

## 4. DETERMINING YOUR SHARE OF THE PRICE

*The Basics: Tax Base & Rate Structure*

### The situation

The last big storm severely damaged the bridge on Main Street in the village of Surprise, in the state of Happiness (abbreviation, HA). The bridge is now impassable. The Village Council and the Mayor agree that repairing the bridge is essential. They discover that it will cost **\$25,000** to repair the damages and make it fully operational.

Surprise is an island and the bridge was the only way that people could get on or off the island. For simplicity's sake, pretend the village has only four (4) households. (If you want more realism, just multiply the village population and the cost of the repair by **10**, **100** or **1000**. That won't change anything except to add some zeros to the math).

Unfortunately, neither the federal government nor the state will help pay to fix the bridge. The Village Council considered several ways to pay for the repairs: asking for contributions, taking out a loan and imposing a tax. It finally decided that a tax was the best way to go. The state constitution gives the Council power to enact all kinds of taxes, but the Council is not sure about what to tax or how much to tax.

The Village Council is considering five (5) taxes to impose on a household basis:



Which tax the Council ultimately chooses is important because:

1. Different taxes raise different amounts of revenue.
2. Different taxes affect taxpayer behavior differently.
3. Different taxes impose different tax burdens (**tax liabilities**) on taxpayers.

In other words, a taxpayer may pay more (or less) under one tax (like an income tax) than under another type of tax (like a sales tax).

# THE PRICE OF CIVILIZATION: TAX LIABILITY (BURDEN)

Civilization is priceless in one sense: most people can't imagine living without it. But it is not priceless in another sense: many of its benefits cost money. Each taxpayer contributes to the cost of society. The price each particular taxpayer pays (and the government collects) is called the taxpayer's **tax liability or burden**.

The tax burden or liability for any tax is determined by two things: **base** (what is being taxed) and **rate**. Tax bases can be **comprehensive** (wide and inclusive) or **narrow** (with lots of exceptions). Rates can be a fixed dollar amount for each unit of the base or it can be a percentage of the base.

In either case, to figure out the actual tax liability: **multiply rate times the base**.

## EXAMPLE: CIGARETTE TAX

The cigarette tax has a rate that is a fixed dollar amount per unit. Federal and State governments both tax cigarettes. Sometimes cities and counties do to.

Tax rate per pack: **\$2.50**. Ryan buys **3** packs.

### Question:

What is Ryan's Tax Liability?

### Answer:

Ryan's tax liability is: **\$2.50** (the rate) times **3** (base, in units) or **\$7.50**.

To see the state tax rate in your state, check out:  
<https://www.cdc.gov/statesystem/excisetax.html>  
Remember: there is a federal cigarette tax too (about \$1) and maybe city and county ones too.

## EXAMPLE: INCOME TAX

The income tax has a rate that is a percentage of the tax base. Let's say the tax rate is **20%**.

Ryan has **\$30,000** of income (the base).

### Question:

What is Ryan's tax liability?

### Answer:

Ryan's tax liability is **20%** (rate) times **\$30,000** (base) or **\$6,000**.

### Question:

What would Ryan's tax liability be if he had only **\$20,000** of income and the rate is only **10%**?

### Answer:

Ryan's tax liability would be **10%** times \$20,000 or **\$2,000**.

Some taxes are more visible or transparent to people than other taxes. This means it is easier for people to see the taxes. Some taxes you pay directly and some you pay indirectly. When you write a check to the U.S. Treasury to pay your income tax, you definitely know you are paying an income tax.

When you buy gas for your car, however, you generally just think about one price which includes the tax because that is what is on the sign at the gas station and that is what people talk about.

Some taxes are not so hidden in the price, but they are not so obvious either. Your monthly phone bill includes some federal taxes, but even though the bill lists the amount, many people don't really pay attention to it. You also might have paid a sales tax on the video game you bought last week. Even though that amount was written on the receipt, you might not have paid any attention to it because you were focused on the advertised price of the game (which did not include the tax).



Taxpayers may pay more than one tax. They have a tax liability or burden for each tax they pay. Tania Taxpayer, for example, may have to pay an income tax, a sales tax, a social security tax, and a property tax.

In fact, she probably has to pay taxes to different governments—for example if Tania lives in Louisiana, she may owe income tax to both the state of LA and to the United States government.

If Tania lived in another state, such as NY, she would pay a city income tax as well as a state and federal income tax. If she buys gas for her car, she pays both federal and state taxes.

