

# Income taxes in Canada and the United States

*Michael Wolfson and Brian Murphy*

Income taxes<sup>1</sup> in Canada and the United States continue to attract widespread interest. Much popular discussion of comparative tax rates is based on federal statutory income tax rates, those formally enshrined in law. But taxes actually paid are often substantially different from the statutory rates because of various tax deductions, credits, surtaxes, payroll taxes, and differences among state and provincial income taxes (see *Statutory and effective tax rates*). In order to have a more accurate picture of taxes actually paid—effective rather than statutory tax rates—this analysis uses the most recent detailed sample data from the two countries (1997) to compare income taxes paid by individuals and families (see *Data sources and definitions*).

On average, effective income tax rates for Canadian families in 1997 were higher than those of U.S. families.<sup>2</sup> However, the rates varied considerably within each country for families with similar incomes, reflecting variations in family circumstances other than income, as well as the myriad provisions of tax systems over and above the structure of nominal tax rates.

## Average tax rates higher in Canada

Because both countries' income tax systems are generally progressive, with higher income families paying tax at higher average rates, this study divides families on both sides of the border into groups with similar incomes. Meaningful comparisons of incomes require the use of Canada-U.S. purchasing power parities (see *Purchasing power parity*)—\$0.79 in 1997—to adjust the American data.

---

*Michael Wolfson is Director General of the Analysis and Development Branch. He can be reached at (613) 951-8216 or wolfson@statcan.ca. Brian Murphy is with the Social and Economic Studies Division. He can be reached at (613) 951-3769 or murphy@statcan.ca.*

## Statutory and effective tax rates

Statutory rates for personal income taxes are those prescribed in a jurisdiction's income tax act. For example, the top federal income tax rate in Canada is 29%. However, the rates in various tax brackets are not an accurate indication of the rates actually paid. For example, on top of this basic rate, provinces in Canada also levied income taxes between 44.5% (Alberta) and 69% (Newfoundland) of the basic federal tax rate in 1997. Correspondingly, most American states levy their own income taxes, with 27 states charging a percentage of federal tax or federal taxable income. Eight states levy no personal income tax.

In addition, jurisdictions have a variety of surtaxes and tax credits. More importantly, income tax rates are graduated, so that an initial portion of income is generally not taxed at all, and subsequent levels are taxed at increasing rates, corresponding to the dollar limits for each tax bracket. As a result, the average rate of tax paid is always lower than the combined federal plus provincial or state statutory tax rate on the last dollar of income.

This analysis is concerned with actual taxes paid, rather than statutory tax rates. The basic measure used, therefore, is the effective average tax rate, defined simply as the ratio of total taxes paid to total income per family.

A distribution of Canadian and U.S. families by comparable income groups shows that Canada had proportionally fewer families with either high (\$100,000 or more) or low (less than \$10,000) incomes in 1997 (Table 1). The United States had almost 50% more families in the lowest income group: 10.9%, compared with 7.3%. At the same time, it had about three times as many families in the top income group: \$150,000 or more.

U.S. families in the highest income group paid about 5.2% less of their total income in income taxes than did comparable Canadian families in 1997. On the other hand, for the almost one-third of families with incomes of less than \$25,000, American families paid the same proportion or more of their incomes in taxes.

### Data sources and definitions

Taxes include federal, and provincial or state income taxes, plus payroll taxes paid by employees. In Canada, payroll taxes are Employment Insurance premiums and Canada or Quebec Pension Plan contributions; in the United States, Social Security taxes finance old age security, disability and retirement pensions, and Medicaid benefits.

Total income comprises earnings from employment and self-employment, investment income, pension and other income, and government cash transfers. In Canada, this is the definition used by the Survey of Consumer Finances. To the standard American definition of total income (used by the Current Population Survey) this study has added the cash value of food stamps, the Low Income Heat and Energy assistance program credit, and the Earned Income Tax Credit.

Taxpayers in this analysis are family units, or families for short. These include unattached individuals, couples with or without children, lone parents, and generally any group of individuals related by blood, marriage or adoption living in the same dwelling. This definition applies to both the U.S. and Canadian data. (The use of the term family is not the usual Statistics Canada one, since it includes unattached individuals.)

