

Microeconomic Theory

1. "If the DEA intercepts 100 tons of cocaine, the supply of cocaine will fall. This will cause the price to rise, which will increase the supply back to its original position." True, False, or Uncertain. Explain.
2. What is the effect of each of the following events on the equilibrium price and quantity of new automobiles?
 - a) The price of used autos increases.
 - b) The price of steel decreases.
 - c) Several firms exit the auto industry.
 - e) The price of gasoline increases and fiber glass becomes less expensive.
 - f) The price of train service decreases and the government imposes a tax on auto producers.
3. The number of lawyers in the US has increased over the last decade. The wage rate of lawyers has increased over the same time period. Use supply and demand analysis to explain this phenomenon.
4. The minimum wage is typically set above the market-clearing wage in the market for labor. Using a graph with an upward-sloping supply of labor, a downward-sloping demand for labor, with the quantity of labor measured on the horizontal axis and the wage rate measured on the vertical axis, show the effect on the labor market of a minimum wage set above the equilibrium wage rate.
5. Judith loves cats, hates dogs, and is completely indifferent to tropical fish. Draw her indifference curves between:
 - a) cats and dogs
 - b) cats and fish
 - c) dogs and fishIn each case, plot the second animal on the horizontal axis.
6. Use budget lines and indifference curves to analyze the effect of the following policies on the quantity demanded of some good, X.
 - a) Government gives the individual \$500.
 - b) Government places a 5% tax on good X only.
 - c) Government places a 5% tax on both goods
7. If an organization like the Mafia effectively monopolized illegal activity, would you expect to observe less crime than under competitive free entry into this "industry"?
8. Your coffee mug company is currently producing at an output level of 200 units per month. Fixed costs are \$500 per month. At the current output level, you know that marginal cost is \$10 and equal to average total cost. At an output level of 150, you have determined that marginal cost would be \$6 and equal to average variable cost. The market price for your coffee mugs is \$8. If your goal is profit maximization, should you continue at $q = 200$, increase q above 200, or reduce q below 200? Would you do better to shut down? (Hint: It might be useful to sketch the cost curves and demand curve for this firm.)
9. A monopolist produces 100 units of output where $MR = MC$ and charges a price of \$20. The average cost of 100 units is \$12. Draw this situation on a graph.
 - a) What is total revenue, total cost, and economic profit at this output level?
 - b) Suppose the government imposes a lump-sum tax of \$300 on the monopolist. How does the monopolist respond to this in terms of price and output? Illustrate graphically. What are its profits now?
10. True or false: Robbery is simply a transfer of wealth from one individual to another, so from the point of view of one who is interested only in maximizing social surplus, there is nothing wrong with it.
11. Blue laws in many states restrict the sale of most consumer goods on Sunday. Consumers, by and large, oppose the law because many find Sunday afternoons the most convenient time to shop. Paradoxically, retail merchant associations frequently support the law. The Houston Association, for instance, has filed more than 40 lawsuits against violators, mostly large retailers. Discuss the reasons for merchants supporting Blue laws. Use the prisoner's dilemma.

12. Consider the game matrix below. Player A can play the strategies "High" and "Low," and Player B can play the strategies "Odd" and "Even."

		Player B's Strategies	
		Odd	Even
Player A's Strategies	High	A gets 0 B gets 0	A gets 3 B gets 3
	Low	A gets -2 B gets 2	A gets 4 B gets -4

