

Second Hour Exam  
Public Finance - 180.365  
Fall, 2003  
Answers

This exam consists of four parts. You must answer all components of all parts of the exam. *If a question says you must explain your answer, you will not get full credit if you just give the right answer with no explanation.*

## 1 True/False. (20 points)

Decide whether each of the following statements is true or false.

- F 1. If antiglobalization protesters are right that the only thing corporations care about is profits, their conclusion that trade must be heavily regulated or banned necessarily follows.

*Answer:*

False. The key insight in Adam Smith's *The Wealth of Nations* is that pursuit of self-interest (and profits) can lead to socially desirable outcomes under many circumstances. So the mere fact that firms pursue profit does not mean that their actions are necessarily bad.

- T 2. It is possible to make a coherent argument against globalization within the context of an organic vision of society.

*Answer:*

True. For example, the organic view that the purpose of human society is to honor God could justify policies that would keep out foreign influence on the grounds that exposure to other people with different religions would weaken the commitment of the people to worship their own God.

Just because an argument is coherent does not mean it is right.

- T 3. Leaders of labor unions in rich countries may sometimes be acting in the best interests of their members when they oppose free trade.

*Answer:*

True. Labor union leaders, especially of unions for people in low wage, low skill jobs, are right that opening up trade can hurt their members. Of course, trade also makes the goods that their members buy cheaper, so for members of any given union it may not be clear whether the harm caused by lost jobs is outweighed by the benefit from cheaper goods (that's why the question said "may sometimes be acting" rather than "are acting").

The case for free trade must be made on the basis that the benefits to the many people who gain outweigh the harm to the few people who lose.

- F 4. The fact that South Korea is much richer than North Korea today does not necessarily prove that globalization leads to economic growth, because South Korea has always been richer than North Korea.

*Answer:*

Actually, before the Korean war, North Korea was richer than South Korea. The past 50 years of experience in Korea is the closest thing we have in economics to a controlled experiment with different approaches to the economy and government.

- F 5. The arguments and protests over globalization are pointless because there is not much governments could do to slow down globalization even if they tried.

*Answer:*

False. The government of North Korea has been very successful in preventing globalization. The *Economist* article "Is Globalization Doomed?" points out that the process of globalization was reversed during the period between WWI and WWII, especially during the Great Depression, and several of the other articles argue that there are many bad policies governments could pursue to hinder globalization.

- F 6. The elimination of the tax on dividends that President Bush proposed leading up to the Iraq war could be justified on the basis that it would provide greater tax relief for military households than for civilian households.

*Answer:*

False. My OpEd in the Baltimore Sun reports that the average size of benefits received by civilian households would be about 7 times as large as the average benefit received by military households. (Also, the 1 percent who benefited most would receive an average of \$20,000 a year tax cut, while the remaining 99 percent of households would get about \$70 a year on average).

- F 7. A utilitarian analysis would say that the fact that income inequality is greater in the United States than elsewhere means that overall social utility per person is lower in the US than in other countries.

*Answer:*

False. While the table distributed in your handout on income inequality does show that inequality is greater in the US, the average level of income in the US is also higher. Utilitarian analysis takes into account both the overall level of income and how it is distributed, so it is possible for average utility to be higher in the US than elsewhere even with greater inequality, because the higher level of income can compensate for the greater inequality.

- F 8. When President Bush said "By far the vast majority of my tax cuts go to those at the bottom," he was basically correct, if you look at the effect of the plan when it is fully phased in.

*Answer:*

False. According to the table presented in class, when the 2001 tax cut is fully phased in, the total amount of the tax cut received by people with taxable income of \$30,000 or less (who constitute about 50 percent of all returns) will receive 11.4 percent of the tax, while people with taxable income of over \$100,000 (constituting a little more than 10 percent of returns) will receive almost 60 percent of the benefit.

- T 9. There has been little net change in the poverty rate in the US since the late 1960s.

*Answer:*

According to the handout passed out in class, while the poverty rate declined dramatically during the 1960s, between the late 1960s and 2002 the rate has fluctuated between around 10 and around 15 percent. In 2002, the poverty rate of 12.1 percent was very close to the rate in the late 1960s.

- T 10. The increase in the share of income earned by the richest households in the US over the last 35 years can be characterized as “a hollowing of the middle,” because the share of income of the bottom quintile has not declined much.

*Answer:*

True. According to the table distributed as a handout in class, the share of income received by the richest quintile has increased by 6.6 percentage points, but the share received by the poorest quintile has declined only by 0.6 percentage points, so the remainder of the extra income received by the richest households is coming from the middle 60 percent.

