Fall 2023 Professor Emmanuel Saez
University of California, Berkeley

# ECONOMICS 2

# FIRST MIDTERM EXAMINATION

# SOLUTIONS

1. Put your name, your SID number, and your GSI's name or your section number in the blanks provided on the front of the exam. ***Please do not put your name or your GSI's name anywhere else on the exam.***

2. The exam is written on ***both sides of the page***. Be sure to answer all the questions.

3. Write all of your answers directly on the exam in the spaces provided.

4. Use blank pages at the back for scratch paper NOT your own paper.

5. The exam consists of three parts. There are 20 points in total. Part I counts for 8 points; Part II counts for 8 points; and Part III counts for 4 points.

6. Turn off and put away all cellphones and other electronics.

7. We collect the exams at exactly 6:30 p.m.

**PLEASE DO NOT OPEN THE EXAM UNTIL INSTRUCTED TO DO SO.**

Name _____

SID Number _____

GSI or Section Number _____

***During the exam, I will NOT obtain help from anyone, provide help to anyone else, or use any notes or other resources. Sign below:***

_____

**PAGE FOR GRADING ONLY (STUDENTS SHOULD SKIP IT)**

QUESTION 1: _____

QUESTION 2: _____

QUESTION 3: _____

QUESTION 4: _____

PROBLEM 5a: _____

PROBLEM 5b: _____

PROBLEM 6a: _____

PROBLEM 6b: _____

MULTIPLE CHOICE: _____

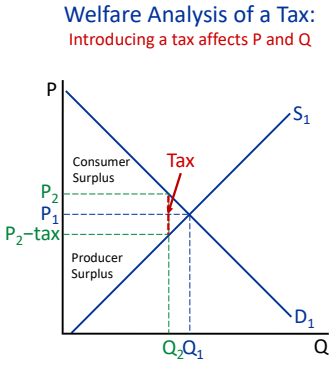
**TOTAL:** _____

## PART I: SHORT ANSWER [8 POINTS TOTAL]

Answer all questions. Be sure to explain your answers and to draw diagrams where they are appropriate.

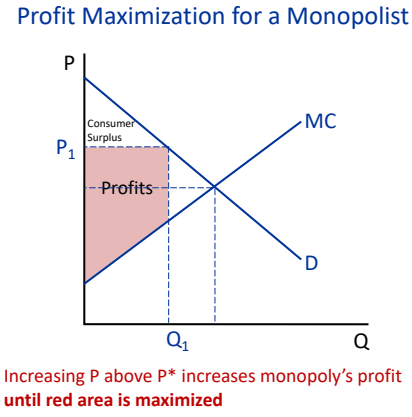
1. Consider a perfectly competitive model for a given good. In this market, how, if at all, will a tax physically collected from sellers affect the price consumers pay for the good? **[2 points]**

Tax will increase the price consumers pay for the good but by less than the amount of the tax as depicted below.



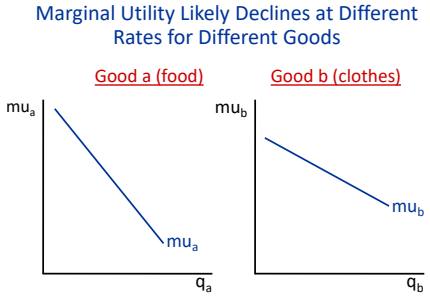

2. Does a monopolist want to produce where price is equal to marginal cost? **[2 points]**

No, the monopolist produces to maximize profits (the red area below) which is at a quantity where price is above marginal cost and quantity is below the efficient level.



