Chapter 1.

Scarcity due to limited: Time ∧ Money ∧ Energy

Economics: Ind/Busi/Gov make best choises to get what the want ∧ how those choises effect market

Opportunity Cost

Scarcity → ∀choice involves trade off

Opportunity Cost = true choice
Best alternative given up

More important than mone cost

Smart choise!
Value of what you get > Val of what you given up

Change as costs ∧ benefits change
- Incentives = reward and penalties for choices
- more likely to choose actions with reward (posetive incentives)
- avoid penalties (negative incentive)

Opportunity Cost = Give up / Get

Opportunit Cost decreases (cheaper)
increase (expensive)

Voluntary trade:

∀ person feels that what they get > what they give up

Absolute advantage

— ability to produce a product or service at lower absolute cost

Comparative advantage

- ability to produce or service @ lower opportunity cost than another producer
- key to mutually beneficial gain from trade
- allows each trader to consume outside of PPF
- allows mutually beneficial gains from specialising and trader

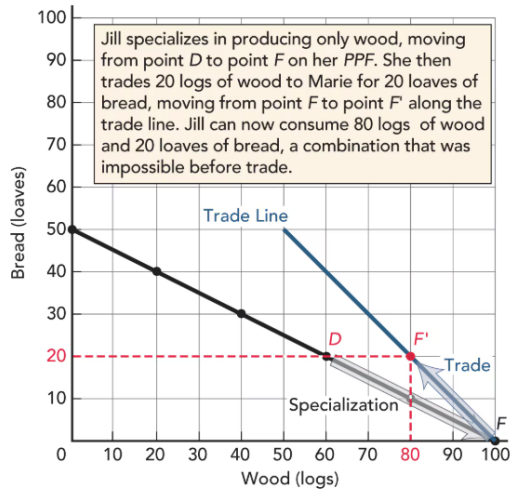
- Trade that makes individuals better off when
  - specialising in product/servic w comparative advantage
  - trades of other product or service

- Production possebilities frontier (PPF)
  - graph max combo of product/servi. produce wit existing inputs →

	Opportunity Cost of 1 Additional	
	Loaf of Bread	Log of Wood
Jill	Gives up 2 logs of wood	Gives up 1/2 loaf of bread
Marie	Gives up 1/2 log of wood	Gives up 2 loaves of bread
Comparative Advantage	Marie has comparative advantage (lower opportunity cost) in bread-making	Jill has comparative advantage (lower opportunity cost) in wood-chopping

