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## Labour Statistics: Technical Papers

# History of the Canadian Labour Force Survey, 1945 to 2016

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- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0<sup>s</sup> value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- <sup>p</sup> preliminary
- <sup>r</sup> revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- <sup>E</sup> use with caution
- F too unreliable to be published
- \* significantly different from reference category ( $p < 0.05$ )

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# History of the Canadian Labour Force Survey, 1945 to 2016

The Canadian Labour Force Survey (LFS) produces the leading monthly economic indicator at Statistics Canada – just 20 days from reference period to release. It is Statistics Canada’s largest and longest-running monthly household survey.

It is also one of the agency’s few household surveys that are mandatory, since its results provide important employment and unemployment indicators each month and are used to determine eligibility thresholds for receiving employment insurance benefits in different regions.

After the Second World War, there were massive changes as the country transitioned from a war economy to a peace economy. The LFS was designed to satisfy the need for reliable and timely data on labour market conditions. It started as a quarterly survey in November 1945 and has been a monthly survey since November 1952.

In over 70 years, the survey methodology, questionnaire, collection and processing techniques have undergone major changes. This paper summarizes many of these changes chronologically and provides references to more detailed information sources.

Among the most significant changes were two major questionnaire redesigns, which occurred approximately 20 years apart, in 1976 and 1997. The main goals of these redesigns were to review objectives, improve data quality and ensure current information needs were met.

Another major recurring enhancement to the survey is the sample redesign, which occurs following each decennial census. This redesign is done to better reflect changes in population characteristics, to respond to the needs of data users and to update the geographical information required to carry out the survey. The last one was implemented in 2015.

Generally, population estimates are rebased every five years, following a census and the adjustments for net census undercoverage. This involves the reweighting of LFS estimates to the most recent census population counts. The conversion to the latest classification systems for industry, occupation and geography, along with other general changes, also often occur at this time. When changes are made to the LFS estimates, the estimates are usually historically revised.

Most of the historical changes listed in this paper are based on summaries of published and internal papers. Unfortunately, not all changes to the survey were documented, especially in the earlier years. This paper, therefore, does not claim to include all changes that have occurred, but instead aims to provide a general overview of many of the major changes. Also, in order to stay true to the documents referenced, some of the text in this paper is similar to the original source.

This document serves as a repository of LFS historical changes over time and is intended for analysts or researchers who are familiar with the survey. For readers who would like more information on some of the concepts, or methodology terms not defined in this paper, please consult the [Guide to the Labour Force Survey](#) and the [Methodology of the Canadian Labour Force Survey](#) on the Statistics Canada website ([www.statcan.gc.ca](http://www.statcan.gc.ca)).

The appendices provide historical charts of employment levels and rates of participation, employment and unemployment by age and sex as well as tables on sample size changes, years that redesigns, rebasings and major collection and processing changes occurred.

## Prior to 1945

Information on the labour market activities of the population was only available from the Census of Population, which was conducted at 10-year intervals, and from a few administrative data sources. These sources included the *Dominion Provincial Employment Service* from 1931 to the war years and, following that, the *National Employment Service* (Statistics Canada, November 1985). None of these statistical series, however, were based on activity classifications that were current, and none furnished an overall picture of the employed or unemployed (Dominion Bureau of Statistics, 1949).

Much of the early work in developing the theoretical and practical aspects of labour force sampling, and in developing the concepts of ‘unemployment’ and ‘employment’, took place in the United States during the 1930s. This information was made available to, and used by, the Dominion Bureau of Statistics.

### 1945 to 1959

#### 1945 to 1952

##### Periodicity:

The LFS was a quarterly survey.

The Labour Force Survey was the first survey within the Bureau to use sampling methodology. The sample consisted of about 1% of the population aged 14 and older from 25,000 to 30,000 households and included about 100,000 people. These respondents were interviewed by 250 locally selected interviewers (Dominion Bureau of Statistics, February 1946, and 1952). Data were available for the Maritime Provinces, Quebec, Ontario, the Prairie Provinces, and British Columbia, with data available for Newfoundland starting in October 1949.

Respondents were classified as employed, unemployed or not in the labour force based on their activity for the week preceding the beginning of the quarterly survey. The questionnaire expanded to 28 questions, including the following major labour components:

- major activity (worked, looked for work, with a job but not at work, unable to work, keeping house, going to school, retired or voluntarily idle);
- secondary activity (did some work, looked for work, with a job but not at work, had no secondary activity);
- hours worked;
- months looking for work;
- reason for absence from work;
- industry;
- occupation;
- class of worker.

During the 1940s and 1950s, the concepts of 'employment' and 'unemployment' were the subject of international review. The International Labour Organization (ILO) developed an international standard that was similar to the concepts used in Canada.

#### 1947

##### Population covered:

An addendum to the quarterly August publication stated that estimates of the total population were newly calculated for each survey from whatever information was available at the time on births, deaths and migration. Although improved estimates may appear later, the resulting discrepancies are 1% or less and therefore do not significantly affect the size of the various labour force components or of comparisons from quarter to quarter (Dominion Bureau of Statistics, August 1947).

##### Industry classification:

Was based on that used in the 1941 Decennial Census.

#### 1949

##### Population covered:

Newfoundland was included in the LFS for the week ending October 29, 1949, as it became part of the Canadian Confederation (Dominion Bureau of Statistics, 1950).

##### Industry and occupation classifications:

Industry classification was based on the Summary of the Standard Classification of Industries, which was prepared by the Interdepartmental Working Committee on the Classification of Industry. Occupational groups were based on the standard Summary of Occupation Classes of the Dominion Bureau of Statistics (Dominion Bureau of Statistics, February 1949).

#### 1952

##### Periodicity:

The first monthly LFS estimates were released in December 1952 and were based on the reference week ending November 22 (Dominion Bureau of Statistics, 1952). For the previous seven years, it was a quarterly survey.

#### New content:

A series of new questions were added on hours worked. A question was added to better define full- and part-time workers. Those who usually worked 35 hours or more (full time), but worked less than 35 hours during survey week, were asked why they worked less than 35 hours. Reasons listed were illness, bad weather, vacation, labour dispute, lost job during week, found job during week, temporary layoff, working short time or other. Respondents who usually worked less than 35 hours a week (part time) were asked if they would prefer to work 35 hours or more. If the answer was yes, they were asked why they did not work full time during the survey week. Reasons were household responsibilities, age or physical disability, went to school or other.

#### Methodology:

The criteria used in selecting the reference week was that it should be the second last complete week in the month, with the exception of December which is earlier than other months, and that the time between successive surveys was no fewer than four and no more than five weeks. The week the survey took place was the following week and the period that includes collection, analysis and publication was no more than 4 1/2 weeks (Gluss, 1958).

#### 1955

##### Sample redesign:

The sample design was modified to extend the coverage of the survey to more remote areas of the provinces.

#### 1958

##### Population rebasing:

Survey estimates were revised back to August 1951 based on the 1956 Census (Dominion Bureau of Statistics, 1959).

##### Methodology:

By June of this year, the total sample consisted of six representative, unbiased panels or sub-samples and each month a panel was replaced after completing its six-month stay in the survey.

Outgoing households were replaced by households in the same or a similar area. Between 1952 and 1958, the sample rotation was more complex. A household was in the sample for six months but the proportion of the total sample rotated varied from month to month (Gluss, 1958).

### 1960 to 1975

#### 1960

##### Concept:

From recommendations made by the Interdepartmental Committee on Unemployment Statistics, the definition of 'unemployment' was modified to include people who were on temporary layoff. They were previously classified as employed (Statistics Canada, November 1985).

Also based on the recommendations from the committee, the LFS was designated as the source of the official measure of unemployment in Canada. This endorsement was followed by a demand for a broader range of labour market statistics—in particular, more detailed regional data (Statistics Canada, November 1985).

##### Dissemination:

Seasonally adjusted historical data on the labour force, employment, unemployment, as well as the unemployment rate were first presented in chart format in the 71-001-X monthly publication, *The Labour Force*, along with unadjusted data. The commentary and all data tables were based on unadjusted data (Dominion Bureau of Statistics, October 1960).

#### 1965

##### Population rebasing:

The survey estimates were weighted to take into account the 1961 Census population counts. Previous estimates had been weighted from the 1956 Census (Dominion Bureau of Statistics, April 1965).

#### Industry and occupation classifications:

Industry data were converted to the 1960 Standard Industrial Classification (SIC) system and the occupation data were updated to the 1961 Census Classification of Occupations (Dominion Bureau of Statistics, April 1965).

#### 1966

##### Sample redesign:

More extensive stratification and a more uniform distribution of the sample improved the reliability of the estimates, particularly in the Atlantic and Prairie Regions. This also enabled the production of separate estimates for all 10 provinces for the first time, instead of the regional data previously produced. The new sample was introduced progressively, from March 1964 to January 1966, province by province (Dominion Bureau of Statistics, January 1966 and February 1966).

#### 1967

##### Dissemination:

A new publication with historical, seasonally adjusted data was released in April 1967. The seasonally adjusted series were comprised of the labour force, employment, unemployment and participation rates by age, sex and region, and by agricultural and non-agricultural industries. They were based on the X-9 version of the Census Method II seasonal adjustment program (Dominion Bureau of Statistics, 1967).

#### 1968

##### Population rebasing:

The LFS estimates were reweighted to the 1966 Census counts; however, since the relative differences in the revised estimates were considered too small to warrant a historical revision, the survey continued to be weighted based on the 1961 Census population counts (MacDonald, 1977; Thériault, 1977).

#### Early 1970s

##### Collection:

Telephone interviewing was first introduced in the early 1970s. The birth (or first) interview was face-to-face and with the respondent's consent, follow-up interviews were conducted by telephone from the interviewer's home. Telephone interviews were restricted to large urban areas. In 1985, this was extended to the remaining rural and small urban areas.

#### 1971

##### Dissemination:

The October issue of the 71-001-X monthly publication expanded significantly, going from a unilingual 8-page document to a bilingual 60-or-more-page publication. Added to this publication was a large number of data tables and analytical material, including more charts, seasonally adjusted data and annual averages, more data comparisons with earlier months, and quarterly data on unemployment by industry, as well as occupation and family data.

This publication also started to carry provincial data tables (only regional data tables had been available in the past) and more special articles, particularly those related to supplementary surveys. It also marked the agency's name change from the Dominion Bureau of Statistics to Statistics Canada.

##### Geography:

Regional rates of unemployment (now called Employment Insurance Economic Regions or EIERs) were first introduced. From 1971 to 1977, there were 16 regions: Québec was subdivided into 3 regions; Ontario into four and British Columbia into two. The remaining provinces formed separate regions while Prince Edward Island was joined with New Brunswick. The 16<sup>th</sup> region included the northern portions of all provinces from Quebec westward, as well as Labrador and the territories.



