

ANTITRUST ECONOMICS 2013

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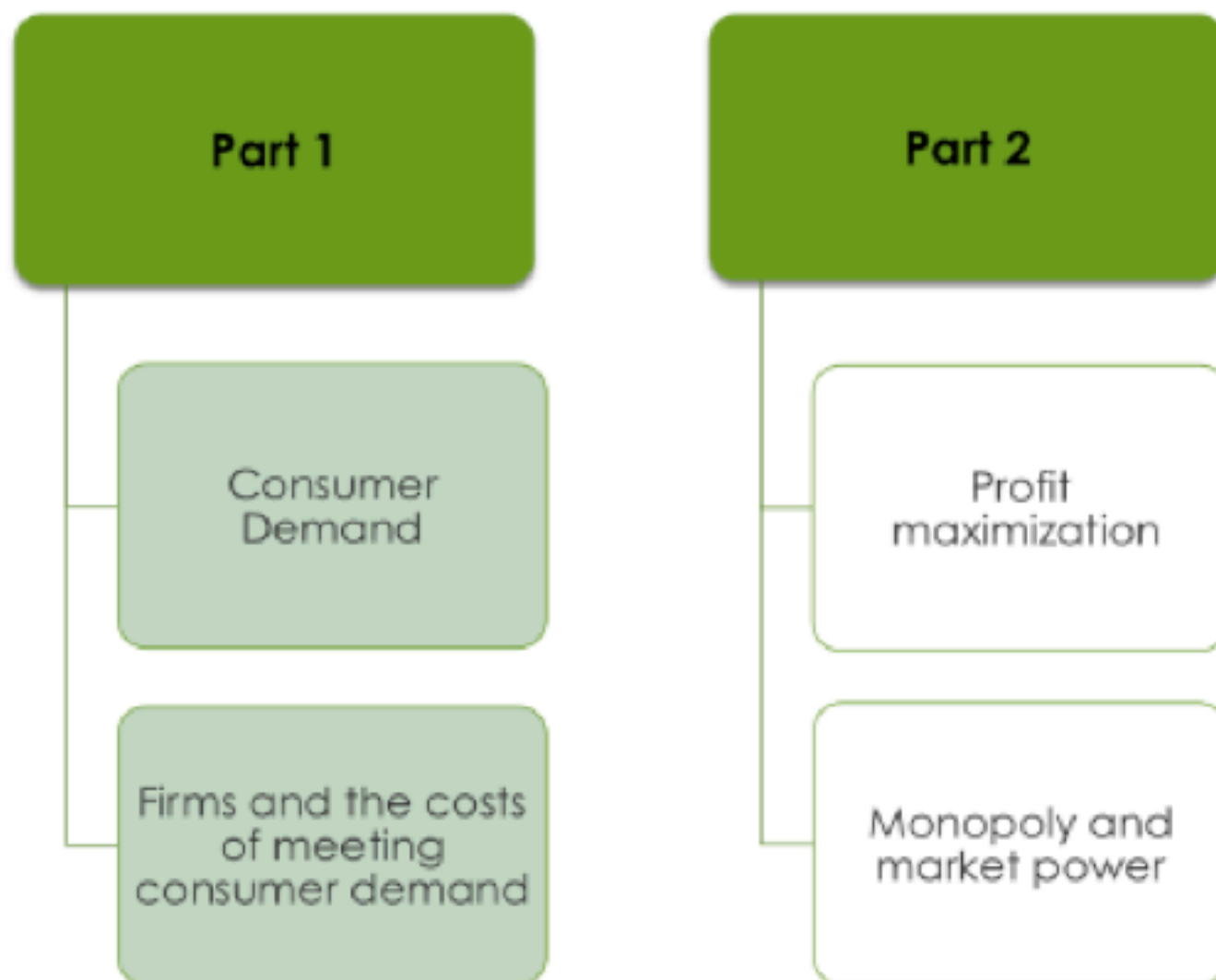
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TOPIC 2: FIRMS AND PROFIT MAXIMIZATION

Overview

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Consumer Demand

Firms consider consumer demand in assessing how much revenue they can earn

Consumer demand

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The demand schedule is the amount of a product that consumers in the aggregate will purchase at given prices.

The Law of Demand says that people buy **more** at **lower** prices.

