**ECO 2306 – Principles of Microeconomics**

Week 12

**Hello and Welcome to the weekly resources for ECO 2306 – Principles of Microeconomics!**

**This week is Week 12 of class, and typically in this week of the semester, your professors are covering these topics below.**  If you do not see the topics your particular section of class is learning this week, please take a look at other weekly resources listed on our website for additional topics throughout of the semester.

We also invite you to **look at the group tutoring chart on our website to see if this course has a group tutoring session offered this semester**.

If you have any questions about these study guides, group tutoring sessions, private 30 minute tutoring appointments, the Baylor Tutoring YouTube channel or any tutoring services we offer, please visit our website [www.baylor.edu/tutoring](http://www.baylor.edu/tutoring) or call our drop in center during open business hours. M-Th 9am-8pm on class days 254-710-4135.

Our main resource is going to be Principles of Microeconomics by N. Gregory Mankiw.

**Topic of the week**

**The Design of the Tax System**

**Keywords:** average tax rate, marginal tax revenue, lump-sum tax, benefits principle, ability-to-pay principle, vertical equity, horizontal equity, proportional tax, regressive tax, progressive tax.

**Concepts:**

Nowadays, taxes play an important role in our lives. Now that we have learned about the effects of taxation on the market, we need to discuss the tax system and how it works.

**An Overview of US Taxation**

There have been different levels of taxation throughout history. In 1902, the government collected only 7% of the total national income as taxes. In recent years, that number has been close to 30%. The US has a lower tax burden relative to most other advanced economies, since most European countries collect taxes at a much higher rate.



Figure 1 Federal tax revenue (source: Mankiw)

The US federal collects about two-thirds of the taxes in our economy. The average American paid $10,917 to the federal government in 2017. **Personal income taxes** are the largest source of revenue for the federal government. Personal income includes wages, profits from investments, stock dividends, profits from running businesses and other similar income. A **payroll tax** is a tax on the wages that a firm pays its workers. Social Security and Medicare shape the bulk of these taxes.

**Corporate income taxes** are directly imposed on corporate profits. Since corporate profits are taxed twice (once after earning the profits and once after paying dividends to shareholders), corporations and stock dividends are taxed at a lower rate compared to the top marginal income tax. Other taxes include **excise taxes** which are imposed goods such as gasoline, cigarettes, and alcohol, and small taxes such as customs duties and estate taxes.

State and local governments also collect their own taxes. The most important taxes for state and local governments are **property taxes**, which are levied on property owners as a percentage of the estimated value of land and structures. Next in line are **sales taxes,** which are levied as a percentage of the total amount spent at retail stores. State and local governments can also levy their own income and excise taxes. States also receive funds from the federal government to aid with specific programs. The other category includes fees from tolls, licenses, bus fares, and similar government income.



Figure 2 State tax revenue (source: Mankiw)

**Taxes and Efficiency**

We discussed that taxes lead to a **deadweight loss**, which is the reduction in market surplus. For example, let’s say you would happily buy a sandwich for $10 (which is worth $12 to you), but after a $3 tax, you decide that a sandwich is not worth $13 and will not buy it. Your consumer surplus went from $2 to nothing, so the deadweight loss of this tax for you is 2 dollars. Remember that not all taxes have a deadweight loss, because when there are externalities present, the right amount of taxation can increase the total surplus in a society.

Another issue with taxation is the **administrative burden**, which refers to all the efforts that go into collecting and paying taxes: government agencies and employees, accountants, tax lawyers, and paper work. The administrative burden imposes its own deadweight loss on the society. This deadweight loss could be minimized by simplifying the tax code, but there are many special interest groups that benefit from a complicated tax system and lobby politicians to keep the tax code this way.

The equity vs efficiency analysis requires two definitions: The **average tax rate** is total taxes paid divided by total income. The **marginal tax rate** is the amount by which taxes increase from an additional dollar of income. A **lump-sum tax** is a tax that is the same amount for every person. A lump-sum tax is the most efficient tax possible because its simplicity does not require much calculation and government bureaucracy, and they don’t change people’s incentives about economic activity. But you don’t see a lump-sum tax system in the real world because efficiency is not the only purpose of taxation.