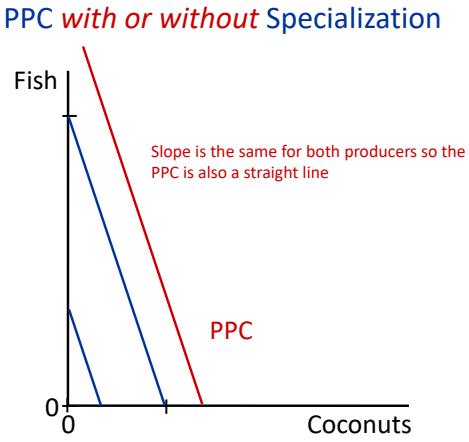
**1.** You observe that whenever a household's income increases, they increase their consumption of restaurant meals less than their consumption of clothing. What does this tell you about the relative slopes of the household's marginal utility curves for restaurant meals and clothing? **[2 points]**

It means that marginal utility of restaurant meals falls faster than marginal utility of clothing as we saw in lecture. When income increases, the household wants to maintain the condition MU_food/p_food=MU_clothes/p_clothes. If MU_food falls faster than MU_clothes, it means that the quantity of food consumed cannot change as much as the quantity of clothes consumed, and hence that the consumer increases their consumption of restaurant meals less than their consumption of clothing**.**




**2.** Suppose there are two workers who produce two goods. If one worker is three times as productive as the other worker at both activities, could there be a gain from specialization? **[2 points]**

In this case, there is no gain from specialization because no worker has a comparative advantage relative to the other. The PPF is a straight line whether there is specialization or not.



## PART II: PROBLEMS [8 POINTS TOTAL]

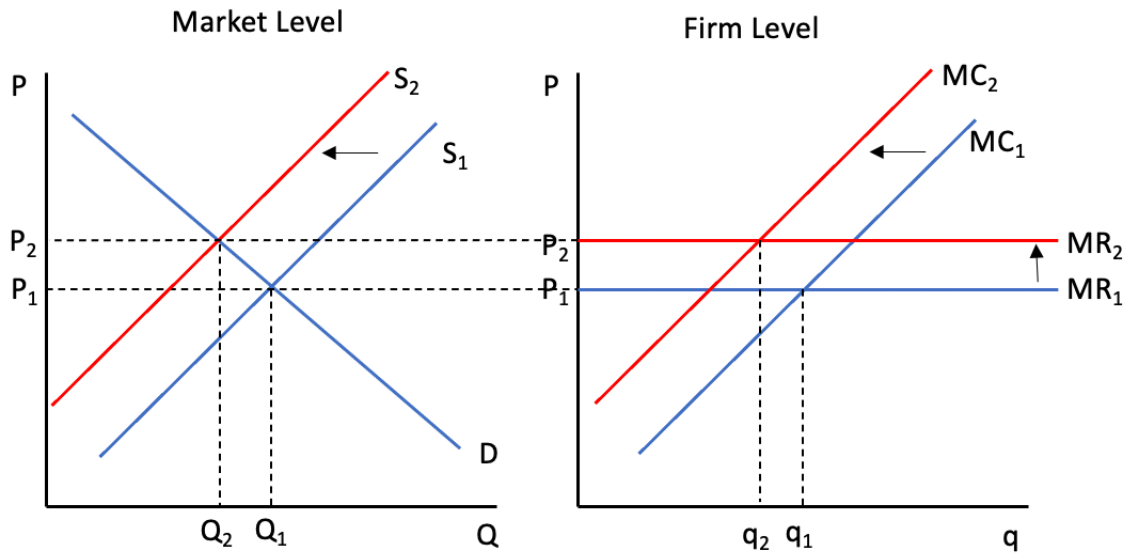
Answer all parts of each question. Be sure to explain your answers and to draw diagrams where they are appropriate. Problems 5 and 6 are independent.

