for the apartment sample is similar to that of the regular sample, each apartment building constituting a cluster.

4.3 Non-Self-Representing Units (NSRU's)

The NSRU's are the areas outside the SRU's containing rural portions and small urban centres. Before discussing the selection stages used in the NSRU's it is necessary to briefly describe below how these areas are stratified.

4.3.1 Stratification within NSRU's

As mentioned earlier, the NSRU part of each economic region (ER) is further subdivided into a number of strata, based upon the following requirements:

(i) The stratification variables should be related to the variables under study. In this case the stratification is intended specifically for the LFS, therefore, the stratification variables should be related to the characteristics of the labour force.

(ii) The characteristics should be stable over time in order to retain the efficiency of stratification for a longer period of time.

(iii) The number of persons having the characteristics should vary from area to area within the ER making meaningful the concept of similar and dissimilar areas with respect to the characteristics.

(iv) The number of persons having the characteristic should account for a sizeable proportion of the ER population.

Following these guidelines, the proportions of the labour force employed by industry as reported by the 1971 Census were decided upon as the stratification groups for each ER. The seven categories considered for this purpose are: agriculture, forestry or fishing, mining, manufacturing, construction, transportation and services. Of these seven, the three best fulfilling requirements (iii) and (iv) above were used as stratification variables for ER.

Within each stratum in an ER, the NSRU sample is selected as described in the following

subsections.

4.3.2 Primary Sampling Units (PSU's)

First, each stratum of an NSRU within an economic region is delineated into a number of primary sampling units (PSU's). The delineation was done in such a way that resulting PSU's represent the stratum within which they are located with respect to important labour force characteristics and with respect to the urban/rural population split of the stratum (according to 1971 Census figures). Generally between 10 and 20 PSU's are created in a stratum, each averaging between 2,000 and 2,500 population.

4.3.3 Clusters

Each urban centre located within a selected PSU is further sub-divided into a number of clusters, a cluster being a well-defined area with boundaries recognizable both on the maps and in the field; they consist of somewhere between 2 and 50 households. A number of clusters are then selected from each group using systematic sampling with probability proportional to the number of households contained in it. A similar procedure is used to define and select clusters in the rural groups of a selected PSU.

4.4 Special Areas

In addition to the SRU'S, a small proportion of the LFS population is found in institutions such as hospitals, schools, hotels, on military establishments, in remote areas, etc. Because the labour force characteristics of people in these institutions are unique, and because some of these areas are not regularly accessible to LFS interviewers, they are handled by the special area frame, which for sampling purposes is divided into the following four strata: military establishments, hospitals, other institutions and remote areas. It may be noted that only the civilian population living on military establishments is included in the survey, and that, in the case of institutions, inmates of the institutions are not included in the survey.

The special areas are sampled in three stages. The first stage units correspond to census enumeration areas, and are selected systematically with probability proportional to size, the eligible labour force population as of the 1971 Census being the size measure. Subsequent stages of sampling are clusters and households, as described earlier.

4.5 Sample Rotation

Each household in the LFS sample remains in the sample for a period of six consecutive months. After the sixth month, the household rotates out" of the sample and is replaced by a new household. One sixth of the sample is rotated out in this manner each month and a new sixth is brought in to replace it. This rotation, as it is called, is done primarily to minimize the non-response that might occur if respondents were asked to remain in the survey for a longer period of time. The Survey of 1981 Work History was conducted using Rotation Groups 2, 3, 4 and 5 in the January 1982 Labour Force Survey.

5. COLLECTION

The interviewing was done using the regular interviewing procedures of the Labour Force Survey. Data were collected during the week of January 18-23, 1982. Most of the labour force variables relate to the reference week of January 10-16, 1982. A separate supplementary document was completed for each person aged 15 years or over in the household.

6. PROCESSING

Data entry was completed in the Statistics Canada Regional Offices using the mini computers situated there. Following capture, the data were subjected to validation, edit and correction procedures.

Partial non-response to the SWH was identified by subjecting the raw data to an exhaustive computer edit. Records with missing or inconsistent data were imputed from similar records.

7. DATA OUTPUT

The Labour Force Activity Section of Statistics Canada has published an article entitled Work Schedules in 1981: Results of a Special Survey" in the October 1982 issue of The Labour Force (Catalogue No. 71-001).

The Section is currently developing other articles based on SWH data. These are also scheduled to be published in future issues of The Labour Force.

8. ESTIMATION

8.1 Introduction

The principle behind the estimation procedure in a probability sample such as the LFS is that each person in the sample "represents", beside himself or herself, several other persons not in the sample. For example, in a simple random sample of 2%, each person in the sample represents 50 persons in the population. This could be achieved by producing 50 duplicates of each record in the sample, and then proceeding to compile any aggregates of cross-classifications which would now refer to the entire population, and would represent the estimates for the corresponding quantities in the population as obtained from the 2% sample.

For the LFS the file created for tabulation purposes contains one record per selected person in the sample. Each record contains all labour force and demographic characteristics concerning selected individuals. Instead of physically duplicating the sample records, an overall weighting factor is placed on each record. The weighting factor refers to the number of times a particular record should be duplicated. For example, if the number of persons employed in manufacturing is to be estimated, this is done by selecting the records referring to those persons in the sample employed in manufacturing and summing the weights entered on these records.

In a probability sample, the sample design itself determines weights which may be used to produce unbiased estimates. Each record may be weighted by the inverse of the probability of selecting the person to whom the record refers (in the example of the 2% random sample this probability would be 0.02 for each person and so the records could be weighted by 1/0.02 = 50). This may

be called the simple estimate.

