Quiz #1 – Week 03/01/2009 to 03/07/2009

You have 25 minutes to answer the following 14 multiple choice questions. Record your answers in the bubble sheet. Your grade in this quiz will count for 1% of your total grade in this course.

1. When the price elasticity of demand is high and the price elasticity of supply is low, the burden of an excise tax falls primarily on

a. sellers of the product.

b. buyers of the product.

2. You are told that the initial supply curve in a market is $P = Q$ and the initial demand curve in the market is $P = 100 - Q$. An excise tax is imposed in this market and it results in the government collecting $1,250 in tax revenue. The excise tax in this market is equal to

a. $10.

b. $20.

c. $25.

d. $50.

3. Excise taxes cause deadweight loss when the excise tax

a. raises the price of the good being taxed.

b. decreases the quantity of the good supplied and demanded in the market.

c. creates an incentive for mutually beneficial exchanges to take place.

d. Answers (a), (b), and (c) are all true.

4. The deadweight loss due to the imposition of an excise tax is lowest when

a. demand is relatively inelastic and supply is relatively elastic.

b. demand is relatively inelastic and supply is relatively inelastic.

c. demand is relatively elastic and supply is relatively elastic.

d. demand is relatively elastic and supply is relatively inelastic.

5. Policymakers wishing to dramatically decrease the consumption of a good by using an excise tax will find that the success of this policy depends on

a. the price elasticity of demand.

b. the price elasticity of supply.

c. the price elasticities of either demand or supply.

d. the size of the excise tax. The price elasticities of supply and demand have no impact on how successful the policy is with regard to decreasing the consumption of the good.

6. Which of the following statements is true?

I. The ability-to-pay principle of taxation says that all individuals have the ability to pay tax and should therefore not be exempt from paying taxes.

II. The ability-to-pay principle of taxation when applied in the design of a tax system results in all individuals paying their fair share of taxes.

III. The ability-to-pay principle of taxation and the benefits principle of taxation result in the same outcome with regard to designing tax systems.

a. Statement I is true.

b. Statement II is true.

c. Statement III is true.

d. Statements I and III are true.

e. Statements II and III are true.

f. None of the above statements are true.

Use the following table to answer the next three questions. The table provides information about pre-tax income and then gives after-tax income for three different tax structure proposals.

Pre-tax income	Proposal 1: After-tax income	Proposal 2: After-tax income	Proposal 3: After-tax income
$ 20,000	$ 15,000	$ 15,000	$ 15,000
32,000	24,000	27,000	22,400
40,000	30,000	35,000	27,200
80,000	60,000	75,000	52,000
200,000	150,000	195,000	120,000

7. Policymakers wish to impose a proportional, or flat, tax based on income. Which proposed tax structure represents this choice?

a. Proposal 1

b. Proposal 2

c. Proposal 3

8. Policymakers wish to impose a regressive tax based on income. Which proposed tax structure represents this choice?

a. Proposal 1

b. Proposal 2

c. Proposal 3

9. What percentage of income does an individual pay in taxes under proposal 2 if that individual's pre-tax income is $40,000?

a. 0.125%

b. 1.25%

c. 12.5%

d. 125%

10. The marginal tax rate is

a. the total number of dollars paid as a tax divided by the taxpayer's income.

b. the total amount of tax revenue collected by the government divided by the economy's total income.

c. the percentage of an increase in income that is taxed away.

d. the percentage of income paid as taxes by the lowest quintile of income in the economy.

11. In contrast to taxes at the federal level, taxes at the state and local level of government in the United States

a. apply the ability-to-pay principle more frequently.

b. tend to be more proportional.

c. tend to be more regressive.

d. tend to be more progressive.

Use the following information about Joe's utility from consuming pizza to answer the next three questions.

Number of slices of pizza	Total utility
1	100 utils
2	180 utils
3	240 utils
4	280 utils
5	300 utils
6	310 utils

12. Based on the table, Joe's total utility from consuming pizza slices

a. decreases as he consumes more and more pizza slices.

b. increases at an increasing rate as he consumes more and more pizza slices.

c. increases at a decreasing rate as he consumes more and more pizza slices.

d. initially increases at an increasing rate as he consumes more pizza slices, but his total utility eventually increases at a diminishing rate.

13. Joe's marginal utility from consuming the fourth slice of pizza equals

a. 60 utils.

b. 40 utils.

c. 280 utils.

d. 20 utils.

14. Joe's utility from consuming pizza is consistent with

a. diminishing marginal utility.

b. constant marginal utility.

c. increasing marginal utility.

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Answer Key

1. Answer a. When price elasticity of demand is high (implying a relatively flat demand curve) while price elasticity of supply is low (implying a relatively steep supply curve), the economic burden of an excise tax falls primarily on producers since the excise tax causes a relatively small increase in price and a relatively large decrease in the quantity demanded.

2. Answer d. One way to solve this problem is to draw a graph with the initial supply and demand curves and then calculate what the tax revenue would equal for each of the excise tax rates. For each level of the excise tax, the supply curve with the tax could be written as Ps = Qs + (the amount of the excise tax), where Ps is the supply price and Qs is the quantity supplied at that price. Then, use this equation plus the demand equation and each level of the excise tax to calculate the equilibrium quantity, the equilibrium price with the tax, and then the tax revenue generated by the tax. Thus, if the excise tax is equal to $50 per unit, then the equilibrium quantity in the market once the tax is imposed is 25 units, the equilibrium price with the tax is $75, and the tax revenue is equal to ($50/unit)(25 units) = $1,250.