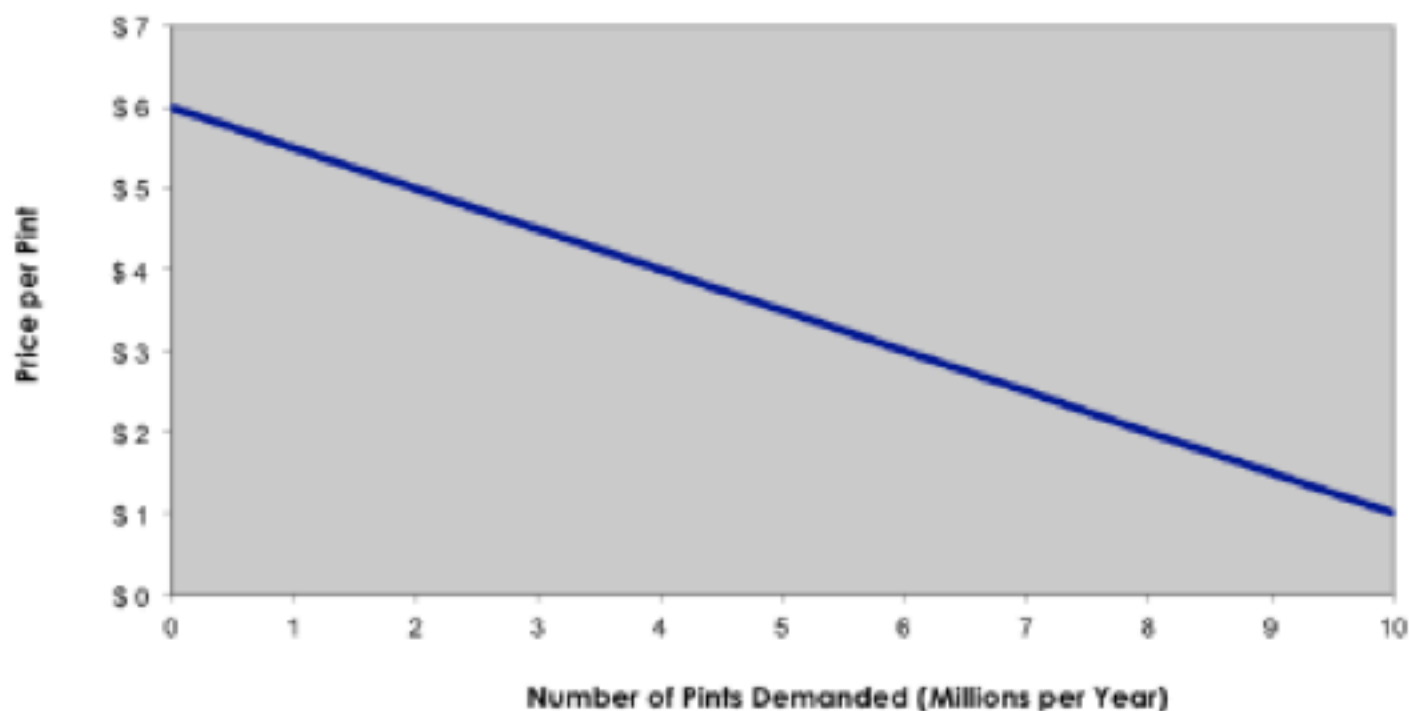
There are exceptions (e.g. a luxury ring, which at lower prices loses its exclusivity status and quantity demanded also decreases), but extensive empirical evidence supports the Law of Demand.



Consumer demand

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Pub Beer



This and other examples are made up. But in practice it is possible to estimate actual demand schedules.

Factors that affect consumer demand

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Underlying consumer preferences (taste for drink, taste for beer, age, gender, stress level)

Availability of substitutes (wine, whiskey, mineral water)

Availability of complements (potato chips or crisps)



Consumer demand goes up with an increase in the price of Substitutes

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Substitutes are alternative ways of satisfying a need

Product A is a substitute of Product B if people buy more of A when the price of B goes up

If the price of a pint goes up



then...

The amount of whiskey consumed goes up



Consumer demand goes down with an increase in the price of Complements

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Complements are used together with other products to fulfill a want

Product C is a complement of Product A if people buy less of Product A when the price of C goes up

If the price of crisps increases



\$

then...

