CHAPTER 11: PERFECT COMPETITION

Micro Recitation Torsten Jochem

Chap 11: Perfect Competition

Outline

Chap 11: Perfect Competition

1. Market Structures & Perfect Competition

	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
# firms	Many	Many	Few	One
Product Type	Identical	Differentiated	Identical or differentiated	-
Ease of Entry	High	High	Low	Blocked
Examples	Wheat, Apples	DVDs, Restaurants	Laptops, Cars	Tap Water

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1. Market Structures & Perfect Competition

	Perfect Competition
# firms	Many
Product Type	Identical
Ease of Entry	High
Examples	Wheat, Apples

Conditions so that we speak of a "Perfectly Competitive Market"

(1) Many sellers & buyers
(2) All firms sell identical products
(3) No barriers for new firms to enter the market

→ Buyers & Sellers are **Price-takers**, everyone is "too small" to influence the price.

Clearly, for many goods this does not hold, but:
(a) this market structure does exist.
(b) we can learn from it why competition is good.
(c) we can use the results to contrast it from the other extreme of the spectrum -- monopoly.

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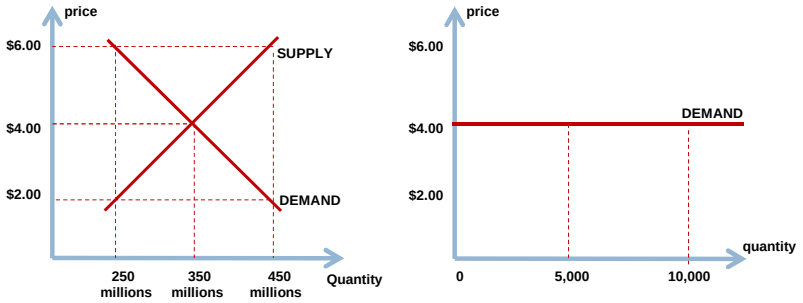
1. Market Structures & Perfect Competition



Complete Market for (German) Pretzels.

Market Demand faced by a **single** bakery.

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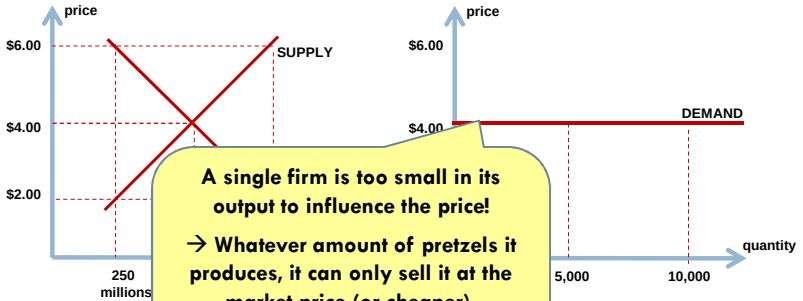
1. Market Structures & Perfect Competition



A single firm is too small in its output to influence the price!

→ **Whatever amount of pretzels it produces, it can only sell it at the market price (or cheaper).**

→ **Each firm faces a horizontal/ perfectly elastic demand curve!**

Complete

(German) Pretzels.

et Demand faced by a **single** bakery.

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2. Profit Maximization

- Recall:
  - 1. Profit = Total Revenue – Total Costs
  - 2. Marginal Revenue (MR) = Δ Total Revenue / Δ quantity
  - 3. Marginal Cost (MC) = Δ Total Costs / Δ quantity
  - Let Δ quantity =1: MR and MC tells you how much Total Revenue/Total Cost increases for producing one extra item.

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2. Profit Maximization

- The Profit is maximized, when
  - (a) the difference between Total Revenue and Total Cost is the largest
    - (follows directly from the definition of Profits)
  - (b) the firm produces output up to when MR = MC
    - Proof by Contradiction.
      - 1. Suppose that MR>MC. Then producing one more unit adds more revenue than it adds to costs, hence profits cannot be maximized when MR>MC.
      - 2. Suppose that MR<MC. Then the last produced item generated more costs than revenues, decreasing profits. Not producing the last item will increase profits and thus profits cannot be maximized when MR<MC.

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This rule you should keep in mind when thinking about profit-maximization of a firm in any market structure.

