Economic Spotlight

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Measuring Wage Growth in Alberta

Wage growth is an important economic indicator as it has a direct impact on the welfare of individuals and on the profitability of businesses. However, due to the wide array of wage indicators available, it can be quite difficult to determine the most appropriate measure of wage.

This briefing intends to serve as a guide for current and future users of wage information. It begins with an overview of the different sources of wage measures for Alberta, with information on their coverage, methodology, and availability. Next, this briefing looks at the recent trends in wage growth in Alberta. Finally, the major strengths and limitations of each wage measure are presented.

DATA SOURCES

Ideally, wage information should be obtained using a broadly-based survey of total labour compensation encompassing major occupations, industries, and jurisdictions, with the data released on a timely and consistent basis. However, this kind of survey has proven to be difficult to undertake due to cost considerations[1]. As a result, data on wages are typically obtained through indirect means.

There are five sources of wage information for Alberta; the last three of which are generated by Statistics Canada:

- **Alberta Wage and Salary Survey**: Provides information on wages and salaries by occupation, geographic region, industry group, and three levels of experience (Entry, After Three Years, and Top) as well as other labour market indicators. The 2007 survey was commissioned by Alberta Employment and Immigration (E&I), Alberta Advanced Education and Technology and the Workers' Compensation Board, in partnership with Service Canada.
- **Settlements for Collective Bargaining Agreements**: Produced by E&I, this provides historical and current data on wage settlements arising from collective bargaining agreements. HRSDC also provides data on wage settlements but only covers major collective agreements involving 500 or more employees.
- **Survey of Payroll, Employment and Hours (SEPH)**: Provides statistics on the total number of paid employees, payrolls, and hours. Data is obtained from the Business Payroll Survey (BPS) and payroll forms remitted by employers to Canada Revenue Agency (CRA). Produced by Statistics Canada.

[1] The Wage Rate Survey and the Labour Costs Survey, conducted by the Human Resource and Social Development Canada (HRSDC, previously Labour Canada) and Statistics Canada, respectively, were two of the largest and most comprehensive surveys of labour compensation. These were terminated several years ago due to cost considerations.

- **Estimates of Labour Income**: Provides estimates of wages, salaries and supplementary income which are used to supply the labour income component of GDP in the Provincial Economic Accounts. The data is extracted from CRA's tax records, SEPH, LFS, and several other surveys. Produced by Statistics Canada.

- **Labour Force Survey (LFS)**: Among all sources, this provides the most comprehensive data on employment including a wide range of labour market indicators (see Table 1). Data is collected by Statistics Canada through telephone (or field interview in some cases).

The above data sources generate different wage measures. Although it would seem at first that some of these measures are identical to and overlap each other, there are salient differences among them, in particular differences in how the data is obtained and how the wage indicators are calculated.

Table 1 (page 4) provides detailed information on the above data sources, including their coverage, timeliness, revision policies, level of detail (e.g., data by industry or jurisdiction), and the wage indicators provided.

WAGE MEASURES FOR ALBERTA

Alberta Wage and Salary Survey:

Average Hourly Wage – is calculated by adding together the pay rates for all employees and then dividing the sum by the total number of employees. The pay rate is based on the actual hours worked per week in the reference period[2].

Average Salary – is total salary divided by the number of employees. Salary is defined as the gross wage, salary, or commission paid out before any deductions, and is exclusive of overtime hours, tips, benefits, profit shares, bonuses unrelated to production, and other forms of compensation. The average salary is also calculated for each of the three experience levels (Start, After Three Years experience, and Top) using the respective average wage and average hours for each level. The formula is as follows: Average wage x Average Hours x 52 weeks

Settlements for Collective Bargaining Agreements:

Wage Settlements – is the annual compound increase (or decrease) in wage rate, weighted by the number of covered employees and averaged over the number of settlements. The wage rate of the most representative job classification (called the MPG rate) in each agreement is used in the calculation.