The amount of beer consumed goes down



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Increases in demand come from many sources

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People buying more because their incomes have gone up.

People switching from an alternative that has become more expensive.

Changes in preferences.

More people coming into the market because of population growth.



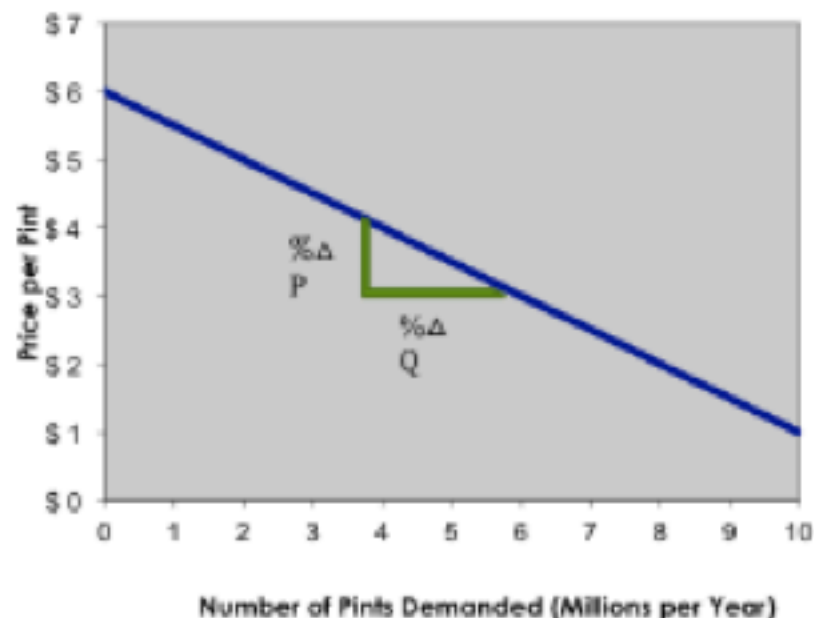
Demand Elasticity is a key measure

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“Elasticity of demand” tells us how responsive consumers are to changes in price

It answers the question: *How much does the quantity demanded decrease when the price increases*

E = Percentage change in Quantity Demanded divided by the percentage change in Price



$$E = \frac{\% \text{ Change in Quantity Demanded}}{\% \text{ Change in Price}}$$

Demand Elasticity and Inelasticity

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This is a negative number, but is often expressed as a positive one

We say demand is **Elastic** when E is greater than 1

We say demand is **Inelastic** when E is less than 1

We say demand is **unit elastic** when $E=1$



Example of Elasticity of demand

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Consider a change in price from \$10.00 to \$11.00, a 10% increase.

At \$10.00 the quantity demanded is 100 units.

At \$11.00 the quantity demanded is 80 units.

The change in quantity demanded is 20 units, a 20% decrease.

The Elasticity is 20% divided by 10%, which equals 2.

Quantity	Price	% change in Quantity	% change in Price	Elasticity
100	\$10			
80	\$11	20%	10%	2



Other “elasticities” summarize consumer behavior

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Cross-Price Elasticity: % change in quantity demanded of product A given a 1% change in the price of product B.

- Cross-Price Elasticity > 0 then A and B are substitutes
- Cross-Price Elasticity < 0 Then A and B are complements

Income Demand Elasticity: % change in quantity demanded given a 1% change in income

- Income demand elasticity > 0 is called a normal good
- Income demand elasticity < 0 is called an inferior good



Demand elasticities and antitrust

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Price elasticity of demand is important for formulas commonly used in market definition and market power. Low elasticity (or inelastic demand) tends to connote market power.

Cross-price elasticities are important for assessing substitution. Many alternatives with high positive cross-elasticities means lots of substitution possibilities.