Frequently we come across situations where objective information on certain relevant characteristics for the same universe is available from sources other than the survey itself. There are several estimation methods which utilize such auxiliary information in order to increase the reliability of the estimate. Ratio estimation is one of the most prevalent techniques of utilizing relevant information external to the survey. The main principle of ratio estimation may be summarized as follows: suppose that simple estimates of aggregates are produced for certain classifications of the population (e.g. for age-sex groups or for the population in rural and urban areas, etc.) utilizing the simple estimating procedure described above. Assume also that reliable estimates or actual counts are available by aggregates from sources outside the survey for the same classifications of the population. One may then compare the estimates derived from the survey with those obtained from outside sources. The estimates from the outside sources are divided by the simple estimates for each classification and the weights of the records in each classification are adjusted by multiplying the weights by this factor. After the adjustment of the weights the estimated aggregates will now agree with the estimate from the independent source for each classification. Ratio estimation is quite simple as compared to other methods of using external information, and at the same time results in increased efficiency. The choice of external information is, however, very crucial to the procedure, as it leads to higher efficiency only if such information is highly correlated with the characteristics of interest in the survey.

8.2 LFS Weights

In the LFS, the final weight attached to each record is the product of five factors. These are the basic weight, rural-urban factor, balancing factor for non-response, cluster subweight and province age-sex adjustment (ratio estimate). Each of these is described below.

8.2.1 Basic Weight

The sample design itself determines a set of basic weights to be applied to each record referring to persons in the sample. This is called the basic weighting factor. The sample design is such that within the same province and same type of area (NSRU, SRU or special area), the basic weights are identical (except where specified) for each record (person) in the sample and are equal to the inverse of the sampling ratio. If data on all sampled households are available then the simple estimate is derived by applying the basic weights to each record in the sample.

8.2.2 Rural-Urban Factor

Each primary sampling unit in the NSRU is composed of rural and urban areas, and the proportion of population belonging to the area differs from province to province and also from stratum to stratum within each province. Information concerning the total population in rural and urban area is available from the 1971 Census for each PSU as well as for each province. Using the selected PSU's only, and dividing their 1971 rural or urban population by the known probability of selection, a “simple estimate” of the 1971 rural or urban population is obtained for each province. Comparison by province with the actual 1971 rural or urban census counts indicates whether the selected PSU's over- or under-represent the respective areas. The ratio of

the actual rural-urban counts is divided by the corresponding estimates. These two factors are computed for each province and are used in the form of ratio estimates. These two factors are computed at the time of the selection of the PSU's, and are entered on each sample record according to the appropriate area of that province. Changes in these factors are incorporated at the time of PSU rotations.

8.2.3 Balancing Factor for Non-response

Some non-response is virtually certain to occur in any survey of human populations whether it is because there is no one at home during the enumeration or for some other reason. In the LFS each month, the sample design completely specifies the households that are to be interviewed during interview week. Each interviewer is assigned a set of households and is given firm instructions to make every effort to interview these households. If, in spite of all attempts by the interviewer, certain households remain non-respondent, then the interviewer is asked to provide a reason for non-response for each of these households. Non-interviews fall into two basic categories:

(a) non-respondent households (Codes N, R, T, K, L, A, Z)
(b) Vacant or non-existent dwellings (Codes V, S, C, B, D)

The definitions of the non-interview codes and their algebraic definitions are presented below:

Let n( ) = no. of dwellings/households with response to status
Then, interviews = n(X) + n(E)
non-response = n(T) + n(N) + n(R) + n(K) + n(A) + n(A9) + n(L) + n(Z)
vacants = n(V) + n(S) + n(C) + n(B)
non-existent dwellings = n(D)

(i) actual no. of households = interviews + non-response
(ii) selected no. of dwellings = actual no. of households + vacants + non-existent dwellings

$$\text{(iii) overall non-response rate} = \frac{\text{non-response}}{\text{Actual no. of households}} * 100$$

$$\text{(iv) refusal rate} = \frac{n(R)}{\text{actual no. of households}} * 100$$

(similar definitions for T rate, N rate and A rate, etc.)

Table 1. Interview/Non-Interview Classifications

Category	Code	Explanation
Interview	X	Complete interview - LFS questionnaire completed for all eligible members of the household
	E	Partial interview - LFS questionnaire completed for some, but not all, eligible members of the household
Non-Response	T	Household temporarily absent
	N	No one at home
	R	Refusal
	K	No interview due to circumstances within the household (e.g. sickness, death, language problem)
	A	No interviewer available
	L	No interview due to weather conditions
	Z	"No Shows" - survey forms arrived too late for processing or were lost in the mail.
Vacant	V	Vacant dwelling
	S	Vacant seasonal dwelling
	C	Dwelling under construction
	B	Usual place or residence elsewhere, military or embassy personnel
Non-existent	D	Dwelling was demolished, removed, converted into business premises or listed in error.

In certain types of non-response such as no one at home", refusal to answer questions", or a temporarily absent household" if the previous month's responses are available, then records are copied with suitable transformations being applied to certain fields, and the response status is changed to that of the previous month. For estimation purposes these households are treated in the same way as any other responding household. These records are then flagged so that records will not be copied for more than one consecutive month.

To compensate for other types of non-response, such as "no call made due to weather conditions", "no interviewer available", newly rotated households which are non-respondent or households which are non-respondent for the second consecutive month, the "interviewed" households have their weight increased by a balancing factor. Balancing is carried out within each balancing unit.

In the NSR areas, each sampled PSU is divided into two balancing units (a-urban and b-rural

parts), and in the SRU's each subunit is a balancing unit. For each balancing unit the number of households which should have been interviewed is divided by the number actually interviewed or imputed for on the basis of last month's records, and this ratio (the balancing factor) is then entered on each sample record in that balancing unit. This ratio is based on the assumption that the households that have been interviewed represent the characteristics of the households that should have been interviewed. However, if this assumption is not true, the estimates will be biased and the bias will increase with a higher rate of non-response. The exact magnitude of bias introduced by the adjustment for non-response is impossible to calculate. Consequently, rather than depending entirely on the adjustments for non-response, every effort is made to reduce it in the field.

8.2.4 Cluster Subweight

Each interviewer is assigned a specific set of households to enumerate during the interview week of each month. In the NSRU's each PSU is designed to yield an expected take suitable to make up an interviewer assignment, while the SRU assignments are formed from contiguous subunits taking into account the expected sample take at the design stage.

