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Earnings and Wages – A guide to using indicators from the Survey of Employment, Payrolls and Hours and the Labour Force Survey

By Eesha Kirubaharan and André Bernard

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By **Eesha Kirubaharan and André Bernard**

1 Introduction

The Survey of Employment, Payrolls and Hours (SEPH) and the Labour Force Survey (LFS) are two major monthly labour statistics surveys conducted by Statistics Canada.

The SEPH is based on a combination of payroll administrative data and business survey data, and provides a monthly portrait of payroll employment, earnings and hours worked, by detailed industry at the national, provincial and territorial levels. The LFS is a monthly household survey whose main objective is to classify the population aged 15 and older into three mutually exclusive categories in relation to the labour market – employed, unemployed, and not in the labour force. The LFS is used to produce major monthly labour market indicators, such as the employment rate and the unemployment rate.

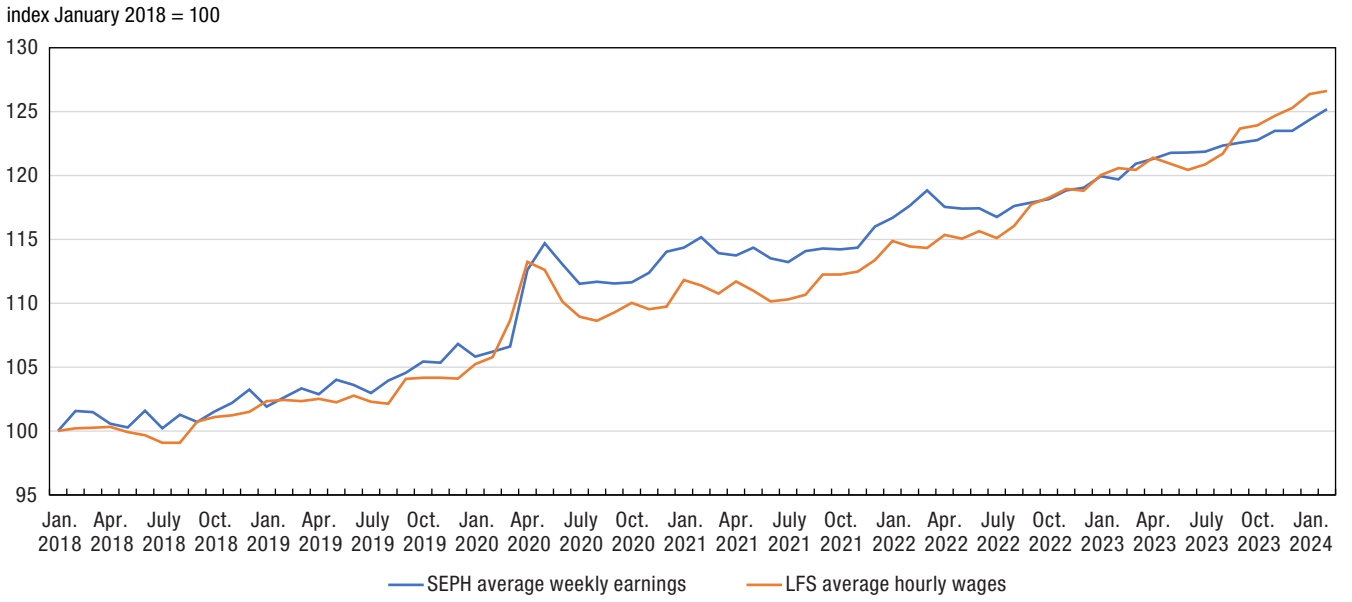
The SEPH and the LFS each provide monthly indicators of pay received by employees. In SEPH, earnings estimates are expressed as **average weekly earnings**. They are derived for payroll employees and are available by industry and province or territory. In the LFS, wages estimates are expressed as **average hourly wages** and **average weekly wages** and are available by socio-demographic characteristics.

Year-over-year variations in **average weekly earnings** (from SEPH) and in **average hourly wages** (from the LFS) each inform on current wage dynamics and are two of the most commonly used labour market indicators. Although concepts associated with the two series differ, they usually track each other relatively closely, especially over longer periods of time. For example, from January 2019 to February 2024, average weekly earnings from SEPH have grown by 22.9%, while average hourly wages from the LFS have grown by 23.7% (Chart 1).

However, differences are sometimes observed over shorter periods of time. For example, year-over-year growth in average weekly earnings from SEPH remained around 3% from June 2022 to December 2022, while growth in average hourly wages from the LFS was around 5% over the same period. When they occur, these differences can pose interpretability challenges for data users.

This paper provides information to help analysts make use of these two series. It begins by defining each indicator and by highlighting key conceptual and measurement differences. It then includes an overview of different possible causes of variations for each indicator and concludes by providing guidance to data users on when to use each indicator.

Chart 1
SEPH average weekly earnings and LFS average hourly wages



Sources: Statistics Canada, Labour Force Survey, table 14-10-0063-01; Survey of Employment, Payrolls and Hours, table 14-10-0203-01.

2 Features of SEPH earnings and LFS wages

This section provides an overview of key features of the two indicators, including their respective definitions and target populations, data sources and derivation methodology, and available levels of disaggregation.

2.1 Definitions and target populations

Both earnings in SEPH and wages in the LFS represent an employee's gross pay before any source deductions.