### 1972

#### **Dissemination:**

For the first time, the 71-001-X press release commentary and analysis of the January data were fully based on seasonally adjusted data. Data were seasonally adjusted using the X-11 version of Census Method II. Prior to this, the text and tables of this publication were mostly based on unadjusted data (Statistics Canada, March 1972).

Data by sub-provincial area were first released in the April 1972 issue of the 71-001-X monthly publication. New computer methods were created to facilitate the development of sampling variability, which allowed for the application of standard release criteria for sub-provincial data. Participation and unemployment rates for selected census metropolitan areas (CMAs) and economic regions (ERs) became available. Estimates on the levels of employed or unemployed people were not available since there were no population estimates for these sub-provincial areas (Statistics Canada, April 1972).

LFS data became available via computer on the Canadian Socioeconomic Information Management System (CANSIM) to federal government departments and agencies, as well as off-site at the Computer Services Bureau. Commercial customers had access to the data via public tape. Previously, LFS data on CANSIM were only available to Statistics Canada employees and had been situated in-house since 1966.

#### **Industry classification:**

Industry estimates were classified according to the 1970 Standard Industrial Classification (SIC) instead of the 1960 SIC. Changes between the two versions of SIC were considered too small to warrant revising data prior to May 1972 (Statistics Canada, June 1972).

### 1973

#### **Occupation classification:**

To be consistent with other statistical sources, the 1971 Census Classification of Occupations was introduced, replacing the 1961 version. This new classification system had 21 major occupational groups, compared with 13 in the old system, and had comparable data back to January 1973 (Statistics Canada, September 1973).

#### **Dissemination:**

Detailed provincial data on annual averages started to be published in the monthly 71-001-X publication. New computer programs were developed to produce annual averages from monthly files and facilitate the development of sampling variability indicators. Alphabetical symbols were attached to each series, indicating its level of reliability, and were based on a 12-month average of the percent of standard deviation in the previous calendar year (Statistics Canada, April 1973).

Toward the end of 1973, CANSIM was moved to a commercial service bureau, and LFS data became available via computer to both public and private sector users.

#### **Collection:**

With a sample size of 30,000, households were visited by approximately 800 part-time interviewers who worked out of eight regional offices located across the nation. Completed questionnaires were forwarded to the regional offices and then to Ottawa, where they were edited, coded and processed by computer.

## 1976 to 1989

### 1976

#### **Questionnaire redesign:**

Direct questions to determine labour market status were introduced to replace the main activity style of information previously recorded. The

direct questions approach is the same as that used by the LFS today—a hierarchy of questions determines first if the person is employed (either at work or not during the reference week), then, if they are not employed, a series of questions are asked to determine if they are unemployed. The residual population is not in the labour force (Statistics Canada, 1976).

The 1976 redesign helped refine the definition of who was part of the supply of labour. Under the old design, people who were economically active, but who did not report employment or searching for work as their main or secondary activity, were not counted among the employed or unemployed. In addition, people who did not report looking for work as a main or secondary activity were not counted among the unemployed even though today, they would be counted as such (e.g., people on temporary layoff who were not looking for work).

An analysis of the impact of moving to the new questionnaire found that it recorded more activity in the labour market as more people were counted as employed and unemployed—especially youth and women. In the end, with the 1976 redesigned questionnaire, new concepts of ‘employment’ and ‘unemployment’ fit better within the production boundary, as defined by the System of National Accounts (Statistics Canada, 1976).

In the new design, respondents were asked how many hours they usually worked per week. From this response, they were categorized as full or part time. In contrast, in the previous questionnaire, respondents were asked if they usually worked 35 hours or more at their present job. In the new questionnaire, information on overtime or extra hours was collected for the first time, as were data on hours lost because of a part- or full-week absence and reasons for the time lost. Information on actual hours, previously logged in groupings, was recorded to the hour.

Since questions on holding multiple jobs were added, usual and actual hours at the main and other jobs could be measured.

There were also new questions added on:

- availability for work during the reference week;
- industry and occupation of previous job;
- main reason for leaving last job held;
- educational activities—namely school attendance;
- full- or part-time school attendance;
- the kind of school attended (Statistics Canada, 1976).

A new series of educational attainment questions were added to the questionnaire and were asked of each household member. The questions were based on years of schooling in primary and secondary education. Respondents were also asked if they had no post-secondary education, had some, or had received a post-secondary certificate or diploma, or a university degree.

Questions were also added for the unemployed population. The unemployed could now be split into three groups: job searchers, people on temporary layoff and those who had a job that would start in the near future. Duration of joblessness was also new, as was a question on the main reason for leaving the previous job. For job searchers, questions on the type of job sought (full or part time, lasting six months or more), duration of unemployment and job-search method were added. Discouragement was also measured for the first time, although the definition was more restrictive than the one currently used in the LFS. Discouraged workers are classified as not in the labour force, although they are included among the unemployed in the supplementary unemployment rates (Statistics Canada, 1976).

For those at work, duration of employment for the current (or most recent) employer and reason for absence from work were collected. For all people covered by the survey, additional information was obtained on family status and educational levels (Statistics Canada, 1976).

Certain categories were extended. For the self-employed, business owners were asked if their business was incorporated and or unincorporated. Also, marital status categories were expanded from single, married and other, to married or living common-law, single, widow(er), or separated or divorced.

### **Concept:**

The part- and full-time employment criterion was changed to 30 hours from the previous 35 hours. This was done mainly because of a historical downward trend in average hours worked per week. Also, the classification of full or part time became based on the total number of usual hours worked at all jobs. Prior to 1976, full-time work was defined as “usually work 35 hours or more” (Statistics Canada, 1976 and 1977).

### **Population covered:**

Estimates of population and labour force characteristics started to be based on people aged 15 years and older rather than aged 14 years and older, which had been done historically. This change was made for two reasons: the school-leaving age in all provinces was raised from the lower age limit established in 1945, and the lower age limit for labour force statistics used in the census and recommended by international organizations was 15 years (MacDonald, 1977; Thériault, 1977). Selected data series that were widely used were adjusted to include data starting at age 15 and older for the period from 1966 to 1975 to make them comparable with data after 1975 (Bowlby, 2005).

### **Processing:**

Respondent results from regional offices started to be transmitted electronically, replacing the physical transmission of documents. Computers were installed in each regional office and were linked to telecommunication facilities at head office (Statistics Canada, 1976 and 1977).

### **Population rebasing:**

Because of the large-scale revision of the LFS questionnaire and sample design, and to avoid two historical revisions in a short period of time (otherwise scheduled for 1973/1974), the rebasing was postponed to when revised estimates were introduced in January 1976. The data were reweighted to the 1971 Census population counts from the 1961 Census (Statistics Canada, 1976 and 1977). The estimates were revised back to 1966 (Statistics Canada, 1976 and 1977).

### **Sample redesign:**

In this redesign, the sample size was increased to 55,000 households from approximately 35,000 in the 1960s and 1970s. This increase permitted the production of more detailed estimates at the national and provincial levels, and expanded the number of reliable sub-provincial estimates (Statistics Canada, 1976 and 1977).

The redesigned sample was introduced toward the end of 1974 and ran in parallel with the old sample and questionnaire for all 12 months of 1975. This allowed the results of the survey, developed with the old design, to be linked to the redesigned survey. Using results from the parallel run, many estimates were revised as far back as 1966 to make them consistent with post-1975 data. This was also done for seasonal adjustment purposes (Statistics Canada, 1976). The old questionnaire and sample design were phased out in December 1975 and so, starting in January 1976, the estimates from the survey were derived from the redesigned sample and the new questionnaire (Statistics Canada, 1976 and 1977).



### 1977

#### Methodology:

The stabilization program was instituted to limit costs and prevent the growth of the sample size over time. Since the sample is generally a proportion of the dwelling population, the sample will fluctuate with the natural growth and decline of this population. Without this stabilization program, the sample size would naturally increase as the provincial and national dwelling populations increase. Under stabilization, a base-sample figure is set and, in spite of the natural growth of the population, dwellings are randomly dropped to respect the base. Dwellings dropped or increased also respect certain geographical characteristics. Prior to the introduction of stabilization, each major category of the sample within each province was given a separate base figure.

### 1978

#### Concept:

The employment/population ratio was introduced (now referred to as the employment rate), which is the number of employed divided by the population (Statistics Canada, 1978).

#### Geography:

Regional rates of unemployment (now called Employment Insurance Economic Regions or EIERS) were reconfigured based on economic region boundaries used by the LFS at the time. This increased the number of regions from 16 to 48.

### 1980

#### Concept:

Student labour market estimates, during the school year and summer months, were first introduced and published in *The Labour Force* (Statistics Canada, 1980). This made use of the questions added in the 1976 questionnaire redesign, along with the supplementary questions for the months from May to September for summer students

(September was eventually dropped in the mid-1990s). Estimates go back to summer 1977 for summer students and back to 1976 for students during the school year. In the early 1970s, the data were supplied by supplementary surveys.

#### Seasonal adjustment:

The X-11-ARIMA program started to be used to improve the accuracy of seasonal factor estimates (Dagum, 1980; Statistics Canada, 1982). This program was a modified version of X-11 variant of the Census Method II seasonal adjustment, which was used by the U.S. Census Bureau.

### 1984

#### Population rebasing:

Survey estimates were reweighted to the 1981 Census from the 1976 Census, and were revised back to 1976 (Statistics Canada, January 1984).

#### Occupation classification:

Occupation estimates were based on the 1980 Standard Occupational Classification instead of the 1971 Census Classification of Occupations. The only major change was in the occupation of management since the estimates increased as those performing managerial tasks in sales and services and in other occupations (e.g., farmers) were moved to this group (Statistics Canada, January 1984).

#### Industry classification:

Industry estimates were based on the 1980 Standard Industrial Classification (SIC) instead of the 1970 SIC (Statistics Canada, January 1984).

#### Methodology:

A weighting procedure was introduced to derive estimates for sub-provincial areas that were consistent with the provincial estimates (raking ratio estimation). This provided increased flexibility in the calculation of sub-provincial data (Statistics Canada, January 1984).

The weighting for family estimates was also changed. Previously, for estimates

of the number of families experiencing unemployment, the weight of the unemployed individual was used as the representative weight for the family of which the individual was a member. The new weights were based on the female head (or spouse) when present, regardless of her labour force status. Otherwise, the male head's weight was used. This change provided estimates that were more in line with results from other sources, such as the census (Statistics Canada, January 1984).

#### Dissemination:

A new rounding policy was established. For special request tabulations, data rounded to the nearest hundred were made available. Also, lower thresholds for the release of small estimates were set in provinces other than Quebec and Ontario (i.e., 2,000 for the eastern provinces, Manitoba, and Saskatchewan; 3,000 for Alberta and British Columbia; and 4,000 for Quebec, Ontario, and Canada). Published estimates continued to be rounded to the nearest thousand, and estimates of less than 4,000 were suppressed (Statistics Canada, January 1984).