## 2 Multiple Choice (28 points)

- a 1. Which of the following is *not* a good argument for why a country should open its economy to foreign trade?
- (a) Opening up the economy to foreign trade helps domestic firms by increasing their export business
  - (b) The increased national wealth that comes from globalizing makes it more affordable to reduce poverty, protect the environment, provide better health care, and protect workers displaced by technology
  - (c) Governments that permit free trade are less subject to corruption and bribery than those that have lots of trade barriers and rules
  - (d) The effects of allowing increased trade are very similar to the effects of technological progress
  - (e) None of (a)-(d) is a good argument for globalization

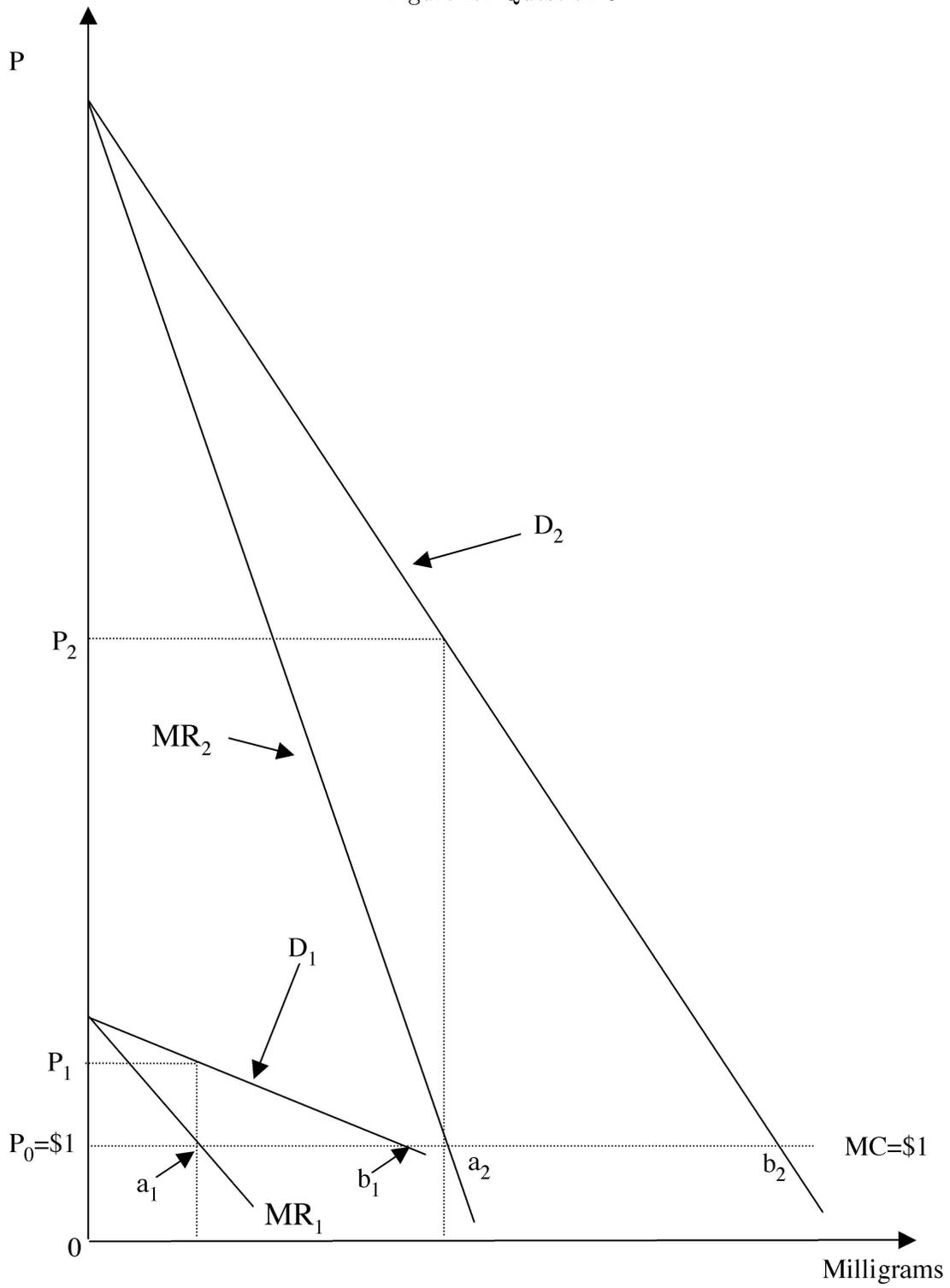
*Answer:*

(a) is a bad argument for several reasons. First, individualistic economic theory tells us that we care about individuals, not about firms. Second, even if we suppose that the benefit to the exporting firms translates into benefits for their employees, there are also employees of other firms making goods that compete with foreign goods who will probably lose their jobs. Of course the jobs gained will likely pay more than the jobs lost, but that really is a point about how globalizing makes the country on average richer. Read the *Economist* article “A Different Manifesto” for more on this point.