Figure 1.5a

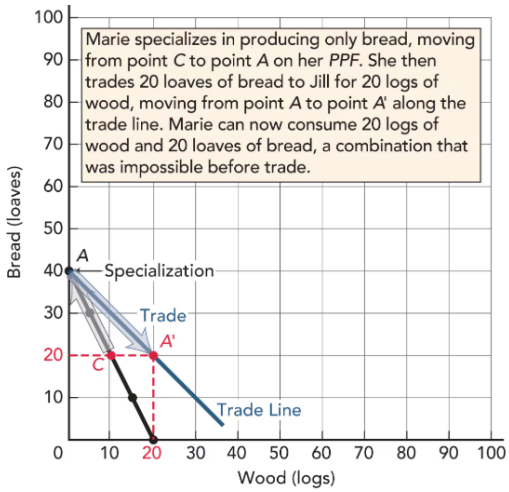
Mutually Beneficial Gains from Trade



a) Jill's Gains from Trade

Figure 1.5b

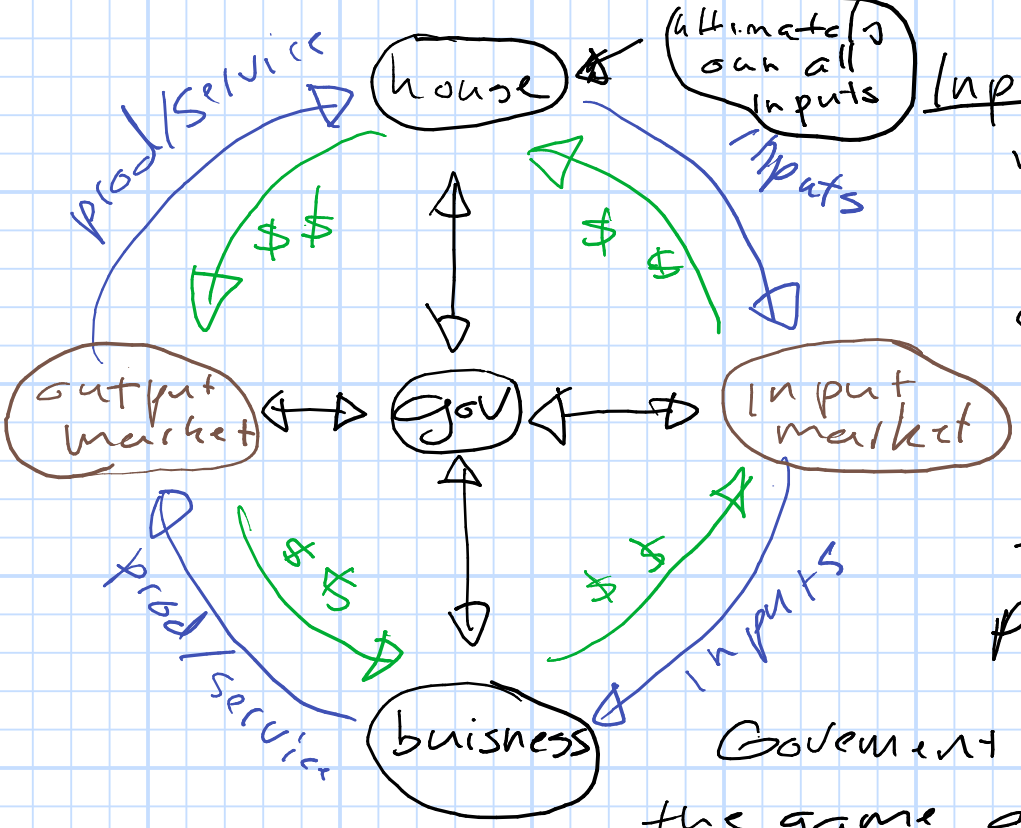
Mutually Beneficial Gains from Trade



b) Marie's Gains from Trade

Gains from trade happen without anyone working harder, or without any improvement in technology or new inputs

	Corn	Wheat
Canada	2	1/2
Argentina	1.2	0.8



Inputs: productive resources: labor
natural resources
capital equipment
enterpreneual ability
- used to produce products and servi

Goverment set rules of the game and can choose to interact in any aspect of the economy.

Three key model to smart Choices

2 additional benefit / additional opportunity cost only

3 benefits & costs (implicit) & externalities

Models

- Posetive statements: evaluated true or false
- Normative statements: what you believe should be; involve value judgment

Marginal = "Additional" (next choice)

Implicit costs = opportunity costs of investing your own money or time

Chapter 2.

- Willingness to buy product or service: depends on ability to pay, comparat.'s benefits and costs, and the availability of substitutes

- Preferences: wants ∧ want intensities

- Demand: consumers willingness and ability to pay for particular product or service

- What willing to pay or give up depends
  - Cost
  - Available of substitutes

(2) count only additional benefits and additional costs

- additional benefits = marginal benefit not (total)

- marginal benefits change with circumst.
  - additional benefit from a choice
  - Willingness to pay depends on this
  - abundance = marginal benefit low
  - ->carce = marginal benefit high

+marginal = difference between last time and this time

Demand Curve

Combo 2 forces
- switch to substitutes
- willingness and ability to pay
- determining quantity demanded
- read as demand curve & as marginal benefit curve

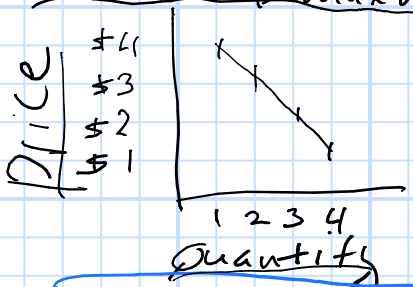
Quantity demanded
actual amount planned by given price

Market demand
sum of demands of all willing individuals

Law of demand
if price rises, quantity demanded decreases, other things remaining the same

Demand Curve
relationship between price & qty demand other things remaining the same

Market Demand Curve



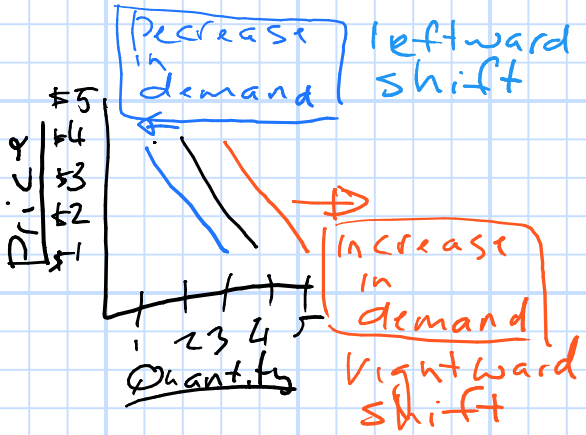
— Quantity demanded changes only with a change in price

Read over & down

All other influences on consumer choice change demand

Read up and over

- Increase in demand
  - Increase in cons er's willingness and ability to pay.
  - Rightward shift on demand curve
- Decrease in demand
  - Leftward shift of demand curve



Demand changes w changes in preferences, price of related goods, income, expected future price, ∧ # consumers

