

Revenue and Profit Theory

Notes

WHAT IS REVENUE?

- ▶ Revenue: Income that a firm receives from selling its product over a certain time period.

TYPES OF REVENUE

1. Total Revenue (TR): The total amount of money a firm receives over a certain time period.
2. Average Revenue (AR): the revenue a firm receives per unit of sales.
- ▶ $AR = TR/q$
- ▶ $AR = TR/q$ (coincidentally) is also:
- ▶ Because of this, we will see later on that Average Revenue curve for a firm is actually equal to... the demand curve.

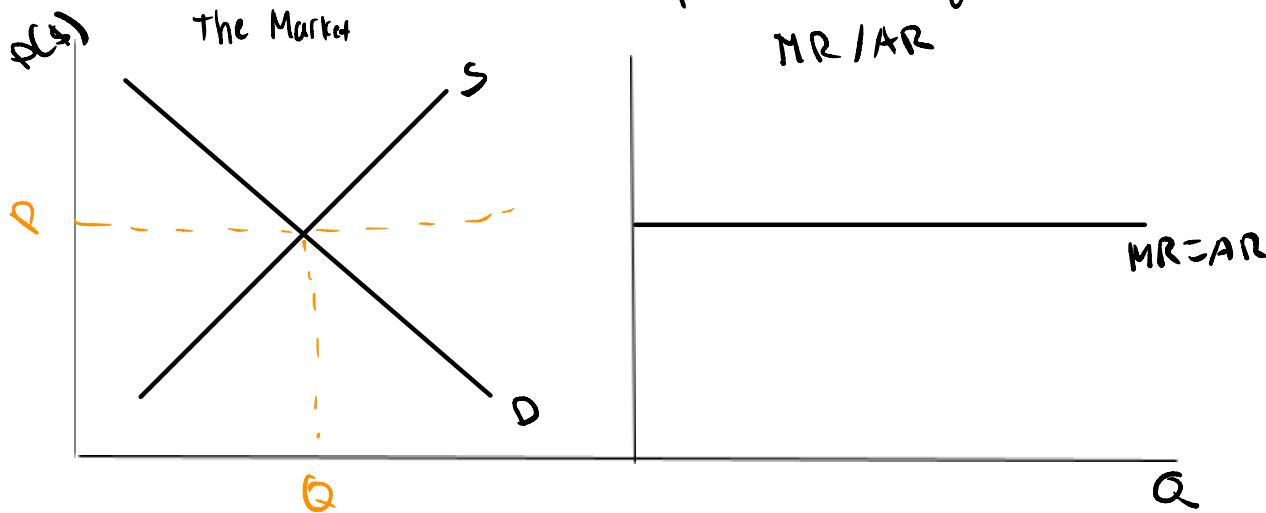
3. Marginal Revenue (MR): the extra revenue that a firm gains when it sells one more of a product in a given time period.
- ▶ $MR = \frac{\Delta TR}{\Delta q}$

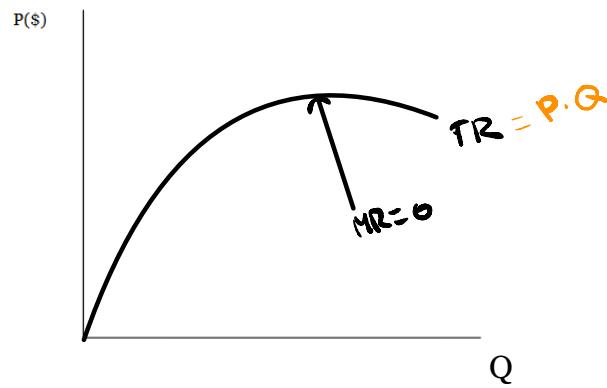
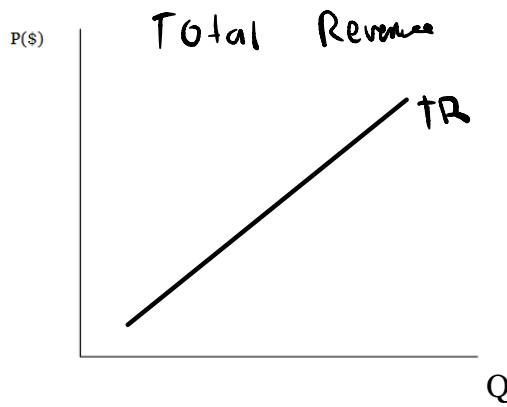
"PRICE TAKERS"

- ▶ In market structure called "perfect competition," each firm is a price taker.
- ▶ Price taker:

- No single firm can influence the price - it must "take" the equilibrium price.
- Each firm's output is a perfect substitute for the output of the other firms, so the demand for each firm's output is perfectly elastic.