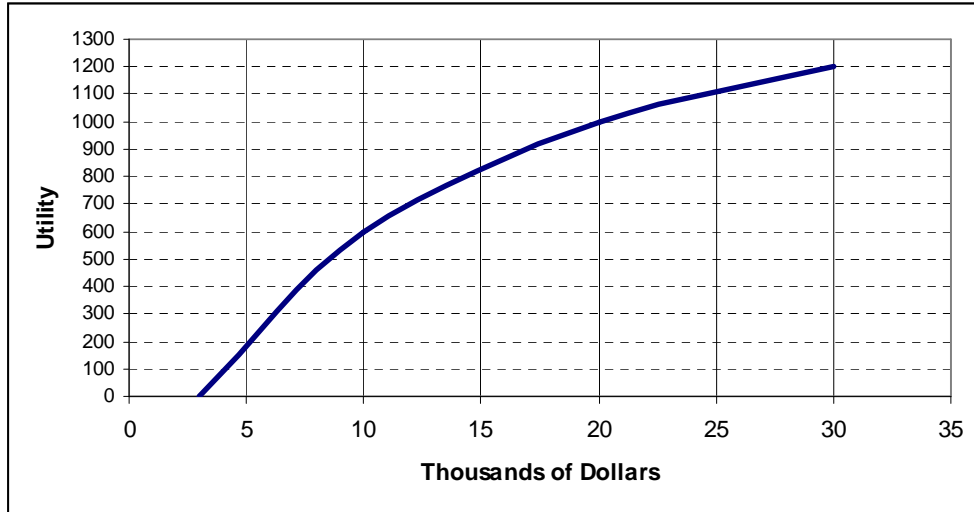
- a) Which outcomes in this game are Pareto optimal?
 b) Which outcomes in this game are Nash equilibria?
 c) When would the upper left-hand corner be the likely outcome of this game?
13. Which of the following are private goods and should, therefore, be provided by the private sector and which are pure public goods and should, therefore, be provided by the public sector? Explain your answers.
 a) A swimming pool large enough to serve a municipality.
 b) A fireworks display.
 c) A heart transplant.
 d) A wilderness area.
 e) Protection from an epidemic disease.
14. Should society take as its objective the eradication of all crime? Of all pollution? Of all accidents? On what basis should society allocate its scarce resources toward reduction of crime, pollution, accidents, and other bad things?
15. In the last decade, no-fault divorce laws have become the norm. Ignoring for the sake of this problem all the other factors that influence the marriage decision and that have changed during the same time period, what does the move to no-fault divorce do to the implicit (legal) price of divorce? What would be your prediction about the effect of this change in the implicit price of divorce on the quality and quantity of marriages and divorces? If in the next decade, the states were to repudiate the experiment in no-fault divorce and return to the old regime, would you predict a change in the quality and quantity of marriages and divorces?
16. Suppose that an entrepreneur is considering two possible projects in which to invest. The first, D1, involves the production of an output whose market is familiar and stable. There is no uncertainty about the outcome of project D1; the entrepreneur can be confident of earning a profit of \$500 if she takes D1. The second project, D2, involves an untried product whose reception by the consuming public is uncertain. If consumers like the new product, the entrepreneur can earn profits of \$1000. However, if they do not like it, she stands to lose \$100. Let D2's probability of success, p , be equal to 0.25.
 a) What is the expected value of D1?
 b) What is the expected value of D2?
 c) What value of p would make the entrepreneur indifferent between the two projects?
17. This is a problem about the difference between social and private costs. There are two ways to travel between cities A and B. The train costs \$1 and the trip takes one hour. Each individual values his time at \$1.50 per hour. Assume that the duration of the train trip is independent of the number of people using the train. One can also drive from A to B, but in this case the duration of the trip depends on the number of cars on the road according to the following formula:

$$t = 0.2 + 0.05N$$
 where t = the duration of the car trip in hours, and N = the number of cars on the road. Gasoline, tolls, and all other expenses are \$0.50 per trip, regardless of its duration. Again, all drivers value their time at \$1.50 per hour, and each car takes only one person.
 a) Calculate the cost to an individual of taking the train from A to B. (This is the individual's cost of a train trip, and it is also the cost to society of one more person's taking the trip from A to B by train.) What is the total cost of N people's taking the train from A to B? What is the social marginal cost of the trip? How does that compare to the private marginal cost?
 b) Calculate the cost to an individual of traveling from A to B by car. How many individuals, N , will travel by car between the two towns? (Hint: An individual will prefer to take his car rather than the train up to the point at which the (private) cost to him of car travel is equal to the private cost of train travel. Derive an equation showing the equality of those private costs and solve for N .)
 c) Unlike train travel, car travel imposes costs on other people over and above the private costs imposed on each individual driver. Derive an equation that shows the total costs of N people's taking their cars from A to B. Using this equation and the information from part (a) on the costs of train travel, what is the socially optimal number of cars traveling between A and B? (Hint: In order to solve this part, you first need to calculate the social marginal cost of car travel. For a total cost function of the form $TC = a + bQ^2$, the marginal cost is given by $MC = a + 2bQ$. Once you have derived that equation, you need to

realize that the socially optimal number of cars will occur when the social marginal costs of train and car travel are equal.) How does your answer for the optimal number of car trips in this part compare with your answer in part (b)?

d) Can you suggest a public policy that will induce car travelers to behave in a socially optimal fashion? That is, what policy will induce car travelers to take account of the social costs they impose in addition to the private costs they incur?