Cross-price elasticity involving complements is important for multi-sided platforms where demand goes up if one is able to access more value on other side (think smart phones and apps)



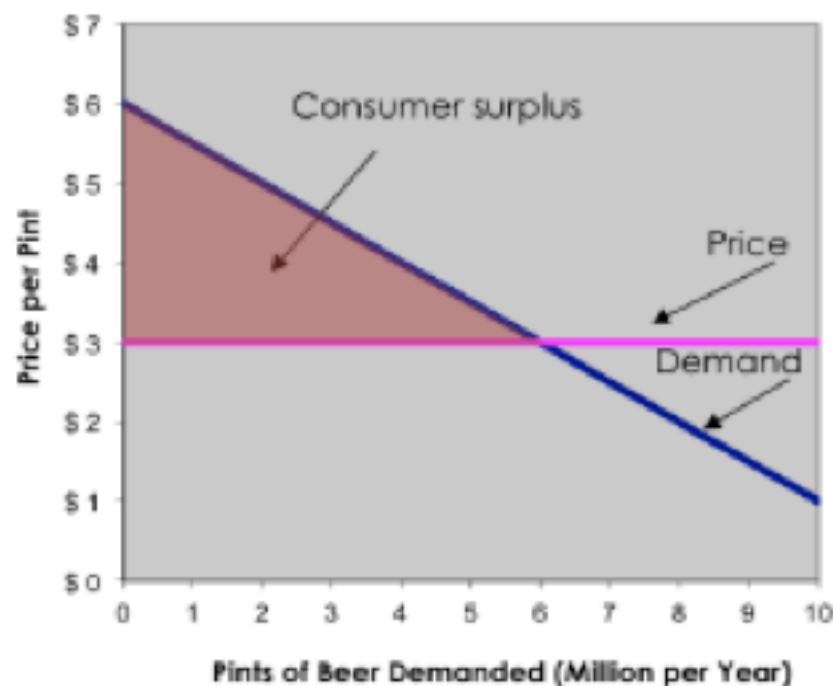
Measuring consumer welfare

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Consumer "surplus" is how much value people get over and above what they have to pay

Consumers would be willing to pay \$5.5 for the first unit and \$5 for the second; they end up paying \$3, so they have a surplus of \$2.5 on the first unit and \$2 on the second unit for a total of \$4.5

Consumer Surplus



Consumer welfare is a key concept for antitrust

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If business practices increase consumer welfare then we should not want competition policy to prohibit these practices.

- Mergers that make consumers better off through improved efficiencies
- Unilateral conduct that make consumers better off through greater competition or improved efficiencies

If business practices reduce consumer welfare and are subject to competition law we should want to prohibit these practices.

- Mergers that make consumers worse off through higher prices with no offsetting efficiencies.
- Unilateral conduct that make consumers worse off.

An important question to which we shall return is whether we should consider total welfare which includes profits that firms get.



Costs of Production

Firms consider how much it costs them to meet consumer demand

Costs are Critical to Business Decisions

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How much Should a Firm Produce and Charge?

How much Money Will a Firm Make?

Should a Firm Remain in Business?



Example of starting a Restaurant

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Rent a restaurant space	\$10,000 dollars a month
Renovate	\$1,000,000 dollars
Hire Chefs and other staff	\$20,000 dollars a month
Buy Food	\$5 dollars per meal served



Some costs are sunk costs

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Sunk costs are costs you can't recover by, for example, selling the asset.

Once incurred, sunk costs are gone.

Renovation is sunk (like painting and refurbishing an apartment you are renting).



Some costs are fixed

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Fixed costs are costs that can't change with output.

Whether they are fixed or not depends on the timeframe because firms can change decisions over time.

Today	After you've bought food, everything else is fixed
Week	Rent, Staff
Month	Rent so long as it is easy to get rid of Staff (UK vs. France)
Year	Nothing if you have a year lease



Some costs are variable

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Variable costs that change with output.

What's not fixed is variable.

Also depends on the time period considered since firms can vary decisions over time.

Today	Food
Week	Food, Staff
Year	Everything (you can expand or contract your space)

Average Costs

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Average Variable Costs are variable costs divided by output.

Average Total Costs are fixed costs plus variable costs, divided by output.

On a weekly basis average total costs would be $AVC + AFC = \$12.50$

- Average Variable Costs: ($\$20,000$ staff salaries + $\$5$ food x number of meals), divided by the number of meals; with 4000 meals this would be $\$40,000/4000 = \10 per meal.
- Average Fixed Costs: ($\$10,000$ rent); with 4000 meals this would be $\$2.50$ per meal.



Marginal Cost

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Marginal costs measure the cost of increasing output by one unit

This measure depends on whether other factors of production have enough capacity (in the short run)

In our example, to increase the number of meals supplied by one unit the restaurant must buy \$5 of food

Opportunity Cost

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Opportunity costs are the value of opportunities that you give up.