- c 2. Which of the following is a valid statement about globalization?
- (a) Opening up trade always results in increased Pareto efficiency
  - (b) Countries that have globalized more have usually seen democratic institutions undermined and subverted by market forces
  - (c) When trade between poor and rich countries increases, low wage workers in rich countries can be made worse off
  - (d) None of (a)-(c)
  - (e) All of (a)-(c)
- d 3. Which of the following is true?
- (a) Basic economic theory suggests that the government should sponsor most of the research and development of new drugs
  - (b) Eliminating patent rights on drugs would improve social welfare in the short run because then drugs could be produced and sold at marginal cost
  - (c) In the long run, even poor people in poor countries may benefit from the protection of patent rights for drugs
  - (d) All of (a)-(c)
  - (e) None of (a)-(c)
- a 4. At the Democratic presidential debate on October 10, a low income middle-aged woman in the audience said that she had been diagnosed with a disease for which the drug treatment costs were \$800 a month. After being diagnosed, she sought health insurance but could not find a policy that would pay her drug costs. What problem in the insurance market is illustrated by this case?
- (a) Adverse Selection
  - (b) Stupidity
  - (c) Moral Hazard
  - (d) Paternalism
  - (e) Externalities
- d 5. The economic theory of optimal health care provision says that

- (a) It is socially optimal for free medical treatment to be provided to everyone who wants it.
  - (b) Everyone should pay their own medical expenses because they will set marginal cost equal to marginal benefit.
  - (c) Adverse selection can prevent efficient insurance markets from developing even when everyone buys the same insurance.
  - (d) The optimal health care system will ration care: Some people who would benefit from treatment should be denied that treatment.
  - (e) Moral hazard is not a problem because nobody would intentionally do something that might make them sick.
- b 6. Which of the following is not an example of something that can cause market failure in the market for insurance?
- (a) Stupidity
  - (b) Procedural Justice
  - (c) Moral Hazard
  - (d) Adverse Selection
  - (e) Paternalism
- b 7. Which of the following is true?
- (a) Actuarially fair insurance is a free lunch because if the event you are insured against occurs (for example, a fire burns down your insured house), you get the money to replace the house 'for free.'
  - (b) Actuarially fair insurance is a 'free lunch' because everyone who buys insurance can be made better off by having the insurance, even without an increase in the total amount of goods in the economy.
  - (c) If not for moral hazard and adverse selection problems, insurance that would pay for your lunch would be a good example of how much utility can be improved by the introduction of insurance products.
  - (d) The insurance industry makes money primarily because of the subsidies they get as a result of providing free lunches for members of Congress.
  - (e) The fact that actuarially fair insurance provides a free lunch means that the insurance industry should be subsidized.

Figure for Question 3



### 3 Long Discussion Question (40 points)

Consider the figure on the previous page. Suppose the demand curve  $D_1$  reflects demand for the antidepressant drug Prozac in one market, and the demand curve  $D_2$  reflects demand for Prozac in another market. The marginal cost of production is the same, \$1 per milligram, because the product is identical in the two markets.

- 6 pt 1. Suppose that we want to interpret market 1 as being the market for “pet” prescriptions for Prozac, and market 2 as the market for human prescriptions. Explain why the shallower slope in market 1 than market 2 is plausible in this case. (For the purposes of analyzing this question, assume that health insurance does not exist for either humans or pets).

*Answer:*

Saying  $D_1$  has a steeper downward slope is the same as saying that the quantity purchased is less sensitive to price. Since humans presumably care more about their own happiness than about the happiness of their pets, and are willing to spend more on curing their own depression than curing their pet’s depression, it makes sense that the quantity purchased is less sensitive in the market for human Prozac than the market for pet Prozac.

- 6 pt 2. Explain why  $P_2 > P_1$  (the equilibrium price in market 2 is higher) even though the cost of production is the same. (Hint: Assume that there is only one producer of Prozac, who has a patent for the drug).

*Answer:*

The assumption that the manufacturer has a patent means that the manufacturer has a monopoly over this good, and will charge the price that maximizes its profit. You should have learned in 180.301 (the prerequisite for this course) that a monopolist maximizes profit by setting marginal cost equal to marginal revenue. Thus the equilibrium quantity for each market is the point where the  $MR$  curves cross the  $MC$  curve, and the equilibrium price is the price associated with that quantity.

The price is higher in market 2 than in market 1 because the demand curve is more steeply downward sloping (demand is more inelastic; that is, less sensitive to price).

- 8 pt 3. During the 2000 Presidential campaign, Al Gore said that his mother-in-law had been prescribed a medication that his dog also takes, and the price for the same pill was about 5 times as high for his mother-in-law as for his dog. Gore said this proved that drug makers were charging too much for their products. Is Gore right that this proves that the pricing of drugs is socially inefficient? How would you defend the drug makers if you had to do so?

