

UNIVERSITY OF CALIFORNIA, LOS ANGELES
Department of Economics

February 10, 2000

Cameron

Economics 1 - Midterm Examination

INSTRUCTIONS: Enter your name, student number, and signature (you may be asked to show identification). Circle your TA section, day and time. For the multiple choice portion of the examination, transfer your answers to your scantron sheet. **ONLY THE SCANTRON ANSWERS WILL BE COUNTED, SO DOUBLE-CHECK CAREFULLY.** Answer the rest of the questions in the spaces provided on this exam. If any pages of this exam are loose, please print your name clearly on every page. **USE APPROPRIATE DIAGRAMS (MODELS) WHENEVER POSSIBLE.** Allow 1 minute per point = 75 minutes. This exam consists of 8 total pages.

Name: _____

Student # _____

Signature: _____

1a	M	10:00	Dance 105	Young-Nahn Baek
1b	M	2:00	Bunche 2157	Young-Nahn Baek
1c	M	1:00	Bunche 3164	Young-Nahn Baek
1d	T	3:00	Dance 103	Hsin-Ling Hsieh
1e	T	4:00	Bunche 3156	Hsin-Ling Hsieh
1f	W	1:00	Bunche 3164	Leon Yen
1g	W	3:00	Bunche 3156	Leon Yen
1h	Th	5:00	Bunche 3157	Josh Shackman
1i	Th	3:00	Bunche 2156	Hsin-Ling Hsieh
1j	F	9:00	Bunche 2168	Qiao Liu
1k	F	10:00	Moore 1003	Qiao Liu
1l	M	3:00	Bunche 3153	Josh Shackman
1m	W	4:00	Bunche 2181	Leon Yen
1n	F	1:00	Bunche 3117	Qiao Liu

SCORING:	Multiple Choice (20@2):	_____ /40
	Short Answer (7@5):	_____ /35
	TOTAL SCORE:	_____ /75

Part I. Multiple Choice (2 points each)

Version 1 of the exam has a first multiple choice question that begins: “If the President declares a large part of Utah...”

Version 2 of the exam has a first multiple choice question that begins: “If labor in Mexico is less productive...”

Answer key:

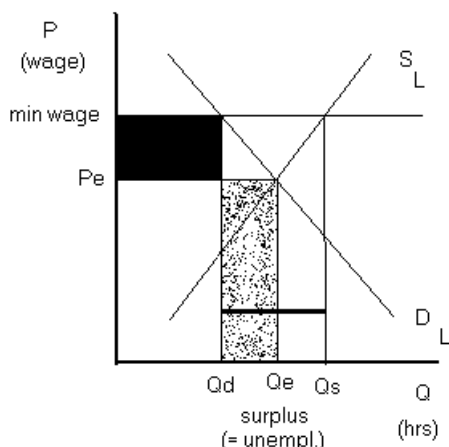
Question	Version 1	Version 2
1	c	d
2	b	b
3	a	c
4	b	c
5	b	c
6	a	c
7	d	a
8	c	b
9	b	b
10	c	b
11	d	b
12	b	b
13	b	d
14	d	a
15	b	a
16	a	a
17	a	a
18	b	b
19	c	b
20	a	d

Scores on the multiple choice section are “all or nothing.” Students are expected to choose the “best” answer, where such an answer reflects the ideas that have been covered in the course.

For the short answer questions, virtually all of the grading credit depends on the details of an answer, not simply on a guess about whether the answer is “true, false, or uncertain.” The model answers given below are particularly thorough. A good answer typically contains a relevant and properly labeled diagram with sufficient discussion to convince the grader that you understand the subtleties of the issue.

Part II. Short Answer Questions (5 points each)

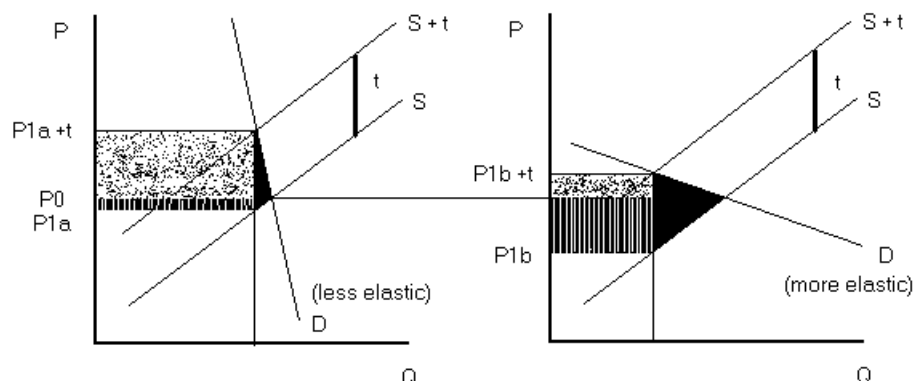
1. Imposition of a minimum wage will make low-skilled inexperienced young workers better off. True, False, Uncertain? Explain.