[2] Average hourly wage is also provided for three experience level (Entry, After Three Years, or Top)

Survey of Employment, Payroll and Hours (SEPH):

Average Weekly Earnings – is total weekly payrolls divided by payroll employment during the reference week. *Weekly payrolls* are total dollars earned gross of deductions from income taxes, employment insurance contributions, etc. and include regular pay, overtime, bonuses, commissions, and other types of special payment. This is used to index minimum wage and MLA salaries in Alberta.

Average Hourly Earnings (AHE) – is total weekly payrolls divided by the number of hours worked during the reference week. The overall aggregate wage rate is calculated using variable weights by industries. AHE are calculated for hourly-rated and salaried employees.

Fixed-weighted AHE Index – uses fixed (instead of variable) weights by industries and excludes overtime payments in the calculation of the aggregate wage rate. Fixed weights are used to eliminate effects of compositional change across industries. Moreover, the fixed weights are calculated using SEPH-based employee paid hours data based on the 1996 calendar year (which is currently the base year).

Labour Force Survey (LFS):

Average Hourly Wage Rate – is calculated by dividing total earnings over the usual paid work hours per week. Total earnings are the wage/salary before taxes and other deductions plus tips and commissions reported by the survey respondents.

Estimates of Labour Income:

Labour Income – is defined as all compensation paid to employees and is comprised of **wages, salaries** and **supplementary labour income**.

Wages and Salaries – In addition to regular remuneration, wages and salaries include directors' fees, bonuses, commissions, gratuities, income in kind, taxable allowances, retroactive wage payments and stock options. Wages and salaries are gross of employees' contributions to income tax, employment insurance, pension funds etc.

Supplementary labour income – defined as payments made by employers for the future benefit of their employees. This is comprised of employer contributions to employee welfare, pensions, workers compensation, employment insurance, and retiring allowances.

Table 1: Sources of Wage Measures for Alberta

	Alberta Wage and Salary Survey	Settlements for Collective Bargaining Agreements	SEPH	LFS	Estimates of Labour Income
Coverage	Public and private employers with 10 or more employees, excluding proprietors, partners, principals, unpaid family workers and apprentices. The sample was obtained from a business listing database (Albertafirst.com) and the list of previous survey participants. Nearly 3,000 employers participated in 2007.	Unionized bargaining units of all sizes in Alberta.	All employers in Canada, except in agriculture, fishing and trapping, private household services, religious organisations and military personnel of defence services.	Civilian, non-institutionalised population 15 years of age and over in all provinces and territories. Excluded from the survey coverage are: persons living on reserves and other Aboriginal settlements in the provinces; full-time members of the Canadian Armed Forces, and the institutionalised population.	Canadian population of working age.
Data Frequency	Every two years	Quarterly	Monthly	Monthly	Monthly
Release Date	Last quarter of the survey year or first quarter of the following year.	Approx. 2 months after the reference quarter. Data is also updated monthly to incorporate revisions.	Approx. two months after the reference month	First Friday after the reference month.	Quarterly (Approx. 2 months after the reference quarter)
Data Availability	2007 and 2005	2003 to present[3]	1991 to present	1976 to present	1981 to present
Available Level of Disaggregation	▪ By major industry group (18 groups) ▪ By geographic location (8 regions) ▪ By occupation type (NOC-S[4] 2001) ▪ By wage level: Entry, After Three Years of Experience, and Top.	▪ By major industry group (19 groups) ▪ Public or private * HRSDC provides data on wage settlements by province & territory.	▪ By industry (2002 NAICS)[5] ▪ By employee type: salaried or hourly-paid, full-time or part-time ▪ By province & territory	▪ By industry (2002 NAICS) ▪ By type of work: Full-time or Part-time ▪ By demography: Sex and Age group ▪ By occupation type (NOC-S 2001) ▪ By province & territory	▪ By industry (2002 NAICS)[6] ▪ By province & territory

[3] HRSDC's annual data on wage settlements goes back to 1987.

[4] National Occupational Classification for Statistics. It provides a systematic classification structure to categorize occupational activity in Canada. It consists of 10 broad occupational categories which are subdivided into major groups, minor groups and unit groups.