In SEPH, earnings include regular pay, overtime and bonuses, commissions and other types of special payments. They exclude taxable allowances and benefits, certain types of non-wage compensation and employer contributions to employment insurance, Canada and Quebec pension plans (CPP/QPP), provincial medical plans, workers' compensation and other welfare plans.

In the LFS, wages are reported before taxes and deductions and include tips, commissions and bonuses. Wages in the LFS are collected for employees working in all sectors, excluding self-employment.[1] An employee in the LFS is someone who works at a job or business in the context of an employer-employee relationship, either in the public or private sector.

Employees working in the agriculture sector or in a business that is not currently classified to a NAICS code, unpaid family workers, military personnel, as well as casual workers for whom a T4 is not required, are excluded from the SEPH target population.

People living in institutions, on reserves or in other Indigenous settlements, full-time members of the Canadian Armed Forces and households in extremely remote areas with very low population density are excluded from the LFS target population.

1. Unlike the LFS, SEPH earnings estimates include self-employed individuals who own an incorporated business with employees. In SEPH, these individuals would be classified as 'working owners' and would fall under the category of 'other employees'. It should also be noted that as of March 2020, data on wages for self-employed individuals has been collected in the LFS, but are not included in official LFS wage estimates.

2.2 Data sources and derivation methods

Average weekly earnings from SEPH are derived by combining information from payroll deduction remittance (PD7) forms received from the Canada Revenue Agency (CRA) and information from respondents to the Business Payroll Survey (BPS). SEPH earnings are derived using an employee's **actual hours of work** for an entire pay period. Therefore, fluctuations in average weekly earnings can be partially attributed to changes in the number of hours worked by employees.

Average hourly wages from the LFS are derived by combining responses from household respondents to questions regarding wages and salaries, frequency of pay and hours of work. LFS wages are derived using the reported usual number of hours worked by an employee. Generally, an employee's **usual number of work hours** does not change between reference months. Therefore, variations in work hours are expected to have minimal impact on short-term movements of the average hourly wage series in the LFS.

The distinction between usual hours of work and actual hours of work has an important implication for interpreting the two series. In the LFS, wage estimates (based on usual hours of work) would continue to reflect the usual wages of employees even if they were absent from work without pay (due to, for example, an illness, disability, personal or family responsibilities, vacation or a labour dispute). In contrast, SEPH earnings estimates would only include earnings received for actual paid hours. Therefore, a major labour dispute could impact estimates of average weekly earnings in SEPH, but not estimates of average hourly wages in the LFS.[2]

The LFS is based on a rotating panel design and respondents are interviewed for six consecutive months. Each month, 1/6th of the LFS sample is renewed. Information on wages is collected for employees during the first interview (the first month) and is updated if the respondent changes jobs or employment status in a subsequent month. In SEPH, earnings estimates are based on the most recently available information, regardless of whether employees change jobs or employment status. Therefore, earnings estimates from SEPH may be slightly quicker than wage estimates from the LFS at reflecting changes in wage dynamics.

2.3 Available levels of disaggregation and products

A list of publicly available tables of average weekly earnings from SEPH and average hourly wages from the LFS is provided in Appendix 1.

Average weekly earnings in SEPH are available by detailed industry (North American Industry Classification System (NAICS)), up to the 4-digit level of disaggregation. It can also be disaggregated by province and territory and by type of employee (paid by the hour, salaried, and other).

Average hourly wages in the LFS are available by province and territory, age, sex, job tenure and job permanency, occupation, union status and type of work (i.e., full-time or part-time). It is also available by industry (NAICS), but generally only up to the 2-digit level of disaggregation. Custom tabulations can be produced using LFS micro-data files, including the LFS Public Use Microdata Files.

A summary of the major features (definitions, target populations, data sources, reference periods, available levels of disaggregation) of the two indicators is presented in Table 1.

Table 1
Summary features of SEPH earnings and LFS wages

Feature	SEPH Earnings	LFS Wages
Definition	SEPH earnings represent an employee's gross pay, based on gross taxable payrolls, before any source deductions. The reference week for all SEPH estimates is the last week of the reference month.	LFS wages refer to the usual wages or salaries of an employee at their main job. Wages are reported before taxes and other deductions, and include tips, commissions and bonuses. The LFS reference week is usually the week containing the 15th day of the month.

2. In SEPH, major labour disputes are expected to have direct impacts on measures of payroll employment and hours worked, while average weekly earnings are expected to be only indirectly impacted. For example, if employees affected by a dispute have lower earnings, their removal from payroll employment would have an upward impact on average weekly earnings for the month.