Further, each cluster has been designed to yield a sample take of two to three or four to six households respectively in NSRU or SRU areas. The actual take is fairly robust against departures from these figures when growth is moderate; indeed, each 100% increase in the number of households listed in a cluster versus design count results in an increase of only two to six households. Thus, substantial growth can be withstood in an isolated cluster before the additional take presents a field problem. If growth takes place in more than one cluster in an assignment, then the cumulative effect of smaller increases may create a problem. In clusters where substantial growth has taken place, sub-sampling may be resorted to as a means of avoiding disruptions in field operations. Rather than enumerate all the households which should be selected, the inverse sampling ratio of the cluster is modified, say to k times its original value, which results in only 1 out of every k originally selected households being selected. The records for these households are then weighted by an additional factor equal to k, as each of these records represent k times as many records as was expected by design.

8.2.5 Age-Sex Adjustment

By applying the previously described four weighting factors, a valid estimate could be derived for any aggregates for which information was obtained during the enumeration. In weighting, estimates of the total number of persons are produced in each of the ten provinces in each of 40 age-sex groups. Independent estimates are available monthly for the totals in these 400 province-age-sex classes, by projecting forward the 1976 Census counts. In each class the independent estimate is divided by the simple estimate and this ratio is called the province-age-sex factor (ratio estimate). This factor is entered on all records belonging to the appropriate class.

8.2.6 Final LFS Weight

The final weight for each record is the product of the five factors described above. In the final tabulations the estimated aggregate of each classification is obtained by summing the final weights of those records which indicate the presence of the characteristics. For example, to obtain the

estimated aggregate of unemployed, the final weights of those records that indicate "unemployment" are summed.

8.3 Supplementary Survey Weighting

The principles of the calculation of weights for the LFS itself and for supplementary surveys are identical. However, modifications are usually necessary for two reasons:

(1) The supplement is often conducted using only a sub-sample of the full LFS (e.g. Rotation Groups 2, 3, 4 and 5 in the case of the SWH)

(2) The non-response of the LFS and the supplement differ. For example, a household may answer the LFS but refuse the supplement. A more common situation is when the household cannot be interviewed at all, but the LFS data can be "imputed" from previous month's data. This shows up as a "response" to the LFS and a "non-response" to the supplement.

The methods usually adopted to account for these differences are, respectively:

(1) adjust the LFS subweight (the product of the first four factors in the LFS weight) by the appropriate "sample reduction" factor. For example when 4 out of 6 rotation groups are interviewed for the supplement, multiply the LFS subweight by 1.5.

(2) rebalance the LFS subweight to account for the (additional) non-response to the supplement. The adjustment factor usually used is

$$\frac{\text{number of persons expected to be enumerated}}{\text{number of persons actually enumerated}}$$

The balancing units used for the supplement are ideally the same as those for the LFS, although if the amount of sub-sampling is substantial, balancing units must be collapsed (i.e. combined).

9. RELEASE POLICY AND DATA RELIABILITY

Users are required to apply the following guidelines before releasing any data derived from the SWH. With the aid of this policy, users of micro-data should be able to produce the same figures as those produce by Statistics Canada and, at the same time, will be able to develop currently unpublished figures in a manner consistent with the established policy for rounding and release of Labour Force Survey and Labour Force Supplementary Survey data. The guidelines can be broken into three sections - sampling variability policy, rounding policy and weighting policy.

9.1 Sampling Variability Policy

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

taken under similar conditions is called the sampling error of the estimate.

It is obvious that the sampling error of the estimate, as defined above, cannot be measured from sample results alone (otherwise a survey would be unnecessary). However, a statistical measure of sampling error, the standard deviation, can be estimated from the sample data themselves. Using the standard deviation, confidence intervals for estimates (ignoring the effects of non-sampling error) may be obtained under the assumption that the estimates are normally distributed about the true population value. 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 deviation, about 95 out of 100 that the difference would he less than two standard deviations, and virtual certainty that the differences would be less than three standard deviations.

Because of the large variety of estimates that can be produced from a survey, the standard deviation is usually expressed relative to the estimate to which it pertains. The resulting measure, known as the coefficient of variation of an estimate, is obtained by dividing the standard deviation of the estimate by the estimate itself, and is expressed as a percentage of the estimate. Before releasing and/or publishing any estimates from this micro-data tape, users should determine its coefficient of variation and follow the guidelines below.

The publishability or other releasability of an estimate is governed by the coefficient of variation (cv) of the estimate. Table 2 summarizes the sampling variability policy.

Table 2. Sampling Variability Policy

Type of Estimate	Coefficient of Variation (in %)	Alphabetic Indicators	Policy Statement
1. Unqualified	0.0 to 0.5 0.6 to 1.0 1.1 to 2.5 2.6 to 5.0 5.1 to 10.0 10.1 to 16.5	A B C D E F	Estimates can be considered for general unrestricted release. No special Notation is required, although the alphabetic indicators at left are suggested
2. Qualified	16.6 to 25.0	G	Estimates can be considered for general unrestricted release but should be accompanied by a warning cautioning users of the high sampling variability associated with the estimates. Such estimates should be identified by the letter G (or in some other similar fashion).
3. Restricted	25.1 to 33.3	H	Estimates can be considered for general unrestricted release only when sampling variabilities are obtained using the Labour Force Survey variance calculation procedure.
4. Not for Release	(i) 33.4 (ii) any estimate of less than 4,000 (after rounding) regardless of cv	J	Estimates cannot be released in any form under any circumstances. In statistical tables, such estimates should be deleted and replaced by dashes (--).

Note: The sampling variability policy should be applied to rounded estimates.

9.2 Where to Obtain Sampling Variabilities

Sampling variablilites may be obtained from two sources, each of which is detailed below.

9.2.1 Actual Variance Estimates

Variance estimates may be generated for specific variables. Actual variance estimates for specific variables may be obtained on a special cost recovery basis. As noted in Table 2 use of actual variance estimates allows users to release estimates which fall into the restricted range.