[5] North American Industry Classification System. This classification system is used for organizing economic data by industry, and is used by Canada, Mexico and the United States. NAICS is revised on a five-year cycle in order to ensure that the classification continues to reflect the rapidly changing structure of the economy. NAICS 2007 groups economic activity into 20 major sectors and 928 Canadian industries.

[6] Statistics Canada has data on NAICS basis only available starting 1997. Estimates prior to 1997 are based on the 1980 Standard Industrial Classification (SIC). However, the Statistics group of Alberta Finance provides labour income estimates on NAICS basis prior to 1997.

Table 1, Cont'd: Sources of Wage Measures for Alberta

	Alberta Wage and Salary Survey	Settlements for Collective Bargaining Agreements	SEPH	LFS	Estimates of Labour Income
Available Wage Indicators	Average hourly wage and (annual) salary	Percentage change in wage adjustments	Average weekly earnings, average hourly earnings, and fixed-weighted average hourly earnings index (current base year is 1996)	Average hourly wage rate and average weekly wage rate	Wages and salaries, supplementary income, and total labour income
Revision Policies	None	▪ Settlements data are subject to revisions each month as estimates (verbal information) are updated to actual collective agreements filed. ▪ Annual estimates are also revised back to three years.	▪ Preliminary monthly estimates are revised on the following month. ▪ Seasonally adjusted data are revised on an annual basis at the end of the year. ▪ Improvements on the survey's methodologies and historical data carried out on a continuous basis.	▪ Seasonally adjusted series are available at the start of each year and usually revised back to three years. ▪ Data adjustments are also made every five years after new population estimates become available following the most recent census. At that time, historical LFS estimates are re-weighted using the new population estimates.	▪ Estimates for each quarter are revised when those for subsequent quarters of the same year are published. ▪ Annual revisions are made back four years and released with the first quarter estimates. ▪ Historical data are revised occasionally to incorporate recent statistical changes.
Recent Major Changes to Survey		None	▪ January 2004: Industry estimates classified from the 1997 NAICS to the 2002 NAICS. ▪ January 2001: Change from 1980 Standard Industrial Classification (SIC) to 1997 NAICS.	The following revisions were made on January 2005 and LFS estimates have been revised back to January 1976: ▪ Switch from 1997 to 2002 NAICS. ▪ Switch from the 1991 Standard Occupation Classification to NOC-S 2001. ▪ Switch from 1996 to 2001 Standard Geographical Classification, affecting census metropolitan boundaries.	None

TRENDS IN WAGE GROWTH IN ALBERTA

Table 2 (below) presents the recent trends in wage growth. As shown in the table, almost all wage indicators (with the exception of wage settlements) point to a moderation in growth since 2005. For instance, growth in average weekly earnings (AWE) in 2007 cooled to 4.5%, following an exceptionally strong growth of about 5% in each of the last two years. Year-to-date, AWE growth is 4.0%. Labour income also moderated to 11.4% in 2007 after posting increases of 12.7% in 2006 and 13.5% in 2005.

Although Alberta continued to have the strongest wage growth compared to the national average and all provinces, inflation in Alberta was also high. In 2007, Alberta's inflation rate stood at 5.0%, the highest in the country and more than double the national rate of 2.2%. Over the period 2002 to 2007, inflation averaged 3.4% while growth in AWE averaged 4.6%. Hence, the real increase in wages over this period is not as substantial.

Table 2: Trends in Wage Growth in Alberta

	2002	2003	2004	2005	2006	2007	2008
Average Weekly Earnings Growth (in %) (seasonally adj., including overtime)							
Alberta	2.3	1.4	3.0	5.2	4.9	4.5	4.0 [a]
Average Hourly Wage Growth (in %)							
Alberta	5.0	0.8	2.2	6.6	6.9	6.0	6.7 [b]
Labour Income Growth (in %)							
Alberta	4.6	5.3	9.5	13.5	12.7	11.4	na
Alberta: Negotiated Wage Settlements							
All Industries							
Number of Employees	84,047	72,180	101,915	62,282	47,365	37,712	787 [a]
Wage Settlement (in %)	5.0	3.2	3.4	3.2	2.6	5.2	6.5
Inflation (in percent)							
Alberta	3.4	4.4	1.4	2.1	3.9	5.0	3.3 [c]