Demand increases
- increase in preference
- Rise in price of a substitute (same want)
- Fall in price of a complement (used together to satisfy the same wants)
- increase in income for normal goods (buy more of when your income increases)
- decrease in income for inferior goods (buy less of when your income decreases)
- Rise in expected future price
- increas in number consumers

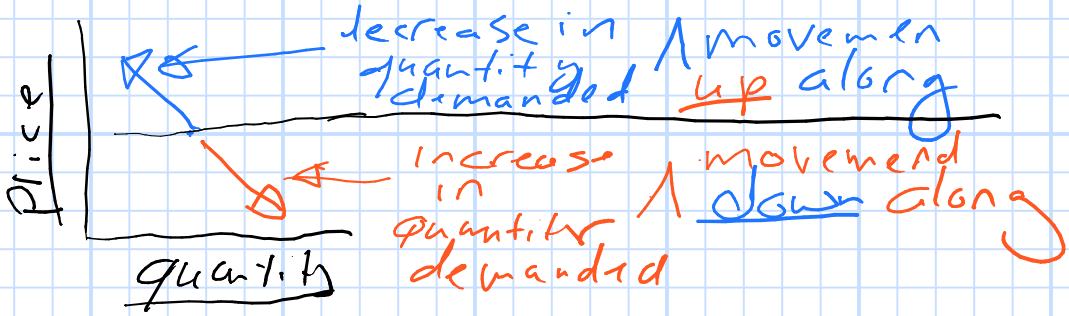


Fig. 2.8 Law of Demand and Changes in Demand

The Law of Demand *The quantity demanded of a product or service*	
Decreases if:	***Increases if:***
• price of the product or service rises	• price of the product or service falls

Changes in Demand *The demand for a product or service*	
Decreases if:	***Increases if:***
• preferences decrease	• preferences increase
• price of a substitute falls	• price of a substitute rises
• price of a complement rises	• price of a complement falls
• income decreases (normal good)	• income increases (normal good)
• income increases (inferior good)	• income decreases (inferior good)
• expected future price falls	• expected future price rises
• number of consumers decreases	• number of consumers increases

AAA 3 Implicit Costs and Externalities Count Too

- Implicit cost: hidden opportunity costs of what buisness owner could earn elsewhere with time and money invested
- Negative Externalities: Costs to society from your private chase that effects others, but that you do not pay.
- Positive Externalities: benefits to society from your private choices that effect others, but others do not pay you for

Substitutes product & services used in place of each othe to satisfy the same wants

Complements product & services used togeth. to satisfy the same want

Chapter 3

Business must pay higher prices to obtain more of an input cause opportunity costs change w circumstances.

Count only additional benefits & additional opportunity cost

Marginal costs of additional inputs (like labor) are ultimately opportunity costs - the best alt use of inputs.

All costs are opportunity costs

Marginal cost - additional opportunity cost of increasing quantity supplied - change with circumstance

To buy inputs, business must pay the price matching the best opportunity cost of input owner

Sunk costs that cannot be reversed are not part of opportunity costs.
Do not influence smart, forward-looking decisions

If the price of a product/service rises, quantity supplied increases

Businesses increase production when higher prices either create higher profits or cover higher marginal opportunity costs of production

Supply - business' willingness to produce a particular product or service because price covers all opportunity costs.

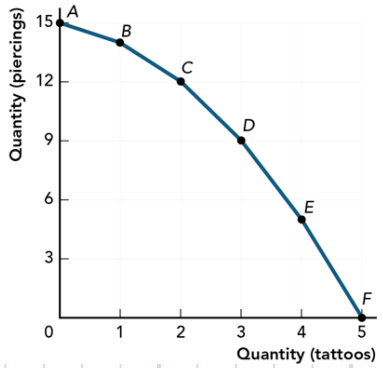
Quantity Supplied - quantity you actually plan to supply @ given price

Marginal opportunity Cost - complete term for any cost relevant to a smart decision

- All opportunity costs are marginal costs & vice versa

Fig. 3.2 Paola's Parlour Production Possibilities Frontier

Combination	Piercings	Tattoos
A	15	0
B	14	1
C	12	2
D	9	3
E	5	4
F	0	5



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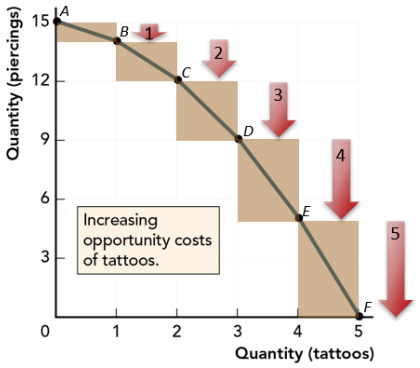