**Taxes and Equity**

One principle of taxation, called the **benefits principle**, states that people should pay taxes based on the benefits they receive from government services. Based on this principle, we could argue that wealthy people should be taxed more than the poor, because they benefit more form public services, and these taxes should be used to provide welfare programs for the poor.

The **ability-to-pay principle** states that taxes should be levied on a person according to how well that person can shoulder the burden. Based on this principle, we define two concepts about equity. **Vertical equity** is the idea that taxpayers with a greater ability to pay taxes should pay larger amounts. **Horizontal equity** is the idea that taxpayers with similar abilities to pay taxes should pay the same amount

Based on the idea of vertical equity, rich tax payers should pay more than others, but how much? This is a debated policy question. There are three main tax systems based on income level. The first system is called **proportional** because all taxpayers pay the same fraction of income. The second system is called **regressive** because high-income taxpayers pay a smaller fraction of their income, even though they pay a larger amount. The third system is called **progressive** because high-income taxpayers pay a larger fraction of their income.



Figure 3 Three tax systems (source: Mankiw)

It’s very hard to design a tax system based on horizontal equity, mostly because it’s hard to determine which two tax payers are similar. Two people could have the same amount of income, but they might have very different expenses and needs. For this reason, the tax code has many deductions and special provisions to meet different people’s needs. Tax incidence is also important in understanding tax equity. For example, a tax on a certain luxury good may look like a tax on the rich, but if the rich substitute out of the good because of this tax, a worker that produces this good is the one who is hurt.

**What you might struggle with**

Designing and understanding a “fair” tax system is not easy. You need to be able to see where the actual tax incidence is, rather than where the tax is legally imposed. Try to think about each tax category that you’re familiar with, and trace the tax incidence in different cases.

**Check your learning**

1. Suppose that your state raises its sales tax from 5 percent to 6 percent. The state revenue commissioner forecasts a 20 percent increase in sales tax revenue. Is this plausible? Explain. (source: Mankiw)

2. Some states exclude necessities, such as food and clothing, from their sales tax. Other states do not. Discuss the merits of this exclusion. Consider both efficiency and equity. (source: Mankiw)

3. When someone owns an asset (such as a share of stock) that rises in value, he has an “accrued” capital gain. If he sells the asset, he “realizes” the gains that have previously accrued. Under the U.S. income tax system, realized capital gains are taxed, but accrued gains are not.

a. Explain how individuals’ behavior is affected by this rule.

b. Some economists believe that cuts in capital gains tax rates, especially temporary ones, can raise tax revenue. How might this be so?

c. Do you think it is a good rule to tax realized but not accrued capital gains? Why or why not? (source: Mankiw)

4. Categorize each of the following funding schemes as examples of the benefits principle or the ability-to-pay principle.

a. Visitors to many national parks pay an entrance fee.

b. Local property taxes support elementary and secondary schools.

c. An airport trust fund collects a tax on each plane ticket sold and uses the money to improve airports and the air traffic control system. (Source: Mankiw)

**Answers**

These are my answers. You should be able to come up with your own arguments that may or may not differ from mine.

1. the state is assuming that extra taxation has no effect on spending habits. Most people have to stick to a budget, so a tax increase encourages them to consume less. There will most likely be an increase in government revenue, but not by 20%.

2. this exclusion encourages people and producer to invest in necessities rather that luxuries. Such a tax system mostly benefits the poor, so it’s equitable. However, total government revenue is lower than it could be, so the equity is achieved by sacrificing some efficiency.

3. a. people are encouraged to hold on to their investment for as long as possible to avoid paying taxes.

b. some investors might be encouraged to sell their investments while the tax cut is in effect, so some extra cash flow will be available for taxation.

c. it’s up to your opinion. I’m personally against taxing any unrealized gains. For example, if due to inflation my computer becomes more expensive, I’ve become richer on the paper, but I don’t have any cash to pay taxes. Taxes should only be imposed when there is a cash flow.

4. a. benefits principle

b. benefits principle (local kids use the schools) and ability to pay (home owners are the ones who pay)

c. benefits principle (those who fly will pay) and ability to pay (first class tickets cost more, taxed more)

Thanks for checking out these weekly resources!

Don’t forget to check out our website for group tutoring times, video tutorials and lots of other resources: [www.baylor.edu/tutoring](http://www.baylor.edu/tutoring) ! Answers to check your learning questions are below!