For Canada, the data are from Statistics Canada's Survey of Consumer Finances for 1997, with imputed payroll taxes added. For the United States, the data are from the Census Bureau's March supplement to the Current Population Survey microdata file for 1997.

In the \$25,000-to-\$49,999, the \$50,000-to-\$99,999 and the \$100,000-to-\$149,999 income groups, U.S. families paid on average 4.4%, 5.3% and 3.8% less, respectively, of their income in income and payroll taxes than did comparable Canadian families. For example, Canadian families with \$40,000 paid about \$6,900 in tax, compared with \$5,200 in the United States. Similarly, for families with \$70,000, average amounts of tax paid were \$17,000 and \$13,300, respectively.<sup>3</sup>

### Effective tax rates vary within income groups

Underlying these average effective tax rates in each income group, however, are many provisions in both countries intended to adjust taxes to particular circumstances. In some cases, these provisions are meant to reflect differences in "ability to pay," such as differ-

**Table 1: Families by income group, and their average effective tax rates**

Income (1997 C\$)	Proportion of families		Average effective tax rate*	
	Canada	U.S.	Canada	U.S.
	%			
<b>All families</b>	<b>100.0</b>	<b>100.0</b>	<b>16.4</b>	<b>13.8</b>
Less than 10,000	7.3	10.9	1.0	2.3
10,000 to 24,999	24.8	21.1	6.2	6.2
25,000 to 49,999	30.4	27.3	17.3	12.9
50,000 to 99,999	29.9	26.5	24.3	19.0
100,000 to 149,999	5.9	8.6	27.9	24.1
150,000 or more	1.8	5.7	32.8	27.6

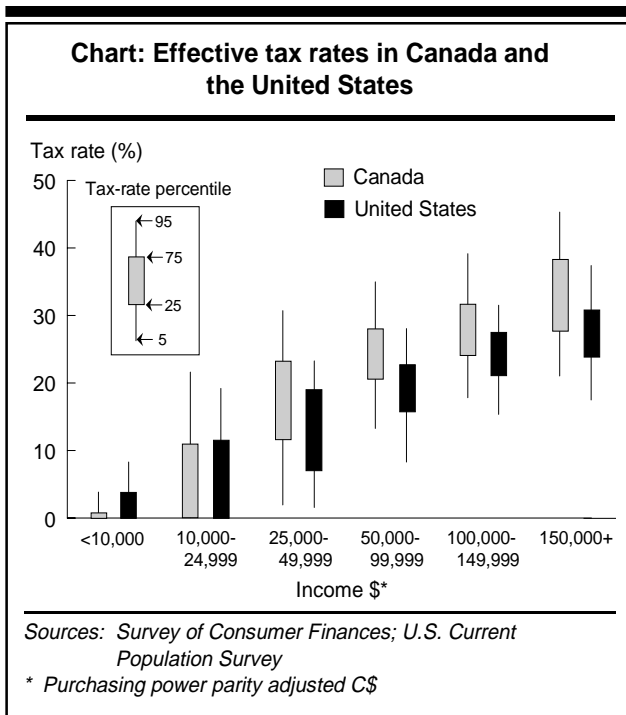
Sources: Survey of Consumer Finances; U.S. Current Population Survey

\* The ratio of taxes paid to total income for each family is averaged (using the sample weights) over all the families in the income group. Generally, such an "average of ratios" is lower than the "ratio of averages," which takes total taxes paid by all families in a given income group, and divides it by total income received by these families.

ences in family size. In other cases, the different tax rates arise from basic differences in tax structure (such as joint filing for spouses), different incentive or tax expenditure provisions (for example, RRSPs in Canada, or mortgage interest deductibility in the United States), and variations in the extent of take-up for these tax provisions among families. As a result, the actual amount of income tax paid by any one family depends on a number of factors, including the number of dependants, the way total income is divided among family members, and the kinds of deductions and tax credits members of the family are able to claim.

This dispersion is shown graphically (Chart). The vertical axis is the effective federal plus provincial or state income tax rate, while the horizontal axis shows family income groups.

