

Student Guide

Class #10 – Taxes

Exercise: Mia is in the 8th grade and works a part-time summer job at her parent's bakery. Mia earns \$18 per hour and works 325 hours during the summer. Mia has no other sources of income. Mia has no adjustments to reduce her taxes taxable income. Mia prepares her tax return as a single/unmarried individual. Calculate Mia's:

Taxable income: _____

Taxes owed: _____

Effective Tax Rate: _____

Exercise: Mia's older brother, Mathias, graduated from college last year. Mathias works full time at their parents' bakery full time. Mathias earned \$50,000 of gross income and contributes \$10,000 on a pre-tax to a qualified retirement plan. Mathias has no other sources of income and no other adjustments to reduce his taxable income. Mathias prepares his tax return as a single/unmarried individual. Calculate Mathias's:

Taxable income: _____

Marginal tax Rate: _____

Taxes owed: _____

Effective tax Rate: _____

Exercise: Megan is the chief baker at the bakery. Megan earned \$100,000 of gross income. Megan contributed \$10,000 on a pre-tax basis to a qualified retirement plan. Megan has no other sources of income and no other adjustments to reduce her taxable income. Megan prepares her tax return as a single/unmarried individual.

What is Megan's marginal tax rate? _____

How much does Megan owe in income taxes? _____

What is Megan's effective tax rate? _____

What would Megan's marginal tax rate have been if she contributed \$12,000 to a qualified retirement plan instead of \$10,000? _____

How much would Megan have owed in taxes if she contributed \$12,000 to a qualified retirement plan instead of \$10,000? _____

Exercise: The bakery is doing incredibly well and hires Melissa as its Chief Operations Officer. Melissa earned \$250,000 of gross income. Melissa contributes \$20,000 on a pre-tax basis to a qualified retirement plan. Melissa has no other sources of income and no other adjustments to reduce her taxable income. Melissa prepares her tax return as a single/unmarried individual. Calculate Melissa's:

Taxable income: _____

Marginal tax Rate: _____

Taxes owed: _____

Effective tax Rate: _____

The United States provides unparalleled freedom to the people. However, freedom is not free – operating our government costs money. As examples, the government...

- pays for salaries of government employees like firefighters, police officers, and public-school teachers, among others,
- maintains a military to defend the country and preserve peace throughout the world,
- constructs airports, roads, bridges, shipping ports, and other infrastructure, and
- provides social programs like social security and Medicare.

The people agreed to these costs by way of elected representatives. If you don't like the costs or if you don't like how the government spends money, then be certain to vote in every election where you are eligible.

Like people and organizations, the government needs income to pay for its expenses. The largest source of income to the government are tax revenues. Tax revenues to the government are tax expenses to people and organizations.

Common forms of Taxes

- Income Tax – a tax on making money
 - Earned income taxes – a tax on money made from a person's labor or work
 - Passive income taxes – a tax on money made from a person's assets
 - Capital gains taxes – a tax on money made from capital appreciation of a person's investments
- Estate Tax – a tax on the estate of a person who is deceased
- Excise Tax – a tax on specific goods (ex. alcohol, airline tickets, gasoline, and tobacco)
- Inheritance Tax – a tax on inherited assets received from an estate
- Payroll Tax – a tax on earning money through employer payrolls such as wages, tips, and salaries
- Property Tax – a tax on what people own
- Sales Tax – a tax on what people buy

Certain adjustments can be made to lower a person's taxable income. This can save people money on taxes they would otherwise owe. As an example, contributions to qualified retirement plans can lower a person's taxable income. Retirement plans will be covered in greater details later in this course.

Marginal tax rate vs. effective tax rate

Marginal income tax rate: The amount of income tax that applies to each additional level of income. More specifically, this is the tax rate imposed on the last dollar of income. Marginal tax rates are determined based on income tax brackets.

Effective income tax rate: that amount of taxes owed as a percentage of taxable income. Calculated using the formula:

$$\text{Effective tax rate} = \text{Taxes Owed} / \text{Taxable Income}$$

2022 U.S. Federal Income Tax Brackets for single/unmarried individuals

For Taxable Income of ...	To Taxable Income of ...	A Person Owes Income Taxes of ...	Plus	A Marginal Income Tax Rate of ...	On Taxable Income Over ...
\$0	\$10,275	\$0	+	10%	\$0
\$10,276	\$41,775	\$1,028	+	12%	\$10,275
\$41,776	\$89,075	\$4,808	+	22%	\$41,775
\$89,076	\$170,050	\$15,214	+	24%	\$89,075
\$170,051	\$215,950	\$34,648	+	32%	\$170,050
\$215,951	\$539,900	\$49,336	+	35%	\$215,950
\$539,901	Unlimited	\$162,718	+	37%	\$539,900