18. You have \$30,000 in income. Your utility function is shown in the chart below. There is one chance in a hundred that your house will be struck by lightning, in which case it will cost \$10,000 to repair it. What is the highest price you would be willing to pay, if necessary, for a lightning rod to protect your house?



19. Clarence Bunsen is an expected-utility maximizer. His preferences between contingent commodity bundles c_1 and c_2 , likely to occur with probabilities p_1 and p_2 , are represented by the expected-utility function

$$u(c_1, c_2, p_1, p_2) = p_1 (\sqrt{c_1}) + p_2 (\sqrt{c_2})$$

Clarence's friend, Hjalmer Ingqvist, has offered to bet him \$1,000 on the outcome of the toss of a coin. The rules are that if the coin comes up heads, Clarence must pay Hjalmer \$1,000 and if the coin comes up tails, Hjalmer must pay Clarence \$1,000. The coin is a fair coin, so that the probability of heads and the probability of tails are both 1/2. If he doesn't accept the bet, Clarence will have \$10,000 with certainty. (In the privacy of his car-dealership office over at Bunsen Motors, Clarence is making his decision, using the pocket calculator that his son, Elmer, gave him last Christmas. For most of the questions you can calculate the answer exactly with pen and paper. This may take a little imagination and perseverance. In all cases where you must calculate the square root of a large number, round off to the nearest whole number.) Let Event 1 be "coin comes up heads," and let Event 2 be "coin comes up tails."

- If Clarence accepts the bet, then in Event 1 how many dollars will he have? And in Event 2, how many dollars will he have?
- Because the probability of each event is 0.5, use the values from part (a) to write out the formula for calculating Clarence's expected utility for a gamble in which he gets c_1 in Event 1 and c_2 in Event 2.
- Calculate Clarence's expected utility if he accepts the bet with Hjalmer. (If you need help with this calculation, please see me.)
- If Clarence decides not to bet, then in Event 1 how much money will he have? And in Event 2 how much money will he have?
- If Clarence decides not to bet, what will his expected utility be?
- Having calculated his expected utility if he bets and if he does not bet, Clarence determines which is higher and makes his decision accordingly. Does Clarence take the bet? Why?

Law and Legal Institutions

- What is the primary difference between the legitimate sources of law in the common law and civil law countries?
- Describe the hierarchical structure of the federal and state court systems in the common law countries. What purpose does this pyramidal structure serve?
- How does the law change in the common law system? Give an example.