The property has an opportunity cost: You could resell it.

You, the owner of the restaurant, have an opportunity cost: The value of your time in other pursuits.

Your money has opportunity costs: What it could earn in other investments.



Diminishing marginal returns/Economies of Scale

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Economies of scale: when unit costs decline with output

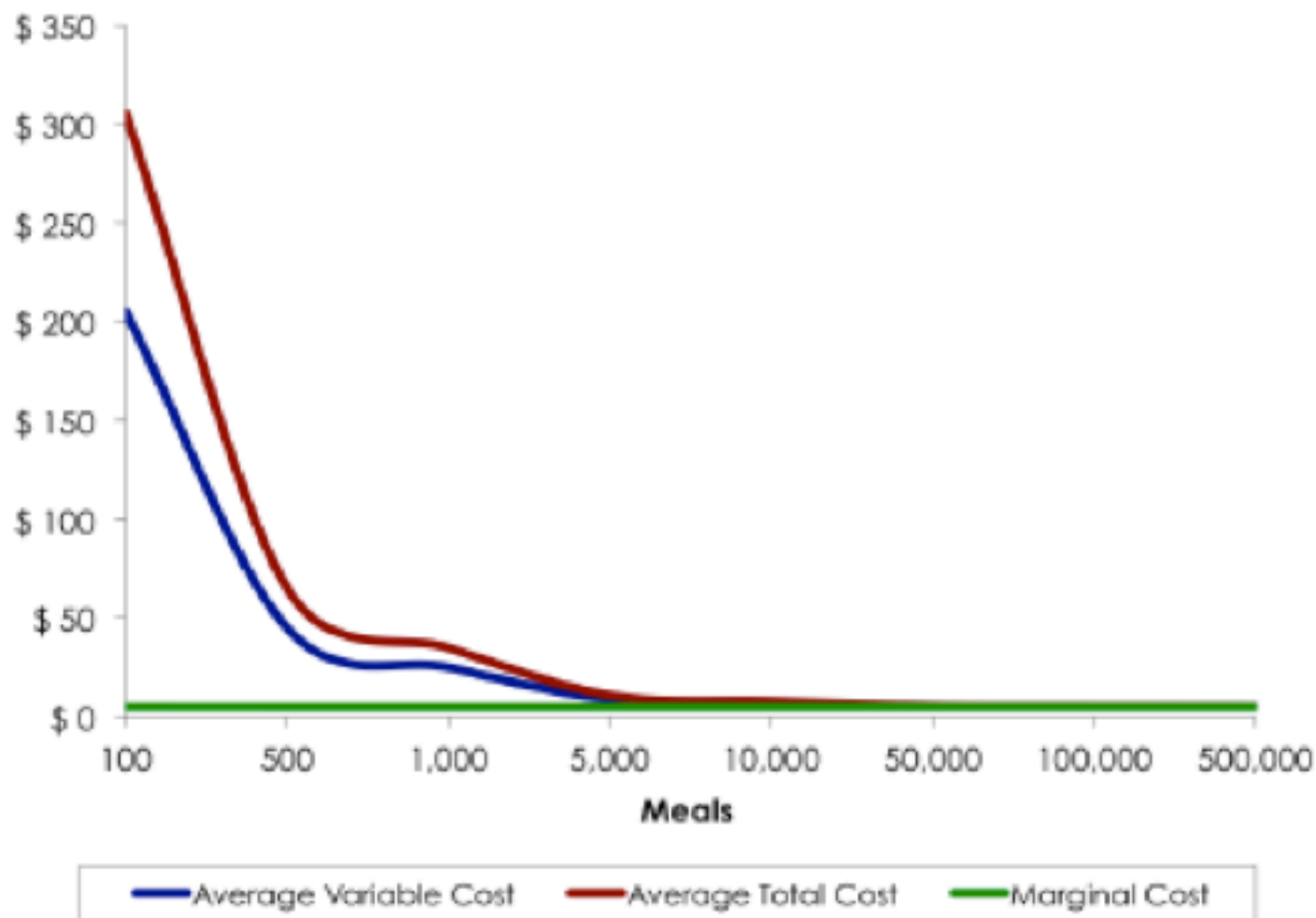
Diseconomies of scale: when unit costs rise with production

