

Final Exam

Name _____

- The duration of the exam is 1 hour 20 minutes.
- The exam consists of 8 problems and it is worth 100 points. The extra credit problem will only be counted if you lose points on other problems.
- Please write in the space provided. If necessary, write on the back of the page.
- Please ask me if you have any questions.
- To receive full credit you have to carefully explain all your answers and show all your work.

General advice: If you get stuck in the early parts of a problem, do not stop there. You can receive substantial partial credit by explaining how you would solve the rest of problem if you had the necessary answers from its previous parts.

1. (20 points) Determine whether each of the statements is true or false:
 - a. All couples start paying “marriage tax” when they get married.
 - b. Working fewer hours to reduce your tax burden is tax avoidance.
 - c. Public goods are underprovided because of the Free-Rider problem.
 - d. If the demand for a good is elastic, efficiency requires that this good is taxed relatively heavily because buyers will escape this tax by switching to other goods.
 - e. Efficient commodity taxation is achieved by equating marginal excess burden across different commodities.
 - f. Economic burden of a tax is always different from statutory burden.

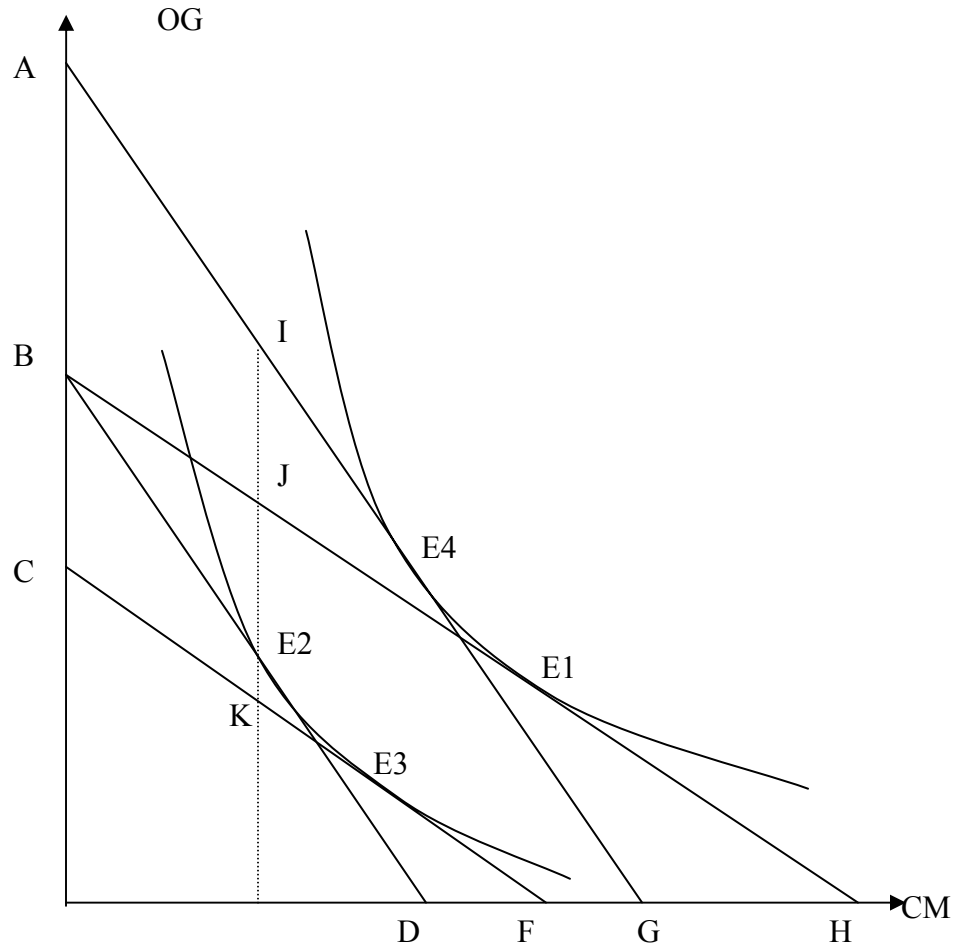
g. It is often impossible to have both efficient and equitable tax system.

h. Investors are better off if only realized capital gains are taxed.

2. (5 points) What is the rationale behind the Alternative Minimum Tax and what problems it may cause?

3. (5 points) Suppose that you observed changes in tax rates and levels of charitable donations over time. How would you go about distinguishing marginal and inframarginal effects of tax rate changes on the level of charitable donations?

4. (20 points) Refer to the graph below. Lou is maximizing his utility by consuming two goods – color markers and all other goods. Lou’s budget constraint is given by line BH. His optimal consumption bundle is E1. Now assume that government imposes a unit tax on color markers. Lou’s budget becomes BD and his after-tax optimal consumption bundle is E2. As always we normalize the price of all other goods to \$1.



a. What are the tax revenues in this case? Explain.

b. What is the Equivalent Variation of this tax? What is the associated Excess Burden? Explain.

- c. What is the Compensating Variation of this tax? What is the associated Excess Burden? Explain.
5. (5 points) Imagine that you are a policymaker responsible for taxation and you can use the following general tax scheme: $T = -a + t * \text{Income}$, where T is the resulting tax liability, t is the flat tax rate and a is a lump-sum personal tax credit. You can choose a and t . Explain how you can make the system relatively more progressive while sticking to the basic formula above? How about less progressive?
6. (15 points) Consider a country with the following progressive tax system – low income is taxed at 5% and high income is taxed at 25%. The individuals in this country are considering whether to invest in municipal bonds. The market rate of return is 10%.
- What rates of return on municipal bonds would induce low-income people to invest in these bonds? What about high income people?

b. Now suppose that each income group has exactly \$100 in total to invest (or not invest) in municipal bonds. What rate of return would municipality offer if it needs to raise exactly \$100? How much money it would save (compared to market rate of return)? How much money would the federal government lose?

c. What rate of return would municipality offer if it needs to raise exactly \$200? How much money it would save (compared to market rate of return)? How much money would the federal government lose?

7. (30 points) Consider the market for a good X. The demand is characterized by the following equation $P_d=100-Q_d$, the supply is given by $P_s=2Q_s$.

a. Determine the equilibrium quantity and price?

- b. Suppose a unit subsidy of \$5 is given to producers of good X. On a graph sketch what will happen to demand and supply curves. What is the new equilibrium price and quantity? What are the prices that buyers pay and suppliers get? What are the subsidy expenditures? Who will benefit more from this subsidy – buyers or sellers? Would your answer change if subsidy were given to buyers?
- c. Calculate the excess burden of this subsidy. Does this subsidy improve welfare?

- d. Suppose that government is considering two options – offer a \$5 subsidy for two years or offer \$10 subsidy but for this year only. Assuming that interest rates are zero, which option would you recommend?
- e. Imagine that this good X is actually college education. Give at least two examples why a subsidy can in fact be welfare improving.
8. (5 points extra credit) Consider a small town located nearby a big city (there are many other similar small towns around it). The elasticity of demand for restaurant meals is very high in this town (after all, it is easy to drive to any other town to eat out). The restaurant employs labor and capital to produce meals. The supply of labor is also very elastic because of many similar opportunities nearby. Now assume that town officials impose a \$2 tax on restaurant meals. Who will bear the burden of this tax?