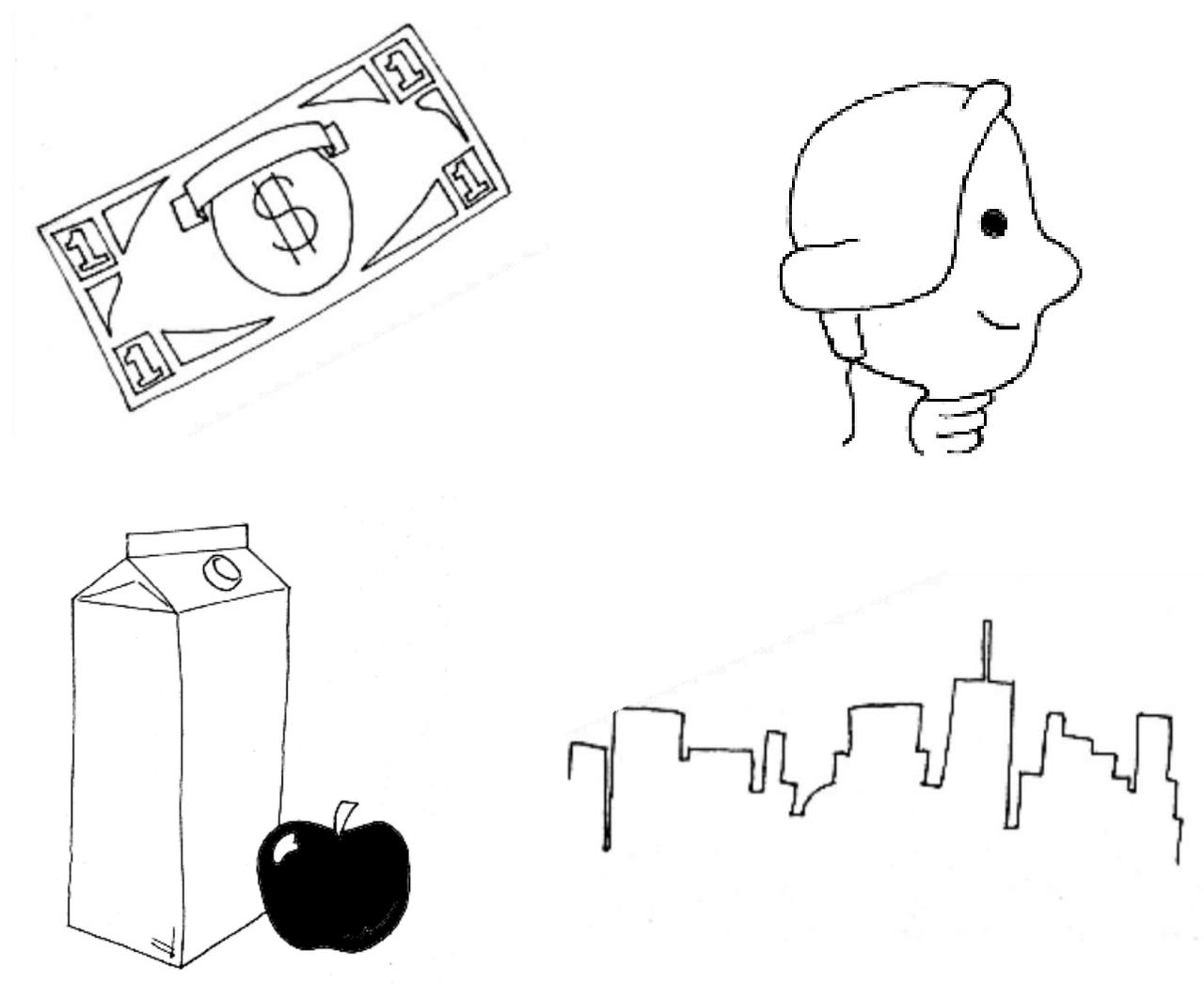


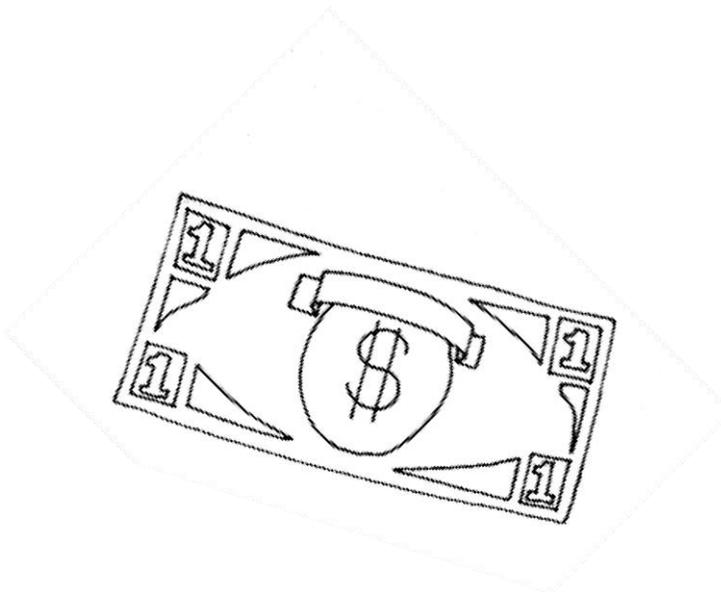
## TAX BASE

Whatever is being taxed is called the **tax base**. In other words, the tax base is the target or object that is subject to the tax—like income or sales. Almost anything can be taxed—and probably has been somewhere, at some point in history including bachelors, beards, and bubblegum. It's not only money or things that can be taxed, but also services (such as car repairs, cosmetic surgery, and legal services), transactions (such as real estate sales, stock transactions, gift-giving), privileges—just about anything you can think of.

Tax bases can be **comprehensive** (wide and inclusive) or **narrow** (with lots of exceptions). For example, a broad, comprehensive income tax may tax all kinds of income, but a taxpayer might not be liable for the tax unless she or he has a certain amount of income (e.g. **\$15,000**). In other words, the tax excludes (exempts) the first **\$15,000** of the base.

The Village Council is considering taxes with four different tax bases:

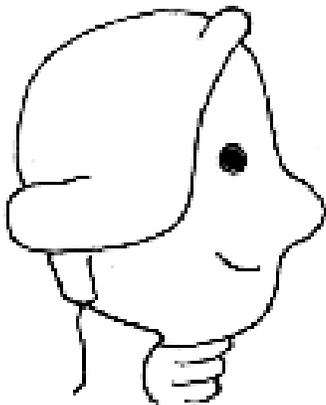




## 1. Income Tax

An income tax is a tax on income.

Income is the total amount of money, goods and services people get over a certain period—usually one year. People get income from many sources such as what they earn by working; what their investments—like stocks or apartment buildings—earn; even



## 2. Head Tax

(also called a “poll tax,” a “per capita tax,” or a “capitation tax”)

A head or poll tax is a tax on a person. Head or poll taxes require everyone subject to the tax to pay exactly the same dollar amount per unit (the “head”—that is per person).

money they find on the ground. Income taxes usually don't tax all sources of income. For example, gifts often don't count as income for tax purposes.

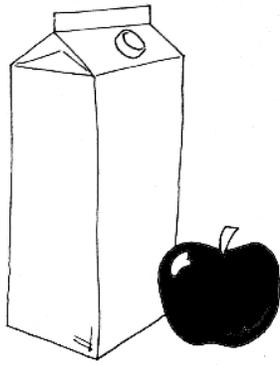