A minimum wage, if it has any effect, lies above what would be the market equilibrium wage. A higher price for this type of labor will result in a decrease in the quantity demanded from Q_e to Q_d . The Q_d workers who remain employed will be better off, since they keep their jobs and get a higher wage, earning increased income in the amount of the black-shaded box. Some other workers, however, are likely to be worse off. If demand for this type of labor is not perfectly inelastic, $Q_e - Q_d$ workers who would have had jobs at wage P_e will now find themselves out of work, so they are not better off. Furthermore, workers $Q_s - Q_e$ were not interested in supplying their labor to this market at the old equilibrium

wage P_e . At the attractive new minimum wage, however, they would like jobs, but will not be able to find them. Total unemployment at the new minimum wage is the sum of these two groups. If demand for this type of labor is inelastic, it will be the case that the new total wage bill (total worker incomes) equal to $\text{min wage} \times Q_d$ will be larger than the old total wage bill ($P_e \times Q_e$). In that case, the “winners” could in principle compensate the “losers” (but this takes no account of the $Q_s - Q_e$ people who weren’t interested before, but now consider themselves unemployed. If demand for this labor is elastic, however, the new wage bill will be smaller than the original one. That looks to be the case in this diagram. Further consideration: In the short run, demand for low-skilled workers may be fairly inelastic; in the longer run, it will be much more elastic as technologies are developed (or adopted) to save on this type of labor that has now become relatively more expensive.

2. All other things equal, the deadweight loss from a given per-unit tax will be larger in a market where demand is more elastic, but tax revenues to the government will be larger when demand is less elastic. True, False, Uncertain? Explain.



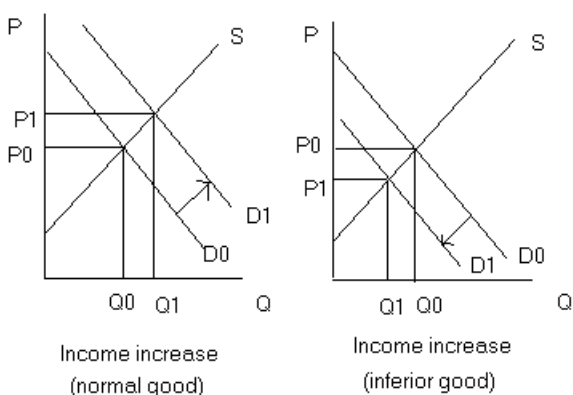
The tax is the same in both cases shown ($=\$t$ per unit). For the right-hand diagram, where demand is more elastic, you have to move further to the left of the original equilibrium to reach a point where the price paid by demanders is $\$t$ greater than the price received

by sellers. The deadweight loss in the more-elastic case is therefore larger (since the triangle has the same “base” ($\$t$) but a greater “height” (change in Q). Thus the first part of the statement is true. The second part of the statement is also true, because the combination of the speckled and striped rectangles gives tax revenue. Each rectangle has the same total height, but the rectangle on the left has greater area because it is wider (quantity demanded does not decrease by as much).

3. All other things held constant, an increase in incomes will cause an increase in the equilibrium price of Kraft Macaroni and Cheese Dinners and an increase in the number of boxes bought and sold. True, False, Uncertain? Explain.

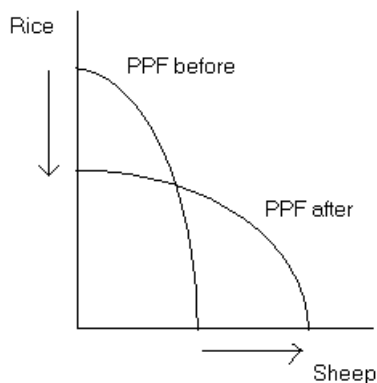
A superficial answer to this question would assume that the good in question is a normal good, so that an increase in income causes the demand curve to shift “upwards and outwards.” This would lead to an increase in equilibrium price and an increase in quantity traded. However, if you think carefully, it is possible that many people have preferences that make Kraft Macaroni and Cheese Dinners an “inferior” good. Not in the sense that there is anything wrong with the quality of the product, just that when they can afford it, they would prefer to eat something else,

like fresh Fettucine Alfredo with three types of Italian cheese, for example, or with pesto sauce. For an inferior good, all other things constant, an increase in income results in a decrease in quantity demanded. This would shift the demand curve “down and to the left.”