Table 1
Summary features of SEPH earnings and LFS wages

Feature	SEPH Earnings	LFS Wages
Target population	Payroll employees who receive pay for services rendered in Canada or for an employer-paid absence, and for whom the employer is required to complete a Canada Revenue Agency (CRA) T4 slip.	The civilian population aged 15 and over who works at a job or business in the context of an employer-employee relationship, either in the public or private sector.
Data sources	**Administrative Records:** Payroll deduction remittance (PD7) forms received from the Canada Revenue Agency (CRA). The PD7 source includes all employers with remittances for employee income taxes or contributions to the Canada Pension Plan (CPP), Quebec Pension Plan (QPP), or Employment Insurance program. **Business Survey Responses:** Business Payroll Survey (BPS).	**Household Survey Responses:** Wage data in the LFS is collected from responses to the survey. Information about household members is usually obtained from one knowledgeable household member.
Derivation method	Average weekly earnings estimates are derived using a combination of administrative records and BPS results. SEPH earnings are derived using an employee's **actual hours of work** for an entire pay period. Therefore, fluctuations in average weekly earnings can be partially attributed to changes in the number of hours worked by employees.	Average hourly wages from the LFS are derived from combinations of responses to a number of survey questions regarding wages and salaries, frequency of pay and hours of work. LFS wages are derived using the reported **usual number of hours** worked by an employee.
Available levels of disaggregation	Earnings in SEPH can be disaggregated by industry based on the North American Industry Classification System (NAICS) (up to the 4-digit industry level), by province and territory, and by type of employee (i.e., hourly, salaried, other).	Wages in LFS can be disaggregated by industry (based on 2-digit NAICS sectors), province and territory, occupation (based on the National Occupational Classification), age, sex, job tenure and permanency (i.e., permanent or temporary), union coverage and type of work (i.e., full-time or part-time).

3 Variations in earnings and wages

Trends in earnings and wages can reflect changes in underlying economic and labour market conditions. For example, tight labour market conditions associated with labour shortages in certain sectors can result in higher wages and earnings. In contrast, economic downturns and higher levels of unemployment can put downward pressure on wages and earnings. That said, variations in earnings and wages may reflect other statistical and compositional factors. Examples of these factors are discussed below.

3.1 Base-year effects

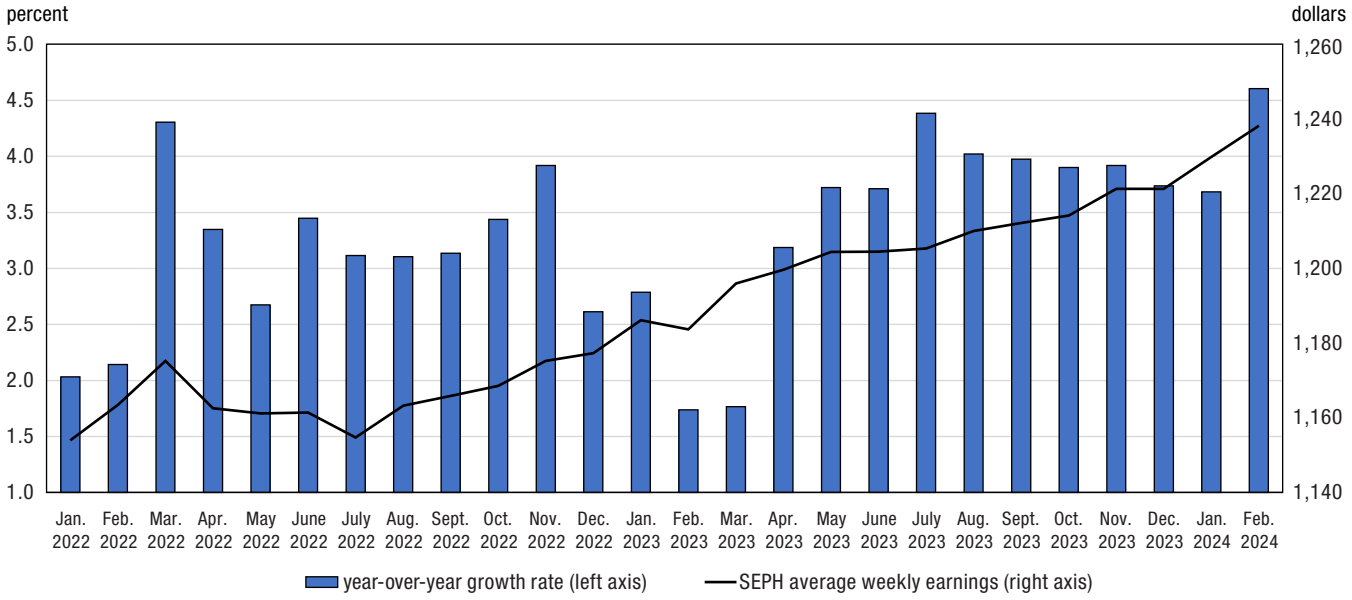
Earnings estimates from SEPH and wage estimates from the LFS are most commonly reported using year-over-year growth rates. Year-over-year growth of earnings and wages refers to the percentage change between the level of earnings or wages for the current month and the level for the same calendar month in the previous year (also referred to as the base year). Base-year effects refer to the impact that movements from 12 months earlier have on the current month's trend.

When an estimate of earnings or wages reaches a peak of a short-term trend in the base month, it can have a downward effect on the year-over-year growth in the current month. Similarly, when an estimate of earnings or wages reached a low point of a short-term trend in the base month, it can elevate the current month's year-over-year trend.

For example, average weekly earnings in SEPH recorded a peak in March 2022 (Chart 2). As a result, the year-over-year growth rate of average weekly earnings was lower in March 2023, at 1.7%, before bouncing back to 3.1% in April of the same year. Similarly, average hourly wages in the LFS recorded a low point in June 2021 (Chart 3). As a result, the year-over-year growth rate of average hourly wages rose to 5.0% in June 2022, from 3.7% in the previous month, before dropping back to 4.4% in July of the same year.