Income can come in many forms—not just as money. In the Depression, for example, a patient might not have had money to pay the doctor so would pay with a chicken. The chicken was income to the doctor. If you work at a grocery store and get paid in food, the value of the food would be income. Most countries, including the United States, have an income tax and most American states do too.

Income taxes can be comprehensive (broad) and tax all income or they can be narrower and exclude (not tax) certain types of income. For example, the federal U.S. income tax is fairly comprehensive but it excludes certain types of income such as some scholarships.

Most governments don't use head taxes anymore, but they used to be very common. In some southern states in America during the late 19th century and first part of the 20th century, a person who wanted to vote had to pay a poll tax. This discouraged many African Americans from voting because they were too poor to pay the tax.

A comprehensive (or broad based) head tax would tax every living person a certain amount—for example \$20.

A narrower based head tax would not tax everyone. For example, it might tax only people within a certain age bracket (18 - 65, for example).



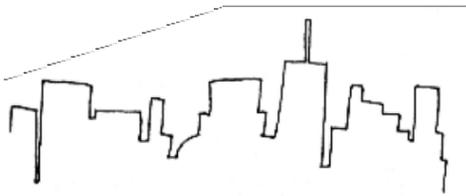
### 3. Consumption Tax

(also called a “sales tax”)

A consumption tax is a tax on what people spend.

Consumption increases with income. However, lower and middle income households spend a greater percentage of their income than do high income individuals.

In fact, lower income households spend most of their income, and the majority of what they spend is on basics such as food, housing, and health care. Some households even spend more than their income by borrowing. Of course, the borrowing ultimately may be a problem, if a person does not have money to repay the loan (plus interest).