### 1984/1985

#### Geography:

Boundaries were updated from the 1971 Census boundaries to those of the 1981 Census. This added one new census metropolitan area (CMA), Trois-Rivières, bringing the number to 24 CMAs. To meet data reliability objectives in this redesigned sample for CMAs (a coefficient of variation of 20% or less for unemployment and a minimum sample size of 300), sample sizes were increased for seven CMAs. In Chicoutimi–Jonquière, Trois-Rivières, Oshawa, Sudbury, and Thunder Bay, sample sizes more than doubled. In Kitchener–Waterloo and Windsor, there were smaller sample size increases. Increases were largely offset by reductions in Montréal and Toronto, which resulted in only a marginal impact on data reliability for these CMAs.

Four new economic regions (ERs) were added to Quebec (412, 462, 463, and 464) and one in Ontario (590 was split into 591 and 592) for a total of 71 ERs.

### Collection:

Telephone interviewing was introduced in small urban and rural areas for collection in months two through six in sample. Prior to this, person-to-person interviews were conducted for six months of collection in small urban and rural areas, while in large urban areas, telephone interviewing was conducted in months two through six.

### Sample redesign:

The main emphasis of this redesign was to increase the scope and quality of sub-provincial data and to make the survey design more cost effective. Sampled households were geographically redistributed to provide more extensive sub-provincial data (Statistics Canada, January 1985 and December 1990).

The overall sample size was reduced 7% to 52,000 households from 55,700. Methodological improvements included:

- more statistically rigorous procedures for stratifying and delineating sample units;
- the elimination of a stage of sampling in rural areas;
- more use of the telephone for conducting follow-up interviews;
- the use of external population benchmarks in producing estimates for ERs and CMAs.

Sample redesign changes were phased in from October 1984 to March 1985.

### 1986

#### Sample size:

The sample size was reduced 10% to 47,000 from 51,700, as a cost-saving measure, with the decreases concentrated in larger CMAs within provinces. The reduction was achieved by means of sample size stabilization, whereby a portion of the selected

dwellings were randomly and systematically dropped to achieve the desired sample size prior to interviews (Statistics Canada, December 1990).

### 1989

#### Population rebasing:

Population estimates were updated from the 1981 Census base to the 1986 Census base. Estimates were revised back to 1981 (Statistics Canada, January 1989).

#### Methodology:

The integrated weighting method was first used with this rebasing. Under integrated weighting, respondent weights take household composition into account and all members of the same household end up with the same weight. This achieves consistency among individual and family-related statistics, and benefits supplements to the LFS that produce family and household estimates. Integrated weighting was achieved by replacing the raking-ratio method for weight adjustment with a regression-based method (Statistics Canada, December 1990).

At the same time, the jackknife method was introduced for variance estimation (Chen, 1990). Prior to this, the methodology used for estimating variances was initially developed by Keyfitz in 1957, and was modified to meet LFS requirements.

#### Dissemination:

The first issue of the quarterly *Perspectives on Labour and Income* was published in summer 1989. It replaced the featured articles on labour market analysis in the monthly 71-001-X publication, which had been produced for the previous 10 years. From 1989 to 2012, *Perspectives on Labour and Income* provided analytical articles using data from the LFS and from other Statistics Canada labour and income surveys, supplementary LFS surveys, and other data sources like the census and social surveys.

### 1990 to 2004

### 1990

#### Geography:

Following revised legislation governing the Employment (Unemployment) Insurance Program, a new set of Unemployment Insurance Regions—now known as Employment Insurance Economic Regions (EIERS)—was introduced, increasing their number to 62 from 48. Unemployment rates calculated using the LFS have been used by this program since 1971 (Statistics Canada, November 1990).

#### Sample size:

The sample was increased to 62,000 from 47,000 to provide improved estimates for the Unemployment Insurance Regions. This was phased in from November 1989 to April 1990. Increases to the sample were allocated to regions to ensure the new coefficients of variation for unemployment would not exceed 15% for the estimates. As a result, the bulk of the sample increase was in Ontario and Quebec. Human Resources and Skills Development Canada (HRSDC) funded this sample increase.

#### New content:

Questions used to measure educational attainment were revised to better capture the relationship between educational attainment and labour market outcomes. New questions on primary and secondary education are based on the highest grade completed versus years of school. A question on high school graduation was added, since it is generally believed that people who have not completed secondary education have greater difficulty competing in the labour market.

With the new questions, any education that could be counted toward a degree, certificate or diploma from an educational institution was considered post-secondary education. Finally, more information was collected on the type of post-secondary education:

1. some post-secondary;
2. trades certificate or diploma from vocational or apprenticeship training;
3. Non-university certificate or diploma from a community college, CEGEP, school of nursing, etc.;
4. University certificate below Bachelor's degree;
5. Bachelor's degree;
6. University degree or certificate above Bachelor's degree.

This produced a break in the data series, with data going back to January 1990 (Gower, 1995; Statistics Canada, January 1990).

### 1991

#### Territories:

The LFS was conducted in Yukon as a pilot survey, with data becoming available in 1992.

#### Dissemination:

In an effort to improve the quality of sub-provincial estimates, data on economic regions (ERs) and census metropolitan areas (CMAs) were published in the form of three-month moving averages instead of monthly. In addition, for the first time, the survey published seasonally adjusted estimates for CMAs (Statistics Canada, 1991).

### 1993

#### Data:

Seasonally adjusted actual hours estimates were adjusted for holiday effect and reference week location. These adjustments eliminate bias in the series since holidays fall during reference week in some years and not in others, and reference week location varies from year to year. It also facilitates month-to-month and trend analysis.

The holidays adjusted were Thanksgiving, Remembrance Day, Easter Monday or Friday, and the July reference week location (the later the 15<sup>th</sup> falls

in reference week, the more people take vacation time). Permanent prior adjustment factors were derived from residuals using regression analysis and were applied to those holiday months (Statistics Canada, 1992).

### 1994

#### Collection:

The LFS converted its method of data collection from paper and pencil to computer-assisted interviewing (CAI). The CAI version of the questionnaire was replicated as closely as possible to its paper predecessor to minimize the risk of a mode-of-collection effect on the data. CAI allowed for an abundance of online edits and complex branching that was not available with a paper questionnaire. These changes made the LFS interview more understandable, reduced interview time and minimized response burden.

### 1995

#### Population rebasing:

Survey estimates were updated to the 1991 Census base from the 1986 Census base. This was the first rebasing that included the adjustment for net census undercoverage. Estimates were revised back to 1976 (Statistics Canada, January 1995).

#### Population covered:

Non-permanent residents became part of the target population for the 1991 Census and thus, were added to the LFS population estimates. Non-permanent residents are people residing in Canada who are neither Canadian citizens nor landed immigrants, such as those claiming refugee status and people holding an authorization to study, work, or otherwise reside in Canada. An adjustment was added to the estimates, which was designed to prevent a break in the time series when this group was first added to the LFS population in January 1995 (Statistics Canada, January 1995).

### Geography:

Economic regions (ERs) became based on 1991 Census geography from 1981 Census boundaries. All regions were unchanged, except Quebec and British Columbia.

In Quebec, two ERs were split into two parts, corresponding to the provincial administrative regions: ER 430 (Québec et Québec Sud) was split into ER 420 (Centre-du-Québec) and ER 425 (Chaudière-Appalaches); and 462 (Montréal-Centre et Laval) was split into 440 (Montréal) and 445 (Laval).

In British Columbia, ER boundaries were completely modified to correspond to regions used by the province, producing a break in the historical series. To this date, estimates for ERs in British Columbia prior to 1995 are not available (Statistics Canada, January 1995).

The boundaries for 25 census metropolitan areas (CMAs) were updated from the 1981 Census boundaries to the 1996 Census boundaries. Estimates for CMAs and ERs were revised back to 1987, except for the new ERs in British Columbia (Statistics Canada, January 1995).

#### Sample redesign:

A newly redesigned sample was introduced from October 1994 to March 1995. The new design included less clustering, more sampling in urban areas and the introduction of high- and low-income strata in large CMAs (Chen et al, 1994). A new method of compensating for household non-response was introduced, taking into account patterns of non-response that varied according to the number of months households had been part of the survey. Despite these changes, the sample size initially remained at 59,000. A sample reduction of 6,500 households was implemented by September 1995, leaving the sample size at 52,500 (Statistics Canada, 1998).

Employment insurance economic regions (EIERs) were introduced in stratification and allocation in order to

meet reliability requirements. Strata were formed within the areas created by the intersections of economic regions (ERs) and EIERs. For the same reason, the survey frame is stratified separately at each ER and EIER intersection.

### 1996

#### Questionnaire redesign:

As part of the lead-up to the implementation of the 1997 questionnaire redesign, a small number of changes were made to the survey as of January 1996. The objective of the changes was to better align the survey outputs that were based on the existing questionnaire with those of the redesigned questionnaire, and to facilitate a smooth transition during the phase-in period of the redesigned questionnaire. All of the affected estimates and historical data series were adjusted back to 1976. For more information, see Statistics Canada, December 1995.

Most of the changes that were made related to derived variables and corresponding survey estimates associated with information on work hours. Specifically, two modifications were made to the definition and classification of full-time (30 or more hours per week) and part-time (less than 30 hours per week) employment. The first modification was to remove the criteria that allowed some persons who usually work less than 30 hours per week because of a legal or institutional impediment (e.g., airline flying staff) to self-classify as full-time (the reason for working part-time question included the category “Full-time work under 30 hours per week”). The second modification affected multiple job holders only, and corresponded to changing the criteria so that the classification would be based on the usual hours of the main job or business only, whereas historically the total usual hours of all jobs and businesses was used.

Survey estimates related to hours of overtime and hours away from work were modified so that they would be based on the information collected from employees only, whereas historically survey estimates included information for the self-employed as well.

One modification was made to the data collected with the questionnaire by modifying the value of a date parameter on the survey sample file used to control questionnaire flow (i.e., without modifying the actual questionnaire). The collection of information about the last job or business of persons not employed (i.e., job description questions, reason for having stopped working, full-time/part-time status) was limited to those who last worked in the past 12 months, whereas historically it was the past 5 years.

Finally, survey estimates related to involuntary part-time workers and discouraged workers were suspended for all of 1996 because of the significance of how those concepts (and the associated data collected) were being revised with the redesigned questionnaire, and the consequence that historical data would not be comparable. For more information, see Statistics Canada, 1997.

### 1997

#### Questionnaire redesign:

Following several years of research, consultations, development and testing, a redesigned questionnaire was phased in between September 1996 and January 1997. For more information on the background and rationale for these changes, see Sunter et al., 1995, and Statistics Canada, December 1995.