REVENUE CURVES FOR A "PRICE TAKER" - dependant upon equilibrium



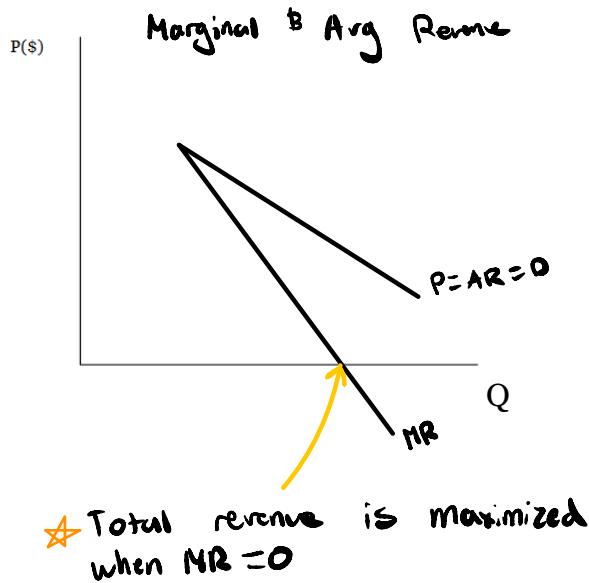


"PRICE MAKERS"

- In some market structures (e.g., monopoly), the firms do not have to take the market equilibrium price.
- Price maker: A firm with market power that allows them to have direct influence over that price.

Market power can come from things like...
branding a project, or a ability to restrict amount produced

REVENUE CURVES FOR A "PRICE MAKER"



PROFIT THEORY: DECISIONS

- The competitive firm makes two decisions:
 - whether to produce or to shut down (temporarily or not)
 - If the decision is to produce, what quantity to produce.

These decisions depend on:

- Economic profit: $Total\ Revenue - Total\ Costs$
- ↙
explicit and implicit.

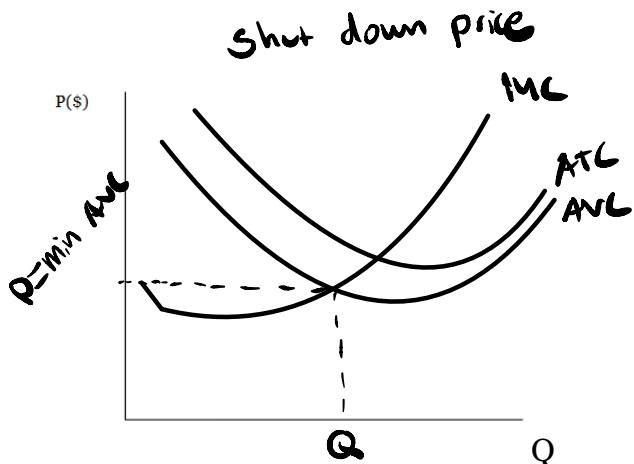
TYPES OF ECONOMIC PROFIT

- Normal profit: An economic condition occurring when the difference between a firm's total revenue and total cost is equal to zero.
- When a firm earns enough revenue to cover all of its economic costs (implicit and explicit).
- It is the minimum amount of profit needed to keep the business running in the long-run.

- ▶ Abnormal (supernormal) profit:
Profit above normal profit
- ▶ The firm is earning enough revenue to cover more than all of its economic costs.
- ▶ Abnormal profit:
 $TR > \text{economic cost}$
- ▶ Economic loss (subnormal profit):
Condition in which a firm is not earning enough revenue to cover all of its economic costs.
- ▶ Loss:
 $TR < \text{economic cost}$

SHUT-DOWN PRICE

- ▶ Shut-down price: the price at which the firm is only able to cover its variable costs.
- ▶ $P = \text{minimum AVC}$

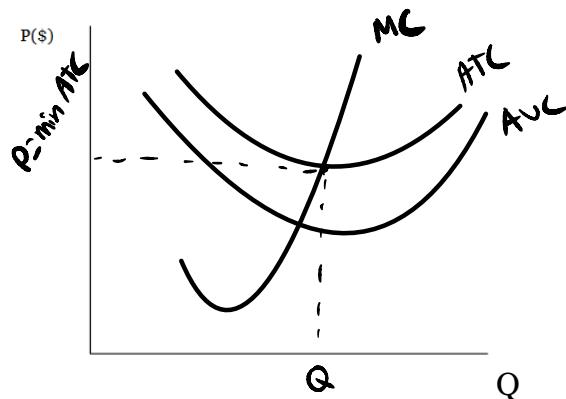


- ▶ At this point, the firm is making a loss overall, but it is... **only losing its fixed costs**.
- ▶ It will shut down temporarily in the short-run and reopen when profits are better.