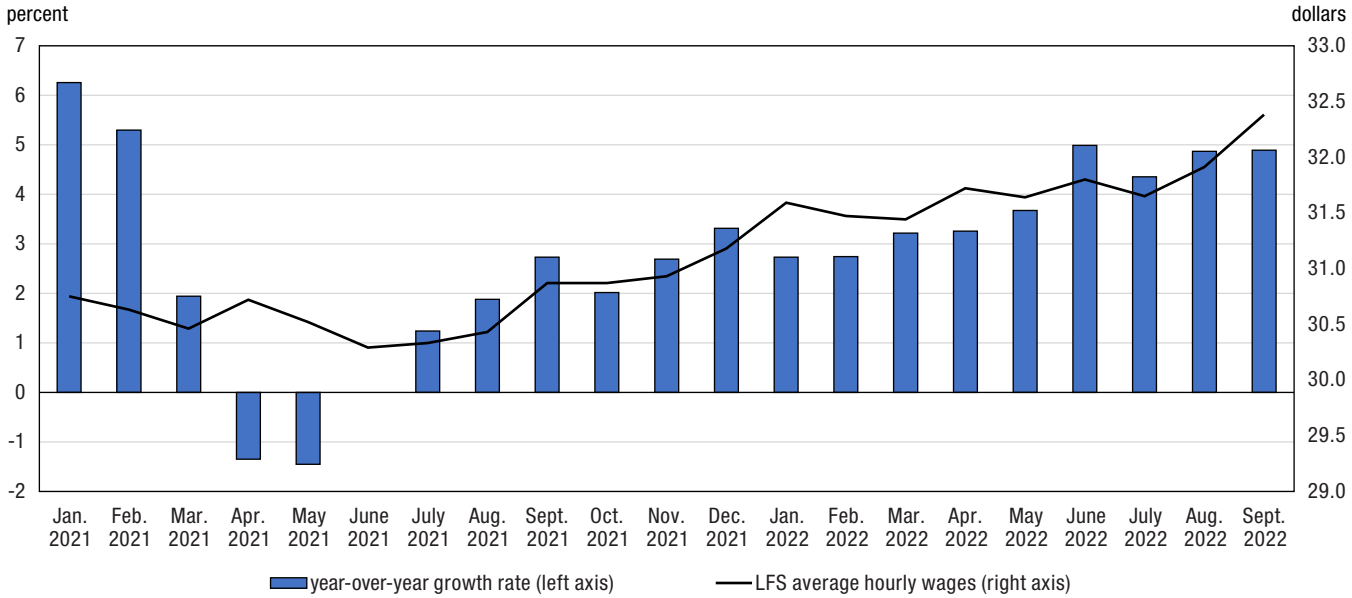
It should be noted that base-year effects may be reflected differently in the two surveys, in part because the reference weeks of SEPH and LFS differ (with the LFS reference week usually in the middle of the month and the SEPH reference week closer to the end of the month).

Chart 2
SEPH average weekly earnings and year-over-year growth rate



Source: Statistics Canada, Survey of Employment, Payrolls and Hours, table 14-10-0203-01.

Chart 3
LFS average hourly wages and year-over-year growth rate, January 2021 to September 2022



Source: Statistics Canada, Labour Force Survey, table 14-10-0063-01.

3.2 Composition effects and the Fixed-weight Index

Changes in earnings and wages from the two surveys can reflect changes in the composition of employment and the number of hours worked. Examples of these changes include shifts in the number of hourly-paid vs. salaried workers within a given industry, shifts from lower-paid to higher-paid employment, and increases or decreases in the number of hours worked. As noted earlier, because SEPH earnings data are based on actual work hours and

LFS wage data are based on usual work hours, SEPH estimates are more likely to be impacted by changes in hours worked than LFS estimates, especially in the short term.