The questionnaire redesign had three major objectives:

#### I. Address data gaps by adding new content and making suitable modifications to existing content

For currently employed employees (and, in the case of multiple job holders, for the main job only), new questions were added in order to allow the creation of derived variables<sup>1</sup> relating to:

- usual hourly and weekly earnings (including tips and commissions, excluding overtime pay, before taxes and other deductions);
- union membership (and if not, whether or not covered by a union contract or collective agreement);
- job permanence (and if not, in what way the job is not permanent);
- workplace size (number of employees at the work location) and firm size (number of employees at all employer locations).

The response categories associated with many questions were reworded, reordered and/or expanded to include additional categories. In particular, the category “Personal or family responsibilities” was split into the categories “Caring for own children”, “Caring for elder relative (60 years of age or older)” and “Other personal or family responsibilities”. This affected seven questions including those related to reason for absence from work and reason for working part-time. Furthermore, for women only, the category “Maternity leave”<sup>2</sup> was added for the two questions related to reason for absence from work and the category “Pregnancy” was added for the reason for having stopped working at the last job or business.

A total of eight new questions were added to allow the creation of derived variables relating to new hirings and new permanent separations.<sup>3</sup>

1. One important redesign detail was that the new LFS tabulations file, which includes all of the post-processing weighted individual-level records used for tabulating LFS estimates, would no longer include the question-by-question responses for every item on the LFS questionnaire, but, instead, an extensive set of derived variables.

2. In January 2007, this category was changed to “Maternity or parental leave” and could be used by men and women.

3. The new hirings and new permanent separations questions were not fully implemented until 1998, meaning that the first month for which data was available and corresponding estimates were produced was January 1998. Furthermore, over time, gradual deterioration in the quality of the data series were identified, and as a consequence, the official dissemination of these estimates was suspended in 2002. All activities related to collecting, processing and deriving information related to these variables were permanently suspended in January 2006.



## 2. Improve data quality by restructuring the questionnaire (adding, removing, re-wording and re-ordering questions)

The questionnaire was extensively restructured in terms of the order of the questions and the flows between questions.

- The questionnaire was organized into well-defined components (i.e. Contact, Household, Demographics, Rent, Labour Force Information and Exit component). Within the Labour Force Information component, questions were organized into blocks to more directly target information on specific work-related activities (i.e., present and past job attachment, job description, absence/separation, work hours, job search/future start, availability, earnings, union, job permanence, firm size, other job, temporary layoff job search, school attendance and returning students). This allowed for a new sequential hierarchy of labour force status classification:
  1. Employed, at work;
  2. Employed, absent from work;
  3. Unemployed, temporary layoff;
  4. Unemployed, job searcher;
  5. Unemployed, future start;
  6. Not in the labour force, able to work;
  7. Not in the labour force, permanently unable to work.
- The job description questions were moved near the beginning of the questionnaire so that this information (most notably, the class of worker questions) could be used to control the questionnaire flow, wording and applicable response categories.
- For multiple job holders, all questions relating to the other (or old) job or business were completely separated from the questions relating to the main (or new) job or business, and moved near the end of the questionnaire (i.e., class of worker, usual hours and actual hours).
- To better identify persons on temporary layoff but who may not self-identify as such, a second question was added on the reason for having stopped working at the last job or business, specifically to identify those satisfying the criteria “Lost job, laid off or job ended” because of “business conditions”; furthermore, a new question series on expectation of recall was added to establish whether or not the other criteria required to be classified as unemployed are explicitly satisfied (Statistics Canada, October 1996).
- To better identify persons who indicate job attachment but who should not be classified as employed (i.e., seasonal workers in the off-season and casual workers not at work), “Seasonal layoff” and “Casual job, no work available” were added to the list of response categories for the question on reason for absence from work, with associated flows to the question series that apply to persons who are not employed.
- For the job search block, an explicit “Yes/No” question was added: “In the 4 weeks ending last Saturday, [date], did [name] do anything to find work?” Previously, respondents were asked the potentially leading question “In the past 4 weeks, what has [name] done to find work?”, with “Nothing” included as a response category.
- For the availability questions, an explicit “Yes/No” question was added: “Could [he/she] have worked last week if [a suitable job had been offered/[he/she] had been recalled]?” Previously, respondents were asked the potentially leading question “Was there any reason why [name] could not take a job last week?”, with “No” included as a response category, meaning that persons who were available were identified using a double negative. The questionnaire flow was also modified so that all persons eligible for potential classification as unemployed would be asked the availability questions. Previously, persons on temporary layoff and future starts were not asked the availability questions unless they also happened to look for work in the past four weeks.
- To better identify involuntary part-time workers, modifications were made to the questions asked of persons working less than 30 hours per week. An explicit “Yes/No” question was added: “Does [he/she] want to work 30 or more hours per week?” Those who answer “Yes” are asked: “What is the main reason [he/she] usually works less than 30 hours per week?” Those who answer “Business conditions” or “Could not find work with 30 or more hours per week” are asked: “At any time in the 4 weeks ending last Saturday, [date], did [he/she] look for full-time work?” Previously, respondents were asked only the question “What is the reason [name] usually works less than 30 hours per week?”, with “Could only find part-time work” included as a response category.
- To identify discouraged workers an explicit “Yes/No” question was added: “Did [he/she] want a job last week?” as the screening criteria to the question “What was the main reason [he/she] did not look for work last week?” Previously, the screening criteria was that a person had to have looked for work in the past 6 months, but not in the past 4 weeks.
- The collection of information about the last job or business of persons not employed (i.e., job description questions, reason for having stopped working, full-time/part-time status) was limited to those who last worked in the past 12 months (previously, it was the past 5 years).



- To improve the clarity of the question used to identify job attachment for employed persons who did not work during reference week, the question “Last week, did [name] have a job or business at which [he/she] did not work?” was replaced with “Last week, did [name] have a job or business from which [he/she] was absent?”
  - To reduce the respondent burden on future starts, the question “Counting from the end of last week, in how many weeks will [name] start to work at [his/her] new job?” was replaced with “Will [he/she] start that job before or after Sunday, [date]?”
  - To reduce the respondent burden on persons aged 65 and over who are not employed and who did not do anything to find work in the past 4 weeks, a questionnaire flow was added so that they would not be asked the future start questions or the discouraged worker questions.
  - To reduce the respondent burden on persons who are employed, the question “In the past 4 weeks, has [name] looked for another job?” was removed.
  - To reduce the respondent burden on persons who are not employed, the following questions were removed: “In the past 6 months, has [name] looked for work?”; “When did [name] last [job search method]?” (number of weeks ago); “Is [name] looking for a job to last more than 6 months?”
- As well, the question series and derived variables relating to the work hours of persons currently employed were significantly redesigned.
- For multiple job holders, the collection of information relating to the main (or new) job or business was separated from that relating to the other (or old) job or business. Previously, all work hours questions were integrated within one question series.
  - For multiple job holders, the classification of working full-time or part-time became based on the usual hours of the main job or business only. Previously, the total usual hours of all jobs and businesses was used.
  - An explicit question about variable work hours was added, and for those with variable work hours, an explicit usual hours question was added that incorporates the terminology “on average” and “usually”. Previously, respondents needed to volunteer the fact that they had variable work hours and then interviewers needed to probe for additional details to calculate an average.
  - For employees, usual hours became based on paid contractual hours excluding overtime, by incorporating the terminology “excluding overtime” and “paid hours” in the question. Previously, usual hours were defined as those normally worked and therefore included any paid and/or unpaid overtime or extra hours normally worked.
  - For employees, separate explicit questions were added on hours of paid overtime and extra hours without pay. Previously, regardless of class of worker, there was one question referring to the hours of overtime and extra hours worked at all jobs or businesses beyond any such hours normally worked.
  - For employees with non-variable work hours, actual hours are automatically derived if responses are provided to each of the questions on usual hours, hours away, hours of paid overtime and extra hours without pay. Previously, a separate explicit question on actual hours was always asked.
  - For the self-employed, only usual hours and actual hours are collected. Previously, there was one question referring to the hours away from all jobs and businesses regardless of class of worker, and one question referring to the hours of overtime and extra hours worked at all jobs and businesses beyond any such hours normally worked regardless of class of worker.
  - The response category and classification criteria that allowed some persons who usually work less than 30 hours per week because of a legal or institutional impediment to self-classify as full-time was removed (e.g., airline flying staff). Previously, the reason for working part-time question included the category “Full-time work under 30 hours per week”.
  - To facilitate more accurate recording of work hours, the response field formats for all work hours questions were modified to include three digits and one decimal place. Previously, only two-digit integer values were recorded, meaning that partial-hour values had to be rounded to the nearest integer and that values of 100 or more had to be recorded as 99.

### 3. Optimize the use of computer-assisted interviewing (CAI)

Since the previous questionnaire was originally designed as a paper questionnaire, the questionnaire redesign provided the opportunity to more fully exploit the power of CAI. This included the incorporation of dynamic wording and dynamic response categories based on answers to earlier questions, more complex question flows that incorporated the use of new derived variables, and an extensive set of on-line edits checking for logical inconsistencies.

Coinciding with the implementation of the redesigned questionnaire was a redesigned processing system that was implemented using new data processing strategies, tools, applications, software and hardware, primarily in a UNIX environment. A redesigned dissemination system was also implemented.

### Concept:

Prior to 1997, the private sector was defined as all employees or paid workers as well as the self-employed of an incorporated business. The latter were considered to hold “employee jobs” since they worked for the corporation, and this followed the System of National Accounts concept. After January 1997, the self-employed category included these self-employed incorporated paid workers, the unincorporated business owners, and unpaid family workers. This follows the standard suggested by the International Labour Organization (Statistics Canada, September 1996).

### Dissemination:

With the questionnaire redesign, more employment data series were seasonally adjusted and included in LFS products. The 71-001-X monthly publication started to include:

- employment data by more industry detail;
- a breakdown of public and private sector and of self-employment estimates;
- more seasonally adjusted provincial data;
- new information on hours and wages of employees by occupation and demographic group (Statistics Canada, January 1997).

### Data:

All LFS estimates became rounded to the nearest hundred and presented in thousands to one decimal place. The calculation of rates and percentage changes were based on estimates rounded to the nearest hundred, whereas they were previously calculated using unrounded numbers (Statistics Canada, January 1997).

### 1999

#### Industry classification:

The North American Industry Classification System (NAICS) was introduced to code industry estimates, and replaced the 1980 Standard Industry Classification (SIC). Since NAICS differed considerably from SIC, a method was

created using imputation to produce historical series for NAICS back to 1987. Data from 1976 to 1986 are available at less detailed industry levels than the more recent data and are available only at the national and provincial levels (Statistics Canada, January 1999).