Property Law

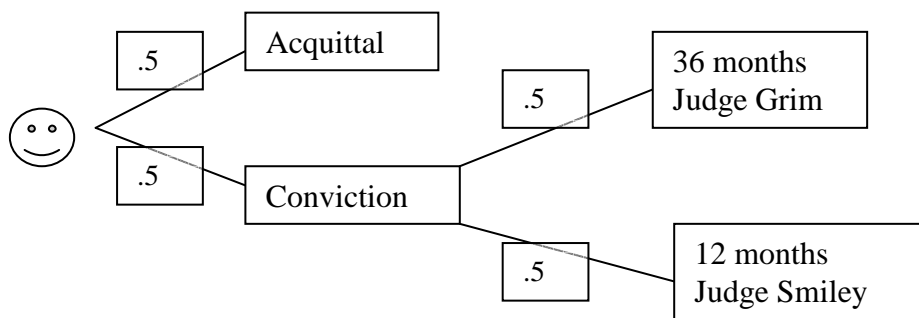
23. What is the fundamental economic purpose of property law?
24. What is the Coase Theorem, and why is it important to the economic theory of property law?
25. Explain the criticisms of the Coase Theorem that are made on the basis of wealth effects and the endowment effect.
26. According to the Coase Theorem, what ought to be the relationship between the level of transaction costs and public intervention in private decision-making?
27. The traditional remedy for a nuisance is an injunction, and the nontraditional remedy is damages. Explain in a paragraph the circumstances in which the former is more efficient than the latter, and the circumstances in which the opposite is true
28. Calabresi and Melamed used the insights of the Coase Theorem to discuss the efficiency of legal and equitable remedies for protecting against property-rights infringements. Describe their results.
29. Considerations of efficiency argue for time limits on the duration of property rights in patents and copyright. What are those considerations? Is the social cost attributable to a longer duration of patent the same as the social cost attributable to a longer duration of a copyright? Why has the duration of a patent remained constant for two centuries but the time for the duration of a copyright has expanded throughout that same time period? Could you argue for extending the life of a copyright even further than the current “author’s life plus 70 years” or is the current limit efficient?
30. Is it inefficient to grant every invention a 20-year monopoly right? How might you reform patent law in order to minimize these inefficiencies?
31. Why do trademarks and servicemarks have economic value? Do considerations of economic efficiency argue for a time limit on the owner’s rights to use a trademark or servicemark? Why or why not?
32. Should an owner of real property be able to exercise control over her property (in the sense of designating to whom her property passes and the uses to which her property is put) after her death? What would be the economic inefficiencies of society’s trying to prevent that control? What would be the social costs of allowing that control to be exercised for too long a period after the owner’s death?
33. On efficiency grounds, how would you have decided *Boomer*? Compare your reasoning with that of the New York Court of Appeals.
34. For fugitive property, the rule of tied possession has higher costs of administration than the rule of first possession. True or False? Explain
35. If “just compensation” for governmental taking is interpreted to mean “fair market value” and that is the only constraint on governmental taking, will the government’s power to compel the sale of private property be exercised efficiently? Why not? What additional constraint ought to be imposed on the government’s power in order to confine the use of that power to circumstances in which it is efficient to compel the sale?
36. What is a regulatory taking? Should the government be liable for compensating owners every time a legitimate governmental regulation reduces the value of private property? Why not? Under what circumstances should a reduction in value following a government regulation be compensable?
37. Describe the incentive effects for government and private property owners of a rule of *always* compensating private property owners for regulatory takings. Of *never* compensating them. What is the “paradox of compensation”? Is there a workable legal solution to the paradox?
38. The city council is considering whether to pass an ordinance that requires every restaurant and bar in the city to set aside a minimum of 50% of its seating area for the exclusive use of non-smokers. Those who are in favor of the ordinance argue that without the ordinance restaurants will not make special concessions to non-smokers and that, therefore, smokers will inflict considerable external costs on non-smokers in restaurants and bars. Those who are opposed to the ordinance argue that there is no need for governmental intervention: restaurants and bars have the right incentives to set aside the optimal amount of space for smokers and non-smokers. Explain briefly how the Coase Theorem might be used to analyze this issue and take a position for or against the ordinance and justify it.

39. The owner of a small bar closed for the night and began counting the money. He was surprised by a masked armed robber. As the thief was leaving the scene, one of the bar's patron's who was loitering in the parking lot, got a look at him. Using solid circumstantial evidence, a well-known hood called Lefty was arrested and, after he was chosen from a lineup by the patron, Lefty was charged with the crime.

After working on the case, the prosecutor is uncertain about her ability to win a conviction at trial. A conviction will depend in part upon the testimony of the eyewitness, who, besides being an unstable character, was drinking in the bar just before the robbery. It is difficult to foresee how well the eyewitness will perform on the stand. The defendant, through his lawyer, begins plea bargaining with the prosecutor. The prosecutor and the defendant's lawyer, who have access to much the same facts, both conclude that there is a 50% chance of acquittal at trial and a 50% chance of conviction.

If convicted, the sentence would depend upon several contingencies, but the most important one is the identity of the judge. There are two judges in this jurisdiction, "hanging Judge Grim" and "lenient Judge Smiley". If the case is tried and a conviction secured before Judge Grim, the probable sentence is 36 months, whereas with Judge Smiley the probable sentence is 12 months. The assignment of the case to either judge is equally likely.

