Personal income tax

Progressive tax system

Canada uses a **progressive tax system**, meaning the tax rate increases as income increases. Income is divided into brackets, and each bracket is taxed at a different rate. You do not pay the highest rate on all your income—only on the portion that falls within each bracket.

Marginal vs. average tax rate

Marginal Tax Rate: The rate applied to your next dollar of income. This is the rate of the bracket your income falls into.
Average Tax Rate: The overall percentage of your income paid in taxes.

$$\text{Average Tax Rate} = \frac{\text{Total Tax Paid}}{\text{Total Taxable Income}} \times 100\%$$

Calculating federal income tax

To calculate tax, apply each bracket's rate only to the income within that bracket:

$$\text{Total Tax} = \sum(\text{Income in Bracket}) \times (\text{Bracket Rate})$$

Example: Calculate the federal income tax on a taxable income of $95,000 using the brackets below.

Taxable Income Range	Federal Tax Rate
Up to $55,867	15%
$55,867.01 – $111,733	20.5%
$111,733.01 – $173,205	26%
$173,205.01 – $246,752	29%
Over $246,752	33%

Step 1: Identify which brackets apply. Since $95,000 falls in the second bracket, we use the first two brackets.
Step 2: Calculate tax for each bracket.

First bracket: $\$55{,}867 \times 0.15 = \$8{,}380.05$

Second bracket: $(\$95{,}000 - \$55{,}867) \times 0.205 = \$39{,}133 \times 0.205 = \$8{,}022.27$

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Step 3: Sum the amounts.

$$\text{Total Federal Tax} = \$8{,}380.05 + \$8{,}022.27 = \$16{,}402.32$$

The marginal tax rate is 20.5% (the bracket the last dollar falls into).
The average tax rate is $\frac{\$16{,}402.32}{\$95{,}000} \times 100\% = 17.3\%$.

Finding income from tax paid

If you know the tax paid, work backwards through the brackets.
Example: An individual paid $12,500 in federal tax. What was their taxable income? (Use the brackets above.)
Step 1: Calculate the maximum tax for the first bracket.

$$\$55{,}867 \times 0.15 = \$8{,}380.05$$

Since $12,500 > $8,380.05, the income exceeds the first bracket.
Step 2: Find income in the second bracket.

$$\text{Tax from second bracket} = \$12{,}500 - \$8{,}380.05 = \$4{,}119.95$$

$$\text{Income in second bracket} = \frac{\$4{,}119.95}{0.205} = \$20{,}097.32$$

Step 3: Calculate total income.

$$\text{Taxable Income} = \$55{,}867 + \$20{,}097.32 = \$75{,}964.32$$

Comparing tax across different years

Tax brackets are adjusted annually for inflation. The same income may result in different taxes in different years.
Example: Priya earned $72,000 in both 2023 and 2024. Calculate her federal tax for each year.
2023 Brackets:

Taxable Income Range	Rate
Up to $53,359	15%
$53,359.01 – $106,717	20.5%

$$\text{2023 Tax} = (\$53{,}359 \times 0.15) + (\$18{,}641 \times 0.205) = \$8{,}003.85 + \$3{,}821.41 = \$11{,}825.26$$

2024 Brackets:

Taxable Income Range	Rate
Up to $55,867	15%
$55,867.01 – $111,733	20.5%

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$$\text{2024 Tax} = (\$55{,}867 \times 0.15) + (\$16{,}133 \times 0.205) = \$8{,}380.05 + \$3{,}307.27 = \$11{,}687.32$$

Due to inflation adjustments, Priya pays $137.94 less in 2024 despite earning the same amount.

Percent change in net pay

When comparing income changes, the percent change in *gross* pay differs from the percent change in *net* pay (after tax).

Example: Tariq's salary increased from $58,000 to $70,000. Using the 2024 brackets above, compare the percent change in gross pay vs. net pay.

Percent change in gross pay:

$$\frac{\$70{,}000 - \$58{,}000}{\$58{,}000} \times 100\% = 20.7\%$$

Tax on $58,000:

$$(\$55{,}867 \times 0.15) + (\$2{,}133 \times 0.205) = \$8{,}380.05 + \$437.27 = \$8{,}817.32$$

$$\text{Net pay} = \$58{,}000 - \$8{,}817.32 = \$49{,}182.68$$

Tax on $70,000:

$$(\$55{,}867 \times 0.15) + (\$14{,}133 \times 0.205) = \$8{,}380.05 + \$2{,}897.27 = \$11{,}277.32$$

$$\text{Net pay} = \$70{,}000 - \$11{,}277.32 = \$58{,}722.68$$

Percent change in net pay:

$$\frac{\$58{,}722.68 - \$49{,}182.68}{\$49{,}182.68} \times 100\% = 19.4\%$$

The net pay increase (19.4%) is less than the gross pay increase (20.7%) because some of the raise is taxed at a higher marginal rate.

Tax deductions from pay cheques

For salaried employees, income tax is deducted from each pay cheque. To find the deduction per pay period:

Step 1: Calculate annual income from pay rate.

Step 2: Calculate total annual tax.

Step 3: Divide by the number of pay periods.

Example: Alex earns $28.50 per hour, works 37.5 hours per week, and is paid semi-monthly. What is the federal tax deduction per pay cheque? (Use 2024 brackets.)

Step 1: Annual income.

$$\$28.50 \times 37.5 \times 52 = \$55{,}575$$

Step 2: Annual tax (income is in the first bracket only).

$$\$55{,}575 \times 0.15 = \$8{,}336.25$$

Step 3: Tax per pay cheque (24 semi-monthly periods).

$$\frac{\$8{,}336.25}{24} = \$347.34$$

Common mistakes to avoid

Caution:

- Do not apply the highest bracket rate to all income—only income *within* that bracket is taxed at that rate.
- When finding income from tax paid, check that your answer falls in the correct bracket.
- Remember that brackets change annually—use the correct year's brackets.
- Net pay percent change is typically less than gross pay percent change when moving into a higher bracket.

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