

Second Hour Exam
Public Finance - 180.365
Fall, 2007
Answers

1 Multiple Choice (4 pts each)

Correct answer indicated by \Rightarrow

1. The portion of income received by the middle class (the middle three quintiles) in the United States has _____ since the late 1960s.
 - (a) stayed the same
 - (b) \Rightarrow decreased
 - (c) increased a great deal but then declined
 - (d) increased slightly

2. Taking into account the utility of all persons in society is referred to as
 - (a) \Rightarrow a utilitarian social welfare function.
 - (b) equalizing social welfare function.
 - (c) an in-kind transfer.
 - (d) a Pareto equilibrium.
 - (e) all of the above.

3. When the average buyer of an insurance policy is likely to have higher risk than others in his class, this is known as
 - (a) \Rightarrow adverse selection.
 - (b) moral hazard.
 - (c) asymmetric information.
 - (d) an HMO.
 - (e) none of the above.

4. Health care markets may be inefficient because of
 - (a) poor information ('ignorance').
 - (b) adverse selection.
 - (c) moral hazard.
 - (d) \Rightarrow all of the above.
 - (e) none of the above.

5. The government can address _____ by providing universal health insurance coverage and charging uniform premiums.
 - (a) expected utility
 - (b) asymmetric information
 - (c) commodity egalitarianism
 - (d) moral hazard
 - (e) \Rightarrow adverse selection

6. When people behave in ways that involve increased risk because they have insurance, this is known as
 - (a) adverse selection.
 - (b) \Rightarrow moral hazard.
 - (c) asymmetric information.
 - (d) a HMO.

7. Which country has the highest per capita expenditures on health care?
 - (a) Australia
 - (b) Japan
 - (c) Norway
 - (d) \Rightarrow United States
 - (e) France

8. One reason for the recent increases in health care costs is the aging of the American population.
 - (a) \Rightarrow True
 - (b) False
 - (c) Uncertain

9. Medical care costs in the U.S. have increased because of
 - (a) The aging of the American population.
 - (b) Expensive new medical technologies are becoming widely used.
 - (c) Moral hazard problems in the medical insurance market.
 - (d) \Rightarrow All of A-C
 - (e) Mainly factors other than A-C

10. There are two forms of health care provided by the government: _____ is provided for the poor, and _____ is provided for the elderly.
 - (a) HMO; Medicare
 - (b) PMI; HMO
 - (c) \Rightarrow Medicaid; Medicare
 - (d) Medicare; Medicaid
 - (e) SSI; Medicare

11. How many elderly people are covered by Medicare?
- (a) one third
 - (b) one half
 - (c) \Rightarrow almost all
 - (d) almost none
12. Generally, managed care means
- (a) health care is provided by teams, not by an individual doctor.
 - (b) \Rightarrow limits are placed on utilization of health care services.
 - (c) health care is provided by the government to all citizens.
 - (d) doctors pick which patients they want to see.
13. Which of the following is *not* an assumption used in class for reaching the conclusion, using utilitarian reasoning, that income should be divided equally:
- (a) Everybody has the same utility function
 - (b) There is a fixed amount of income to be divided
 - (c) Marginal utility is a diminishing function of income
 - (d) \Rightarrow Some people are more productive than others
 - (e) Income is the only thing that matters for happiness
14. In the economic analysis of the market for new drugs, it is critical to take into account
- (a) Inefficiency from monopoly power granted by patents
 - (b) Inequity generated by drugmakers charging more than a medication costs to make
 - (c) Incentives for innovation by inventing new drugs
 - (d) Incentives for exploitation of market power
 - (e) \Rightarrow All of the above
15. If the government mandates that everyone have auto insurance because uninsured motorists cost other drivers money through higher premiums, which of the following justifications for government intervention is being used?
- (a) high administrative costs
 - (b) redistribution
 - (c) paternalism
 - (d) externalities
 - (e) \Rightarrow adverse selection

