Economics 3250 Dr. Lozada
Spring 2008 Exam 1

Do Not Turn This Page Over Until You Are So Instructed!

This exam has 25 points. There are six questions on the exam. The questions are worth different numbers of points, as indicated on the exam.

Put your answers to the exam in a blue book or on blank sheets of paper.

You have **one hour** (that is, until **2:25pm**) to take this test. After the test is over, I'll lecture until the regular class period ends.

Answer the questions using as much precision and detail as the time allows. Correct answers which are unsupported by explanations will not be awarded points.

Answer all of the following six questions.

1. **[5 points]** Consider the following statement:

   > It is best for society as a whole if the quantity produced of a product makes MNPB equal to zero.

   This statement is sometimes true and sometimes false.

   (a) Give an example of when it is true. You will need to explain what the acronym MNPB stands for, and explain what it means when MNPB equals zero.

   (b) Give an example of when it is false. Draw a graph to explain what output *is* best for society in this case.

2. **[4 points]** What is the "invisible hand"? What is its relevance for Econ. 3250?

3. **[4 points]** Argue that the following statement is false:

   > Cost-benefit analysis is a perfect way to determine what choices society should make.

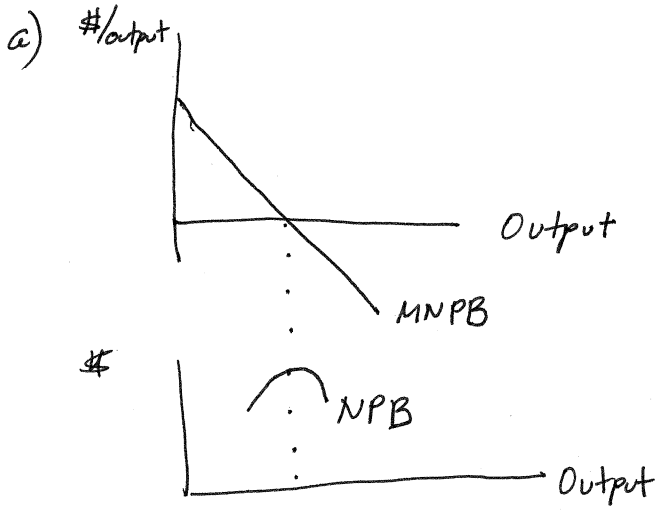
4. **[5 points]** Explain the role of hedonic pricing in environmental economics. (This requires you to explain what hedonic pricing is.)

5. **[3 points]** It is often observed that experts in risk assessment have very different ideas than laymen about the probabilities of various kinds of environmental damages occurring. Give one example of why laypeople may assess probabilities incorrectly. (We talked about several in class.) Explain the example you chose.

6. **[4 points]** Suppose a regulator is trying to decide whether to ban a pollutant outright, or whether to use cost-benefit analysis to find an optimal (possibly greater than zero) amount of the pollutant to allow. Argue that one way to look at this "ban versus cost-benefit analysis" decision is as a tradeoff between equity and efficiency.

Answers to Exam 1, Econ 3250, Spring 2008

(1) a)

