Methodology to calculate the Small Business GDP share

Created by BC Stats August 2025

Background

- BC Stats is the provincial government's statistical office. It provides statistics, economic research, information and analysis.
- The mandate of BC Stats is to produce high quality data intelligence about British Columbia’s citizens, economy and government.
- Its work includes population projections, survey research, performance measurement and integrated data projects across the BC government, among others.
- Through its comprehensive suite of products, BC Stats contributes to informed policy-making and strategic planning across the province.

Background

- BC Stats started releasing an annual report for small businesses in 1998. A year later started measuring the proportion of economic activity (GDP) attributable to small businesses for each province.
- Data is now provided in a dashboard.
- BC Stats is currently the only government or statistical agency in the country that produces GDP data for small businesses by province.

Background

- The small business GDP is calculated as a share of total GDP for each province. This figure is published in the Small Business Dashboard produced annually by BC Stats.

Caveats

- The estimation has many assumptions and is meant to give an overall idea of the size of value added from companies under 50 employees.
- It is comparable across provinces.
- Due to a lack of data for the territories, only provincial totals are calculated.
- Only rounded proportions are published. The rounding helps to avoid dollar amounts assertions or providing a false sense of accuracy.

Other interesting facts

- BC Stats is currently the only statistical agency in the country that regularly produces an estimate of small business GDP.
- BC has had the largest share of value added from small businesses across provinces in the last few years, a highlight of the success of BC Small Businesses.

Main Indicator

- The interest is to calculate value added (GDP) for small businesses.
- The natural approach is to calculate GDP from the income side, since information is available by business size, such as payrolls and profit margins by industry.
- The small business GDP is calculated as a simple ratio:

$$\frac{GDP\ allocated\ to\ small\ businesses}{GDP\ total}$$

- This calculation is done for each province. All provincial estimates are calculated using the same methodology.

Income side GDP calculation

- Statistics Canada defines GDP as:

GDP = **Compensation of employees** + **gross operating surplus** + **gross mixed income** + taxes less subsidies on production, products and imports + statistical discrepancy

More information

- For detailed descriptions of the definitions of each component and GDP accounting, see Statistics Canada User Guide: Canadian System of Macroeconomic Accounts, Chapter 5 https://www150.statcan.gc.ca/n1/pub/13-606-g/2016001/article/14620-eng.htm

BC Stats calculation

- BC Stats makes the implicit assumption that the small businesses value added proportion for statistical discrepancy and net taxes is the same as the average for all other concepts.

- The statistical discrepancy and net taxes accounted for roughly 10 per cent of total Canadian GDP in 2023 (11 per cent for British Columbia).

Income side GDP calculation

Statistics Canada	BC Stats
Compensation of employees	Compensation of employees
Gross operating surplus = Net operating surplus: corporations +Consumption of fixed capital: corporations + Consumption of fixed capital: general governments and non-profit institutions serving households	Gross operating surplus = Gross Operating Surplus (excluding government CFC) + Government and non-profit institutions CFC
Gross mixed income = farm income + non-farm income excluding rent + rental income = net mixed income + Consumption of fixed capital: unincorporated businesses	Net farm income + net non-farm income excluding rent + net rental income + unincorporated businesses CFC
Taxes less subsidies on production	Not estimated
Taxes less subsidies on products and imports	Not estimated
Statistical discrepancy	Not estimated

Note that Capital Consumption Allowance (CCA) is the term used in some BCStats documents used to calculate GDP, and is equivalent to consumption of fixed capital, the preferred term on the System of National Accounts.

Part 1

Estimating GDP Total

Estimating GDP total

- Total GDP coincides with Gross domestic product, income-based, provincial and territorial, annual ($millions) , published by Statistics Canada (table 36-10-0221-01) in the provincial economic accounts.
- However, due to a one-year lag, total GDP for the most recent year needs to be estimated by BC Stats.
- For example, in the BC Small Business Dashboard 2023 publication, the GDP for 2022 is a BC Stats estimate.
  - The dashboard is typically published in October, but Provincial Economic Accounts are released in November.
  - This can be considered a structural break, so only the latest year of data is published in the dashboard, instead of a time series.