**5.** The market for furniture is highly competitive. Assume that this market begins in long-run equilibrium.

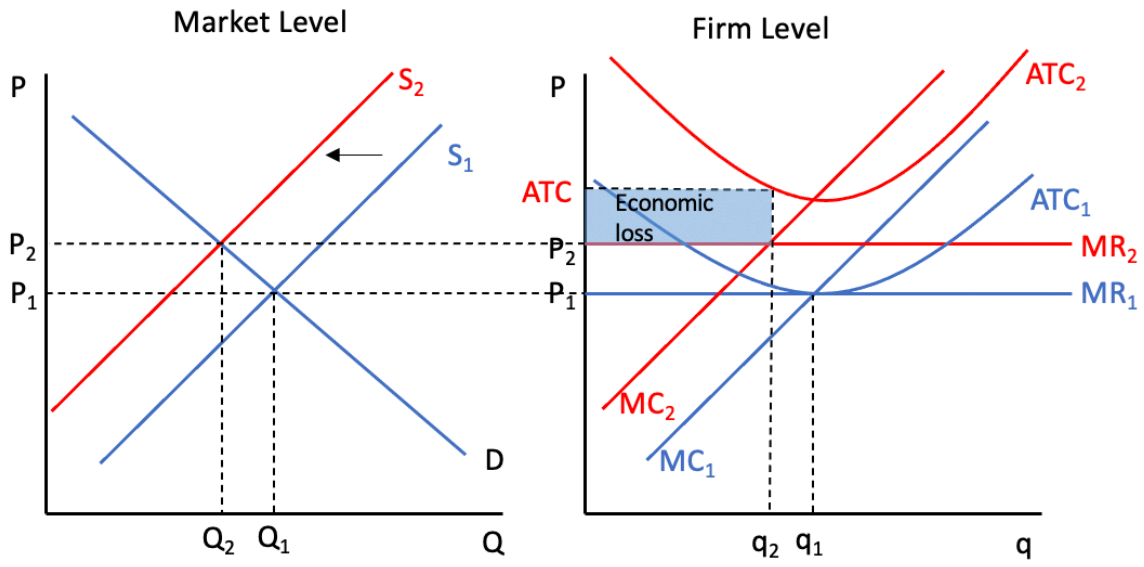
**a.** Suppose that climate change and overharvesting cause the price of wood (an obvious input to the production of furniture) to rise. What will this development do to the equilibrium price and quantity of furniture and to the quantity supplied by a typical producer in the short run? **[2 points]**

This is an increase in the price of the input that shifts inward the supply curve (as production of furniture becomes most costly), producing a move along the demand curve that increases price and reduces quantity.

At the firm level, marginal costs increase, shifting the MC curve inward. As there is a new equilibrium price, MR shifts upward to match the new price. Firms will always maximize their profits when MC = MR, thus resulting in a typical producer supply less quantity.




**b.** What will happen to the profits of a typical producer in the short run? Would you expect there to be entry, exit, or no change in the number of producers in the long run? **[2 points]**

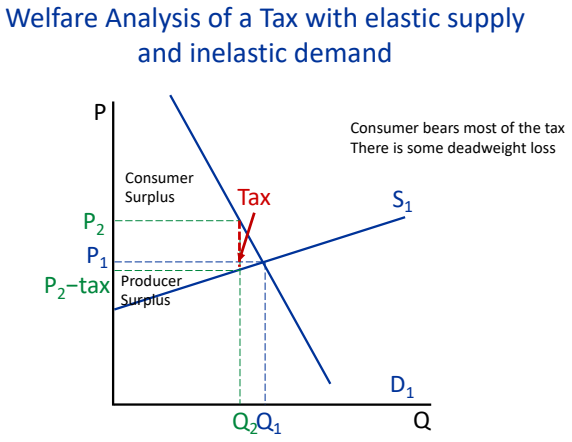



From the diagram above, the producers see profits fall in the short run (ATC > P at the point of profit maximization where MR = MC). The decline in profit implies that the least productive producers may have to exit the industry in the long-run.

**6.** Suppose the government decides to put a tax on over-the-counter drugs (physically collected from sellers). You can assume that the over-the-counter drug market is highly competitive.

**a.** If demand for over-the-counter drugs is relatively inelastic and supply is relatively elastic, who will pay most of the tax—consumers or producers? **[2 points]**

The most inelastic factor bears most of the tax so consumers are going to bear most of the tax.