Representation of facts as a Decision Tree:



- In the event of a trial, what punishment is "expected" in the mathematical sense by the attorneys? (Give your answer in "months.")
- The prosecutor has such a busy schedule that she is not eager to try this case. She would be willing to reduce the sentence that she expects to obtain from a conviction by as much as 12 months to avoid a trial, but not by *more* than 12 months. What is the minimum sentence which the prosecutor would accept in plea bargaining (threat value expressed in certain prison time)?
- Similarly, the defendant, who is frightened by the possibility of a severe sentence and who does not want to spend his money on a trial, is willing to add as much as 6 months to his expected sentence in order to avoid the uncertainty and cost of a trial. What is the maximum sentence which the defendant would accept in plea bargaining (threat value expressed in certain prison time)?
- What is the surplus from cooperating and settling, rather than trying the case, as measured in prison time?
- Assume that the prosecutor and defendant bargain together. What sentence is *reasonable* (Nash bargaining solution)?
- Explain in a couple of sentences where the "surplus" comes from for each party.
- Now suppose that the legislation forbids plea bargaining and requires trying every case. The mathematically expected prison time when every case is tried equals _____.

40. Food Co. built a warehouse in open land and a residential neighborhood grew up around it. Food Co. now proposes to expand the warehouse, which would increase its profits. The neighborhood is zoned "residential," which implies that future industrial and commercial developments are prohibited. (The warehouse has been allowed to remain because it was there before the residences.) Although zoned residential, the neighborhood has become a suitable location for commercial development. One company, Developer Inc., is considering commercial development. The warehouse has negative impacts upon commercial and residential activities in the neighborhood.

Assume that the benefit from different uses of the land, including profits from businesses located on the land, are captured by land values. For example, Developer Inc.'s profits from commercial development are captured by the land values when the neighborhood is used for commercial purposes.

The following table shows the land values in the neighborhood and the profits of Food Co. To illustrate, if the existing warehouse continues to operate and Developer Inc. develops the land for commercial use, then Food Co.'s profits equal \$20,000 and the neighborhood's land value equals \$380,000.

		Neighborhood's Land Values	
		Residential	Commercial
	No Warehouse	\$230,000	\$410,000
		\$0	\$0
Food Co.'s Profits	Existing Warehouse	\$210,000	\$380,000
		\$20,000	\$20,000
	Expanded Warehouse	\$200,000	\$175,000
		\$50,000	\$50,000

- a) What combination of activities by Food. Co. and Developer Inc. is socially efficient?
- b) Assume the town retains "residential" zoning and forbids the commercial development sought by Developer Inc. Also assume that Food Co. is permitted to expand the warehouse, provided that it pays damages to compensate for the fall in the neighborhood's land values resulting solely from the warehouse expansion. Will Food co. expand the warehouse?
- c) Assume that the town zones the neighborhood "commercial" and permits commercial development by Developer Inc. To develop the land, Development Inc. must buy the land, which involves paying the residents the value of the land in its residential use. Also assume the town permits Food co. to expand the warehouse. What combination of activities will result if Food Co. and Developer Inc. cannot bargain with each other?
- d) As in the preceding question, assume that the town zones the neighborhood "commercial" and permits commercial development by Developer Inc., and also assume the town permits Food Co. to expand the warehouse. What combination of activities will result if Food Co. and Developer Inc can bargain with each other ? (In answering this question, compute the threat values, cooperative value of the game, and the surplus. Bear in mind your answer to the preceding question.)
41. When Abe graduated from Cal, he bought a diamond ring with a golden bear insignia to impress his high school friends. The person most impressed was his old sweetheart, Beth. They grew so fond of each other that Abe asked Beth to wear his ring. Then the quarreling began. The relationship deteriorated until, in a fit of anger, Beth enrolled as a student at Stanford. Abe, naturally, broke off the relationship and asked for the return of his ring. Beth replied that it was a gift to her and she was not about to return it. He answered that he had only loaned it to her to wear for the duration of their friendship. Abe and Beth are now involved in a legal dispute over the ring. Beth possesses the ring and she declares that she intends to sell it. Abe threatens to sue her. In the event that there is a trial and Abe wins, the ring will be returned to him. The ring is worth \$1,000 to Abe. In the event that there is a trial and Beth loses, she will forego the \$400 that she expects to get from selling the ring. (The buyer does not know Abe and will not resell to him.) In the event of a trial, each one expects to win with probability .5. A trial will cost Abe \$300 and it will also cost Beth \$300. Abe and Beth start negotiating to reach a settlement and avoid a trial. The costs of settling out of court are nil. Supply numerical answers to the following questions concerning the bargaining situation.
- a) The threat values or threat points are....
- b) The value of cooperation is....
- c) The surplus from cooperation is ...
- d) The " reasonable" solution would be for Beth to return the ring to Abe and for Abe to pay Beth how much?