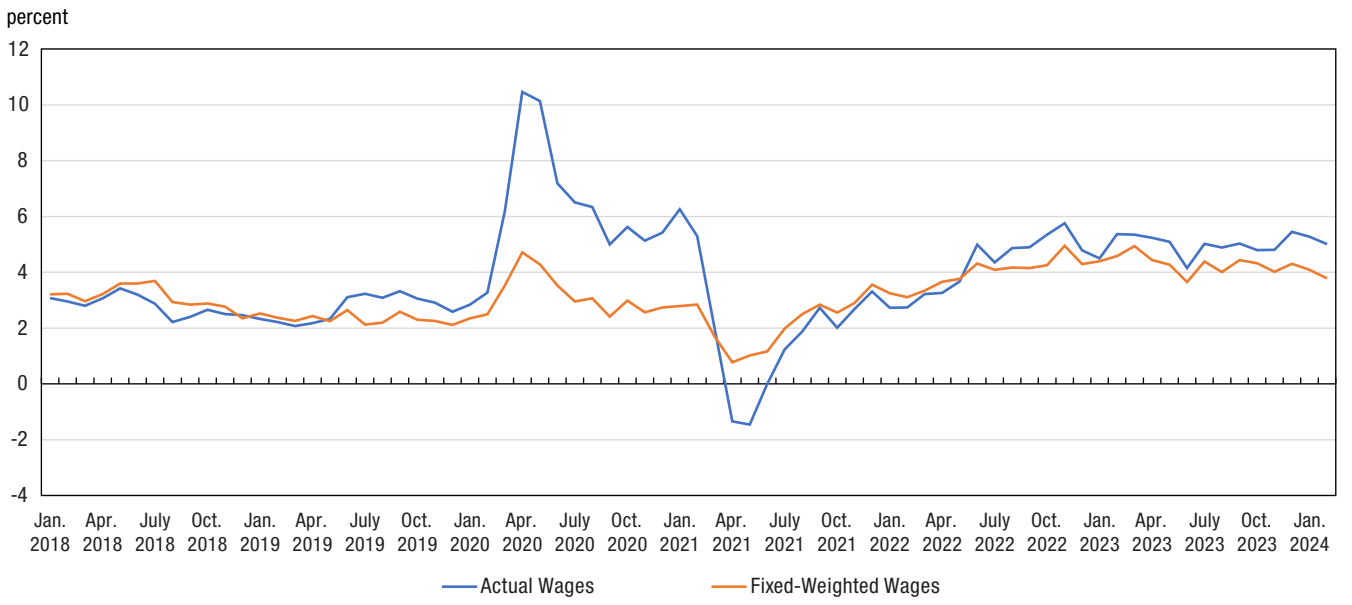
During the early months of the COVID-19 pandemic, growth in earnings and wages recorded spikes, when lower-paid employees, in industries such as accommodation and food services as well as retail trade, were laid-off or otherwise unable to work. When public health restrictions were eased, many of these employees returned to work, resulting in a decrease in average earnings and wages (Charts 4 and 5). Similar trends were observed at other times during the pandemic, when employment shifts were recorded in response to changing public health measures.

To control for composition effects, a fixed-weighted average hourly wage series in the LFS was introduced, holding constant the distribution of employees by occupation and job tenure. Similarly, a fixed-weighted average weekly earnings series in SEPH was created, holding constant the distribution of employees by industry. These series are regularly updated and available to data users.[3]

Holding the distribution of employment by industry constant controls for changes in employment composition and can help provide a clearer picture of changes in employee wages. The fixed-weighted index series for earnings and wages were particularly useful during the COVID-19 pandemic, as many lower-paid industries were impacted by public health restrictions while other industries, such as professional, scientific and technical services, recorded sustained and robust growth.

As can be seen in charts 4 and 5, the fixed-weighted index series for both average hourly wages (from the LFS) and average weekly earnings (from SEPH) were much less impacted by short-term public health restrictions compared with the actual earnings and wages series.

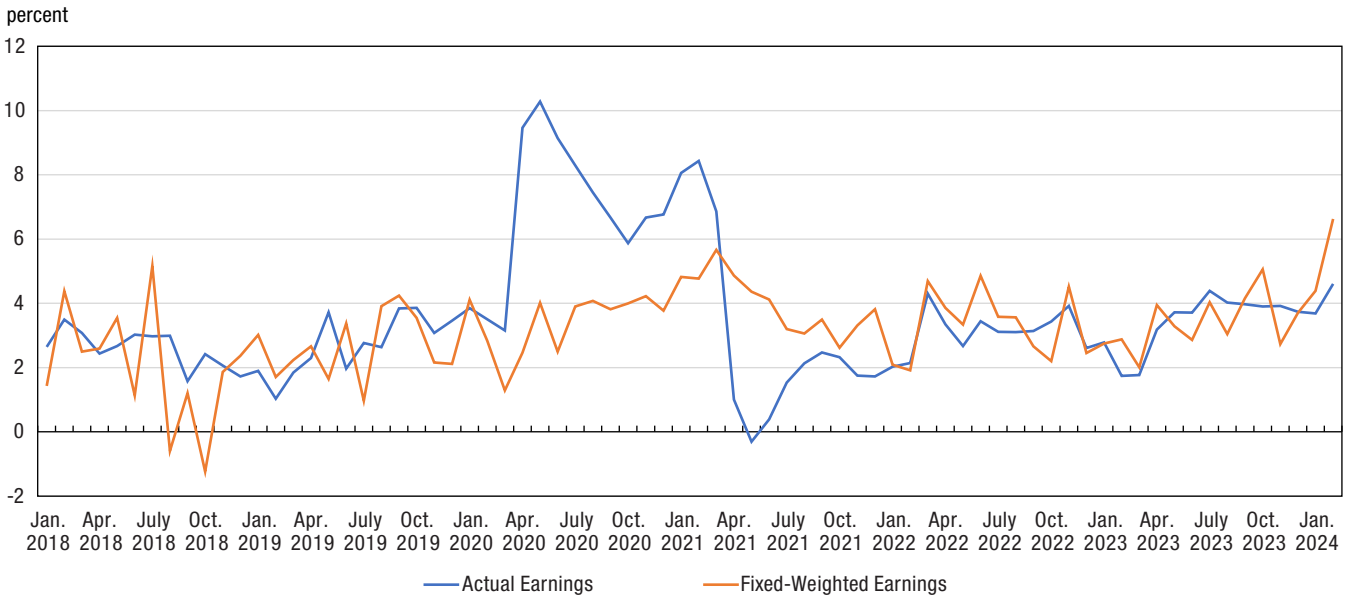
Chart 4
Year-over-year growth in actual average hourly wages and fixed-weighted hourly wages in LFS



Sources: Statistics Canada, Labour Force Survey, table 14-10-0063-01 and custom tabulation.