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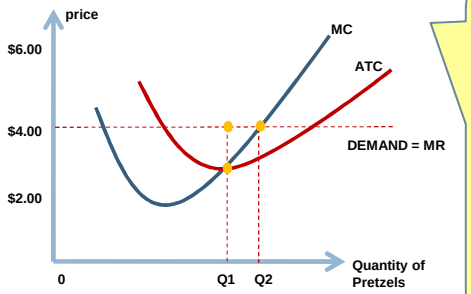
2. Profit Maximization

- Illustrating profits with cost curves



Note:
(1) Firm faces horizontal demand curve; the market price is $4.00.
(2) Producing at Q1, the firm will have the lowest ATC, i.e. the **profits per unit will be highest.**
(3) Producing at Q2, MR=MC and **total profit will be maximized.**

(2) and (3) are not the same!
(see next slide)

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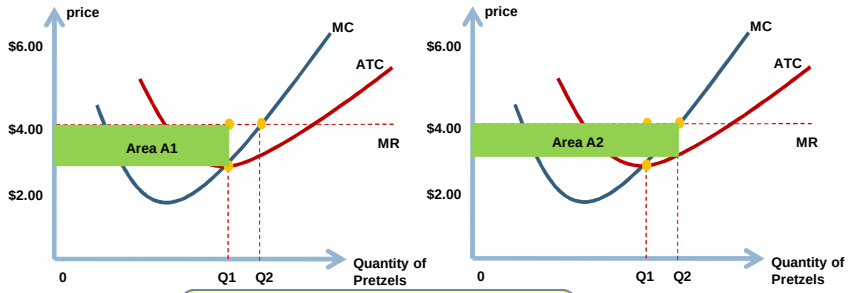
2. Profit Maximization

- Illustrating profits with cost curves



Profits under Q1 production: A2
Profits under Q2 production: A1
Also : A2 > A1

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3. Shut Down decision

- If the market price is below the cost for producing one unit (i.e., p < ATC), then the firm makes losses.

- The firm then faces 3 options:
  - 1: Shut down production permanently.
  - 2: Continue to produce (some amount).
  - 3: Shut down production temporarily.

If *p* expected to remain below ATC.

If *p* expected to return above ATC.

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- **3. Shut Down decision**
  - **Option 1:** Shut down **permanently**
    - **Permanent Shut Down Rule:**

      Shut down if and only if:
      - (1) P < ATC **and**
      - (2) it is expected that the price will stay below the firm's ATC in the future.

If p < ATC forever, then firm cannot make any more profits in the future but will only incur losses from now on…

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- **3. Shut Down decision**
  - **Option 2:** Continue to produce.
    - Continue to produce if and only if
      - (1) Price ≥ Minimum **AVC**, **and**
      - (2) it is expected that the price will return above its ATC in the future.
    - To understand condition 1, note that if the firm closes temporarily, it will still have to pay its fixed costs. Hence, it should only stop producing temporarily only if the losses it occurs are greater than the fixed costs it has to pay.
    - This means we should consider fixed costs as sunk costs (hence, ignore them) and only consider variable costs.

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- **3. Shut Down decision**
  - **Option 3:** Shut down temporarily
    - Shut down **temporarily** if and only if
      - (1) Price < Minimum **AVC**, **and**
      - (2) it is expected that the price will return above its ATC in the future.
    - Condition 1 means that producing **any** amount will lead to a loss that is greater than the fixed costs. Hence, it's better to shut down production temporarily.

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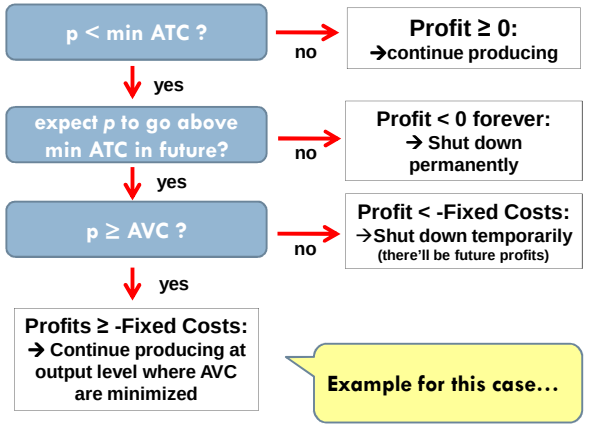
- **3. Shut Down decision**



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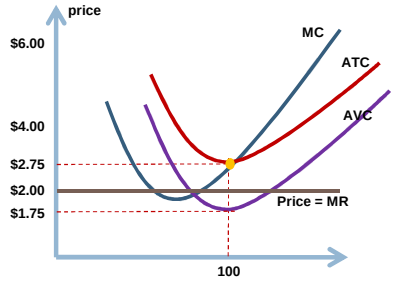
3. Example



(1) The minimum cost level at which the firm can produce is $2.75.
(2) If the firm shut downs **temporarily**, it will lose the $1,000 due to the fixed costs.
(3) If the firm produces 100, it will however only lose $900.
(4) Hence, in this case, the firm should **CONTINUE TO PRODUCE.** (Of course, this can't go on forever.)