For example, some ice cream shops shut down each fall, because demand for their products is low over the winter and so the revenue would not be enough to cover their variable costs. In April each year, they open up again, when demand is beginning to rise and they make impressive profits until the end of September.

BREAK-EVEN PRICE

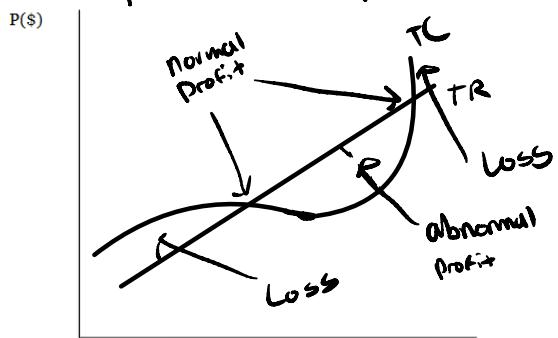
- ▶ The break-even price is the price at which the firm is able to earn normal profit in the long run.
- ▶ $P = \text{minimum ATC}$



- ▶ If the firm is unable to cover its costs in the long run it will... **exit the industry.**
(shut down for good)

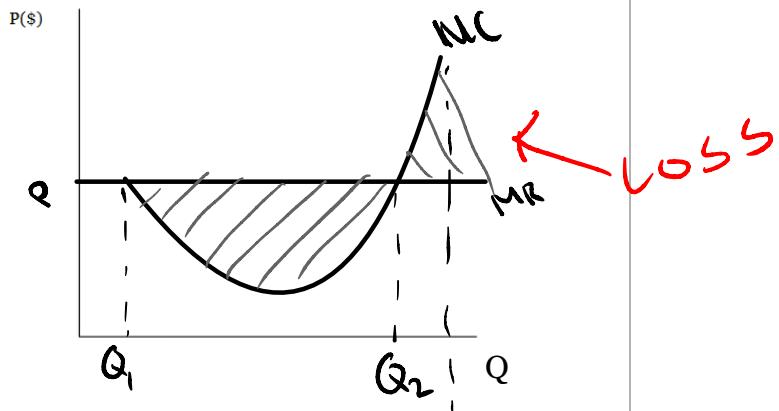
ECONOMIC PROFIT AND A LOSS WITH A PRICE TAKER

Profit in a price-taking firm



- ▶ Profit is maximized when the firm produces at a point where TR is farthest from TC.
- ▶ At low output levels, the firm incurs an economic loss if it can't cover its fixed costs.

THE PROFIT-MAXIMIZING LEVEL OF OUTPUT



- ▶ If $MR > MC$, economic profit decreases if output increases.
- ▶ If $MR < MC$, economic profit decreases if output increases.
- ▶ If $MR = MC$, economic profit decreases if output changes in either direction, so economic profit is maximized.