3. Fixed-weight average weekly earnings from SEPH and fixed-weight hourly wages from the LFS are available through custom tabulations.

Chart 5
Year-over-year growth in actual average weekly earnings and fixed-weighted weekly earnings in SEPH



Sources: Statistics Canada, Survey of Employment, Payrolls and Hours, table 14-10-0203-01 and custom tabulation.

4 Guidance on using the two indicators

Average weekly earnings from SEPH and average hourly wages from the LFS are both high-quality indicators that provide reliable information on current labour market conditions. Used together, wage and earnings estimates provide a comprehensive portrait of pay dynamics in Canada, including the wage rates that employees are willing to accept for one hour of work, and the actual pay received by employees after accounting for their actual hours of work, for their respective target population.

Generally, average weekly earnings from SEPH will be most useful in macro-economic analyses that focus on trends in actual pay received by employees, and when information by detailed industry is needed. On the other hand, average hourly wages from the LFS will be most useful in person-level analyses that focus on wage rates by socio-demographic characteristics, such as age, sex, education, occupation and union status. In addition, unlike SEPH, the LFS can be used to conduct custom micro-level wage research, with individuals as the unit of observation.[4]

Each data source has strengths and limitations. Because SEPH is largely based on a census of administrative payroll data, it is less subject to sampling error than the LFS. On the other hand, data from the LFS are more timely — LFS data are released shortly after the end of the reference month, approximately two months before SEPH data are released.

Like all surveys, the LFS and SEPH are subject to sampling and non-sampling error. As discussed earlier, year-over-year variations in both series can reflect changes in labour market conditions but may also reflect base year and compositional effects. In all cases, users are strongly encouraged to consider information from more than one month, and to interpret both series in the context of their longer-term trends.

Examples of using SEPH data on average weekly earnings and LFS data on average hourly wages for analytical purposes, are provided below.

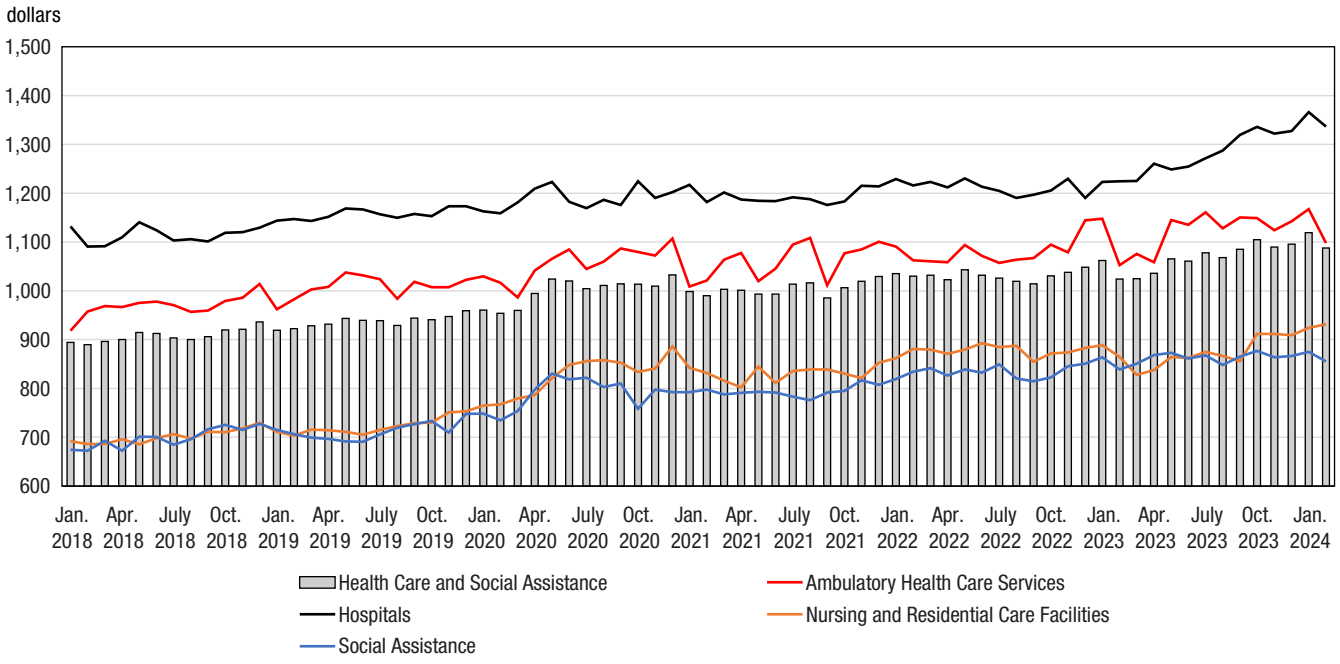
4. Public-use micro-data files from the LFS are available for researchers. Under certain conditions, the full LFS micro-data files may also be accessed for research and modelling purposes via Statistics Canada's network of Research Data Centres.

4.1 Example using SEPH average weekly earnings

Earnings in SEPH, when disaggregated by industry, can provide useful insights on various sectors of the economy. For example, average weekly earnings in healthcare and social assistance have generally trended upwards from 2018 to 2023. Disaggregating this by subsector reveals that employees in hospitals and ambulatory healthcare services generally earn significantly more, on average, than employees in nursing care facilities and social assistance (see Chart 6). From December 2022 to February 2024, average weekly earnings growth in hospitals outpaced growth in the overall health care and social assistance sector (see Chart 7).