Income side GDP calculation

Compensation of employees

+ Gross Operating Surplus (excluding government CFC)

+ Government and non-profit institutions CFC

+ Net farm income

+ Net non-farm income excluding rent

+ Net rental income

+ Unincorporated businesses CFC

Small business GDP

Compensation of employees

- Data is obtained from Statistics Canada provincial economic accounts (table 36-10-0221-01).

- Unavailable years are estimated using the growth rate of monthly wages, salaries and employers' social contributions.

  - These data are obtained from Statistics Canada monthly data for wages, salaries and employers' social contributions (table 36-10-0205) where "Compensation of employees" is extracted and annualized for each province.

Compensation of employees includes base wages, overtime, bonuses, commissions and employers' contributions to social insurance employee plans

GDP Formula

Gross Operating Surplus (excluding government CFC)

- Data is obtained from Statistics Canada provincial economic accounts (table 36-10-0221-01).

- More up-to-date national quarterly gross domestic product data (table 36-10-0103) is annualized and used to estimate missing national data.

Gross operating surplus is the surplus or deficit from incorporated businesses accruing from production before any interest, rent or similar charges

Gross Operating Surplus (excluding government CFC)

- For the provinces, gross operating surplus is estimated using:

  Net operating surplus: corporations + Corporations CFC+ Government and non-profit institutions CFC

- Data for Net operating surplus: corporations, corporations CFC and Government and non-profit institutions CFC is obtained from Statistics Canada provincial economic accounts (table 36-10-0221-01).
- Quarterly data for Canada is available from Statistics Canada (table 36-10-0103).
  - Annualized Canada data is used to estimate provincial data for missing years.

The consumption of fixed capital is the estimated depreciation of fixed assets used in the production of goods and services

GDP Formula

Net farm income

- Net farm income data is from Statistics Canada household sector, current accounts, provincial and territorial (table 36-10-0224).
- Total Canadian farm income is obtained from quarterly household current and capital accounts (table 36-10-0112) and annualized.
- A different calculation of non-farm income is used to estimate any missing years for the provinces. The result is benchmarked to the Canadian annualized total.
- There are a couple of alternatives to calculate supplemental provincial non-farm income as some components may not be available at publication time.

Net farm income proceeds from the sale of agricultural products by unincorporated farmers, including government program payments, and the value of farm output consumed by farming households, plus the value of investment in farm-held inventories, less operating expenses

Net farm income

Small business GDP

GDP Formula

Net farm income = Total farm cash receipts + Total farm income-in-kind + Value of inventory change - Deferred grain receipts - Total operating expenses after rebates - Total depreciation - Corporation profits - Liquidation of deferred grain receipts .

Concept	Statistics Canada Table
Total farm cash receipts	32-10-0045 (Farm cash receipts)
Deferred grain receipts	32-10-0045 (Farm cash receipts)
Liquidation of deferred grain receipts	32-10-0045 (Farm cash receipts)
Total farm income-in-kind	32-10-0055 (Farm income in kind in Canada)
Value of inventory change	32-10-0048 (Agriculture Value Added Account)
Total operating expenses after rebates	32-10-0049 (Farm Operating Expenses and Depreciation Charges)
Total depreciation	32-10-0049 (Farm Operating Expenses and Depreciation Charges)
Corporation profits	32-10-0048 (Agriculture Value Added Account)

- Note that deferred grains receipts must be subtracted because the numbers are published as a negative value.
- If corporation profits or the value of inventory change are unavailable, they are removed from the calculation (this is the alternate estimate).

Net non-farm income excluding rent

- Net non-farm mixed income data is obtained from Statistics Canada household sector, current accounts, provincial and territorial (table 36-10-0224).
- Missing years are then estimated using gross mixed income.

Net non-farm mixed income represents the net earnings of unincorporated proprietors from their own businesses in all industries except agriculture

GDP Formula

Gross mixed income

- Gross mixed income data is obtained from Statistics Canada supply-use (table 36-10-0438). Historical data is in archived input-output (tables 36-10-0406 and 36-10-0419).
- For Canada as a whole, gross mixed income is estimated for missing years using mixed income by industry from data obtained confidentially from Statistics Canada. With the exceptions stated as follows. For crop and animal production farm income is used to estimate missing data.
- For finance, insurance, real estate and rental and leasing, gross mixed income is estimated as the self-employment income for the industry.
- Self-employment income by industry data is obtained from Statistics Canada labour statistics consistent with the system of national accounts (table 36-10-0489) and annualized for each industry and province.

