Microeconomics for Public Policy I
Fall 2023

Problem Set 9

On what and how to submit

- For this and all future problem sets, questions are from the "Problems" section of the questions at the end of the chapter.
- Due before Lecture 11 to your Box folder
- Name the file "ps09_[lastname].[extension]". For example, my file would be "ps09_brooks.pdf".
- You do not need to type your submission. Any **legible** submission is ok. For example, you can write the problem set with hand-drawn graphs, take a picture, and submit the picture.

1. GLS Chapter 8, Question 3 (optional – useful if cost types are confusing)

(a)

Q	TR	FC	VC	TC	profit	MR	MC
0	0	15	0	15	-15	.	.
1	50	15	30	45	5	50	30
2	100	15	65	80	20	50	35
3	150	15	107	122	28	50	42
4	200	15	157	172	28	50	50
5	250	15	217	232	18	50	60
6	300	15	289	304	-4	50	72

(b) maximizing total revenue: produce 6

(c) quantity of beeswax to maximize profits: 4

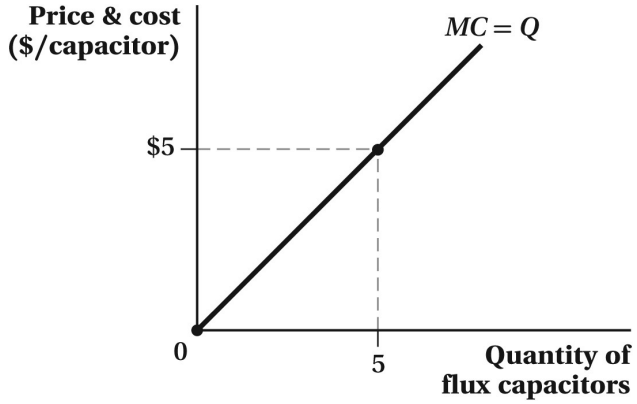
(d) MR and MC at profit maximizing output? they are equal

(e) if fixed cost increases to \$30: optimal unchanged in the short run – no change to marginal costs

(f) if marginal cost increases by \$8/unit of output? production should decline, since the firm should set $MR = MC$, and MC just increased for each additional unit.

2. GLS Chapter 8, Question 11

(a)



(b) profit-maximizing quantity

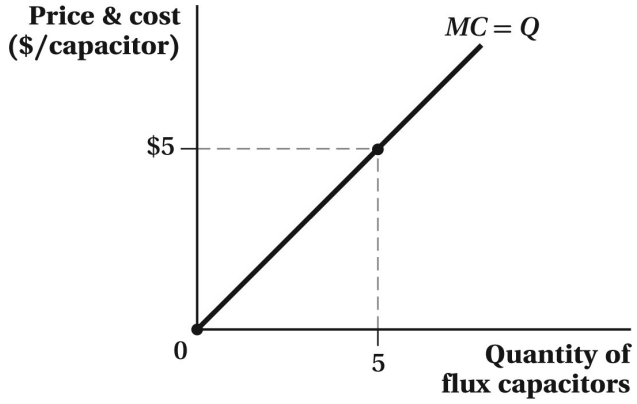
Marty maximizes profits where $P = MC$. Because Marty produces in a perfectly competitive environment, $P = MR$. If capacitors sell for \$2, then $P = MR = 2$, and Marty maximizes profits where $2 = MC$, or where he produces 2 units (see figure above).

(c) profit maximizing quantity at P of 3, 4, and 5

A similar logic chain gives us profit maximizing output at 3, 4 and 5 for prices 3, 4, and 5 respectively.

(d) supply curve

The supply curve is MC, where $MR \geq MC$.



(e) compare the two diagrams

They are the same!

3. GLS Chapter 8, Question 15

(a) output and profit in the short run?

Note that this new charge is a fixed cost. She needs the license to open and the cost of the license does not depend on her output.

In the short run, a profit-maximizing firm chooses Q so that $P = MC$. This policy does not change either P or MC, so she should not change her output. Her profit will decline, since her costs have increased.

(b) long run output

In the long run, if she can't cover the fixed cost, she should shut down, which means produce an output of zero. If she was just breaking even before, she should not be able to break even with this new higher cost.

(c) charge a fee by pint

If the government instead charges a per-pint fee, Iliana should respond differently. Her MC has changed – the cost of producing an individual pint is now higher. Call this new marginal cost MC^*, where $MC^* > MC$. She should produce at the quantity such that $P = MC^*$.

She should evaluate whether she can still make zero economic profits at this new Q. If she was only breaking even before, then she probably will not be making any economic profits and should shut down.

If this were not a perfectly competitive market, she could pass the costs along to consumers in terms of higher prices. But since it is a perfectly competitive market, that's not an option.

4. GLS Chapter 8, Question 19

(a) profit in the short run

Yes – he'll be able to have greater profit in the short run since his costs are lower than his competitors. As long as the market price doesn't change, he'll be able to produce substantially below cost and make a profit.

(b) when the invention is discovered by others

When other farmers find out about this new technology, they'll adopt too. As long as the market price doesn't change (but see next part), they'll make extra profits, too.

(c) long run

In the long run, the supply of eggs will increase substantially, causing the price of eggs to drop to the cost of production. Once prices are back to the cost of production, farmers will no longer make economic profits.

(d) long run benefits to whom?

In the long run, benefits go to consumers, who enjoy lower-priced eggs. Producers are back to making their regular zero profits. Competition causes the new technology – by giving excess profits to the inventor for a while – and then further competition causes prices to fall back to costs.

5. Entry Over the Long Run

Use a few paragraphs to describe an industry that made positive economic profits over the short (or medium) run and where those profits were destroyed by entry. Alternatively, you can name a modern industry that you think is currently earning positive economic profits, and where entry is likely.