### 3. Property Tax on Buildings

There can be property taxes on all types of property taxpayers own—such as houses, buildings, cars, jewelry, and stocks—or just certain categories of property. Even if the tax is just on a certain category—such as homes—it can be comprehensive and tax all homes or it can be narrower and exclude certain homes, such as homes below a certain value, or homes

A consumption tax can be either comprehensive or narrow. A comprehensive one will cover all or most goods, and may even cover services (like haircuts). Consumption, taxes can be narrower, just like income taxes can, and only tax some goods or services.

Many countries like Canada and nations in Europe have very general consumption taxes that have only a few exceptions.

In the United States, many states have sales taxes that apply to most sales of goods and sometimes services. Often these taxes treat certain items—like groceries and medicines—more favorably than other goods by not taxing them at all, taxing them at a lower level, or by giving a rebate (refund) to poor people. In 2019, five states plus the District of Columbia had no state sales taxes: Alaska, Delaware, Montana, New Hampshire and Oregon. (Alaska had some local sales taxes, however.)

The federal government does not have a general sales tax but it has narrower consumption taxes on certain specific items like cigarettes, alcohol or gas. These are called excise taxes, or sometimes a “duty”. State and local governments also impose excise taxes.

owned by certain types of people (e.g. the elderly). U.S. state and local governments often use property taxes to fund schools. Usually, this property tax is just on the value of land and buildings (including homes). This means only owners of property pay property taxes directly. However, people who rent buildings pay property taxes indirectly because the owner charges enough rent to cover the owner’s property tax. If building owners have to pay higher property taxes because the rate of tax has increased, then usually they increase rent to cover their increased taxes.

## WHICH GOVERNMENT? WHICH TAX?

Which type of tax a government can use depends on its authority to tax, which comes from its constitution and its laws. Even if it has the power to tax, the government may not use it, or not use all of it.

Different levels of government may tax the same base and sometimes they do—for example income. However, some levels of government use a particular tax base more than others. For example, state and local governments use general property taxes but the United States federal government doesn't.

## WHERE DOES THE FEDERAL GOVERNMENT GET ITS MONEY?

The federal government gets almost half of its revenues from individual income taxes. Its two other main sources of revenue are payroll taxes (Social Security and Medicare) and corporate income taxes. If you are interested in more details about where the federal government gets its revenues, check out this webpage: <https://www.cbpp.org/research/federal-tax/policy-basics-where-do-federal-tax-revenues-come-from?fa=view&id=3822>

## WHERE DO YOUR FEDERAL TAX DOLLARS GO?

There are also many web sites that can tell you where your federal tax dollars are spent. Look, for example, at: <https://www.cbpp.org/research/federal-budget/policy-basics-where-d0-our-federal-tax-dollars-go>. (Jan.29, 2019)

There are also many web sites that give you information about state taxes. For example, the slightly left-of-center Center for Budget and Public Priorities shows you where state tax dollars go at: <https://www.cbpp.org/research/state-budget-and-tax/policy-basics-where-do-our-state-tax-dollars-go>. (July 25, 2018) The slightly right of center Tax Foundation has a map where you can learn tax information about your particular state: <https://taxfoundation.org/center/state-tax-policy/>

Keep in mind when you look at any webpage that the source of the data may affect its results.

# TAX RATE STRUCTURE

A tax rate structure can be either a fixed dollar amount or a percentage. The rate is multiplied times the base to determine the tax liability (burden).

If the structure uses a fixed dollar amount, then the base is divided into units.

To determine their tax liability, taxpayers simply multiply the dollar amount times the number of units of the tax base they have: fixed dollar amount time number of units.

For example, if the dollar amount for a head tax is **\$2000**, then an individual taxpayer just pays **\$2000**. All the taxpayers just have one unit (the “head”).

If the tax base, however, is gas and the unit is gallons, then the taxpayer must multiply the amount of tax per gallon (e.g. **30¢**) times the number of units used (e.g. 10 gallons) to determine that the tax liability is **\$3.00**.

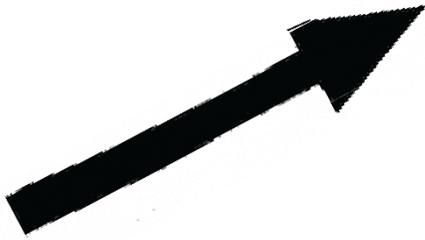
Three (3) basic tax rate structures use percentages. As the total amount of the tax base increases, the rate can go up, go down, or stay the same. With these rate structures, taxpayers determine their tax liability by applying the percent to the total amount of the base they have. These structures have particular names: flat (or proportional), graduated (or progressive), and regressive.