Quantity	Fixed Costs	Variable Costs	Total Costs	AVC	ATC	Marg. Rev.	Profit
0	$1,000	$0	$1,000	-	-	$2	-$1,000
100	$1,000	$1,750	$2,750	$1.75	$2.75	$2	-$900
…	…	…	…	…	…	…	…

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4. Long-Run Competitive Equilibrium

- If there are profits in a market, new firms will enter to produce the good as well.
  - (recall that the definition of perfectly competitive markets states that it is easy for new firms to enter the market.)
- The entry of new firms will then increase supply in the market, shift the market supply curve to the right and decrease the price, thereby decreasing profits.
- As new firms enter as long as there are profits, in the long-run, there will be no profits for anyone.

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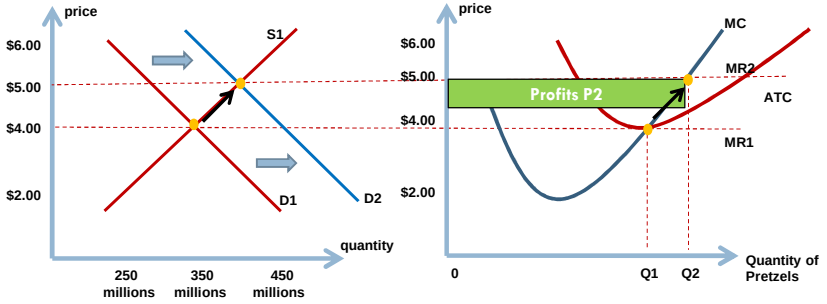
4. Example (1st part)



If Demand increases → the demand curve shifts to the right → market price increases → firms' profits increase

When price = $4, then there are no profits for individual firms as ATC are also $4. When price increases however to $5, then there are profits P2.

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4. Example (2nd part)

As there are profits to be made → new firms enter the market → supply increases → price falls → firms' profits go back to 0.

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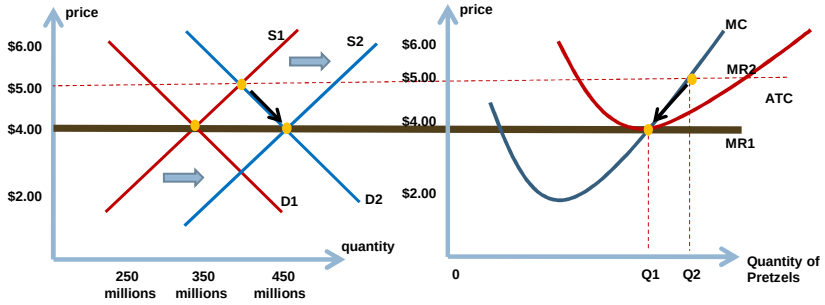
5. Perfect Competition & Efficiency



As we have seen, in the long-run, the price will remain at $4 where the ATC is at its minimum and there are no firm profits!

➔ **Goods will be produced at the lowest cost possible and consumers will get the goods at the lowest possible price.**

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5. Perfect Competition & Efficiency

1. Productive Efficiency

- Goods are produced at the lowest possible cost, i.e. price = minimum of ATC.
- (If this was not the case, then firms could make profits; this however would prompt new firms to enter, driving down the price until profits vanish and firms are forced to produce at the minimum of their ATC.)

2. Allocative Efficiency

- Goods are produced up to the point where the last unit provides a marginal benefit equal to the marginal cost of producing it, i.e. MR=p.

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5. Perfect Competition & Efficiency

1. Productive Efficiency

- Goods are produced at the lowest possible cost, i.e. price
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1. **Firms will produce exactly what consumers want.**
2. **They will sell it without any profits.**

➔ **LIFE IS GOOD for CONSUMERS in perfectly competitive markets!**

2. Alloc

- Goods are produced up to the point where the last unit provides a marginal benefit equal to the marginal cost of producing it, i.e. MR=p.

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5. Perfect Competition & Efficiency

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What if we don't have a perfectly comp. market?
(i.e., one of the conditions of perfectly competitive markets on slide 4 is violated)

1. We have a different market structure (monopolistic comp., oligopoly, monopoly).
2. We have to analyze if productive/ allocative efficiency still holds. (next 3 classes!)

2. A

- Goods are produced up to the point where the last unit provides a marginal benefit equal to the marginal cost of producing it, i.e. MR=p.