Fig. 3.3 Paola's Parlour's Marginal Opportunity Costs

Combination	Piercings	Tattoos	Marginal Opportunity Cost of Producing More Tattoos (piercings given up)
A	15	0	
B	14	1	$\frac{(15-14)}{1} = 1$
C	12	2	$\frac{(14-12)}{1} = 2$
D	9	3	$\frac{(12-9)}{1} = 3$
E	5	4	$\frac{(9-5)}{1} = 4$
F	0	5	$\frac{(5-0)}{1} = 5$

The Law of Supply

- Increasing marginal opportunity costs arise because inputs are not equally productive in all activities
  - Where inputs are equally productive in all activities, marginal opportunity costs are constant

- Market Supply - Sum of supplies of all businesses willing to produce a particular product or services

- Law of supply - if the price of a product or service rises, quantity supplied increases

- Law of Supply - If the price of a product or service rises, quantity supplied increases

- Market supply - Sum of supplies of all business willing to produce a particular product or service

Fig. 3.4 Marginal Opportunity Costs of Additional Tattoos Measured in Piercings

Marginal Opportunity Cost of Additional Tattoos (piercings sets given up)	Quantity Supplied (tattoos)
1	1
2	2
3	3
4	4
5	5

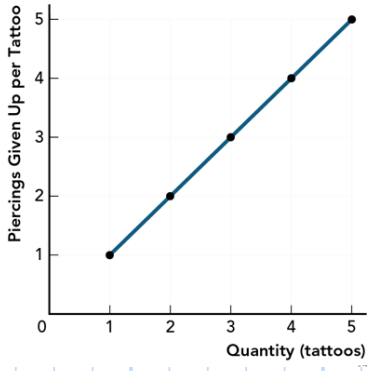


Fig. 3.5 Marginal Opportunity Cost of Additional Tattoos Measured in $

Price (marginal opportunity cost or minimum willing to accept per tattoo)	Quantity Supplied (tattoos)
$ 50	1
$100	2
$150	3
$200	4
$250	5

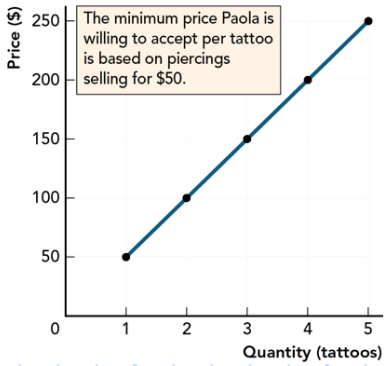


Fig. 3.6 Market Supply of Tattoos

Row	Price (marginal opportunity cost or minimum willing to accept per tattoo)	Quantity Supplied (tattoos)
A	$ 50	100
B	$100	200
C	$150	300
D	$200	400
E	$250	500

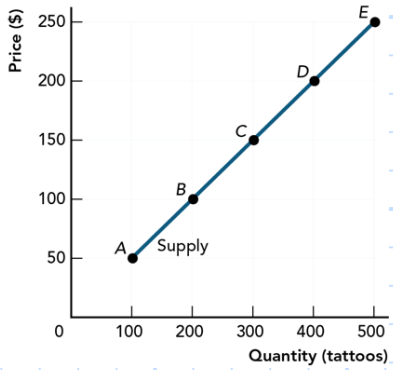
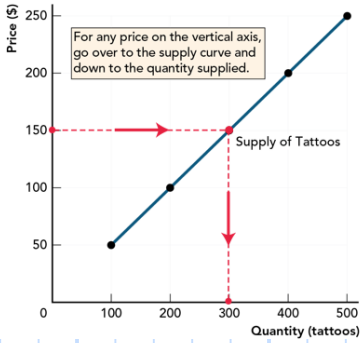


Fig. 3.7a Two Ways to Read a Supply Curve:
Supply Curve — *Read Over-and-Down*



The law of Supply (Cont.)

Supply Curve - shows the relationship between price and quantity supplied, other things remaining the same

- 2 ways to read a supply curve
  - Supply curve: read over ∧ down from price to qty supplied
  - marginal cost curve: read up ∧ over from qty supplied to price
- Marginal cost curve shows the min price business will accept that covers all marginal opportunity costs of production

Quantity supplied is changed only by a change in price

Supply is changed by all other influences on business decisions

What can change Supply

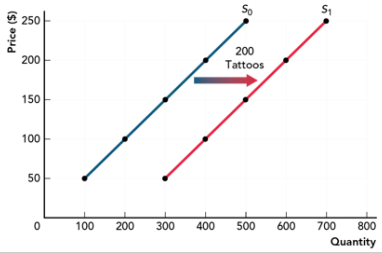
- Supply is a catch-all term summarizing all possible influences on a businesses' willingness to produce a particular product or service

- Increase in Supply :- increase in businesses' willingness to supply
  Rightword shift of supply curve

- Decrease in Supply - decrease in businesses willingness to supply
  Leftword shift of supply curve

Fig. 3.8 Increase in Market Supply of Tattoos

Price (marginal opportunity cost or minimum willing to accept per tattoo)	Quantity Supplied (before technology improvement)	Quantity Supplied (after technology improvement)
$ 50	100	300
$100	200	400
$150	300	500
$200	400	600
$250	500	700



What Can change Supply

- Supply changes (ex: changes in tech, prices of related products or services produced, price of inputs, expected future prices, number of business, and env
  - Improve in tech
  - Env change helping production
  - fall in price of input
  - fall in price of related product or service
  - fall in expected future price
  - increase in number of businesses.