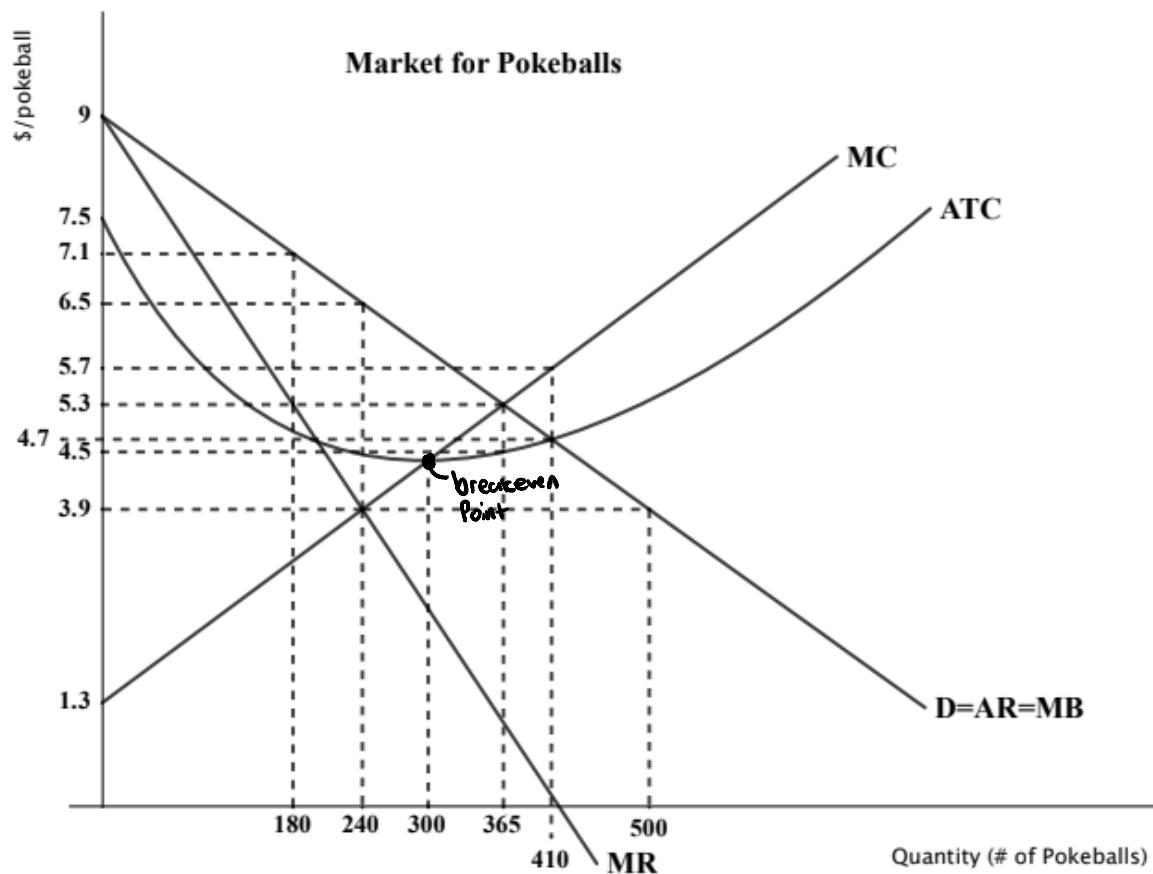
Profit Theory Practice

1. What are two ways economists can use to identify the output (Q) at which a firm maximizes its profit?
2. a) Assume a firm is producing at a level of output (Q) where $MC > MR$. What should it do to increase profit (or to reduce its loss)?
b) If the firm was producing Q where $MC < MR$, what should it do?
3. Assume that a firm that has no control over its price sells output at \$5 per unit.
 - a) Given the following data, use the total revenue approach to find the level of output at which the firm will maximize profit.
 - b) How much profit will the firm make?

Output (Q)	1	2	3	4	5	6	7	8	9	10
Total Cost (\$)	15	18	20	21	23	26	31	35	41	48
Total Revenue (\$)	5	10	15	20	25	30	35	40	45	50
Profit (\$)	-10	-8	-5	-1	2	4	4	5	4	2

4. A firm is making \$0 in economic profit and a local economist says "great!" This is good for the company. Why would they say this?

5. Consider the cost/revenue curves for a firm making “pokeballs” and answer the following questions.



- What is the profit maximizing output (Q) of this company? How do you know this?
- What type of economic profit (normal, abnormal, subnormal/loss) would this firm be making at the profit maximizing output (Q) of this company? How do you know this?
- At what output (Q) would this company be maximizing its total revenue? How do you know this?
- What is the break-even price for this firm? How do you know?
- Can you find the shutdown price for this firm? Why or why not?

1. $MR=MC$

Maximize $TR - TC$

2a) Decrease production to $MC = MR$

2b) Increase production to $MC = MR$

3) \$5 at $Q = 8$

4) They're covering the opportunity cost.

5a) 240 units at \$3.9

5b) Abnormal profit

5c) $Q = 410$

5d) \$450 (smallest point of ATC)

5e) Can't know because no AVC provided

5.2

$$\frac{\% \Delta P}{\% \Delta Q_D}$$

TR/Q

Price (\$)	Quantity demanded	Total revenue (\$)	Average revenue (\$)	Marginal revenue (\$)	PED
20	1	20	20		
18	2	36	18	+16	10
16	3	48	16	+12	4.5
14	4	56	14	+8	1.52
12	5	60	12	+4	1.20
10	6	60	10	-6	0.83
8	7	54	8	-6	0.57
6	8	48	6	-2	0.37
4	9	36	4		