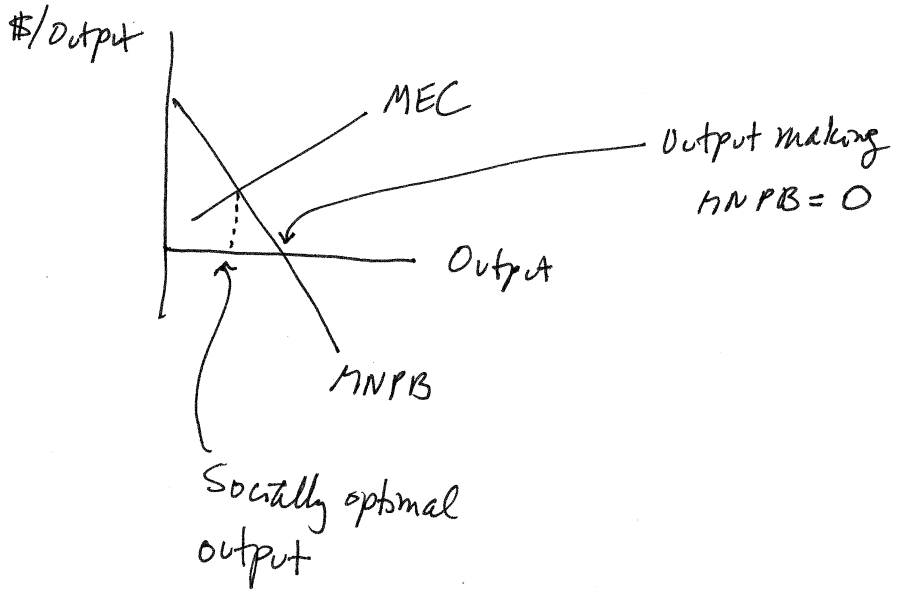


MNPB is Marginal Net Private Benefit.
NPB is Net Private Benefit.
If MNPB = 0, NPB is a maximum, so profit of the firm is a maximum (since profit = NPB).

[Aside: one might want to redefine NPB to be profit plus consumer surplus.]

If there are no externalities, it's best for society if MNPB = 0.

b) If there are externalities, then the social optimum is where MNPB equals Marginal External Cost (MEC), not where MNPB = 0.



(2)

Adam Smith's "invisible hand" leads self-interested economic agents to, rather surprisingly, act in a way that's best for society as a whole.

But only if there are no externalities. In Econ. 3250, there are externalities (e.g., pollution), so the "invisible hand" does <u>not</u> lead self-interested economic agents (such as firms) to act in a socially optimal way. To obtain socially optimal behavior, you need the "visible hand" of government regulation. (But don't forget about the Coase Theorem.)

(3)

There is no "perfect way to determine what choices society should make."

This is the conclusion of Arrow's Impossibility Theorem. It states that there is no social decision rule which is "perfect" if "perfection" has the (rather reasonable) definition that the rule should satisfy completeness, responsiveness to individual preferences, nonimposition, nondictatorship, and independence of irrelevant alternatives.

(4)

Hedonic pricing in environmental economics usually involves measuring how the value of a home is affected by the pleasant or unpleasant environment around the home, by comparing the home price with the price of very similar homes without those environmental attributes. If very similar homes are unavailable, other homes can be used, with statistical adjustments made for dissimilarities such as house size, house age, quality of school district, and so forth.

Hedonic pricing would allow one to say, for example, that freeway noise costs a city $100,000 ~~per year~~ if the houses near the freeway are worth $100,000 less just due to the freeway noise.

(5)

Possible answers include:

Disaster Aversion (people worry more about 1 accident that kills 1000 people than about 1000 accidents which kill 1 person each)

Conjunction Fallacy / Availability (the more you understand or are familiar with an event, the higher a probability you put on it)

Fallacy of optimism ("it can't happen to me")

Under- or Over- weighting of Low Probability Events (due to lack of experience with them)

→ example: nuclear power plant accidents

→ example: earthquakes in Utah

Voluntary vs. Involuntary Risks: people often think voluntary risks have a lower probability of damage than they really do, and involuntary risks have " higher " " " " " " ".

The book mentions (but I didn't) anchoring, assessing gains unequally to losses, prospect theory, and mental accounts. I illustrated the Allais Paradox and the Ellsberg Paradox.

(6)

Bans are high in equity (fairness), because everyone is treated equally, but they are often low in efficiency because no careful cost-benefit analysis was used to conclude that the optimal amount of the pollutant really is zero.

Cost-benefit analysis is high in efficiency because that is its purpose – to calculate which decision is efficient – but low in equity because they do not take fairness into account.