Meals per Year	Average variable Cost	Average Total Cost
100	\$ 205.00	\$ 305.00
500	\$ 45.00	\$ 65.00
1,000	\$ 25.00	\$ 35.00
5,000	\$ 9.00	\$ 11.00
10,000	\$ 7.00	\$ 8.00
50,000	\$ 5.40	\$ 5.60
100,000	\$ 5.20	\$ 5.30
500,000	\$ 5.04	\$ 5.06



Graph of economies of scale

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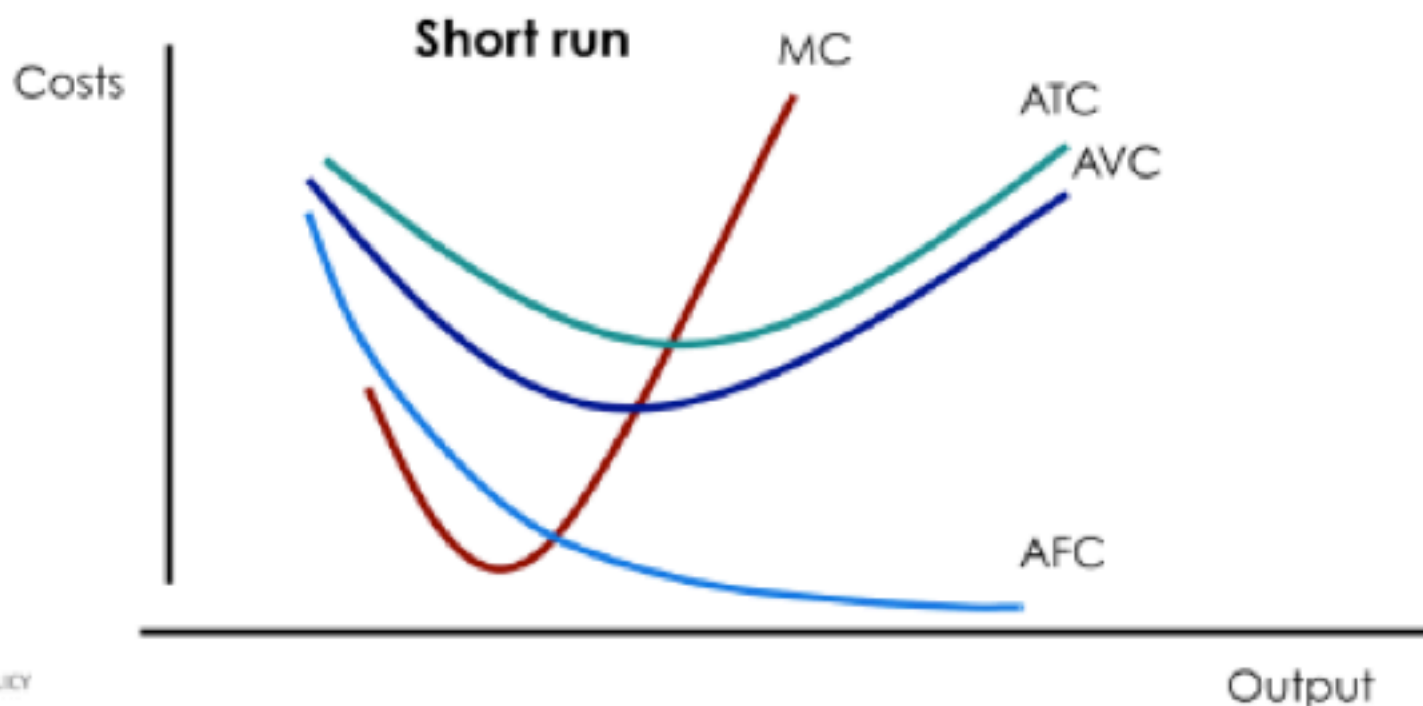


Typical costs curves

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More generally Cost Curves Show “Diminishing returns to Scale” in the short run.

Cost can be represented in a graph. It is important to distinguish the short run and the long run since fixed costs are variable in the long run.



Long run costs of production

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In the long run more costs are variable.

Fewer fixed costs leading to economies of scale.

More flexibility to optimize inputs so less diseconomies of scale.

Generally firm's supply is more "elastic" in the long run—it is easier to increase or decrease output.



End of Part 1, next week Part 2

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