#### Occupation classification:

The coding of occupation estimates was updated to the 1991 Standard Occupational Classification (SOC) from the 1980 SOC. The 1991 SOC was fundamentally different from the 1980 version; therefore, historical series were revised back to 1987 and were also imputed like the industry data (Statistics Canada, January 1999).

#### Concept:

A new definition of public and private sectors was introduced that led to workers in hospitals and universities being recoded from private to public. With this change, the LFS definition used for the public sector was harmonized with that used by the System of National Accounts, which classifies the public sector based on rules of ‘funding’ versus ‘ownership’. Historical series were revised back to 1976 (Statistics Canada, January 1999).

#### Data:

A new series of eight supplementary unemployment rates was introduced and presented in the publication *Labour Force Update: Supplementary Measures of Unemployment* (Statistics Canada, summer 1999). With the redesign of the survey in 1997, there were breaks in several major measures used in the old rates, including the underutilization measure—the involuntary part-time and discouraged worker series. These new supplementary rates replaced the nine measures disseminated from July 1983 to 1995 (Statistics Canada, July 1983 and December 1989).

### 2000

#### Population rebasing:

All estimates were rebased to the 1996 Census from the 1991 Census to reflect new population counts, and

were revised back to 1976 (Statistics Canada, 2000).

#### Geography:

Several minor modifications to sub-provincial regions were introduced that involved ERs in Alberta, as well as the Winnipeg and St. Catharines–Niagara CMAs. The ERs in Alberta that were modified as follows:

- Census Division 9 was moved from ER 850 to ER 840;
- Census Division 10 was moved from ER 880 to ER 820;
- Census Division 13 was moved from ER 840 to ER 870.

Also, the Winnipeg and St. Catharines–Niagara CMAs were changed to reflect the final 1996 Census boundaries. All estimates related to these regions were revised back to 1987 (Statistics Canada, 2000).

#### Methodology:

A new method of estimation, composite estimation, was introduced, replacing the old method called general regression estimates. Composite estimation reduces the sampling error associated with a sample-based survey, resulting in more efficient estimates of month-to-month change, while maintaining or modestly improving the quality of monthly level estimates, particularly for the industry and class of worker series at the provincial level (Statistics Canada, 2000).

As part of the revision, estimates were produced with household size controls beginning in 1976 and family size controls beginning in 1987. These dates were selected based on the availability of the population counts. These controls were introduced to provide an element of harmonization between household surveys. By using the same auxiliary information at the estimation stage, it is easier to compare data from different survey sources (Statistics Canada, 2000).

### Collection:

The LFS adopted a centralized computer-assisted telephone interviewing (CATI) system. All telephone interviews were conducted from a centralized location within the regional offices. The change was phased in from June to September 2000. Centralized CATI sites were used for one rotation in June, two in July, three in August, and for all interviews in September.

### Data:

With the adoption of composite estimation, seasonally adjusted provincial data was published on the basis of monthly estimates rather than three-month moving averages (Statistics Canada, 2000).

### 2001

#### Territories:

The LFS was conducted as a pilot survey in the Northwest Territories starting in the fall of 2000. Data have been available since 2001 for this territory.

### 2003 to 2004

#### New content:

The LFS added two questions to identify Aboriginal respondents living off-reserve. The questions started in late 2003 in Alberta and in April 2004 for the rest of western Canada in partnership with the provinces. They were asked in the territories in 2004 (Statistics Canada, June 2005).

### 2004

#### Territories:

The LFS was conducted as a pilot survey in Nunavut starting in 2000, but given the special difficulties of collecting data in northern areas and the associated data quality issues, three-month moving averages have been available since 2004 for this territory. The population covered included 10 of the largest communities in the region, representing 70% of all residents aged 15 years and older from January 2004 to March 2008.

### 2005 to 2016

### 2005

#### Population rebasing:

All estimates were adjusted to reflect population counts based on the 2001 Census instead of the 1996 Census. Estimates were revised back to 1976 (Statistics Canada, January 2005).

#### Geography:

The 2001 CMA boundaries were introduced, adding the two new CMAs of Kingston in Ontario and Abbotsford in British Columbia, for a total of 27 CMAs. Boundaries for ERs and EIRs were unchanged. At the same time, some urban centre estimates were replaced by estimates at the census agglomeration (CA) level (Statistics Canada, January 2005).

#### Industry classification:

The North American Industry Classification System (NAICS) was updated to the 2002 version from the 1997 version. The NAICS 2002 changes affected only the major groups of construction, and information and cultural industries. These changes were exclusively within the major groups and therefore had no impact on employment levels by industry (Statistics Canada, January 2005).

#### Occupation classification:

The SOC 1991 was changed to the National Occupational Classification – Statistics (NOC-S) 2001. The NOC-S 2001 changes were primarily focused on the occupations in the information technology field, where much greater detail and precision became possible. As well, certain occupation codes that were determined to have similar duties and responsibilities were combined to form groups that were more homogeneous in nature (Statistics Canada, January 2005).

#### Sample redesign:

This redesign incorporated the latest information from the census, including geography and the Address Register. The main objective was to introduce

a more cost-efficient sample design. The redesign better targeted subpopulations, re-allocated the sample and better coordinated samples from different surveys in the household survey program (Chen, 2004).

The new sample design was phased in starting in November 2004 and was fully implemented in April 2005. At the same time, the sample size was reduced 3% to 53,000 for three years to finance the sample redesign activities. The reduced sample included provincial top-ups of 1,100 households in British Columbia and 1,200 households in Alberta (Statistics Canada, 2008).

The residential Address Register started to replace cluster listing in approximately one-third of the areas. The Address Register is a list of residential dwellings, mostly in urban areas, developed for the Census of Population. Overall, it is used in about 60% of all LFS-sampled areas to reduce field listing. The apartment frame previously used was dropped (Statistics Canada, 2008).

Special design strata were created to meet users' increasing data needs. Aboriginal strata in the western provinces and immigrant strata in several major Canadian cities were created to better target these difficult-to-reach subpopulations. These were strata that, according to the latest census data, had a higher prevalence of their targeted populations. The coverage of income strata was expanded from the 1995 design to meet other surveys' changing sample requirements (Statistics Canada, 2008).

The sample was reduced in areas where it was expensive to collect data, such as remote, high-vacancy or difficult-to-access areas. Some of these areas were excluded from the frame and some were excluded from collection for three years (Statistics Canada, 2008).

Using a generic, auto-spatial delineation and verification system called the General Area Delineation System, a new set of LFS clusters were created using more uniform household sizes.

In addition, a new LFS Mapping System was developed to create cluster maps for listing. Using information from the National Geographic Database, this system extended the automated mapping process to the entire country and created well over 10,000 standard-sized maps to be used in field operations during the sample's six-month, phase-in period (Statistics Canada, 2008).

### Methodology:

A hot-deck imputation method was used for person level non-response. Respondents' missing values are replaced with the corresponding values of a randomly selected donor within the same imputation class. New, longitudinal hot-deck variables were used in defining hot-deck imputation classes, which were used to replace the missing values with the corresponding values of a randomly selected donor within the same imputation class. Prior to 2005, a combination of cross-sectional hot-deck imputation and carry-forward imputation was used to deal with person non-response (Bocci and Beaumont, 2004).

### Collection:

Telephone first contact was introduced. Dwellings in urban areas that are new to the sample are contacted by telephone, if a telephone number is available. Otherwise, the dwelling is contacted by a field interviewer. About 30% of the dwellings selected for birth interviews are now first contacted by telephone, whereas prior to 2004, all birth interviews were conducted by field interviewers (Statistics Canada, 2008).

### 2006

#### New content:

Five questions were added to identify the immigrant population:

1. the respondent's country of birth;
2. if the respondent was a 'landed immigrant';
3. the month he or she became a landed immigrant;
4. the year he or she became a landed immigrant;

5. the country where the respondent received his or her highest level of education.

These questions are comparable to those used in the census questionnaire. Labour market data for the immigrant population has been available since the fall of 2007 (Statistics Canada, 2009).

#### Data:

Population estimates were revised, after the 2005 rebasing, using more current data on non-permanent residents to Canada (e.g., people on student visas, and other foreign-born people who had not formally immigrated to the country, but who were in the country legally). This segment of the population is concentrated in Canada's large urban centres and thus, the impact of these changes was at the sub-provincial level (Statistics Canada, 2006).

Also, there were revisions made to the public- and private-sector estimates for the period from January 1987 to June 1999. The geographic coding of several small CAs was updated historically, from 1996 urban centre boundaries to 2001 CA boundaries, affecting data from January 1987 to December 2004 (Statistics Canada, 2006).

### 2007

#### New content:

Questions identifying Aboriginal respondents living off-reserve were extended to all provinces (Statistics Canada, 2011). Previously, these questions were only asked in the western provinces and the territories (Statistics Canada, June 2005).

#### Data:

Certain adjustments were introduced in the seasonally adjusted actual hours series. Reference week location adjustments were estimated for all months of the year as opposed to only significant months in the past (i.e. in July, due to more people taking time off later in the month as opposed to earlier). Also, permanent priors to adjusted for holiday reference weeks were calculated based on the use of X-12-ARIMA as opposed

to X-11 in the past (Chen, Fung, Balde, Quenneville, 2006).

### 2008

#### Sample size:

Was returned to the level it was before the 3% sample cut, which was performed to fund the 2004 sample redesign. The new LFS allocation went from 53,400 households to 55,000 households. The increase was phased in over the six-month rotation cycle starting in May 2008 (Mitchell, 2007).

### 2009

#### Territories:

In the spring of 2009, the coverage in Nunavut was extended to all residents in 19 of the largest communities. This change, which increased Nunavut's coverage rate to 92%, was made retroactive to winter 2008. From January 2004 to December 2007, the Nunavut sample was based on 10 of the largest communities in the region, representing 70% of all residents aged 15 and older (Statistics Canada, 2012).

#### Sample size:

The Manitoba sample was increased by 975 households to better target the immigrant and Aboriginal populations, at the request of the Manitoba government. The sample increase was phased in over a six-month period from April to September 2009 (Chen, Lindeyer, 2008).

### 2010

#### Seasonal adjustment:

The X-12-ARIMA program, using the X-12 SAS procedure, was used for the seasonal adjustment of monthly estimates, replacing X-11-ARIMA, which had been used since 1980. Also, Statistics Canada's in-house SAS Proc TS-Raking program (part of G-Series/Forillon software) was used for raking: estimates are increased or decreased proportionately so that their total adds up to the overall benchmark. Estimates were revised back to 1976 (Statistics Canada, 2012).



### Data:

A new method was introduced to adjust for holidays in reference week for the seasonally adjusted actual hours series, which were revised back to 1976. Based on the method used by the System of National Accounts, when a holiday falls in a reference week, hours lost because of the holiday, as reported by LFS respondents, are added back to the actual hours series, which are then seasonally adjusted. Holidays that may fall in a reference week include Family Day, March Break in certain provinces, Easter Friday or Easter Monday, the July construction holiday in Quebec (prior to 2009), Thanksgiving, and Remembrance Day (Statistics Canada, 2012).