Fig. 3.8 Increase in Market Supply of Tattoos

Price (marginal opportunity cost or minimum willing to accept per tattoo)	Quantity Supplied (before technology improvement)	Quantity Supplied (after technology improvement)
$ 50	100	300
$100	200	400
$150	300	500
$200	400	600
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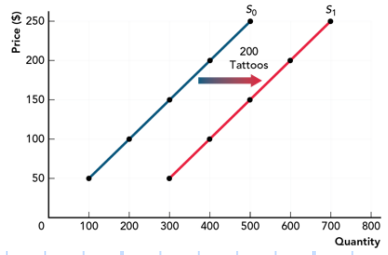
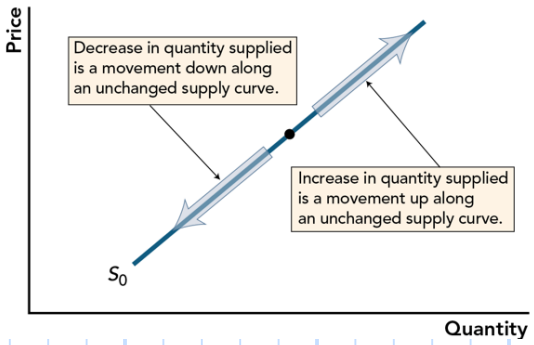


Fig. 3.9a Change in Quantity Supplied



Change in Supply

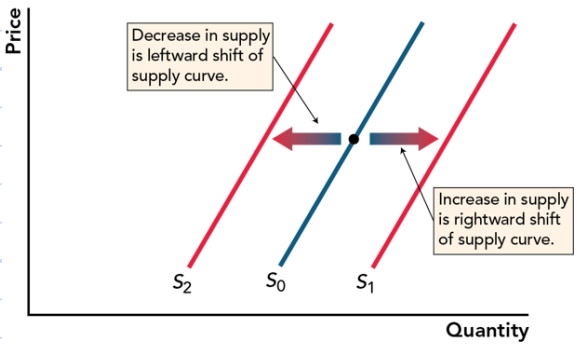
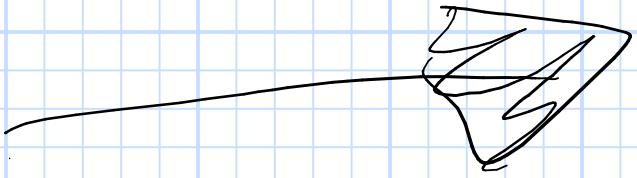


Fig. 3.10 Law of Supply and Changes in Supply

The Law of Supply *The quantity supplied of a product or service*	
Decreases if:	***Increases if:***
• price of the product or service falls	• price of the product or service rises

Changes in Supply *The supply for a product or service*	
Decreases if:	***Increases if:***
• not applicable	• technology improves
• price of a related product or service rises	• price of a related product or service falls
• price of an input rises	• price of an input falls
• expected future price rises	• expected future price falls
• number of businesses decreases	• number of businesses increases
• environmental change harms production	• environment change helps production



Chapter 4

Market Connect competition between buyers, competition between sellers, and cooperation between buyers and sellers.

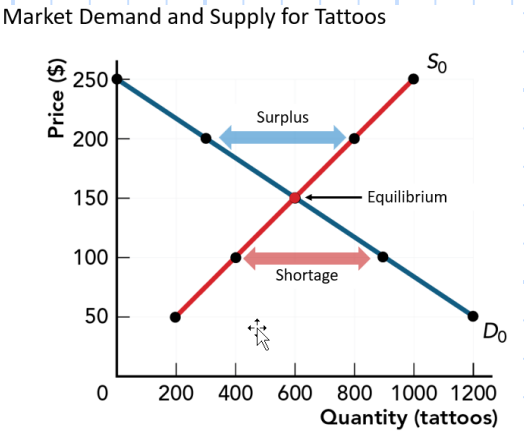
Market - the interaction between buyers ∧ sellers

Market Mix
- Competition - between buyers, between sellers
- Cooperation - between buyers ∧ sellers

Because any purchase or sale is voluntary, exchange between buyer ∧ seller happens only when both sides end up better off

Property Rights - legally enforced guarantees of ownership of physical, financial, and intellectual property

Goverment sets the rule of the game, defn ∧ enforcing property rights necessary for free and voluntary exchange



- Frustrated Buyers - Market price too low
  - Shortage V excess demand - quantity demanded exceeds quantity supplied
  - Shortage create pressure for prices to rise
  - Rising prices provide signals and incentives for businesses to inc. qty supplied ^ for consumers to dec. qty demanded, eliminating the shortage
  - surplus V excess supply - qty supplied exceeds qty demanded
    - Surplases create pressure for prices to fall
    - Falling prices provide signals and incentives for businesses to dec. qty supplied ^ for consumers to inc. qty demanded, eliminating surplus

Market-clearing V equilibrium prices balance qty demanded ^ qty supplied, coordinating the smart choices of consumes ^ bussiness.