Gross mixed income

- The total for all industries is calculated as the sum of net income for unincorporated business by industry plus rental income.
- Rental income for the calculations of gross non-farm mixed income is estimated as the mixed income from the finance, insurance, real estate and rental and leasing industry minus self-employment income for the industry.
- In other words, the finance, insurance and real estate mixed income is comprised of a portion considered as general mixed income (self-employment income) plus rental income (the residual of total mixed income for the industry).
- This rental income definition is only used in this context and not for the overall GDP calculations, as described in the relevant net rental income section.

Gross mixed income

- For most industries, provincial mixed income for missing years is estimated using a proportion of Canadian industry mixed income based on the ratio of provincial over national wages and salaries for that industry.
  - Wages and salaries used are calculated using monthly data from Statistics Canada (table 36-10-0205).

Gross mixed income

GDP Formula

Small business GDP

- For some industries the ratio to estimate the Canadian mixed income total is estimated using relevant variables and series as follows:

Industry	Variable used for estimation	Source
Fishing, hunting and trapping	Value of fish landings	Department of Fisheries and Oceans
Mining, quarrying and oil and gas extraction	Value of mineral, oil and gas production	BC Stats calculation using multiple sources
Construction	Capital Construction	Statistics Canada tables 34-10-0032 and 34-10-0035
Manufacturing	Manufacturing shipments	Statistics Canada table 16-10-0047
Wholesale trade	Wholesale trade sales	Statistics Canada table 20-10-0074
Retail Trade	Retail trade sales	Statistics Canada table 20-10-0008
Accommodation and food services	Food services and drinking places receipts	Statistics Canada table table 20-10-0056 and 21-10-0019

Net rental income

- The net rental income of households is obtained from Statistics Canada household sector, current accounts, provincial and territorial (table 36-10-0224).
- The missing years are estimated using quarterly national data.
- National data is obtained from the “Rental income of households” in Statistics Canada quarterly household current and capital accounts (table 36-10-0112).

Net rental income includes all rental income of individuals in their capacity as property owners, including implicit income of inhabiting a dwelling they own

GDP Formula

Unincorporated businesses CFC

- Data is obtained from Statistics Canada provincial economic account (table 36-10-0221-01).
- More up-to-date quarterly data is available for Canada by annualizing "Consumption of fixed capital: unincorporated businesses" from quarterly gross domestic product data (table 36-10-0103) .
- Provincial data for missing years is estimated using the national total.

The consumption of fixed capital is the estimated depreciation of fixed assets used in the production of goods and services

Small business GDP

GDP Formula

Part 2

Estimating GDP Allocated to Small Businesses

Small Business GDP

- The calculation is more intricate since there is no data by size at any level.
- All components of GDP must be estimated and allocated individually for small businesses (that is, businesses that have between 0 and 49 employees).
- The rental income of households, and government and non-profit institutions serving households consumption of fixed capital, by their nature, are not considered business activity.
- As a result, only compensation of employees, gross operating surplus, gross farm income and gross non-farm mixed income must be estimated for small businesses.

Small business GDP calculation

Small Business GDP

= Small business compensation of employees

+ Small business gross operating surplus

+ Small business net farm income

+ Net non-farm mixed income

+ Unincorporated businesses CFC

Small business compensation of employees

Small business compensation of employees is calculated as a proportion of total compensation of employees.

Two adjustments are made, the first to calculate only business sector compensation, and the second to estimate the portion allocated to small businesses.

> Small business compensation of employees = Compensation of employees total all sizes *Business sector share of all wages and salaries for all sizes*Share of small business in business sector wages and salaries

Small business compensation of employees

In other words:

Small business compensation of employees = Compensation of employees total × (Private business wages and salaries)/(Total wages and salaries)×(Private small business wages and salaries)/(Private business wages and salaries)[1]

[1] Although the numerator and denominator cancel algebraically, the ratios are intentionally retained to emphasize the structure of the estimate and to remind the analyst of the rationale for the calculation.