### 2011

#### Population rebasing:

Estimates were revised back to 1996 to reflect population data from the 2006 Census. Because changes to the estimates were minimal, revisions were not carried out to the start of the series, in 1976. (Statistics Canada, January 2011).

#### Geography:

Boundaries were changed to the 2006 Standard Geographical Classification. Six new CMAs were added: Moncton, in New Brunswick; Peterborough, Brantford, Barrie and Guelph, in Ontario; and Kelowna, in British Columbia; for a total of 33 CMAs. At the same time, the boundaries of seven CMAs were modified: Québec, Sherbrooke and Montréal, in Quebec; Ottawa–Gatineau, Quebec sector, Ottawa–Gatineau, Ontario/Quebec and London, in Ontario; and Winnipeg, in Manitoba (Statistics Canada, January 2011).

#### Industry classification:

The North American Industry Classification System (NAICS) was updated to the 2007 version from that of 2002. Changes to the NAICS 2007 were minimal and revisions were extended to January 1987 (Statistics Canada, January 2011).

### Occupation classification:

The National Occupational Classification – Statistics (NOC-S) was updated to the 2006 version from that of 2001. Changes had no impact on the historical estimates (Statistics Canada, January 2011).

#### Methodology:

In the northern territories, sample changes were made to achieve sample sizes closer to original targets, to distribute response burden more equitably and to improve the efficiency of the overall northern design. Changes included:

- sample allocation updates;
- sampling rates based on the 2006 Census of Population estimates;
- expanded use of one-stage sample designs;
- new cluster-labeling conventions.

Further, in the Yukon, there was a re-stratification of outlying communities (Meyer, Chen, 2011).

### 2012

#### Dissemination:

In February, all Statistics Canada data on CANSIM became available for free to all users. Prior to this, regular users were charged \$3.00 per data series.

Beginning in April, LFS data on CANSIM, and in *The Daily*, also became available at 8:30 a.m. on the day of release (usually the first Friday of the month). Prior to this, the data and commentary were available at 7:00 a.m. on release day.

The analytical publication *Perspectives on Labour and Income* (catalogue no. 75-001), which launched in 1989, and featured many analytical articles using the LFS data, was discontinued. *Insights on Canadian Society* (catalogue no. 75-006), a publication with a wider scope, replaced it. This new publication provides information on various aspects of Canadian society, including labour, income, education, social, and demographic issues that affect the lives of Canadians.

### 2014

#### Data:

Unemployment rates for two employment insurance regions in each of Prince Edward Island and in the territories were added to Table 8 of the 71-001-X publication, which lists the unemployment rates for the Employment Insurance program. October 14, 2014 was the date that these new unemployment rates came into effect. These eight regions include Charlottetown and the rest of Prince Edward Island; Whitehorse and the rest of Yukon; Yellowknife and the rest of Northwest Territories; and Iqaluit and the rest of Nunavut. The regions in Prince Edward Island and in the territories respect 2011 Census boundaries, while all other employment insurance regions are based on the 1996 Census boundaries.

### 2015

#### Population rebasing:

Estimates were revised back to 2001 to reflect population data from the 2011 Census (Statistics Canada, January 2015).

#### Geography:

Boundaries for sub-provincial regions were updated to the 2011 Standard Geographical Classification (SGC) from the 2006 version. Although no new regions were added, boundaries were modified for CMAs, ERs and census agglomerations (Statistics Canada, January 2015).

The boundaries of seven CMAs in Quebec were modified: Saguenay, Québec, Sherbrooke, Trois Rivières, Montréal, Ottawa-Gatineau, Quebec part; and, in Ontario, this was the case for Guelph. In addition, an improved method was used for population allocation in this rebasing. Ten CMAs were affected by this change: St. John's, in Newfoundland and Labrador; Moncton and Saint John, in New Brunswick; and Peterborough, Hamilton, Thunder Bay, St. Catharines-Niagara, London, Windsor, and Barrie, in Ontario.



There were small boundary changes for three economic regions (ERs): Campbellton–Miramichi and Fredericton–Oromocto in New Brunswick; and North Coast and Nechako in British Columbia. To improve data quality of the LFS estimates, three small ERs were combined: South Coast–Burin Peninsula and Notre Dame–Central Bonavista Bay, in Newfoundland and Labrador (1020, 1040); South Central and North Central, in Manitoba (4620, 4640); and Banff–Jasper–Rocky Mountain House and Athabasca–Grande Prairie–Peace River (4840, 4870), in Alberta. These new combinations were created in consultation with the provinces involved.

Since the redesign of the LFS sample changed its provincial allocation, the quality of previously published data for some census agglomerations (CAs) became insufficient. As a result, data for these CAs are no longer published. This is the case for: Drummondville, Saint-Hyacinthe, Shawinigan, Rimouski, Baie-Comeau, and Sept-Îles, in Quebec; Belleville, Kawartha Lakes and Brockville, in Ontario; Grande Prairie, in Alberta; and Kamloops, Vernon, Courtenay, Duncan, and Dawson Creek, in British Columbia.

Furthermore, using the new sample allocation, the data quality for the three following CAs is sufficient for publication: Saint-Georges, in Quebec; Thompson, in Manitoba; and Fort St. John, in British Columbia. (Statistics Canada, January 2015).

### Collection:

Beginning in March 2015, eligible respondents in the ten provinces have the option to complete next month's survey online, using a respondent-friendly web-based questionnaire. This option was offered and implemented to address existing (as well as anticipated) respondent demands, which are consistent with federal government initiatives to provide Canadians with access to more online services while, at the same time, reducing data collection costs. The new

online data-collection method applies to only subsequent interviews, as all birth (first) interviews continue to be conducted by Statistics Canada CAPI or CATI interviewers.

The online option was gradually phased in over a period of 14 months and fully implemented as of April 2016. As of December 2015, among all households in the birth rotation group that are in-scope for the online option, and that respond to the LFS, approximately 72% are eligible for the online option. Furthermore, approximately 46% of those households that are eligible for the online option accepted the offer to complete the survey online. Finally, approximately 70% of households that begin the survey online actually complete the survey online.

### Sample redesign:

An updated sample design was implemented beginning in January 2015 and ending in June 2015. This redesign defines new strata based on the most recent 2011 Census information, whereas the previous design was based on the 2001 Census. As a result, the sample allocation also changed, although the sample size remained the same (Statistics Canada, January 2015).

### Methodology:

The list of variables used to create the imputation groups for donor imputation was reviewed and updated to include industry. At the same time, codesets used for certain age groups and labour force status variables were modified, while the country-of-birth variable was removed. These changes were implemented historically, beginning in January 2008 (Statistics Canada, January 2015).

Beginning in January 2015, the way variance is estimated changed for the LFS. Instead of using a jackknife estimation system, Rao-Wu Bootstrap weights are now produced for every month, and these bootstrap weights are then used to produce LFS variance estimates. The main advantage of the new methodology is that, once bootstrap weights are

generated, they can be used to produce variance estimates for a much wider variety of analyses than the jackknife variance estimation system. It also allows for a more flexible variance estimation system that is easier to adapt to survey design changes, such as the move to one-stage sampling in P.E.I. Studies showed that the bootstrap weights produce similar variance estimates to those produced by the jackknife variance estimation system for the main survey estimates. The bootstrap weights are currently used for all published LFS variance estimates, including standard errors, coefficients of variation and confidence intervals for both cross-sectional and change estimates. The monthly bootstrap weights, which date back to January 1998, are available to researchers through Statistics Canada's Research Data Centre (RDC) program.

### Dissemination:

Beginning in November 2015 (October 2015 data), *The Daily* chart of total employment in Canada included trend-cycle data. These data represent a smoothed version of the seasonally adjusted time series, which provide information on longer-term movements, including changes in direction of the underlying series. These data are available in CANSIM table 282-0087. For more information, see the [StatCan Blog](#) and [Trend-cycle estimates – Frequently asked questions](#).

With the December 2015 release of November data, nine CANSIM tables with seasonally adjusted data and one with economic region data include data quality indicators. The tables containing seasonally adjusted data include the standard error of the estimate, for the month-to-month change and for the year-over-year change. The table with economic region data includes the standard error for the estimate and for the year-over-year change. These data quality indicators date back to 2001.

Eight new annual tables for the off-reserve Aboriginal population became available in CANSIM in December 2015.

### Data:

The seasonal adjustment methodology for the actual hours series was improved to better reflect hours lost for self-employed workers as a result of holidays during the reference week. The total actual hours worked series began to be derived as the sum of the three seasonally adjusted classes of workers: public sector employees, private sector employees and self-employed. The provincial series will be slightly modified to match these improved seasonally adjusted total actual hours. Historically, the total actual hours series has been directly seasonally adjusted. All actual hours series have been revised back to the start of the series based on this new methodology.

### 2016

#### Industry classification:

The 2012 North American Industry Classification System (NAICS) replaced the 2007 version. This change did not affect the LFS CANSIM tables as there were only minor changes at the four-digit level.

#### Occupation classification:

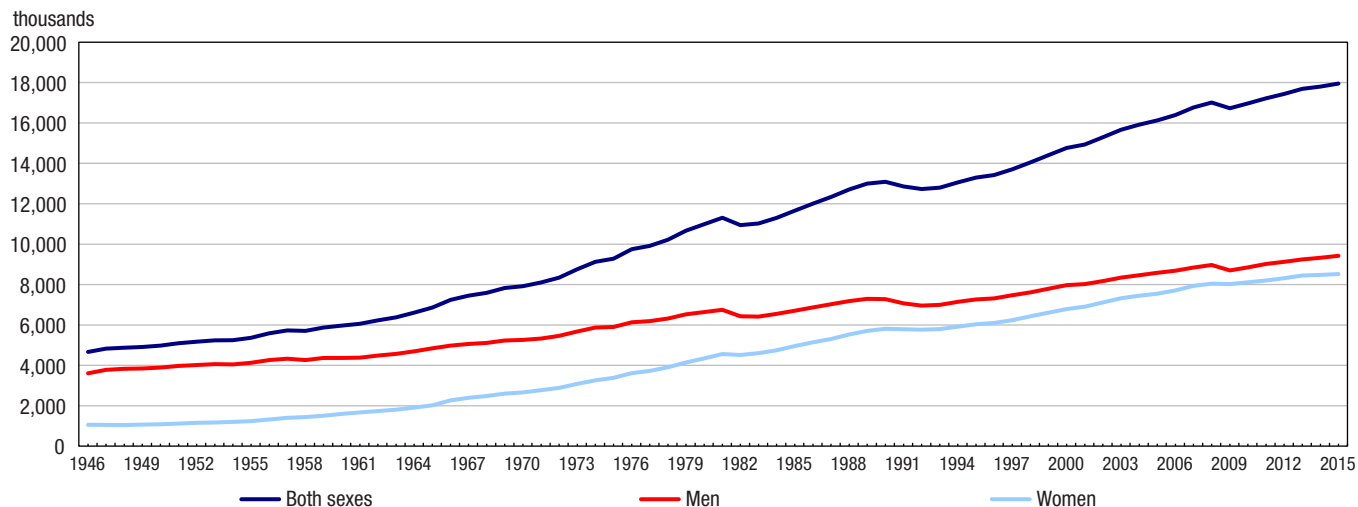
Occupation data estimates were reclassified to the 2011 National Occupational Classification (NOC 2011) from the 2006 National Occupational Classification for Statistics (NOC-S 2006). Since NOC 2011 is very different from NOC-S 2006, new CANSIM tables

were created for all occupation-related series and were revised historically from the start of each respective series.