9.2.2 Crude Sampling Variability Tables

Derivation of sampling variabilities for each of the estimates which could be generated from the SWH would be an extremely costly procedure, and, for most users, an unnecessary one. Consequently, crude measures of sampling variability have been developed for use.[2]

Tables 3A and 3B are based on these crude sampling variabilities and provide guidelines for the release of SWH estimates where the unit of analysis is the person or the person-job. As noted in Table 2, estimates with a coefficient of variation between 25.0% and 33.3% may be released only if actual variance estimates are obtained. If the data release cutoffs based on crude sampling variability tables are used, estimates with a coefficient of variation of more than 25.0% may not be released.

Estimates of less than 4,000 are not releasable. The asterisks in Table 3A and 3B indicate that the estimates at the C.V. in question were below the 4,000 cutoff. Apart from this constraint, estimates with a C.V. of less than 16.5% may be released unqualified" and estimates with a C.V. of 16.5% to 25.0% may be released qualified", as noted in Table 3. Rates and percentages may be released if the numerator has a C.V. of less than 25.0%.

[2] The coefficients of variation are derived using the variance formula for simple random sampling, incorporating an assumed design effect of 2.0. The design effect is defined as the ratio of the variance of an estimate from the LFS to the variance from a simple random sample of the same size.

TABLE 3A - Data Release Cutoffs based on Crude Sampling Variability Tables: Estimates from the Person File

	Coefficient of variation is less than 16.5% for estimates greater than ...	Coefficient of variation is between 16.5% and 25.0% for estimates between ...	Coefficient of variation is greater than 25.0% for estimates smaller than...
Canada	**18,000**	**18,000 - 8,000**	**8000**
Newfoundland	7,000	7,000 - 4,000	*
Prince Edward Island	4,000	*	*
Nova Scotia	8,000	8,000 - 4,000	*
New Brunswick	6,000	6,000 - 4,000	*
Quebec	22,000	22,000 - 10,000	10,000
Ontario	25,000	25,000 - 12,000	12,000
Manitoba	8,000	8,000 - 4,000	4,000
Saskatchewan	7,000	7,000 - 4,000	*
Alberta	12,000	12,000 - 6,000	6,000
British Columbia	19,000	19,000 - 9,000	9,000
Atlantic Region	6,000	6,000 - 4,000	*
Prairie Region	10,000	10,000 - 5,000	5,000

*In these cases, the estimate at the c.v. in question is below the 4,000 cut-off

TABLE 3B - Data Release Cutoffs based on Crude Sampling Variability Tables: Estimates from the Job File

	Coefficient of variation is less than 16.5% for estimates greater than...	Coefficient of variation is between 16.5% and 25.0% for estimates between...	Coefficient of variation is greater than 25.0% for estimates smaller than...
Canada	**19,000**	**19,000 - 10,000**	**10,000**
Newfoundland	5,000	5,000 - 4,000	*
Prince Edward Island	4,000	*	*
Nova Scotia	5,000	5,000 - 4,000	*
New Brunswick	5,000	5,000 - 4,000	*
Quebec	23,000	23,000 - 10,000	10,000
Ontario	30,000	30,000 - 13,000	13,000
Manitoba	5,000	5,000 - 4,000	*
Saskatchewan	7,000	7,000 - 4,000	*
Alberta	11,000	11,000 - 5,000	5,000
British Columbia	19,000	19,000 - 7,000	7,000
Atlantic Region	5,000	5,000 - 4,000	*
Prairie Region	8,000	8,000 - 4,000	*

*In these cases, the estimate at the c.v. in question is below the 4,000 cut-off

Users may wish to release data where the unit of analysis is a dollar value or an hours worked value.

As a general principle, such values are releasable if the sum of the record weights used in the calculation is releasable. For example, if the estimated number of persons or person-jobs with a certain set of characteristics is publishable, so are their total earnings or total hours worked. Assistance can be obtained from Statistics Canada in determining whether or not a particular value can be released.

9.3 Rounding Policy

In publishing or releasing data, users should use normal rounding in order to be consistent with similar estimates released by Statistics Canada. Otherwise, the rounding technique used should be documented in data to be released. As a general principle, calculations should be performed on unrounded aggregates (i.e., carrying the four decimal places in the record weights) or on aggregates rounded to units. If, for example, percentages calculated on aggregates rounded to

thousands are released, this fact should be documented in providing the results, as they may disagree with corresponding percentages obtained directly from Statistics Canada, which would be calculated on data rounded to units.

The following are guidelines relating to rounding. Additional information can be obtained by contacting Statistics Canada.

9.3.1 Normal rounding

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, the number 8,499 rounded to thousands would be 8 and the number 8, 500 rounded to thousands would he 9.

9.3.2 Release of data where the person or the person-job is the unit of analysis

To calculate aggregates, sum the weights of records with the characteristics of interest and then round the sum to the nearest thousand. Estimates of persons or person-jobs should not be released unless rounded (at least) to thousands.

To calculate a ratio, the sum of the weights of both the numerator and denominator should be unrounded, or rounded to the nearest unit. The record weights are expressed to four decimal places. It is not necessary to carry the four decimal places in calculating a ratio, as long as the full weights have been used to derive the aggregates on which the ratio will be based. The ratio itself should be rounded to the required number of decimal places using normal rounding.

To calculate an average, the numerator (and denominator where applicable) should be unrounded or rounded to the nearest unit. The average should itself be then rounded to the nearest thousand.

9.3.3 Release of data where a dollar value is the unit of analysis

The policy of rounding to thousands does not apply to estimates of dollars. The focus of the analysis in this case is likely to determine the number of significant digits. Average hourly earnings would likely be expressed in dollars and cents (e.g., $8.52). Users who wish to derive and release estimates of total wages and salaries in 1981 may opt to express such values in millions.

Where rounding is done, normal rounding techniques should be used. Techniques for calculating average hourly wage rates are discussed in Section 10.3.

9.4 Weighting Policy

Users are cautioned against releasing unweighted tables or any analysis based on unweighted survey results. Since the Labour Force Survey is not a simple random sample, it cannot be considered to be representative of the surveyed population until the appropriate weights are applied.

Users should note that some software packages such as SAS and SPSS will not allow the generation of estimates which exactly match those published by Statistics Canada. This is due to their treatment of the weight.