## 1. Flat or Proportional Rate Structure

With this rate structure a taxpayer’s percentage of tax always stays the same. In a flat or proportional tax all taxpayers pays the same percent regardless of how much of the base they have.

For example, with a flat **10%** income tax, Tania Taxpayer pays **\$3,000** tax when her income is **\$30,000**. Tania would pay the same percent (**10%**) of tax if her income were **\$100,000**. Then she would pay more dollars (**\$10,000**, not **\$3,000**) but the tax is always the same **rate (10%)** of her income. All other taxpayers liable for the income tax also pay **10%** no matter how much income they have.



## 2. Graduated or Progressive Rate Structure

This is a rate structure where the percentage of tax the taxpayer has to pay goes up as the taxpayer's amount of the tax base goes up. The current United States federal income tax has a progressive or graduated rate structure.

Assume Tania still has just **\$30,000** of income but the tax rate is **10%** on the first **\$10,000** of income and **20%** on everything over \$10,000.

### Question:

What is Tania's total tax liability?

### Answer:

Tania's total tax liability or burden is **\$5,000**: **10%** on the first **\$10,000** of income: **\$1,000** tax and **20%** on **\$20,000** (everything over **\$10,000**) **\$4,000** tax.

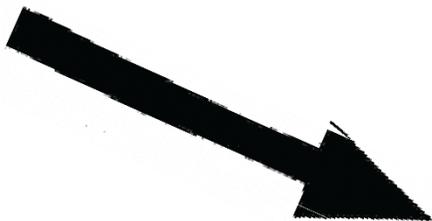
The highest rate Tania pays (**20%**) is called her **marginal rate** of tax.

Remember, she does not pay **20%** on all her income; she still pays **10%** on her 1<sup>st</sup> **\$10,000**.

Her **average or effective rate** of tax is between the two rates (10% & 20%) she pays.

Divide tax liability by taxable income:

**\$5,000** liability/**\$30,000** taxable income=  
**16.666%**.



## 3. Regressive rate structure.

In a regressive rate structure, tax rates go down as a taxpayer's amount of the base goes up. For example, a 20% rate on the first \$10,000 of spending and 10% on spending above \$10,000. Taxes rarely look like that. But a flat tax (one rate for all) can actually be regressive **in its effect**—as measured by income—because a taxpayer with a lower income pays a larger percentage of tax than a person with more income.

For example, a head tax is a regressive tax in respect to income. Suppose that every person must pay a flat head tax of **\$1000**.

This tax is regressive when measured by income. If Xavier's income is **\$40,000** the tax is **2.5% of his income (\$1000/\$40,000)**. If Yolanda's income is **\$60,000** the tax is only **1.7% of her income (\$1000/\$60,000)**. If income best measures ability to pay, then this tax violates the principle of fairness called **vertical equity** that says those with a greater ability to pay should pay more tax than those who have less. Here Yolanda (with **\$60,000** of income) has a greater ability to pay than Xavier (**\$40,000** income) but has a smaller/lighter tax burden than Xavier.

A flat consumption or sales tax is also regressive in respect to income because low income people usually spend more of it than people who have higher incomes.

## EXAMPLE: PROPERTY

The tax base is property and the tax rate is **1%**.  
Tania owns property worth **\$200,000**.

### Question:

What is Tania's property tax liability?

### Answer:

Multiply **1%** times **\$200,000**  
(the value of property).  
Tania's property tax liability  
(what she owes) is **\$2,000**.

## EXAMPLE: INCOME

The tax base is income and the rate is **10%**.  
Tania has **\$50,000** of income.

### Question:

What is Tania's income tax liability?

### Answer:

Multiply **10%** times **\$50,000**.  
Tania's income tax liability is **\$5,000**.

## EXAMPLE: SALES

The tax base is sales and the rate is **10%**.  
Tania spends **\$40,000**.

### Question:

What is Tania's sales tax liability?

### Answer:

Multiply **10%** times **\$40,000**.  
Tania's sales tax liability is **\$4,000**.

## CONCLUSIONS

Notice that the smaller the tax base, the less revenue a tax will produce (raise). Both the income tax and the sales tax have **10%** rates. Since the base for the sales tax is **\$10,000** less than the one for the income tax, it raises **\$1,000** less revenue. Consequently, if the government needs **\$5,000** to perform all its functions, it only needs a 10% income tax, but the sales tax rate would have to be **12.5%**.

Income tax base  $\$50,000 \times 10\% = \$5,000$ .

Sales tax base  $\$40,000 \times 12.5\% = \$5,000$ .

**RATE**  
**× BASE**  
**TAX LIABILITY**