With the move to NOC 2011, a number of rules used in the coding process were dropped. A study found that the rules had little to no impact on disseminated tables. Some impact was noticed, however, at the four-digit level. Since it was impossible to determine if this impact was caused by the rules or the move to NOC 2011, it was decided to keep any rules that touched categories where there was a potential impact (Mitchell, Ménard, 2015).

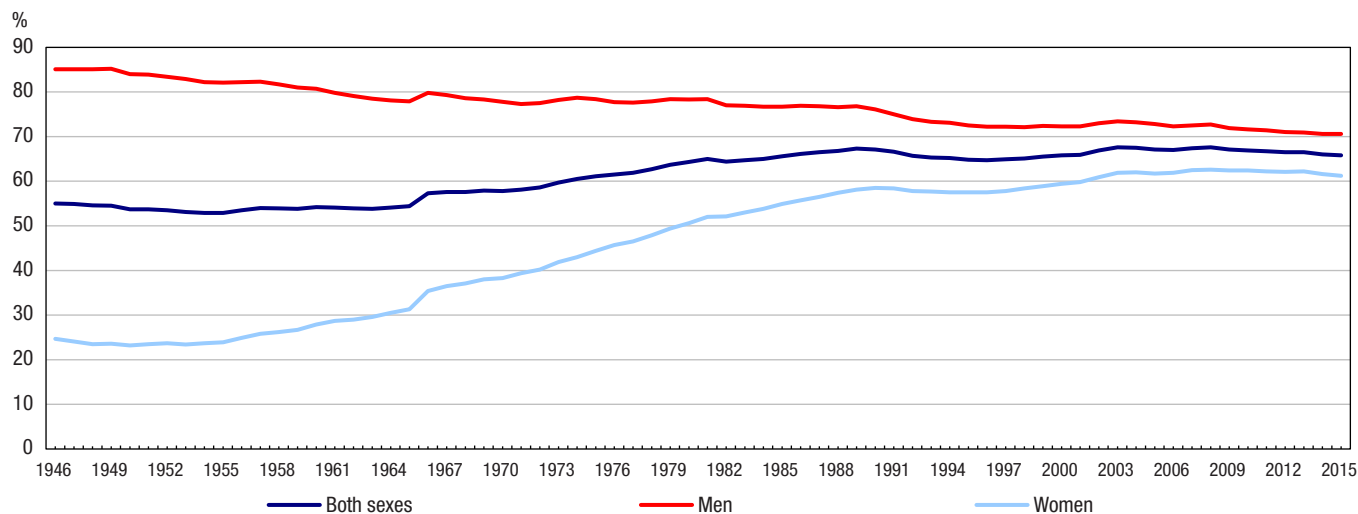
Appendix

**Chart 1**  
**Employment by sex, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.  
**Source:** Statistics Canada, Labour Force Survey, annual averages.

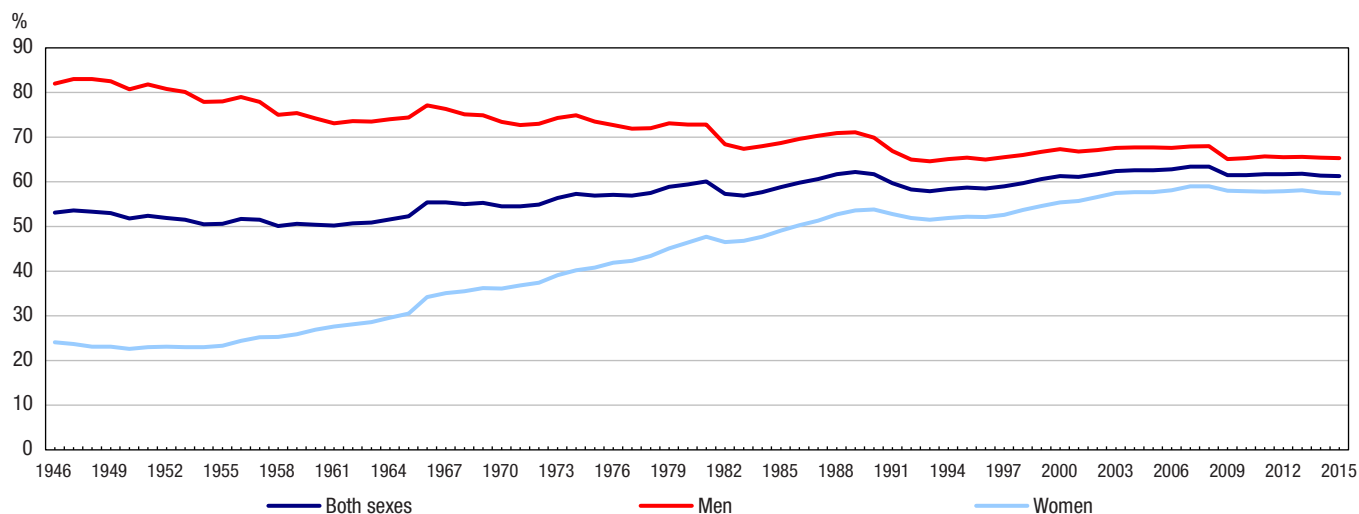
**Chart 2**  
**Participation rate by sex, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.  
**Source:** Statistics Canada, Labour Force Survey, annual averages.

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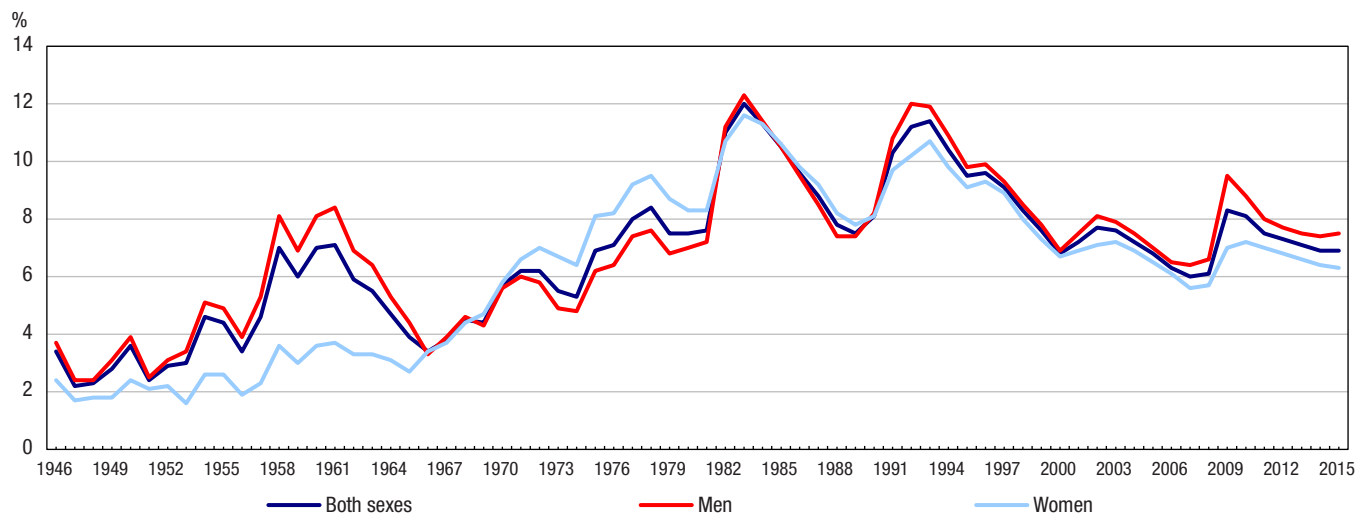
**Chart 3**  
**Employment rate by sex, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.

**Source:** Statistics Canada, Labour Force Survey, annual averages.

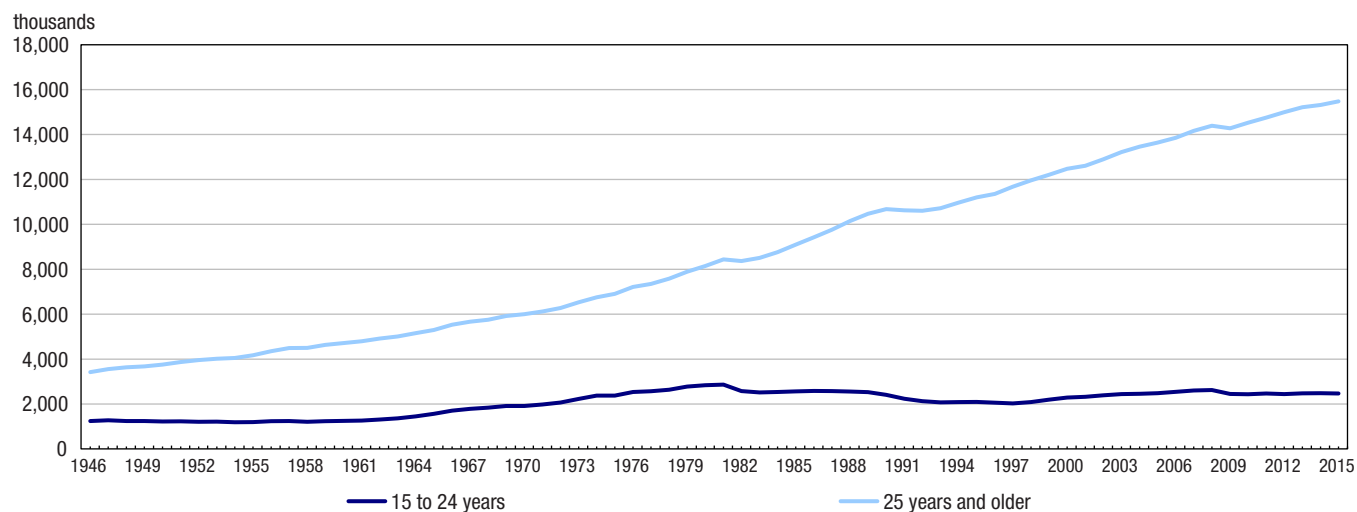
**Chart 4**  
**Unemployment rate by sex, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.