Small business GDP

Small business gross operating surplus

Gross operating surplus for small businesses is calculated as a proportion of overall gross operating surplus.

The portion allocated to the businesses is the share of estimates profit/loss for small businesses in that of all sizes.

Calculating the estimated profit or loss for businesses requires several steps.

Further details will be provided in future iterations of the methodology documentation.

Small business GDP

Small business net-farm income

Net farm income is estimated as a proportion of total net farm income for the province.

The share used to allocate farm income to small businesses is the share of small businesses agricultural payroll in the agricultural payroll for all sizes.

Note that there is no available data to separate unincorporated and incorporated farm income, so the total payroll share is used as an estimate to apportion the total net farm income to each relevant size.

Net farm income small business = Net farm income total x Ratio of Agriculture wages and salaries for small businesses compared to all sizes

Small business GDP

Small Business net non-farm mixed income and unincorporated business CFC

- Total non-farm mixed income and unincorporated business CFC are allocated to small businesses.
- This is a reasonable assumption since it is unlikely larger businesses will be unincorporated

Small business GDP

Part 3

Estimating Employment Variables

Wages and salaries estimation

Wages and salaries are calculated as the wages and salaries from the Survey of Employment, Payrolls and Hours (SEPH) plus the wages calculated for agriculture, fishing, hunting and trapping from the Labour Force Survey (LFS). This adjustment must be made because SEPH has no information for this industry.

LFS does not provide data for business size consistent with BC Stats definition of small businesses (only available groupings are less than 20, 20 to 99, 100 to 500, or more than 500 employees). So further adjustments must be made to come up with estimates for businesses under 50 employees.

Total wages and salaries

This is equal to the SEPH total wages and salaries plus LFS wages and salaries for the agriculture, fishing, hunting and trapping industry.

SEPH wages and salaries are calculated as the product of total employment for the relevant size (table 14-10-0215) multiplied by annualized average weekly earnings for the relevant size.

We must estimate any suppressed data for the employment and average weekly earnings data for all industries for each group size for each province.

Missing data is estimated using various methods (grown by relevant variables, residually, etcetera), ensuring relevant identities are held, or if some suppression remains, that there are no negative residuals (for example, the sum of the provinces cannot exceed the Canadian total).

SB Compensation of employees formula

Private business wages and salaries

This is equal to the SEPH total wages and salaries for the private sector plus LFS wages and salaries for the agriculture, fishing, hunting and trapping industry.

For the SEPH total private sector wages and salaries, subtract the wages and salaries from public healthcare, education and public administration from the SEPH all-industries total.

For small business private wages and salaries, the SEPH wages and salaries for the private sector for small businesses are added to LFS wages and salaries for the agriculture, fishing, hunting and trapping industry for small businesses.

Estimates are calculated in a similar fashion as the total, using the 0 to 49 employees size details.

SB Compensation of employees formula

Private business wages and salaries

Although some education and public administration businesses are private, they are a small part of the industry and there is no good data to split out the private portion of these industries. We assume the entire industry to be public.

Wages and salaries for education and public administration are calculated as the annualized product of SEPH employment by relevant size (table 14-10-0215) and average weekly earnings for those industries. In the same way that the total for all industries by size is calculated for each province.

Private business wages and salaries

More work is done in the healthcare sector to separate private and public activity. The assumption made is that hospital employment is public whereas other health sectors are private.

Wages and salaries for hospitals are calculated as in other industries, multiplying employment and average weekly earnings. However, there is no data by size, so a ratio of hospitals as a proportion of total healthcare and social assistance is calculated for employment and average weekly earnings.

These ratios are used to adjust the total employment and average weekly earnings of the healthcare and social assistance industry by size for each province.

Private business wages and salaries

Annual employment by industry from SEPH (table 14-10 -0202) for total healthcare and social assistance and hospitals is used to calculate the public employment ratio for the industry.

Similarly, data from SEPH (table 14-10-0204) is used to calculate the hospitals proportion of the average weekly earnings for the overall healthcare industry.