3. Answer b. An excise tax creates a deadweight loss because it discourages mutually beneficial exchanges from taking place. The excise tax creates a deadweight loss by altering the amount of the good supplied and demanded in the market. An increase in price due to the excise tax is not sufficient to create a deadweight loss, because if the demand curve is perfectly inelastic, there is no deadweight loss due to the tax.

4. Answer b. The deadweight loss from an excise tax is smallest when both the demand and supply curves are relatively inelastic, since this implies that the percentage increase in the price is relatively greater than the percentage decrease in the quantity supplied and demanded in the market.

5. Answer c. A policy to reduce consumption of a good through the imposition of an excise tax is more successful when the activity being discouraged is elastically demanded or supplied.

6. Answer f. The ability-to-pay principle is based on the principle that those with greater ability to pay a tax should pay more than those with less ability to pay the tax. On the other hand, the benefits principle is based on the principle that those who benefit from public spending should bear the burden of the tax that pays for that spending. With these two definitions in mind, let's now analyze the previous three statements:

1. In the first statement, it is possible to think of individuals who lack the ability to pay a tax (the unemployed, the disabled, the retired, children, etc.). These individuals, according to the ability-to-pay principle should pay very small amounts of tax, and what we mostly observe is that they are generally exempt from paying taxes. Hence, statement I is false.
2. In the second statement, the ability-to-pay principle results in those with higher incomes paying higher taxes: some of these individuals may not feel that the resultant tax system and its economic distribution are fair. Indeed, we know from class that the criteria to judge the fairness of a tax system for some people might be the ability-to-pay principle, but that some other individuals might use the benefits principle instead. Hence, we cannot unambiguously conclude that the tax system is fair, which makes statement II false.
3. The third statement indicates that the two principles distribute tax burden similarly. But instead, each principle distributes tax burden quite differently: the benefits principle considers the connection between the recipients of the government's spending programs and the level of taxes these individuals pay, while the ability-to-pay principle does not consider who receives the benefits of government spending programs, but instead focuses on sheer ability to pay the tax. In order to understand that the distribution of tax burden doesn't need to coincide when using each principle, think about some of the examples we discussed in class. The usual example of a tax designed according to the benefits principle is local taxes, where you pay for local services, and you benefit from them. (One extreme example is the fee you pay when getting a driving license: you pay WA $50 and you are the person getting a WA driving license, nobody else benefits from the government's program but you). Instead, the usual tax designed according to the ability-to-pay principle is the income tax, whereby people with higher income levels pay higher taxes (both in their dollar amounts, and in the proportion of their income). Indeed, the distribution of the tax burden of the driving licenses (benefits principle) is not the same as that of the income tax (ability-to-pay principle). Hence, statement III is also false.

Therefore, none of the three statements is true, and the correct answer is then (f).

7. Answer a. A flat tax collects the same percentage of the base regardless of the taxpayer's income or wealth. Proposal 1 represents a flat tax, since this tax is 25% of the pre-tax income regardless of the level of pretax income.

8. Answer b. A regressive tax structure is one in which the tax rises less than in proportion to income so that high-income taxpayers pay a smaller percentage of their income than do low-income taxpayers. Proposal 2 taxes individuals with income of $20,000 at a rate of 25% of their income, while individuals with income of $200,000 are taxed at a rate of 2.5% of their income.

9. Answer c. An individual earning a pre-tax income of $40,000 pays $5,000 in taxes under proposal 2. To convert this to a percentage, divide (5,000/40,000) and then multiply this value by 100.

10. Answer c. The marginal tax rate is a measure of the change in tax divided by the change in income. Answer (a) measures the average tax rate for a taxpayer, since it computes the value of (taxes

paid/income). Answer (b) measures the ratio of total taxes paid to total income. Answer (d) measures the average tax rate paid by taxpayers in the lowest quintile in a society.

11. Answer c. State and local taxes are more regressive than federal taxes, which are overall quite progressive. State and local governments recognize that a decision to tax high income individuals more heavily than low-income individuals may result in the high income individuals moving to other localities where taxes are lower.

12. Answer c. From the table, we can see that Joe's total utility increases as he consumes more and more slices of pizza. However, Joe's total utility increases by smaller amounts with each additional slice of pizza. Joe's total utility, although increasing, increases at a decreasing rate as his level of pizza consumption increases.

13. Answer b. Joe's marginal utility from consuming the fourth slice of pizza is equal to his total utility from consuming four slices of pizza minus his total utility from consuming three slices of pizza. Thus, Joe's marginal utility from the fourth slice of pizza equals 280 utils minus 240 utils, or 40 utils.

14. Answer a. Diminishing marginal utility refers to the idea that consumption of additional units of a good increases the consumer's total utility, but at a decreasing rate. Joe's utility from pizza consumption increases with each slice he eats, but each additional slice of pizza adds less to his total utility than the previous slice.