Source: Statistics Canada and Alberta Employment and Immigration (Settlements for CBAs, March 2008).
[a] January to February
[b] January to April
[c] January to March
na not available

To better compare and contrast wage measures, Table 3 (next page) highlights the strengths and limitations of using each data source and their respective wage indicators. Hence, the suitability of the wage indicator depends on what the user intends to measure.

Table 3: Comparison of Different Wage Measures and their Sources

Source	STRENGTHS	LIMITATIONS
Alberta Wage and Salary Survey: Average hourly wage and Average salary	▪ Fairly extensive; provides wage data by economic region within Alberta.	▪ Survey carried out only every two years; hence, data may not fully reflect current situation. ▪ Data less reliable at finer detailed levels due to survey's relatively small sample size.
Settlement for Collective Bargaining Agreements: Wage Settlements	▪ Wage settlements as leading indicator of wage growth. ▪ Wage rate used is the MPG rate (versus the base wage rate, which HRSDC uses).	▪ Not comprehensive (as data only covers unionized workers). ▪ The number of settlements can vary substantially from period to period.
SEPH	▪ Data is released on a monthly basis. ▪ Provides reliable data at industry level.	▪ Although available on a monthly basis, there is a two-month lag in the release of data. ▪ Excludes self-employed workers and those working in agriculture and fishery, and private households. These may be significant in some industries. ▪ Weekly payrolls excludes important elements of compensation[7].
Average Weekly Earnings (AWE)		▪ Do not take into account the number of hours worked in the calculation. Hence, this indicator is sensitive to changes in the number of hours worked (including overtime). ▪ Other factors that could also affect AWE include: work stoppages (such as strikes or layoffs), shifts in sectoral employment (from high paying to low paying industries), changes in occupational mixes in industries, as well as shifts in the level of employment and its composition (full-time/part-time).
Average Hourly Earnings (AHE)	▪ Incorporates hours worked in the calculation; hence, eliminates the effect changes in hours worked.	▪ Similar to AWE, sensitive to shifts in employment composition among industries.
Fixed-Weighted AHE	▪ By using fixed industry weights, effects of compositional changes in employment are eliminated.	
LFS: Average hourly wage rate	▪ Provides monthly data on wages and is released sooner than other surveys. ▪ Also provides good level of detail by industry, occupation type, province, and sub-provincial region.	▪ Unlike other surveys, LFS is a household survey; hence, data is income rather than wage-based [8]. ▪ Similar to SEPH, reported wage/salary does not capture employer-paid benefits. ▪ Data on wages by industry less reliable than SEPH because of its smaller sample size at very fine levels of industry detail.
Estimates of Labour Income: Labour income	▪ Provides the most reliable measure of overall labour income as it incorporates all forms of employee compensation.	▪ Monthly data but released every quarter; hence, not as timely as other surveys. ▪ Provides no information on actual wage rates. ▪ Data subject to large revisions in the past.

[7] One of the fundamental limitations of most these wage indicators is that they do not include non-monetary benefits received by employees, in particular employers' contribution to employee benefits such as pension plan and medical insurance. Given increasing health care costs and regulatory changes to unemployment insurance and pension over the years, this component of labour compensation certainly has had a significant effect on employers' labour costs and workers' economic welfare, and hence, should (ideally) be included in the calculation of wages.

[8] Another important difference between household and enterprise surveys is the estimate on the average number of hours worked. The finding is that although a household survey such as LFS does not have complete coverage of all jobs in the economy, it produces a more than adequate estimate of hours worked per job than an enterprise survey like SEPH (See Jean-Pierre Maynard, March 2007 "*The Comparative Level of GDP per Capita in Canada and the U.S.: A Decomposition into Labour Productivity and Work Intensity Differences*" The Canadian Productivity Review, Statistics Canada).