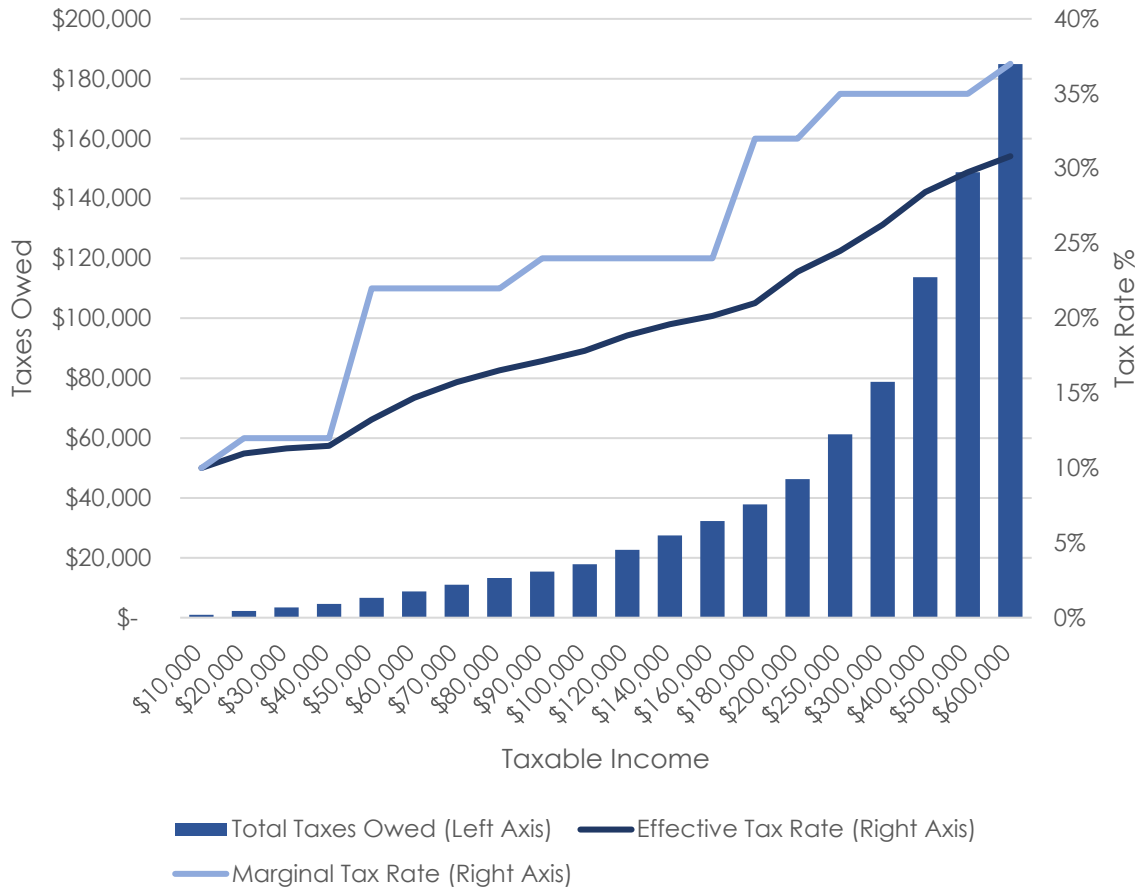
(Source: IRS, <https://www.irs.com/en/articles/2022-federal-income-tax-brackets-rates-standard-deductions>)

Example:

A person has taxable income of \$65,000. This person looks up the taxes owed in the 3rd row of the table because the 3rd row of the table applies to people with taxable income between \$41,776 to \$89,075.

Based on the table, this person owes income taxes of $\$9,917.50 = \$4,808 + ((\$65,000 - \$41,775) \times 22\%)$. This person's marginal tax rate is 22% and effective tax rate is approximately $15.3\% = \$9,917.50 / \$65,000$.

2022 U.S. Federal Income Taxes Owed and Effective Tax Rates by Taxable Income for Single Filers



Sources of Revenue for the U.S. Federal Government, FYTD 2022 Revenue by Source Categories

Individual Income Taxes

Category

\$2.63 T

Revenue Amount

54%

% of Total Revenue



Total Revenue: \$4.90 T

To explore this visual, hover or tap over any category bubble to discover its data.

Visit the [Monthly Treasury Statement \(MTS\)](#) dataset to explore and download this data.

Last Updated: September 30, 2022

(Source: U.S. Treasury Department, <https://fiscaldata.treasury.gov/americas-finance-guide/government-revenue/>)

To put this in some perspective...

- A \$1 bill is 0.0043 inches thick.
- \$1 bills stacked to \$1 million would be 358 feet tall. This is about 60% the height of the Space Needle, which is 605 feet tall.
- \$1 bills stacked to \$1 trillion would be 67,866 miles tall. That is tall enough to wrap around the Earth about 2.72 times.
- \$1 bills stacked to \$4.90 trillion, which represents the total income of the U.S. Government, would be 332,544 miles tall. This extends nearly 100,000 miles past the moon, which is 238,855 miles away from earth.

Key Takeaways

1. Income taxes are the largest source of revenue to the government,
2. Under Federal Law, tax rates increase as taxable income increases, and
3. People can reduce their taxable income, which save them money on taxes, through certain actions, such as contributing to a qualified retirement plan.