In order to derive the various tax rates shown, the study sorted families into income groups. Then, within each income group, it sorted families by their effective tax rates. Finally, it extracted families at precisely the 5<sup>th</sup>, 25<sup>th</sup>, 75<sup>th</sup> and 95<sup>th</sup> percentile positions along this range of effective tax rates. For example, the 75<sup>th</sup> percentile tax rate partitions families in a given income group into the three-quarters with lower effective tax rates and the one-quarter paying tax at higher rates.



In both countries at least one-quarter of all families in the \$10,000-to-\$24,999 group paid no income tax. On the other hand, 95% of families with incomes of \$150,000 or more paid taxes amounting to at least 21% of their income in Canada, and at least 18% in the United States.

In the \$50,000-to-\$99,999 income group, the middle 90% of families (that is, excluding the top

and bottom 5% in terms of effective tax rates) faced rates spanning a range of 21.7 percentage points in Canada, compared with 19.9 points in the United States (Table 2). To illustrate, for families with \$70,000 the range of effective income taxes paid (with the top and bottom 5% of all tax rates trimmed off) would be \$15,200 in Canada, and \$13,900 in the United States.

**Table 2: Ranges of effective income tax rates covering 90% of families within each income group**

	Income (1997 C\$)					
	<10,000	10,000-24,999	25,000-49,999	50,000-99,999	100,000-149,999	150,000+
	%					
Canada	3.8	21.7	28.7	21.7	21.3	24.2
United States	8.3	19.2	23.3	19.9	16.2	19.9

Sources: Survey of Consumer Finances; U.S. Current Population Survey

### Purchasing power parity

Purchasing power parity (PPP) is the price in local currencies of the same basket of goods and services. According to Statistics Canada's bilateral Canada-U.S. PPPs (those for personal expenditure rather than GDP overall) (Statistics Canada, 1999; Kemp, 2000), \$79 U.S. dollars spent by an American household in 1997 was equivalent in purchasing power to \$100 Canadian dollars spent here.

This "purchasing power" exchange rate is considerably higher than the market exchange rate, which averaged US \$0.725 in 1997. One reason is that many of the goods and services purchased by Canadians (recreation, food and drugs, for example) do not cross the border, and actually cost less in Canada than they would if they were imported from the United States at the official exchange rate. Another reason is that the official exchange rate is influenced by many factors of little direct relevance to consumers, such as world prices for raw materials.

### Summary

Income taxes in both Canada and the United States are generally progressive. Families in both countries pay these taxes at higher effective rates as income increases.

Also, effective income tax rates in the United States tend to be lower than in Canada, income group by income group, for the two-thirds of families with incomes of \$25,000 or more. On the other hand, families in the lowest income group (under \$10,000) south of the border paid over a percentage point more as a proportion of their incomes (2.3% versus 1.0%). Families in the \$10,000-to-\$24,999 income group were taxed similarly in the two countries.

Finally, the range of effective tax rates paid within income groups in each country was generally quite wide. For example, the range for 90% of families in the \$25,000-to-\$49,999 group was roughly 25

percentage points. At the same time, differences in the *average* rate paid in this income group were about 4.5 percentage points. These relatively wide ranges in effective tax rates within income groups reflect the heterogeneity of family circumstances, as well as the complexities of the tax structures in the two countries.

---

**Perspectives**

---

■ **Notes**

1 Income tax is used as a shorthand for personal income and employee-paid payroll taxes. Other taxes, such as the employer-paid portion of payroll taxes, corporate income, property and sales taxes, are not considered in this analysis, mainly because they are not included in the available data. Also, it could be argued that the payer of a tax is not necessarily the one who bears the ultimate burden of the tax. The estimation of such tax incidence is beyond the scope of this analysis.

2. This study uses “families” to refer to both unattached individuals and families with two or more members.

3. In other words, these figures are the result of multiplying the illustrative incomes of \$40,000 and \$70,000 by the corresponding average effective tax rates shown in Table 1.

■ **References**

Kemp, K. “Purchasing power parities and real expenditures, United States and Canada—An update to 1998.” *National Income and Expenditure Accounts*, Quarterly Estimates Third Quarter 1999. (Statistics Canada, Catalogue no. 13-001-XPB) 47, no. 3 (February 2000): 98-138.

Statistics Canada. *The Daily*. Catalogue no. 11-001-XPE. Ottawa, November 30, 1999.