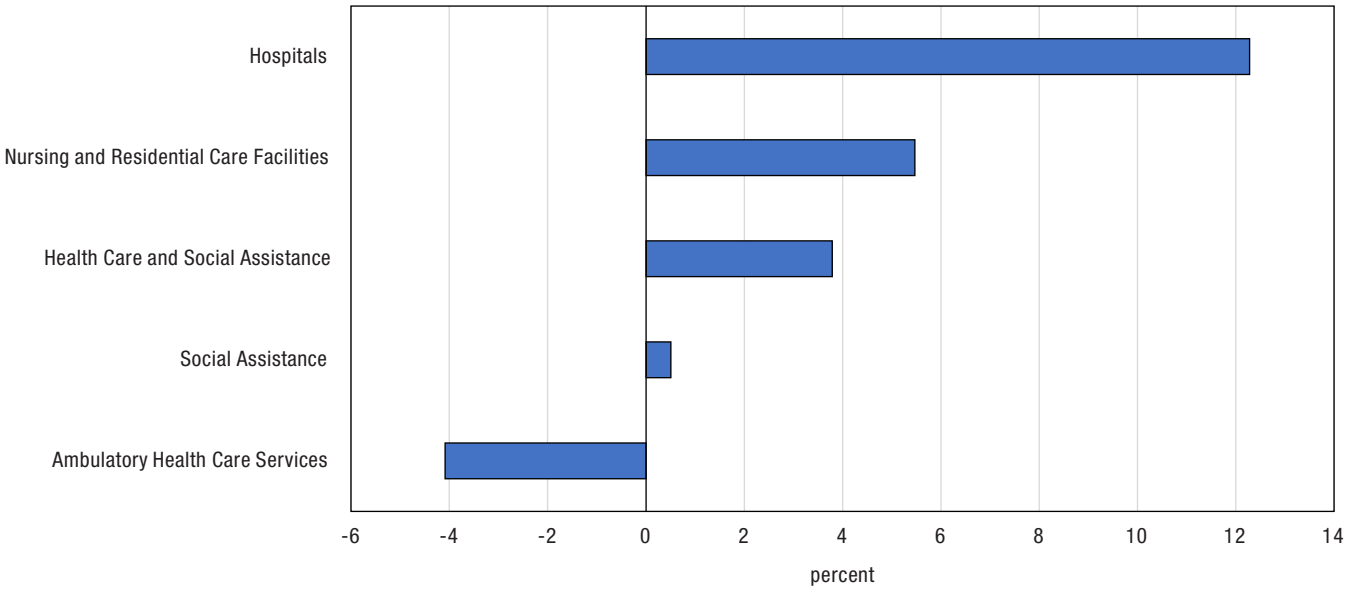
SEPH earnings data can also be combined with trends in payroll employment and average hours worked to produce more comprehensive sectoral profiles.

Chart 6
SEPH average weekly earnings in healthcare and social assistance, seasonally unadjusted



Source: Statistics Canada, Survey of Employment, Payrolls and Hours, table 14-10-0203-01.

Chart 7
Change (percent) in average weekly earnings, selected subsectors, December 2022 to January 2024



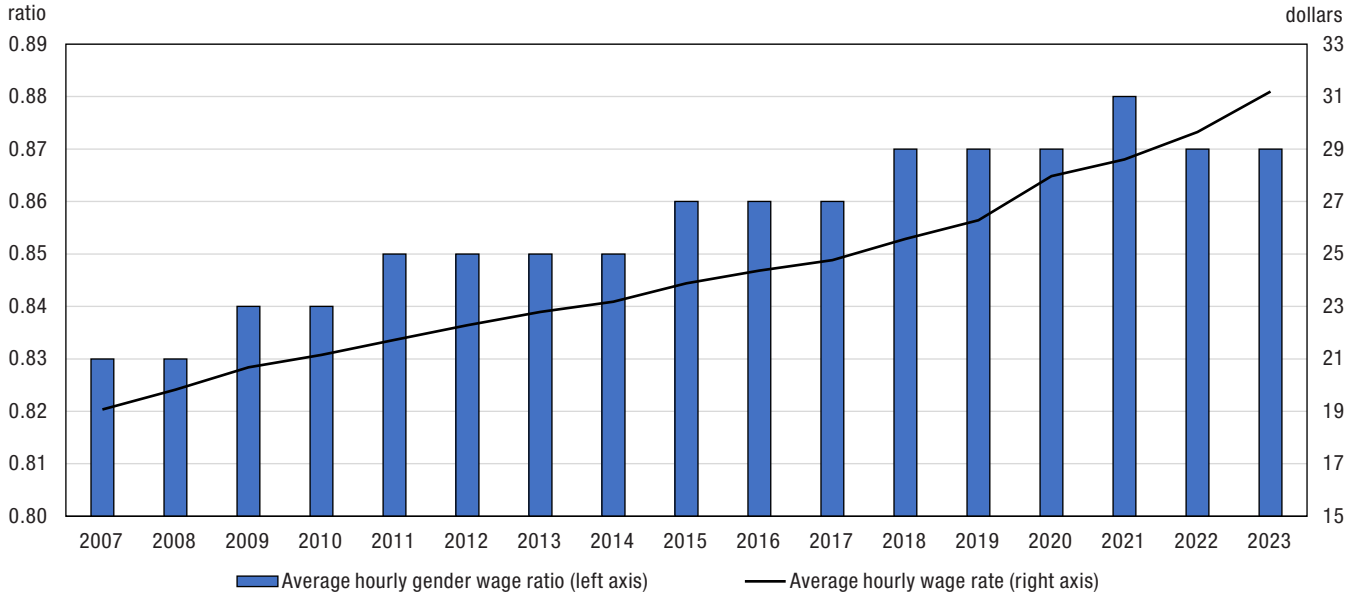
Source: Statistics Canada, Survey of Employment, Payrolls and Hours, table 14-10-0203-01.