16. Suppose that you have complete health insurance that covers all expenses. You will use medical care up to the point where your:
- (a) total benefits equal the costs of providing the medical care.
 - (b) \Rightarrow marginal benefit is zero.
 - (c) marginal benefit is equal to the marginal cost of the medical care.
 - (d) marginal benefit is equal to the total costs of providing the medical care.
 - (e) total benefits are equal to the cost of your health care insurance.
17. If the government subsidizes the health insurance costs of individuals because individuals do not sufficiently realize the importance of having health insurance, which of the following justifications for government intervention is being used?
- (a) high administrative costs
 - (b) redistribution
 - (c) \Rightarrow ignorance
 - (d) externalities
 - (e) adverse selection
18. Which of the following is a reason why employers are the predominant source of insurance?
- (a) Insuring at the firm level reduces the extent to which insurance has moral hazard effects.
 - (b) Insuring at the firm level allows insurers to create large insurance pools with a predictable distribution of medical risk.
 - (c) Employee compensation in the form of medical expenditures is not taxed.
 - (d) All of the above are correct.
 - (e) \Rightarrow Both b and c are correct.
19. The public share of total health spending has _____ over the last 40 years; the share of Medicare and Medicaid relative to total government spending has _____ over the last 40 years.
- (a) risen; fallen
 - (b) \Rightarrow risen; risen
 - (c) fallen; risen
 - (d) fallen; fallen
 - (e) not changed; risen

20. Suppose that to estimate the effect of Medicaid on health status, a researcher compares those who choose to enroll in the program to those who are not enrolled. Which of the following would cause the resulting estimate to be biased?
- (a) Eligibility for Medicaid is established by factors that might also affect health
 - (b) Individuals who enroll in Medicaid may be different from those who are eligible but do not enroll and these differences may themselves affect health status
 - (c) Those who enroll in Medicaid may receive much more access to medical care than those who do not enroll
 - (d) All of the above
 - (e) \Rightarrow Both a and b

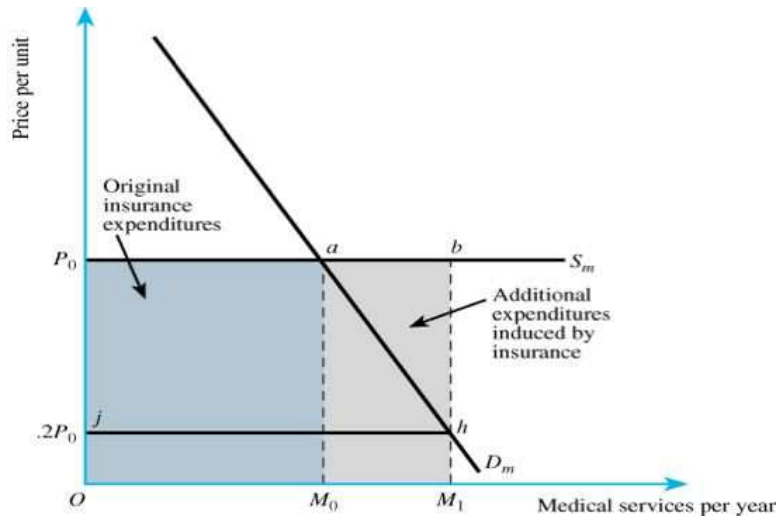
2 Discussion Question

This question is motivated by the fact that the Federal Drug Administration (the agency responsible for approving the sale of new drugs in the US) has recently begun to evaluate not only whether a new drug is effective for treating a medical condition, but also whether it is *more* effective than existing drugs already on the market.

1. Consider the market for an old drug (say, for acne) that was invented so long ago that the patent has expired. Assume this is the only drug available for treating acne. Assuming the drug can be easily manufactured for a marginal cost of \$1 per dose and the market for it is competitive, draw a diagram showing the market equilibrium price and quantity for this drug, assuming that no medical insurance exists (so the drug will be purchased directly by consumers with their own money)

Answer:

This situation is perfectly captured by the figure presented in the class handout labeled “Moral Hazard” taken from the textbook, illustrated in the figure taken from the textbook



2. On the same diagram, show the outcome that will occur if instead there is a taxpayer-funded universal drug insurance program that pays 80 percent of the cost of any purchases of the drug. On the diagram, indicate the extra expenditures induced by the insurance program. Explain why these expenditures are socially inefficient. Explain how and why the amount of inefficiency depends on the slope of the demand curve. What is the economic term for the fact that people will behave differently in the presence of insurance?