**b.** Will the tax cause a deadweight loss? Will there be misallocation of the production and/or consumption of the good? **[2 points]**

Yes, the tax produces some deadweight loss (as long as demand is not completely inelastic). But there will be no misallocation because it is still the case that the highest value consumers buy the good and the most productive producers produce the good.

**PART III: MULTIPLE CHOICE QUESTIONS** **[4 POINTS TOTAL]**

Each question is worth .5 points. Please write the letter of the ***best*** answer for each multiple choice questions below, like so:

**7. F**

**8. E**

**…**

**7. ____F____**

**8. ____A___**

**9. ____E___**

**10. ____A___**

**11. ____B___**

**12. ____A___**

**13. ____D___**

**14. ____E___**

**7.** At the long-run equilibrium of a competitive market, for a typical firm:
- **a.** price equals marginal cost.
- **b.** marginal revenue equals average total cost.
- **c.** marginal cost equals average total cost.
- **d.** (a) and (b).
- **e.** (a) and (c).
- **f.** (a), (b), and (c).

**8.** Suppose the price elasticity of supply in a market is very high. An outward shift of the demand curve will tend to cause:
- **a.** a large rise in quantity and a small rise in price.
- **b.** a small rise in quantity and a large rise in price.
- **c.** a large fall in quantity and a small rise in price.
- **d.** a small fall in quantity and a large rise in price.

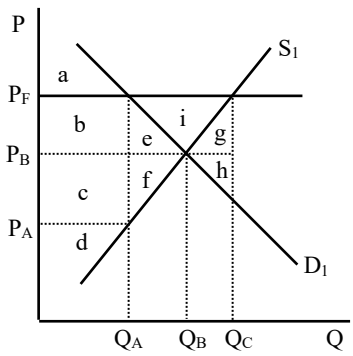
**9.** The supply curve of a monopolist:
- **a.** is the same as its marginal cost curve.
- **b.** is to the left of its marginal cost curve.
- **c.** is steeper than its marginal cost curve.
- **d.** (b) and (c).
- **e.** does not exist.

**10.** If we observe that both the price and quantity of a good have increased, we can deduce that:
- **a.** the demand curve has shifted to the right.
- **b.** the supply curve has shifted to the right.
- **c.** the demand curve has not shifted.
- **d.** the supply curve has not shifted.
- **e.** (a) and (d).
- **f.** (b) and (c).

**11.** In "Fairness as a Constraint on Profit Seeking: Entitlements in the Market" by Kahneman, Knetsch, and Thaler, the authors find that people feel it is:
- **a.** always unfair for firms to raise prices.
- **b.** unfair for firms to raise prices when demand increases but not when costs rise.
- **c.** unfair for firms to pay workers less than the minimum wage.
- **d.** none of the above.

**12.** The fact that the PPC of the economy of a country is typically bowed out reflects:
- **a.** the gains from specialization.
- **b.** the gains from international trade.
- **c.** government tax revenue.
- **d.** deadweight loss.

**13.** The diagram to the right shows a market where there is a binding price floor, $P_F$. (The market is highly competitive with no market failures.) In this market, the deadweight loss is:




- **a.** area e+f.
- **b.** area a+b+c+d.
- **c.** area g+h.
- **d.** at least area e+f, but almost certainly more than that.
- **e.** at least area g+h, but almost certainly more than that.
- **f.** area i.

**14.** Consider the budget constraint for a consumer choosing between beer and pizza. If beer is on the vertical axis and pizza is on the horizontal axis, a rise in the price of pizza will:
- **a.** make the horizontal intercept of the budget constraint smaller.
- **b.** not affect the horizontal intercept of the budget constraint.
- **c.** make the vertical intercept of the budget constraint smaller.
- **d.** not affect the vertical intercept of the budget constraint.
- **e.** (a) and (d).
- **f.** (b) and (c).
- **g.** (a) and (c).
- **h.** (b) and (d).