*Answer:*

Any time the price of a product is greater than the cost of production, there is Pareto inefficiency, because one more unit could be produced and would have a

value greater than its cost of production. So Gore is right that this proves that some Pareto inefficiency exists.

However, drug makers are granted patent rights in order to get them to do the research and development required to invent a new drug and bring it to market. If drug makers could not make profits, they would never develop new drugs. So if Gore was trying to suggest that drug makers should not be allowed to set their own prices but instead be forced to charge something like marginal cost, then he was probably wrong, because that would bring new drug development to a complete halt, and many new drugs have enormous social value.

Now consider another interpretation of markets 1 and 2 (forget about the pets/humans example): If  $P$  is the price received by the manufacturer for 1 milligram of Prozac, suppose  $D_1$  shows the demand curve for Prozac if there were no health insurance, while  $D_2$  is the demand curve that would occur if there were a universal health insurance system in which patients paid 20 percent of the cost of any medication they used, and the government paid the other 80 percent. (The diagram is drawn to show the price received by the producer, not the price paid by the consumer).

- 6 pt 4. Explain why the introduction of drug insurance could have the effect of shifting the demand curve from  $D_1$  to  $D_2$ .

*Answer:*

The price depicted in the figure reflects the price received by the manufacturer. For any given quantity, the consumer cares only about his out-of-pocket expenses. For a given quantity  $Q$ , the price a consumer will be willing to pay out of his own pocket will be the same, but the total price the consumer and government together pay will be five times larger.

- 6 pt 5. What is the socially efficient price and quantity for Prozac under this interpretation of the figure? Explain why.

*Answer:*

Pareto efficiency requires the price of a good to be equal to its marginal cost. Since the marginal cost is assumed to be \$1, the socially efficient price is \$1. The point  $b_1$ , where the unsubsidized demand curve intersects with the marginal cost curve, reflects the efficient level of output, because for a quantity less than  $b_1$  the marginal value of another unit is greater than \$1, while for a quantity greater than  $b_1$  the marginal value of another unit is less than \$1.

- 8 pt 6. Indicate on the diagram (by shading or some other method) the area that corresponds to the profits of the manufacturer of Prozac both without and with national health insurance. Use the result to discuss why drug makers are in favor of proposals currently circulating in Congress to Medicare (the universal health insurance program for the elderly) a prescription drug benefit that would pay most of the cost of drugs.

*Answer:*

Profit is given by the market quantity multiplied by the difference between price and marginal cost. So profit in market 1 is  $(P_1 - 1)a_1$ , while profit in market 2 is  $(P_2 - 1)a_2$ , which is obviously much larger than in market 1.

A national drug insurance policy (like the proposed expansion of Medicare) is basically an enormous subsidy to the monopolist, which can expand their profits enormously, so naturally they will be in favor.

#### 4 Short Discussion Questions (12 points)

1. Read the following story adapted from *The Onion* and explain what concept in public finance theory it is an example of and why.

##### Area Man Hoping Cell Phone Breaks So He Can Get A Better One

Dave Sychak has been increasingly careless with his 10-month-old cell phone in the hopes that it will break, sources reported Monday.

Sychak's phone came with a warranty that promised a refund of the purchase price if the phone breaks during the first year of ownership.

"Overall, this is a great phone," Sychak said of the Motorola V60 he has carried since last October, in recent weeks in his back pocket. "I really can't complain. It may not have some of the bells and whistles I've seen on some of the newer models, like mobile messaging or color display or downloadable interface graphics, but it still suits my basic needs just fine. I shouldn't need a new one for a long time, barring the unforeseen." Added Sychak: "It's extremely durable, too. You can drop it onto the kitchen floor while cradling it on your shoulder and talking to your mom as you're boiling spaghetti, nearly dropping it into the hot water. And it barely even gets scratched up when you prop a door open with it."

*Answer:*

This is a fine example of moral hazard - someone acting differently because they are insured against a risk. In this case, the point of the story is obviously that Sychak is hoping the phone will break so he can get a refund and use the money to buy a fancier phone.

2. Nonprofit medical journals typically sell for subscription prices of \$200-\$1000 a year, a price which lets them recover production costs. However, a publisher named *Elsevier* has recently purchased publication rights for many prestigious medical journals, and increased subscription prices enormously, sometimes to \$20,000 a year or more. As a result, many public libraries have stopped subscribing to these journals, cutting off access of much of the public, and many doctors, to the latest medical knowledge. Explain the nature of the problem described here using public finance theory.

*Answer:*

Knowledge or information is a public good, because the fact that I know something does not prevent you from knowing it. Any price above the production cost of the journal therefore introduces a difference between price and marginal cost, creating a form of Pareto inefficiency.