Equilibrium prices illustrate Adam's Smith's concept of invisible hand.

Market-Clearing, Equilibrium Prices

- The price that coordinates the smart choices of consumes ∧ businesses has 2 names
  - Market-clearing prices- price that equilizes qty demand ∧ qty supplied
  - Equilibrium price - price that balances forces of competition ∧ cooperation, so that there is no tendency for change
- Price signals in markets create incentives, so that while each person acts only in their own self-interest
  - Interaction coordinated through Adam Smith's invisible hand of competition
  - Result is the miracle of markets - cnt., ever changing production of products and services we want

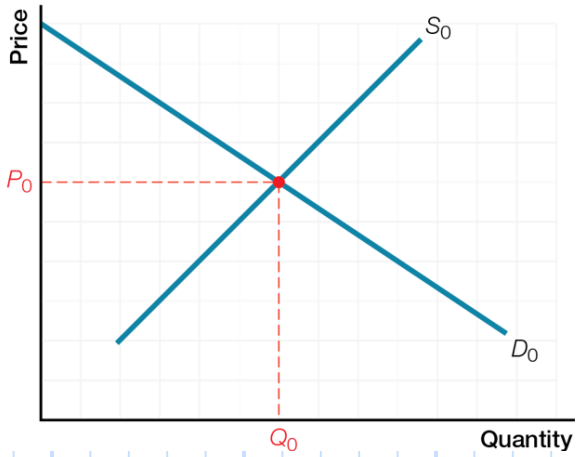
When demand or supply change, equilibrium prices and qnts change!

The price changes cause business and consumers to adjust their smart choices well-functioning markets supply the changed products ∧ services demanded

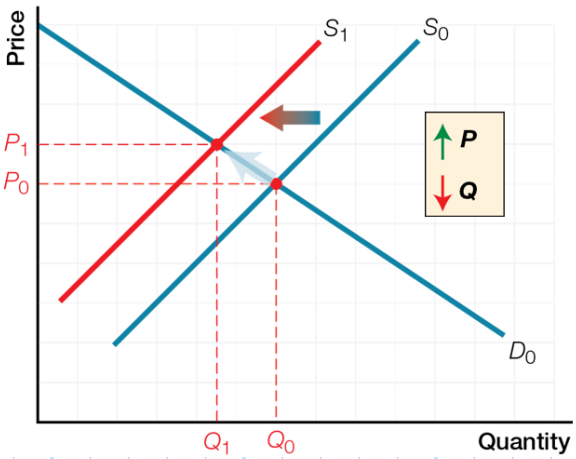
Fig. 4.2 What Happens When Demand and Supply Change?

Demand Changes with changes in:	Supply Changes with changes in:
Preferences	Technology
Prices of related products	Prices of related products
Income	Prices of inputs
Expected future prices	Expected future prices
Number of consumers	Number of businesses
	Environment

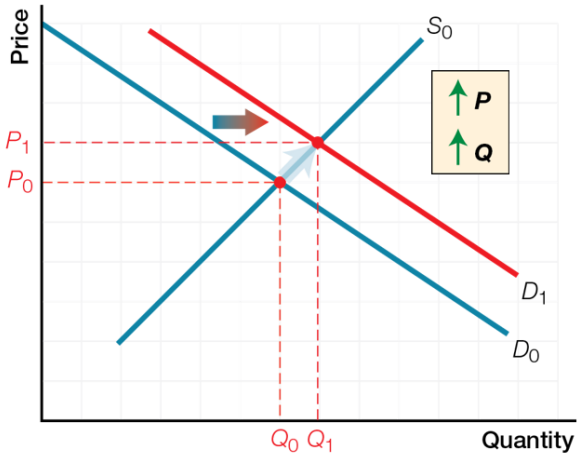
Original Equilibrium Price and Quantity in Bacon Market



Rise in Price of Input (Pig Feed) on Bacon Market



Increase in Preferences (from *Epic-Meal-Time*) in Bacon Market



An efficient market outcome has the largest total surplus, price just covers all opportunity costs of production ↑ consumers' marginal benefit equals businesses' marginal cost