Any relevant missing data (healthcare and social assistance total or hospital details) is estimated with different methods (such as residually or using growth rates of other relevant variables).

SB Compensation of employees formula

Wages and salaries for the agriculture, fishing, hunting and trapping industry (AFHT)

Wages and salaries from fishing, hunting and trapping for all sizes are calculated as the sum of the individual size groups (0-49 employees + 50-99 employees + 100-499 employees + 500 and more employees).

For each province the AFTH is calculated similarly for each size group.

Wages and salaries AFHT by size = Number of AFHT employees by relevant size × Agriculture average weekly wage rate (all sizes) annualized × Ratio of average weekly earnings for the relevant size as a proportion of all sizes, for all industries

Wages and salaries and employment for the agriculture, fishing, hunting and trapping industry (AFHT)

There is no information on AFHT wages by size. The ratio of wages by size for all industries is used to calculate each size. That is, we assume that the relative difference between wages by size in AFHT is the same as for all industries combined.

For Canada as a whole, the provincial methodology is used, with the exception of the 0-49 and 50-99 employees sizes, which are calculated as the sum of the provincial estimates.

To calculate employment levels, the sum of employment for the relevant industries is used:

AFHT employees = Agriculture employees + Fishing, hunting and trapping employees

Wages and salaries for the agriculture, fishing, hunting and trapping industry (AFHT)

In PEI, the forestry, mining, quarrying and oil and gas extraction sectors are a small part of the overall forestry, fishing, mining, quarrying and oil and gas extraction. In 2023, it was around 24% of the overall industry employment.

For small businesses, the proportion was similar (22%). The share of forestry, mining, quarrying and oil and gas extraction sectors employment was higher for the other Atlantic provinces, ranging from 51% in Nova Scotia to 77% in Newfoundland and Labrador.

This means, in PEI, the average FFMOG sector wage reflects fishing wages more closely than in any other province.

As a result, Prince Edward Island wages and salaries for AFHT are estimated differently, as a weighted average of the agriculture wages and the forestry, fishing, mining, quarrying, oil and gas industry. This method would greatly overestimate FHT wages in the other provinces, so it is only used in this case.

Employment in agriculture

Agriculture employment for is obtained from LFS data (table 14-10-0068) employees by establishment size for Canada and the provinces.

The LFS groupings are less than 20 employees, 20-99 employees, 100-500 employees, more than 500 employees. Therefore, there is a need to estimate the 0-49 and 50-99 groupings differently.

Employees from businesses with between 20 and 99 employees are apportioned to the relevant size groupings. The proportion used is that of 20-49 and 50-99 employees in SEPH employment data for all industries (table 14-10-0215) in the 20 to 99 employees group.

The proportion results in an estimate for employees working for businesses with 50-99 employees and those working for businesses with 20-49 employees.

Employment in agriculture

Small business agricultural employees are then calculated as the sum of employees in businesses with less than 20 employees, plus the 20-49 proportion of agriculture employees plus incorporated self-employed people in agriculture.

For self-employment, data is extracted from LFS (table 14-10-0027), for the agriculture sector total.

The self-employment total is then adjusted using the share of incorporated self-employment for all industries (that is, self-employed incorporated with and without paid help over total self-employed). Unfortunately, there is too much suppression on the details of the agriculture industry to use the data directly from the table, so this proxy is used for consistency.

Only incorporated self-employment is counted towards the compensation of employees estimates, because income from an unincorporated source would be accounted for in the mixed income component of GDP. Without this adjustment we would be double counting unincorporated agricultural income.

Employment in fishing, hunting and trapping

The calculations are similar to those for agriculture with a few key industry specific adjustments.

Total FHT employment (including self-employed) for all sizes is obtained from LFS (table 14-10-0023) for each province.

Then the grand total numbers of employees is adjusted to take out unincorporated self-employment.

For size groupings data, Canada is calculated as the sum of the provinces.

To calculate self-employment an assumption is made that 70 percent of all employees in FHT are self-employed. Then self-employment is adjusted to remove unincorporated employees using the same method as the agriculture sector.

Employment in fishing, hunting and trapping

For businesses with 500 and more employees, FHT employment is assumed to be zero for all provinces.