4.2 Example using LFS average hourly wages

LFS wage data, when cross-tabulated by socio-demographic characteristics, can be used to monitor differences between the hourly wage rates of men and women in Canada, also referred to as the gender wage gap. The gender wage ratio can be used to determine the proportion of a dollar that women earn for every dollar earned by men. This measure is calculated by dividing the LFS average hourly wage for women by the average hourly wage for men (Chart 8).

A recent study using data from the LFS highlighted how aggregate statistics of the gender wage gap from 2007 to 2022 masked the distinct experiences of diverse groups – namely Indigenous people living off-reserve, immigrants who landed in Canada in childhood and those who landed in Canada as adults. An earlier study by Statistics Canada had also shown that the gender pay gap had decreased between 1998 and 2018, and this reduction was largely explained by changes in the distribution of men and women across occupations, women's increased educational attainment as well as the decline in the share of men in unionized employment.

Chart 8
Average hourly wage rate among women and the average hourly gender wage ratio, all occupations



Source: Statistics Canada, Labour Force Survey, table 14-10-0417-01.

Additional information

Statistics Canada. 2024. Guide to the Survey of Employment, Payrolls and Hours. Statistics Canada Catalogue no. 72-203.

Statistics Canada. 2020. Guide to the Labour Force Survey. Statistics Canada Catalogue no. 71-543.

5 Appendix 1

Table A.1
Survey of Employment, Payrolls and Hours, Earnings Tables

14-10-0203-01	Average weekly earnings by industry, monthly, unadjusted for seasonality
14-10-0204-01	Average weekly earnings by industry, annual
14-10-0205-01	Average hourly earnings for employees paid by the hour, by industry, monthly, unadjusted for seasonality
14-10-0206-01	Average hourly earnings for employees paid by the hour, by industry, annual
14-10-0209-01	Average hourly earnings (including overtime) for salaried employees, by industry, monthly, unadjusted for seasonality
14-10-0210-01	Average hourly earnings (including overtime) for salaried employees, by industry, annual
14-10-0213-01	Fixed weighted index of average hourly earnings for all employees, by industry, monthly
14-10-0216-01	Average weekly earnings (including overtime) for all employees by enterprise size, quarterly, unadjusted for seasonality
14-10-0217-01	Average weekly earnings (including overtime) for all employees by enterprise size, annual
14-10-0220-01	Employment and average weekly earnings (including overtime) for all employees by industry, monthly, seasonally adjusted, Canada
14-10-0221-01	Employment, average hourly and weekly earnings, and average weekly hours by industry, monthly, seasonally adjusted
14-10-0222-01	Employment, average hourly and weekly earnings (including overtime), and average weekly hours for the industrial aggregate excluding unclassified businesses, monthly, seasonally adjusted
14-10-0223-01	Employment and average weekly earnings (including overtime) for all employees by province and territory, monthly, seasonally adjusted

Table A.2
Labour Force Survey, Wage Tables

14-10-0063-01	Employee wages by industry, monthly, unadjusted for seasonality
14-10-0064-01	Employee wages by industry, annual
14-10-0065-01	Employee wages by job permanency and union coverage, monthly, unadjusted for seasonality
14-10-0066-01	Employee wages by job permanency and union coverage, annual
14-10-0109-01	Weekly wage distributions by type of work, monthly, unadjusted for seasonality (x 1,000)
14-10-0110-01	Weekly wage distributions by type of work, annual (x 1,000)
14-10-0113-01	Hourly wage distributions by type of work, monthly, unadjusted for seasonality (x 1,000)
14-10-0114-01	Hourly wage distributions by type of work, annual (x 1,000)
14-10-0134-01	Average weekly earnings, average hourly wage rate and average usual weekly hours by union status, annual
14-10-0320-01	Average usual hours and wages by selected characteristics, monthly, unadjusted for seasonality
14-10-0413-01	Weekly wage distributions by occupation, annual
14-10-0414-01	Hourly wage distributions by occupation, annual
14-10-0417-01	Employee wages, average and median gender wage ratio by occupation, annual
14-10-0418-01	Average hourly and weekly wages and average usual weekly hours by Indigenous group
14-10-0426-01	Employee wages by occupation, monthly, unadjusted for seasonality
14-10-0428-01	Weekly wage distributions by occupation, monthly, unadjusted for seasonality
14-10-0429-01	Hourly wage distributions by occupation, monthly, unadjusted for seasonality