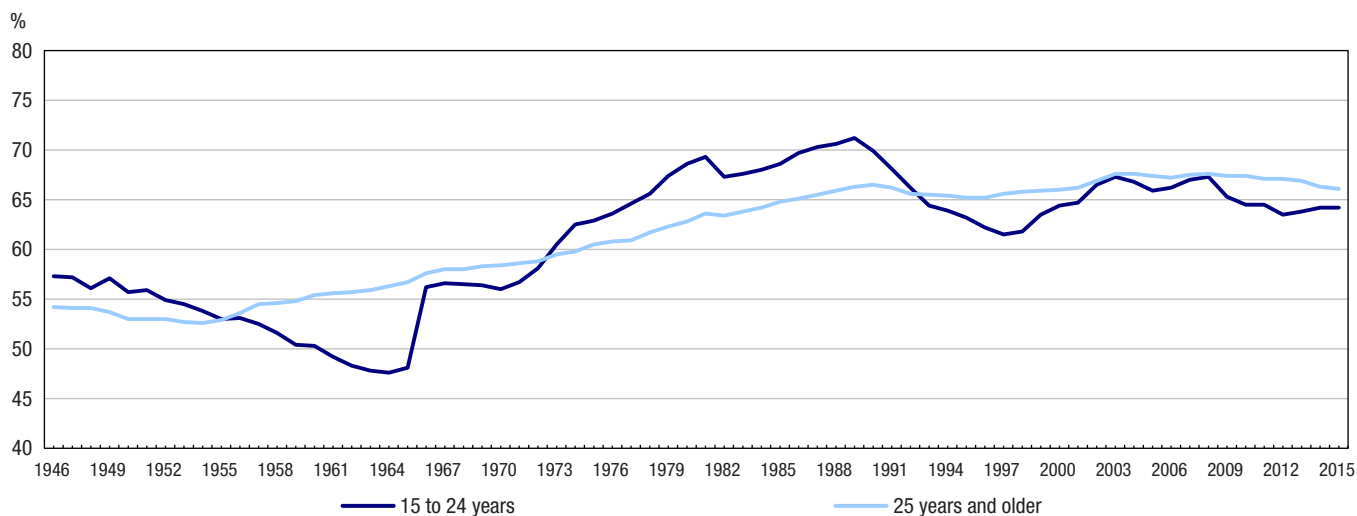
**Source:** Statistics Canada, Labour Force Survey, annual averages.

**Chart 5**  
**Employment by age group, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.  
**Source:** Statistics Canada, Labour Force Survey, annual averages.

**Chart 6**  
**Participation rate by age group, 1946 to 2015**

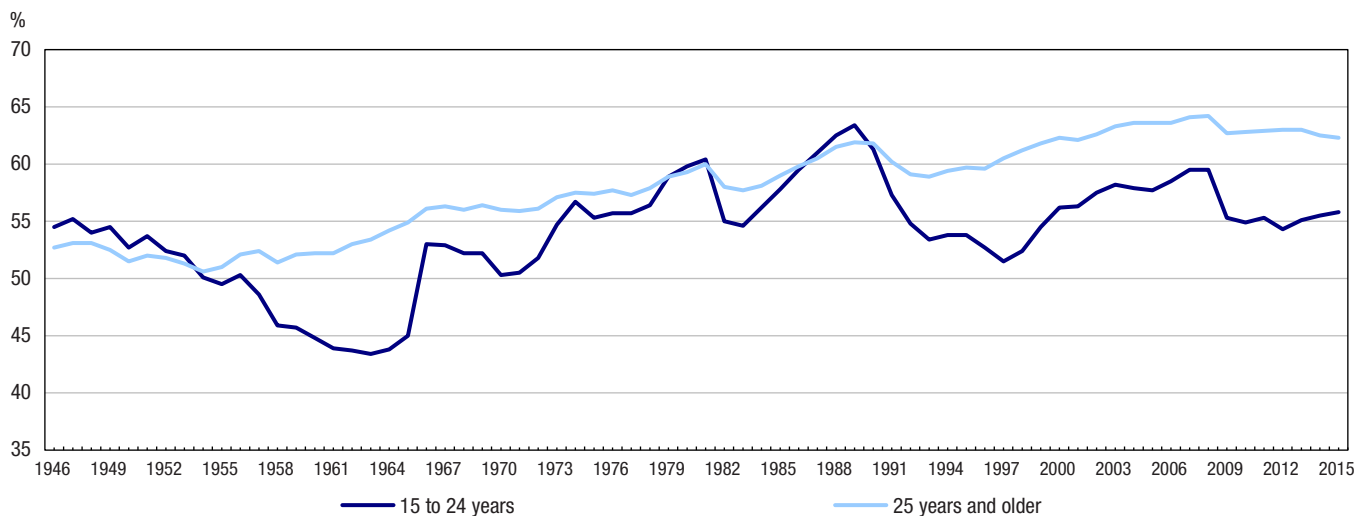


**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.  
**Source:** Statistics Canada, Labour Force Survey, annual averages.



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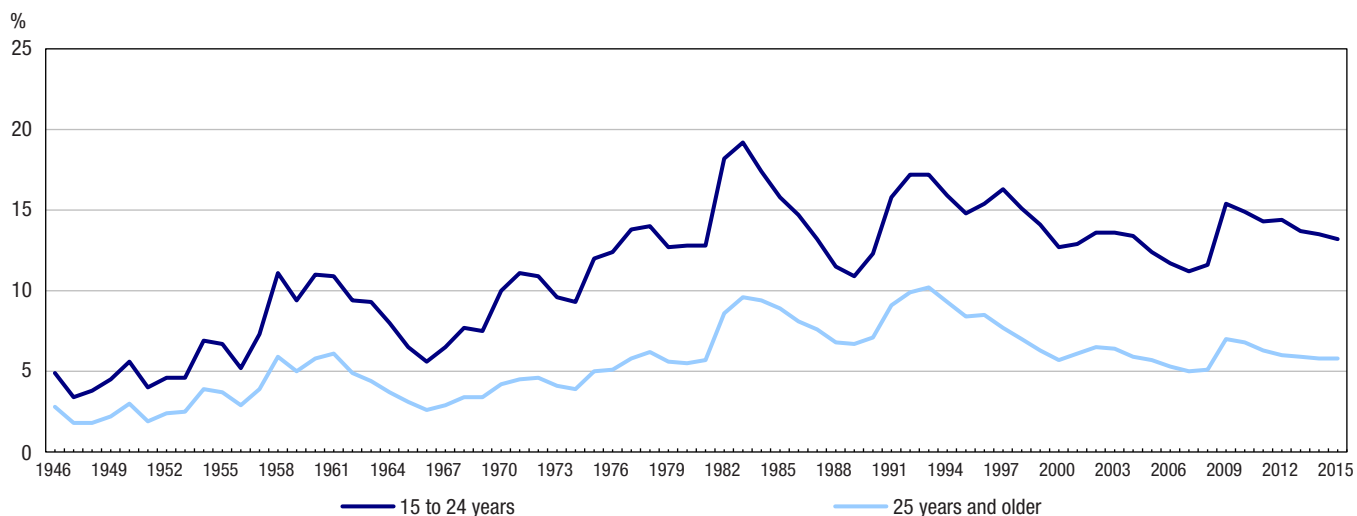
**Chart 7**  
**Employment rate by age group, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.

**Source:** Statistics Canada, Labour Force Survey, annual averages.

**Chart 8**  
**Unemployment rate by age group, 1946 to 2015**



**Notes:** From 1946 to 1965, rates are based on the population aged 14 years and older. From 1966 to 2015, rates are based on the population aged 15 years and older. Newfoundland was included in the LFS in the fourth quarter of 1949.

**Source:** Statistics Canada, Labour Force Survey, annual averages.

## History of the Canadian Labour Force Survey, 1945 to 2016

**Table 1**  
**Labour Force Survey sample size, 1945 to 2016**

Sample size (number of households)	Period covered	Comments
25,000 to 30,000	1945 to 1957	...
30,000 to 36,000	1958 to 1975	...
55,700	1976 to 1984	Sample increased to meet demand for more reliable and detailed data at the provincial level.
52,000	1985 to 1986	Sample reduced because of restraint in resources.
47,000	1986 to 1989	Sample reduced because of restraint in resources.
62,000	1990 to 1993	Sample increased to produce better estimates for Employment (formerly Unemployment) Insurance Economic Regions (EIERs).
58,900	1993 to 1995	Sample declined because of efficiency gains.
52,400	1995	Sample declined further because of efficiency gains.
53,000	1996 to 1997	Sample increased in Moncton and shift in sample required in some economic regions (ERs).
53,000	1997 to 1999	Shift in sample required to address new EIERs.
53,000	1999 to 2000	Shift in sample to address some requirements in certain ERs in Alberta.
54,000	2000 to 2002	Sample increased in some EIERs.
54,000	2002 to 2004	Sample reduction in EIERs and sample increase to target Aboriginal people in Alberta.
53,000	2004 to 2008	Sample reduction, and sample top-ups in British Columbia and Alberta.
55,000	2008 to 2009	Sample increase of 3% to restore sample reduction in 2005 redesign.
56,000	2009 to 2015	Sample increased in Manitoba to target immigrants and Aboriginal people.
56,000	2015 to 2016	Sample re-allocations by province: a decrease of 900 sampled households per month in Ontario, offset by increases in the three Prairie provinces and Quebec.

**Note:** ... not applicable

**Source:** Statistics Canada, Labour Force Survey.

**Table 2**  
**Years of major revisions**

Major revisions	Years enacted	Next one
Survey redesign (every 20 years)	1997, 1976	2017/18
Sample redesign (every 10 years)	2015, 2005, 1995, 1985, 1976, 1966, 1955	2025
Rebasing (approximately every 5 years)	2015, 2011, 2005, 2000, 1995, 1989, 1984, 1976, 1968, 1965, 1958	2020

**Source:** Statistics Canada, Labour Force Survey.

**Table 3**  
**Major historical milestones in LFS collection and processing**

Major changes	Years enacted
Telephone interviewing was introduced in large urban areas for months two through six.	Early 1970s
Respondent results from regional offices started to be transmitted via computer, which were linked to telecommunication facilities at head office. This replaced the physical transmission of documents.	1976
Telephone interviewing was introduced in small urban and rural areas for collection for months two through six.	1985
Replaced paper and pencil questionnaire with computer-assisted interviewing.	1994
Centralized computer-assisted telephone interviewing was adopted.	2000
Telephone first contact was introduced - dwellings in urban areas that are new to sample are contacted by telephone.	2005
A web-based questionnaire was made available to eligible respondents in the ten provinces.	2015

**Source:** Statistics Canada, Labour Force Survey.

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