10. DEFINITIONS AND DATA LIMITATIONS

The following section contains a description of how certain variables were derived from the responses provided. Also, the initial analysis of results from the Survey of 1981 Work History (SWH) at Statistics Canada has revealed some of the limitations and features of the data. These are discussed below.

10.1 "Persons" and "Jobs" as two possible units of analysis

The SWH questionnaire contained four identical "columns" of questions where one column was to be completed for each employer for whom the respondent worked at any time in 1981. Of the estimated 13,109,000 persons who worked at some time in 1981, 99.9% worked for no more than four employers. For the small remainder, the information collected by the SWH pertained to the four most recent employers.

Because of the structure of the questionnaire (i.e. the "columns" being employer-specific), a job change with the same employer (e.g., from labourer to driver) would not be identified. Where such a change occurred, the occupation description would pertain to the most recent job. However, it is possible to identify persons with more than one distinct spell of employment with the same employer.

Items 12 through 16 (job tenure, months worked in 1981, industry, occupation and class of worker) were recorded for all jobs held. Items 18 through 27 were completed only for "paid worker" type jobs. However, it should he noted that the definition of "paid worker" differs from the one used in published LFS data in that owners of incorporated businesses are not classified as paid workers. There were two reasons for asking Items 18 through 27 only in the case of paid worker jobs. First, two of the survey's sponsors (CEIC and Labour Canada) were interested almost exclusively in paid workers. Secondly, the work schedule and earnings questions were likely to create reporting difficulties for the self-employed in what was already a fairly complex and demanding questionnaire. Since the reporting problems for owners of incorporated businesses would be just as serious as those facing owners of unincorporated businesses, Items 18 through 27 were restricted to "employees".

Two files have been created with the SWH results. The first one, called the "person file", is in effect the master file. All the information pertaining to a particular respondent is contained in this file. The second file, called the "job file", is structured to facilitate the tabulation of weighted estimates of jobs. As an example, if a respondent held three jobs in 1981, the information on the two files would be given as follows:

PERSON FILE

Demographic information	Information on Employer 1	Information on Employer 2	Information on Employer 3	Record weight

JOB FILE

Demographic information	Information on Employer 1	Record weight

Demographic information	Information on Employer 2	Record weight

Demographic information	Information on Employer 3	Record weight

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, but it should be borne in mind that estimates from the job file are in reality estimates of “person-jobs”. For example, the SWH produced a weighted estimate of 13.6 million 'Jobs' held at some time in 1981. It would be wrong to conclude that there were 13.6 million jobs available in that year, because the measure does not take into account the effect of turnover or job-changing. As an example, if two persons who worked all year exchanged jobs mid-way through the year, the SWH job file would show, not two full-year jobs, but four “person-jobs” lasting six months each.

A “person-job” lasting only part of the year may therefore be a full-year job held consecutively by several different incumbents. On the other hand, it could also be a job that was only in existence for part of the year because it was created or terminated (or both) during the year.

The effect of job turnover cannot be isolated, but it can at least be compensated for by converting the “person-jobs” to “person-years” of employment. Table 4 shows the impact of such a conversion. The “person-year” estimates were obtained by multiplying the “person-jobs” by the number of months worked and dividing the total number of “person-months” by 12. This amounts to saying that the 383,000 one-month jobs identified in the SWH correspond to 32,000 full-year jobs (383,000 * 1/12), the 684,000 two-month jobs correspond to 57,000 full-year jobs (684,000 * 2/12) and so on.

TABLE 4. "Person-Jobs" and "Person-Years"[1] by Industry, by Full-Time/Part Time[2]

	Total			Full-time			Part-Time		
	Person-jobs	Person-years	Avg. No. Of months worked	Person-jobs	Person-years	Avg. No. Of months worked	Person-jobs	Person-years	Avg. No. of months worked
	'000	'000		'000	'000		'000	'000	
All Industries	13,568	9,702	8.6	10,866	8128	9.0	2702	1574	7.0
Agriculture	260	141	6.5	180	94	6.3	80	47	7.0
Other Primary	423	287	8.1	389	269	8.3	34	18	6.3
Manufacturing	2,668	2,073	9.3	2,494	1981	9.5	174	91	6.3
Construction	869	491	6.8	779	453	7.0	90	37	5
TCOU[3]	1,076	864	9.6	951	784	9.9	125	81	7.7
Trade	2,321	1,627	8.4	1,637	1211	8.9	684	417	7.3
FIRE[4]	733	584	9.6	643	522	9.7	90	62	8.3
CBPS[5]	4,216	2,854	8.1	2,913	2103	8.7	1303	752	6.9
Public Admin.	1,002	781	9.4	880	711	9.7	121	70	6.9

1 Person-jobs converted to full-year equivalents (weighted by the number of months worked).
2 "Full-time" is defined as 120 or more hours per month (the equivalent of 30 hours per week).
3 Transportation, Communication and Other Utilities.
4 Finance, Insurance and Real Estate.
5 Community, Business and Personal Services.

Full-time jobs are more likely to have one incumbent for the full year than are part-time jobs (55.3% and 32.8% respectively), so that the conversion to person-years has a much larger impact on the part-time estimates. The impact of the conversion also varies by industry sector. It is greatest in agriculture and construction, both these industries being largely seasonal.

10.2 Wage rate and total earnings data

Both the person file and the job file contain an hourly wage rate for each paid worker job.[3] By referring to Item 27 of the questionnaire and the code sheet, it can be seen that respondents were able to report their earnings in a number of ways, i.e. per hour, per day, per week and so on. They could also report total earnings from this employer in 1981" which, in contrast to the other codes, is not a rate. The respondents were given this choice because it was thought that it would increase the accuracy of reporting and reduce the burden.

In processing the survey results, the earnings for each job as reported on the questionnaire were converted to an hourly wage rate, with the formula used depending on how the respondent chose to reply. Estimates of person-jobs are shown in Table 5 according to full-time or part-time, full-year or part-year and the rate code used. Table 6 shows the calculation used to obtain an hourly

[3] It is possible to derive measures of total earnings of paid employment. Although these are not on the micro-data file, the discussion in this section provides some information on possible problems in using estimates of total annual earnings from the SWH.

wage rate. It also indicates how an estimate of "total 1981 earnings from this employer" may be obtained.