For businesses with 100-500 employees, employment is assumed to be zero for all provinces except Newfoundland, Prince Edward Island and Nova Scotia.

For less than 20 employees, 20-99 employees, and selected 100-500 employees, FHT employment is calculated by apportioning the calculated total (excluding unincorporated self-employment).

The proportion used is the relevant size share in the forestry, fishing, mining and oil and gas industry employment.

Employment in fishing, hunting and trapping

For 50-99 and 0-49 employees, employment for businesses with less than 100 employees is apportioned to each size:

For the Atlantic provinces, where fishing is a larger industry, the proportion used is the same as the forestry, fishing, mining, quarrying, oil and gas industry employment.

For the rest of the provinces, where forestry, mining, and oil and gas would have an oversized impact on the employment ratios of FFMOG, we assume the share by size is the same as that of agriculture employment.

Employment in fishing, hunting and trapping

Small business FHT employment (Atlantic provinces) =

$$\text{FHT employment 0–99 employees} \times \frac{\text{Employment in FFMOG 0–49 employees}}{\text{Employment in FFMOG 0–49 employees+Employment in FFMOG 50–99 employees}}$$

Small business FHT employment (all other provinces) =

$$\text{FHT employment 0–99 employees} \times \frac{\text{Employment in Agriculture 0–49 employees}}{\text{Employment in Agriculture 0–49 employees+Employment in Agriculture 50–99 employees}}$$

Employment in forestry, fishing, mining and oil and gas (FFMOG)

Estimated using the same methodology as agriculture employment. Data is obtained from LFS (table 14-10-0068) and adjusted to match the 0-49 and 50-99 employees SEPH size groupings.

Employees from businesses with between 20 and 99 employees are apportioned to the relevant size groupings. The proportion used is that of 20-49 and 50-99 employees in SEPH employment data for all industries (table 14-10-0215) in the 20 to 99 employees group.

To estimate forestry, fishing, mining, quarrying, oil and gas employment for 0-49 employees, add the employees in businesses with less than 20 employees, plus the 20-49 proportion of employees (calculated using the 20-49 proportion of the 20-99 total) plus self-employment in FFMOG.

Self-employment, data is extracted from LFS (table 14-10-0027), then adjusted by the share of incorporated self-employment in all industries.

Agriculture wages and salaries for small businesses

The wages and salaries for each of the following sizes are calculated: 0-49 employees, 50-99 employees, 100 to 500 employees and more than 500 employees. The grand total is the sum of all sizes.

The calculation for each size is the same. The calculation for small businesses is described in the equations below:

Agriculture payroll estimates for small businesses = annualization and unit factor (to transform into thousands)*number of employees by relevant size*(average weekly earnings for agriculture all sizes * wage by size adjustment)

Agriculture wages and salaries for small businesses

In other words:

Agriculture payroll estimates for small businesses = 0.001*365/7*number of agriculture employees (0-49 employees)*agriculture average weekly earnings all sizes* (Average weekly earnings, all industries (0-49 employees)/ Average weekly earnings, all industries, all sizes)

Small business GDP

Agriculture, fishing, hunting and trapping average weekly wage rate

There is no combined data for agriculture and fishing, hunting and trapping. Data is obtained for the average weekly wage rate from LFS (table 14-10-0064) for average weekly wages for all sizes for agriculture, as well as forestry, fishing, mining, quarrying, oil and gas (FFMOG).

Wages from agriculture are used to approximate the AFHT industry total wages.

This is a reasonable approach since the agriculture employment comprises the vast majority of the employment in the industry.

For example, in 2023, total employment for agriculture (including all self-employment) was on average 94% of the AFHT industry, with all provinces except the Atlantic provinces, above this average. The share is slightly higher for almost all provinces for small business employment estimates (96% average). For small businesses, the agriculture share of AFHT employment was higher than 50% for all provinces.

Average weekly earnings

The average weekly earnings by size for all industries for each province are obtained by size from SEPH (table 14-10-0217).

Any data that is missing is estimated using various methods (such as calculating residually, using wage information derived from employment information and other industry/size wage estimates).

Data for employment by size must be estimated before this step as employment can be needed for residual calculations.

Small business GDP