Answer:

These additional expenditures are socially inefficient because for each of these additional treatments the social marginal cost exceeds the social marginal benefit. Essentially, people overuse the treatment because they do not bear the full cost of it. This is known as moral hazard. Additionally, the steeper the demand curve, the smaller are the resulting inefficiencies. The flatter the demand, the larger are the resulting inefficiencies.

3. Thinking again about the economy with no health insurance, suppose the FDA is asked to approve a new acne drug that is exactly as effective the old one. The new drug has exactly

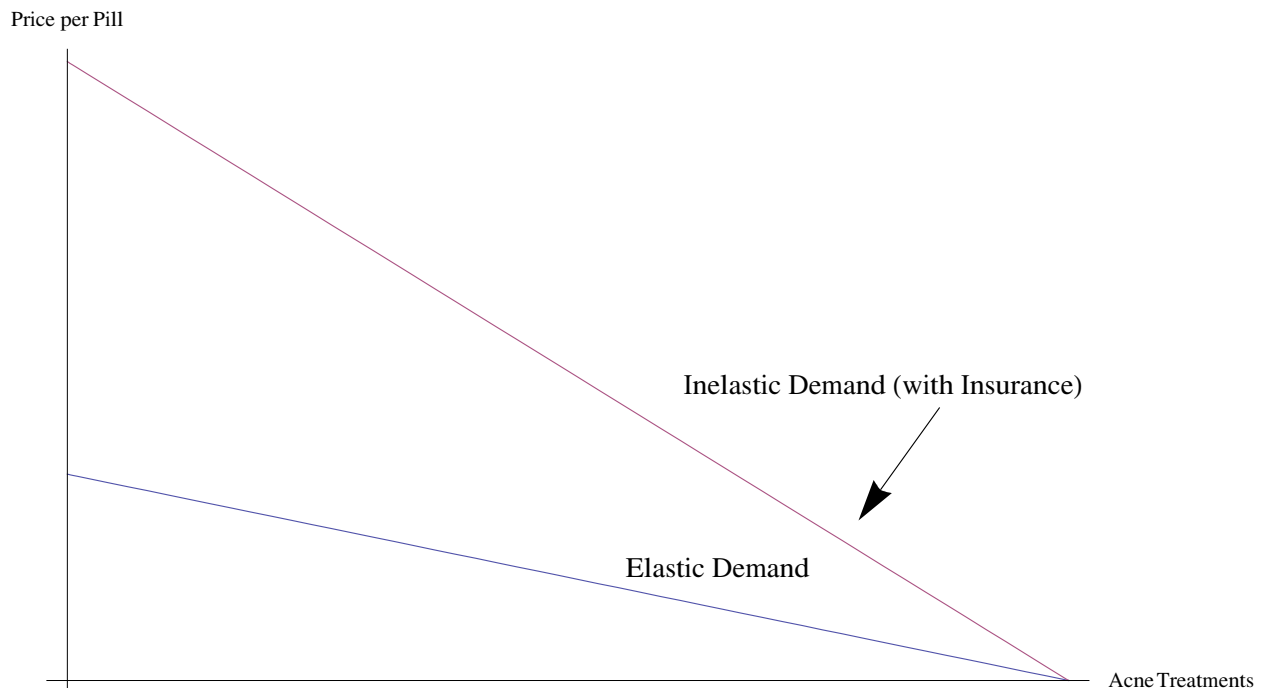
the same manufacturing cost, side effects, and other characteristics as the old drug. Assuming consumers know everything about the characteristics of the two drugs, explain why FDA approval would probably make little difference to consumers in this case.

Answer:

Consumers can still buy the old drug at the old price, and since the new drug is essentially identical to the old one (and we assumed that the old drug was being supplied competitively), there is no reason the market outcome will change when the new drug is introduced.