It may be observed that an adjustment factor of 365/336 , or 1.08631 is always used in conjunction with Item 20.

This is because the maximum allowable value in Item 20 is 4 so that “hours per month” are in reality “hours per 4-week period”. If an adjustment factor were not used, both the hourly wage rate and the total annual earnings data would be distorted (the former would be overstated and the latter understated).

Table 5. "Rate Code" Used In Reporting Earnings (based on weighted estimates of person-jobs)

		Total	Per Hour	Per day	Per week	Per month	Per year	Total 1981 earnings
All jobs	‘000	13,568	5,724	261	3,052	1,657	2,143	730
total	%	100	42.2	1.9	22.5	12.2	15.8	5.4
Full-Time	‘000	10,866	3,940	123	2,748	1,485	1,975	594
	%	100	36.3	1.1	25.3	13.7	18.2	5.5
Part-Time	‘000	2,702	1,784	138	304	172	168	136
	%	100	66.0	5.1	11.2	6.4	6.2	5.0
Full-year	‘000	6,892	2,176	78	1,694	909	1,667	368
jobs total	%	100	31.6	1.1	24.6	13.2	24.2	5.3
Full-time	‘000	6,006	1,655	42	1,570	832	1,556	340
	%	100	27.6	0.7	26.1	13.8	26.1	5.7
Part-time	‘000	885	522	35	123	77	100	28
	%	100	58.9	4.0	13.9	8.7	11.3	3.1
Part-time	‘000	6,676	3,548	184	1,359	748	477	362
jobs total	%	100	53.1	2.8	20.4	11.2	7.1	5.4
Full-time	‘000	4,859	2,285	81	1,177	653	409	254
	%	100	47.0	1.7	24.2	13.4	8.4	5.2
Part-time	‘000	1,817	1,263	103	181	94	68	108
	%	100	69.5	5.7	10.0	5.2	3.7	5.9

TABLE 6. Conversion of Reported Earning to an Hourly Wage Rate and to "Total 1981 Earrings"

Q27R	Calculation to convert to an hourly wage rate	Corresponding calculation to convert to total earnings from this employer is 1981
1 (per hour)	Q27 $	Q27 $ * Q20 * Q21 * Q22 * Q13 * AF
2 (per day)	Q27 $ ÷ Q22	Q27 $ * Q20 * Q21 * Q13 * AF
3 (per week)	Q27 $ ÷ (Q21 * Q22)	Q27 $ * Q20 * Q13 * AF
4 (per month)	Q27 $ ÷ (Q20 * Q21 * Q22 * AF)	Q27 $ Q13
5 (per year)	Q27 $ ÷ (Q20 * Q21 * Q22 * 12 * AF)	(Q27 $ / Q12) * Q13
6 (total earnings from this employer in 1981)	Q27 $ ÷ (Q20 * Q21 * Q22 * Q13 * AF)	Q27$

Q13 = number of months in which some work was done
Q20 = number of weeks worked per month
Q21 = number of days worked per week
Q22 = number of hours worked per day
Q27R = rate code
Q27$ = amount
AF = adjustment factor of 1.08631, i.e. 365/336 carried to 5 decimal places

Regarding the earnings data, there are a number of possible sources of error imbedded in the SWH questionnaire and in the procedures followed to derive the amounts.

First, the work-schedule questions (Q20, Q21, Q22) allowed only for the use of whole numbers. As noted above, an adjustment was made for Q20 in calculating earnings data. The sense of Q21 was on how many days per week did ... work", which does not allow for fractions. For someone working, for instance, every Friday night and all day Saturday, the correct entry in Q21 would be 2, not 1 1/2. With Q22, fractions would be conceptually appropriate but, in practice, these were rounded to the nearest whole number. Thus, for someone working 7 1/2 hours per day, the entry in Q22 would be 8 (1/2 was always rounded up). If this person worked a 5-day-week in every week, Q20 * Q21 * Q22 would be 160; using the correct hours-per-day value would yield a product of only 150. This will introduce errors in the earnings calculations. In the example above, if the respondent reported an hourly wage rate, the calculated value for "total 1981 earnings" would be too high; if any other rate code were reported, the calculated value for "hourly wage rate" would be too low. In the absence of evidence to the contrary, one might expect that errors due to rounding down in Q22 will tend to offset those due to rounding up (e.g. for someone working 7 hours and 25 minutes per day, Q22 would be rounded down to 7. If this person worked a 5-day-week every week, Q20 * Q21 * Q22 would be 140 rather than 148 (7.42 * 5 * 4). The errors introduced in calculating earnings in this case would be opposite in sign to the ones in the example above).

Another point to note is that only one work schedule was reported per employer. If the work schedule changed, the hours in the most recent month were reported. For example, a student who worked all year for the same employer, with “full-time” hours in the summer months and part-time” hours in the school months would be asked to report the part-time” work schedule. In individual cases, this would tend to distort the earnings calculations. The overall impact of work schedule variations is unknown, but it is possible that this would depend on industry. The

practice of using the most recent work schedule would on the whole tend to give more weight to the latter part of the year. December is a slack month in some industries and a busy one in others.

A third source of error concerns Q13, months in which some work was done". If a person is recorded as working for an employer from May to October, the earnings calculation does not allow for the possibility that the job only started part-way through May and/or ended part-way through October. (Any month in which the person worked at least 8 hours - the equivalent of about one day - is counted as a month in which some work was done.) Errors are possible with all part-year jobs involving more than one month of employment and more than one week per month. Where errors occur, they will all be in the same direction, in that the amount of work done in the year will be overstated. Where rate codes 1 to 5 are used in Q27, the effect will be to exaggerate total annual earnings. Where rate code 6 is used, the hourly wage rate will be understated. Given that the earnings of 95% of all part-year jobs were reported using rate codes 1 to 5 (see Table 5), the impact of such errors will be far more pronounced on the total 1981 earnings" value than on the hourly wage rate.