4. Suppose that farmer has some wet and low-lying land, most suitable to growing rice, and some drier, rocky land most suitable to grazing sheep. What happens to the farmer’s production possibility frontier, defined over rice and sheep, if the water table drops so that the low-lying land becomes drier (perhaps due to excessive groundwater pumping)? Explain using appropriate diagram(s).

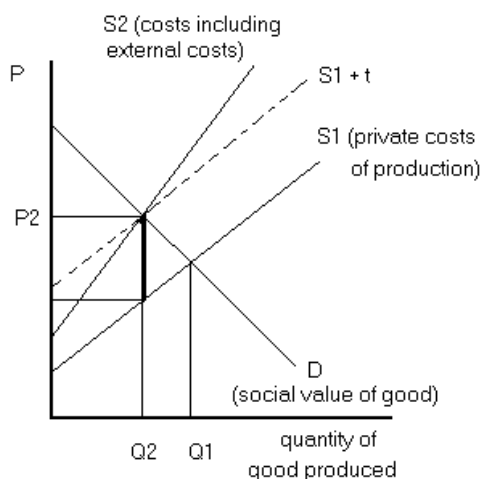
First of all, the resource in question (land) is of varying quality (i.e. heterogeneous) so the production possibility frontier will be bowed outwards. The fall in the height of the water table means that there is less land that is ideal for rice, and more land that is better for sheep.



We don’t really have enough information to tell whether the maximum amount of rice that can be grown falls by a greater or lesser proportion than the maximum quantity of sheep that can be produced will increase. It is also not clear whether the greater dryness will compromise the farmer’s ability to graze sheep. It is possible that the negative effect on sheep productivity of a lower water table (some of the land become too dry) could overwhelm the positive effect on sheep productivity of more low-lying land being dry enough for grazing.

5. Pigovian taxes, widely used in the United States as a means of controlling pollution from factories, induce firms to internalize the negative production externality they create by allowing pollutants to escape into the environment. Deadweight loss from these taxes can be substantial, however. True, False, Uncertain? Explain.

Mixed... Pigovian taxes have not been widely adopted in the US, probably because of the general aversion of the US electorate to anything that smells like higher taxes. In contrast, taxes of this type have been much more widely used in Europe. It is true that these taxes operate to control pollution levels by inducing firms to make output decisions that mimic those they would make if they were forced to take account of the external (pollution) costs that their productivity



activities generate. We argued that ordinary taxes that distort equilibrium prices and quantities away from the socially optimal (collective surplus-maximizing) levels involve deadweight loss. However, Pigovian taxes are designed to redress externalities. Because of an externality, output levels and prices are already distorted from what they would be if the socially optimal levels of production were taking place (e.g. at Q2 and P2 in the diagram). Pigovian taxes are design to restore a socially optimal output level for a polluting production process.

Notice that it is not necessary that the Pigovian tax be designed so that the firm's total costs (private production costs plus tax) exactly match the size of the production externality at all levels of output (solid line S2). All that is necessary is that these two things match at the socially optimal output level Q2. If the firm is forced to pay attention to costs S1+t, they will produce at Q2 just as they would if they were forced to take account of both private and externality costs S2.

6. The price elasticity of demand for a good is determined entirely by what happens to Total Revenue as price changes. True, False, Uncertain? Explain.

This is today's "tricky question." We paid a lot of attention to the fact that "what happens to Total Revenue as price changes" depends on the price elasticity of demand for a good. You will get two points if you remembered that when demand is elastic, TR and price move in opposite directions; when it is inelastic, they move in the same direction. However, from the notes (or from the text) the list of things that *determine* the degree of price elasticity in the demand for a good include:

- Necessities versus luxuries.* Necessities tend to have inelastic, whereas luxuries have more elastic demands.
- Availability of close substitutes.* Goods with a lot of close substitutes tend to have more elastic demands because consumers will happily switch to another "brand."
- How broadly or narrowly you define the good.* Demand for Starbucks' coffee will be more price-elastic than demand for "coffee."
- The time horizon.* In the short run, people often keep buying a product despite a price increase. With time to make other arrangements (time to adjust), demands can be much more elastic that they might first appear.