4. Now suppose both the new drug and the old one have an unfortunate side effect: People who take either drug have an unpleasant body odor. For the old drug, the strength of the body odor is the same for everyone. However, for the new drug the strength of the body odor problem is different for different people – on some people, body odor is less than for the old drug, while on other people it is much worse. Assume that, in the absence of medical insurance, demand for the new drug would be measured by the curve labelled “Elastic Demand” in the figure below. Answer the following questions using this figure.

Figure 1: Demand for New Acne Drug



- (a) Explain why, in the absence of insurance, differences across people in the intensity of the body odor problem will induce a downward-sloping demand curve for the new drug (as indicated by the “Elastic Demand” curve in the figure).

Answer:

People for whom the body odor problem is less using the new drug rather than the old drug will be willing to pay more for the new drug than for the old one (and vice versa). The bigger is the improvement in body odor, the more they will be willing to pay. So at a very high price, there will be very few people willing to pay, while at a lower price, more people will be willing to pay.

- (b) Explain why, if the cost of inventing the new drug is zero, some consumers’ welfare will be improved by the introduction of the new drug

Answer:

Nobody is forcing them to buy the new drug - they could still buy the old one at the original price. So the consumers for whom the new drug represents an improvement (i.e. those with less body odor) will buy it, while the consumers for whom the new drug is not any better will continue to buy the old one. Some people are certainly made better off because they now have an acne treatment that produces less body odor, and others are equally well off as before.

Many of you focused on the fact that the drug was invented at zero cost and then said that this introduction will lower prices allowing more people to afford the drug. This is not true. Price in a competitive market is determined by marginal cost. As mentioned in part 3, this new drug has the same “manufacturing costs” as the older drug - meaning it has the same marginal cost. So, price would not be less than marginal cost, and hence would not be less than the older drug which is priced at its marginal cost.

- (c) Explain why, from the firm’s point of view, the effect of medical insurance is to make demand more inelastic (with respect to the price the firm charges).

Answer:

Introduction of medical insurance increases the demand for the firm’s product; since any increase in the firm’s price only translates into the price consumers pay of 0.2 times as much. Thus, consumers will be less sensitive to the drug’s price than if they were paying the whole price. “Less sensitive” to price is another way of saying that their demand will be more inelastic (or more steeply sloped).

- (d) Assuming that demand after the introduction of insurance is measured by the curve labeled “Inelastic Demand”, use the model introduced in class of monopoly in the drug industry to show how the size of profits for the firm introducing the new drug will depend on whether demand is “Elastic” or “Inelastic” (draw on the diagram to show your answer)

Answer:

This just represents two cases of the model of monopoly in the drug industry presented in class, with different slopes.

- (e) Will the drug industry be in favor of universal insurance or against it? Why?

Answer:

They will be in favor of universal insurance, because it increases their profits by increasing the level of demand and making it more inelastic.

5. In reality, developing a new drug requires considerable research and development expenditures. Using the insights from the problem above, and given that a large proportion of drug expenditures are paid for by government medical insurance programs, explain why the FDA might think that taxpayers could be made worse off by the introduction of new drugs if those drugs are close substitutes for existing drugs.

Answer:

In the presence of insurance, total extra expenditures on the new drug might greatly exceed the total value consumers receive, because the moral hazard problem induces many more consumers to buy the drug than would buy it if they were paying the full price. This makes taxpayers worse off because the government uses taxpayer money to fund a great deal of the nation's healthcare expenses. This money could either be given back to taxpayers or it could be used for other more productive government programs. Moreover, the incentives inherent in the current policy are for drug makers to keep producing the same drugs over and over. This minimizes research costs and maximizes profits. The government should instead create incentives for the drug makers to develop new and more beneficial drugs to advance medicine and the health of society. In the presence of insurance, it might therefore make sense for the FDA to try to induce drug companies to concentrate on inventing drugs that are not just close substitutes for existing drugs. Of course, the fact that it *might* make sense does not necessarily mean that, in practice, the FDA will get this right.