10.3 Calculating average wage rates

The technique used to calculate average wage rates will depend on the analytical objective, but it may be of interest to note that different methods have been examined at Statistics Canada. Average hourly wage rates based on three different calculations are displayed in Table 7.

The first hourly wage rate (labelled HWR I) was obtained as follows:

$$\text{HWR I} = \frac{\sum_j w_j R_j}{\sum_j w_j}$$

Where w_j is the record weight for person-job j,
R_j is the hourly wage rate for person-job j,

and $\sum_j$ indicates the sum over all person-jobs.

TABLE 7. Average Hourly Wage rates

	Both sexes			Men			Women		
	Total	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time
All Jobs									
HWR I	7.98	8.29	6.75	8.82	9.07	7.00	6.88	6.99	6.6
HWR II	8.52	8.77	7.20	9.37	9.56	7.50	7.33	7.43	7.05
HWR III	8.55	8.68	6.83	9.34	9.42	7.22	7.25	7.33	6.65
Unionized jobs									
HWR I	9.56	9.58	9.44	10.07	10.06	10.23	8.62	8.53	9.01
HWR II	9.67	9.68	9.58	10.17	10.15	10.57	8.75	8.68	9.10
HWR III	9.61	9.62	9.42	10.08	10.07	10.50	8.62	8.59	8.94
Non-unionized jobs									
HWR I	7.26	7.58	6.27	8.12	8.45	6.44	6.30	6.36	6.18
HWR II	7.86	8.18	6.66	8.83	9.12	6.81	6.73	6.79	6.59
HWR III	7.92	8.08	6.17	8.83	8.95	6.38	6.60	6.69	6.08
Full-year jobs									
HWR I	9.01	9.22	7.6	9.86	9.99	8.12	7.73	7.84	7.36
HWR II	9.01	9.22	7.6	9.86	9.99	8.12	7.73	7.84	7.36
HWR III	9.03	9.13	7.23	9.81	9.85	8.00	7.66	7.74	6.98
Part-year jobs									
HWR I	6.92	7.14	6.33	7.61	7.86	6.56	6.11	6.07	6.20
HWR II	7.3	7.5	6.69	8.02	8.25	6.80	6.49	6.41	6.63
HWR III	7.31	7.43	6.27	8.02	8.13	6.32	6.31	6.32	6.24

HWR I = Given equal weight to all person-jobs
HWR II = Weighted for number of months worked
HWR Ill = Weighted for hours worked during year

In HWR II, each job is weighted by the number of months worked in 1981:

$$\text{HWR II} = \frac{\sum_j w_j m_j R_j}{\sum_j w_j m_j}$$

Where m_j is the number of months worked in 1981 for person-job j.

In HWR III, each job is weighted for the number of hours worked per month as well as for months worked:

$$\text{HWR III} = \frac{\sum_j w_j m_j h_j R_j}{\sum_j w_j m_j h_j}$$

Where hj is the number of hours worked per month for person-job j. HWR III is equivalent to

dividing the (weighted) total wage bill in 1981 by the (weighted) total number of hours worked at all paid Jobs in 1981.

In a forthcoming Statistics Canada article, it is likely that HWR III will be used.

As a final point of interest, Table 8 shows the average hourly wage rate (HWR III) according to hours worked per month. It can be observed that the highest rate was reported by persons working 1-20 hours per month and that a second peak occurs in the 121-140 interval. Persons working very long hours will tend to lower the overall average and it could be argued that the wage rate for persons with exceedingly long hours is not likely to represent "hours paid". For example, a weighted estimate of 10,000 person-jobs involved 672 hours per month, i.e. 24 hours per day, 7 days per week, 4 weeks per month. One can imagine such situations as a private live-in nurse or a camp counsellor with round-the-clock responsibilities. Nevertheless, the reported hours would not represent 'hours paid" as these are generally understood.

TABLE 8. MWR III by Hours Worked per Month

Hours per month	Number of person-jobs	HWR III
	'000	$
1- 20	303	10.04
21- 40	567	7.36
41- 60	515	6.31
61- 80	730	6.82
81-100	516	6.76
101-119	71	6.54
120	383	8.15
121-140	1,537	9.84
141-159	89	9.31
160	7,173	8.75
161-180	525	8.21
181-200	544	8.56
201-220	95	7.78
221-240	269	7.45
241-260	23	6.00
261-280	73	6.68
281-300	44	5.48
301-320	11	6.72
321-340	44	6.15
341-360	4	4.59
361-380	3	4.97
381-400	19	4.75
401-671	19	4.95
672	10	2.74

10.4 LFS/SWH paid worker comparison

Given the long reference period, the possibility of recall error in the SWH should be borne in mind in using the data. As a check on the accuracy of employment reporting, month-specific paid worker estimates from the SWH were compared to monthly employment levels from the LFS. A

number of definitional differences had to be contended with and even after all possible adjustments, the definitions used in the comparison are still not completely compatible. The comparison was restricted to paid workers in order to include the "full-time/part-time" dimension in the comparison (hours worked data were only collected for paid worker jobs).

In the SWH, paid workers included only "employees" i.e. the owners of incorporated business were regarded as self-employed. The LFS employment estimates used in the comparison excluded this group as well.

The SWH month-specific paid worker estimates were obtained as follows:

A respondent would be included in the count for a particular month if he or she held a paid worker job in that month (regardless of any other concurrent employment activity, i.e. self-employment or unpaid family work). If a respondent held two or more paid worker jobs in the same month, his or her allocation to a particular industry and to "full-time or part-time" was based on the job involving the greater or greatest number of hours per month. "Full-time" was defined as 120 hours per month or more (corresponding to 30 hours per week).

The LFS count for the same month included employed persons who were paid workers at their main or only job. As noted above, owners of incorporated business, who are normally included in published LFS estimates of paid workers were removed from the count. Industry allocation was based on the description of the “main” job. The person was considered to be employed full time if usual weekly hours at the main job were equal to or greater than 30 (this is also a departure from the conventional LFS definition of full-time”).