Simplifying Changes in Demand and Supply

- Thinking like an economists means analysing a situation using comparative statistics.
  - Comparing 2 equilibrium outcomes to isolate the effect of changing one factor at a time
- Start with 1 equilibrium situation (intersection on demand ∧ supply, other things the same)
  - Change one other factor/variable
  - compare resulting equilibrium situation (intersection of demanded ∧ supply after the change) in terms of price ∧ qty.
- Price ∧ qty changes are the results not the cause, of economic events

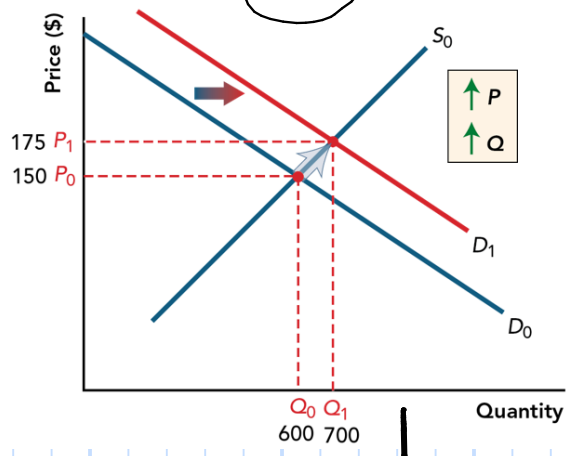
Fig. 4.2 What Happens When Demand and Supply Change?

Demand Changes with changes in:	Supply Changes with changes in:
Preferences	Technology
Prices of related products	Prices of related products
Income	Prices of inputs
Expected future prices	Expected future prices
Number of consumers	Number of businesses
	Environment

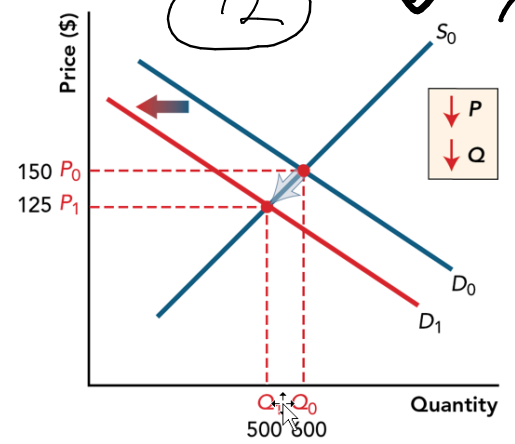
What Happens When Demand and Supply Change?

- Increase in demand causes
  - Rise in equilibrium price P ↑
  - Increase in quantity supplied Q ↑
- Decrease in demand causes
  - Fall in equilibrium price P ↓
  - Decrease in quantity supplied Q ↓

Increase in Demand



Decrease in Demand



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Number of consumers	Number of businesses
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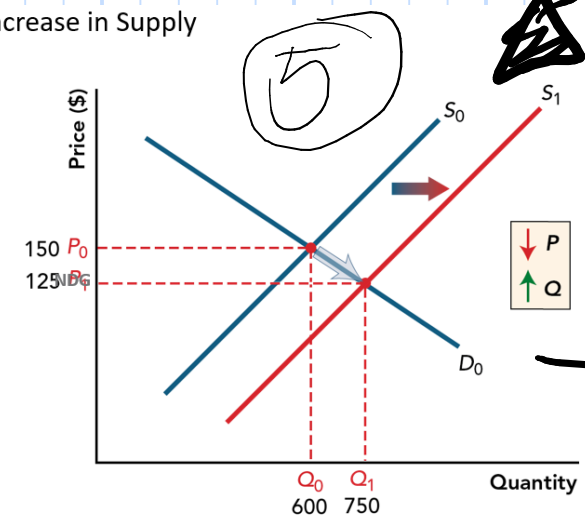
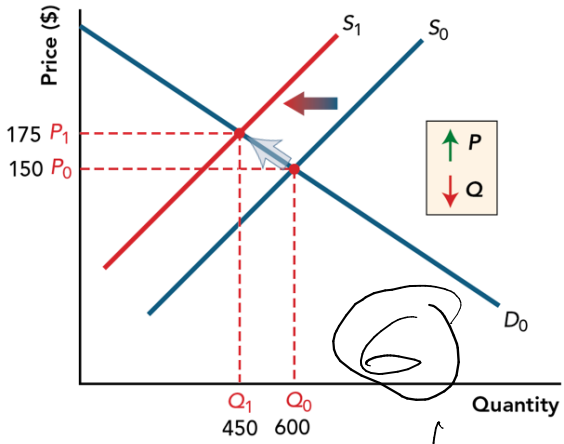
Increase in Supply



Decrease in Supply



What Happens When Demand and Supply Change?

- Increase in supply causes
  - Fall in equilibrium price P ↓
  - Increase in quantity demanded Q ↑
- Decrease in supply causes
  - Rise in equilibrium price P ↑
  - Decrease in quantity demanded Q ↓

What Happens When Demand & Supply Change?