Table 9 shows annual average paid worker estimates from the two sources by industry and by full-time / part-time, based on the modified definitions. The overall agreement for total and for full-time employment is reasonably good, but, if the LFS is to be used as a standard of comparison, it would appear that part-time employment is overestimated in the SWH. It should be noted that the SWH identified months in which some work was done', while the LFS questions relate to a particular Reference Week in each month. In other words, persons who worked only part-month could be reported as not employed in the LFS if they were not employed in that month's Reference Week. If all other sources of difference could be controlled, the SWH should produce higher levels of employment for this reason. While the percentage differences for part-time employment are much larger, one might be led to ask why the SWH full-time employment estimates are below their LFS counterparts in six industry sectors.

Table 10 shows month-specific employment estimates by full-time/part-time from the two sources. The percentage differences in total employment are well under 2%. The employment level as measured by the LFS started to drop rapidly after August 1981, but this decline was not reflected (at least, not to the same extent) in the SWH estimates, hence the increasingly large difference between the two.

The SWH "overestimate" of part-time employment begins in June, with the most pronounced differences occurring in July and August. It was thought that this could be due at least in part to changes in work schedule on the part of persons working some part time and some full time for the same employer. This possibility was examined using data from respondents who were in the

LFS sample from May to October 1981.

TABLE 9. LFS/SWH Paid Worker Comparison Annual Averages

	Total employment			Full-time employment			Part-time employment		
	LFS	SWH	% diff.	LFS	SWH	% diff.	LFS	SWH	% diff.
	'000	'000		'000	'000		'000	'000	
All Industries	**9,460**	**9,533**	**+0.8**	**8,111**	**8,094**	**-0.2**	**1.349**	**1,439**	**+6.7**
Agriculture	131	136	+4.0	97	92	-5.0	34	44	+29.7
Other Primary	278	285	+2.5	272	267	-1.9	5	17	230.3
Manufacturing	2,046	2,065	+0.9	1,974	1,977	+0.2	72	88	+22.2
Construction	479	480	+0.3	451	449	-0.4	28	31	-10.0
Transportation, Communication and Other Utilities	845	850	+0.7	786	781	-0.7	58	69	+18.5
Trade	1,556	1,599	+2.7	1,178	1,204	+2.2	378	395	+4.4
Finance. Insurance and Real estate	552	578	+4.7	496	521	+5.1	56	57	+0.6
Community, business and Personal services	2,812	2,774	-1.4	2,143	2,093	-2.4	669	681	+1.7
Public Administration	761	767	+0.8	713	710	-0.5	48	57	+20.4
All occupations	**9,460**	**9,533**	**+0.8**	**8,111**	**8,094**	**-0.2**	**1,349**	**1,439**	**+6.7**
Managerial, professional	2,337	2,364	+1.2	2,068	2,072	+0.2	268	292	+8.9
Clerical	1,884	1,889	+0.3	1,534	1,533	-0.1	349	356	+1.9
Sales	852	885	+3.8	659	672	+2.0	193	213	10.3
Service	1,251	1,224	-2.1	885	868	-2.0	366	357	-2.5
Primary occupations	284	300	+5.5	248	246	-0.8	36	53	+49.7
Processing,	1,559	1,536	-1.5	1,516	1,486	-2.0	43	50	+16.9
Construction trades	526	536	+1.9	514	517	+0.6	13	20	+55.3
Transportation	358	372	+3.9	328	336	+2.7	31	36	+17.2
Material handling and other crafts	409	427	+4.2	359	365	+1.9	51	61	+20.9

TABLE 10. LFS/SWH Paid Worker Comparison - Monthly estimates

	Total employment employment			Full-time employment			Part-time		
	LFS	SWH	diff.	LFS	SWH	% diff.	LFS	SWH	% diff.
	'000	'000		'000	'000				
January	9,043	8,895	-1.6	7,692	7,618	-1.0	1,350	1,278	-5.4
February	9,158	9,012	-1.6	7,763	7,712	-0.7	1,395	1,300	-6.8
March	9,187	9,125	-0.7	7,765	7,793	+0.4	1,423	1,331	-6.4
April	9,259	9,267	+0.1	7,852	7,906	+0.7	1,4.06	1,361	-3.2
May	9,548	9,550	-	8,142	8,180	+0.5	1,406	1,370	-2.6
June	9,832	9,901	+0.7	8,504	8,470	-0.4	1,328	1,431	+7.7
July	9,965	9,903	-0.6	8,833	8,508	-3.7	1,132	1,395	+23.3
August	9,977	9,945	-0.3	8,870	8,526	-3.9	1,107	1,419	+28.2
September	9,523	9,842	+3.3	8,177	8,290	+1.4	1,347	1,552	+15.3
October	9,484	9,765	+3.0	8,079	8,164	+1.1	1,405	1,601	+13.9
November	9,356	9,678	+3.4	7,926	8,066	+1.8	1,430	1,612	+12.7
December	9,186	9,518	+3.6	7,724	7,898	+2.2	1,462	1,620	+10.8
Annual Average	9,460	9,533	+0.8	8,111	8.094	-0.2	1,349	1,439	+6.7

While these respondents did not complete an SWH questionnaire, it was thought that any pattern in variation of hours identified for this group - notably, a shift from full-time hours to part-time hours for the same employer - could be generalized to the SWH population.

The results showed that 1,417,000 paid workers were employed part time in October 1981[4]; of this total, 269,000 were working full time for the same employer in July and 299,000 were working full time for the same employer in August. While it should not be taken as a definitive the estimates from the two sources differ, the number statement on why the estimates from the two sources differ, the number of people moving from full-time to part-time with the same employer certainly appears to be large enough to explain the difference. It should be noted that there is also movement in the other direction, i.e. of the 8,141,000 persons working full-time in October, 112,000 were working part time for the same employer in July and 89,000 were working part time for the same employer in August.

[4] This estimate differs slightly from the one in Table 10 because it was obtained from the October 1981 "longitudinal file', i.e. that sixth of the total LFS sample which rotated out in October. The record weights are adjusted accordingly.