- Thinking like an economist mean analyzing a situation using <u>comparative statics</u>
  - Comparing 2 equilibrium outcomes to isolate the effect of changing one factor @ a time

- Start with 1 equilibrium situation (intersection of demand & supply, other thing the same)
  - Change one other factor/variable
  - Compare resulting equilibrium situation (intersection of demand & supply after the change) in terms of price & qty

- Price & Qty changes are the result, not the cause of economic events

- When both demand and supply change at the same time
  - Can predict change in equilibrium price V equilibrium qty.
  - But w/out info about relative size of shifts of demand & supply curves, cannot predict the other equilibrium outcome

Increase in Both Demand and Supply

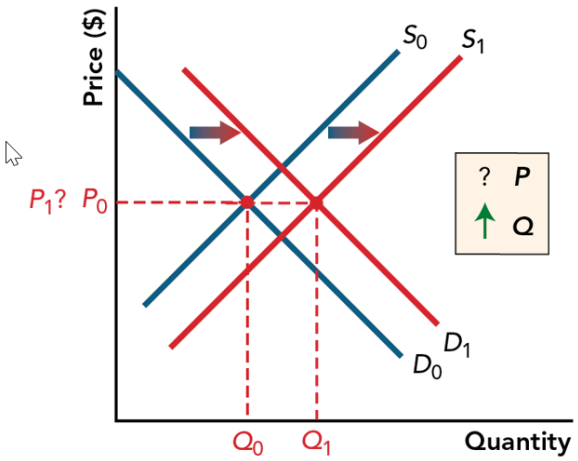
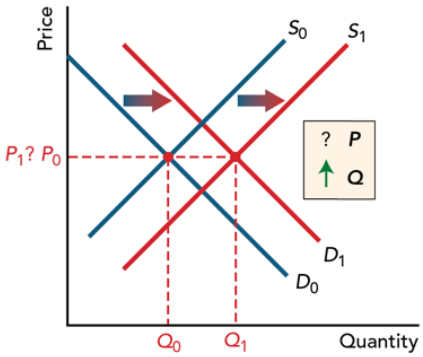
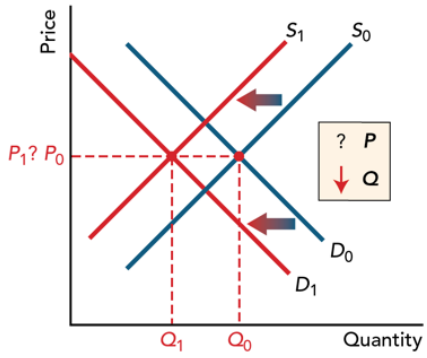


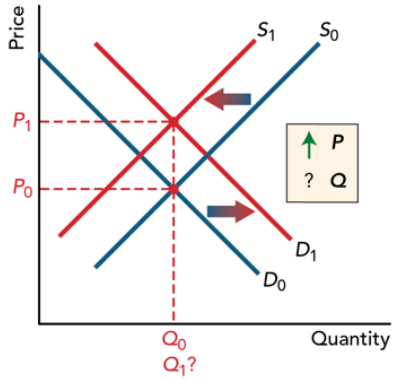
Fig. 4.7 The Effects of Combined Changes in Demand and Supply



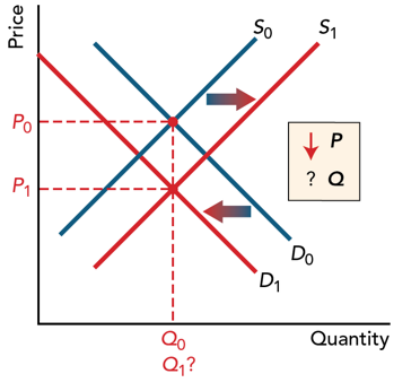
a) Increase in Both Demand and Supply



b) Decrease in Both Demand and Supply



c) Increase in Demand and Decrease in Supply



d) Decrease in Demand and Increase in Supply

Fig. 4.8 Effects of Changes in Demand or Supply

Change	Shifts of Curves	Effect on Equilibrium Price	Effect on Equilibrium Quantity
Increase in Demand	Demand shifts rightward	↑	↑
Decrease in Demand	Demand shifts leftward	↓	↓
Increase in Supply	Supply shifts rightward	↓	↑
Decrease in Supply	Supply shifts leftward	↑	↓
Increase in Demand and Increase in Supply	Demand shifts rightward; Supply shifts rightward	Need exact numbers to predict outcome	↑
Decrease in Demand and Decrease in Supply	Demand shifts leftward; Supply shifts leftward	Need exact numbers to predict outcome	↓
Increase in Demand and Decrease in Supply	Demand shifts rightward; Supply shifts leftward	↑	Need exact numbers to predict outcome
Decrease in Demand and Increase in Supply	Demand shifts leftward; Supply shifts rightward	↓	Need exact numbers to predict outcome

An efficient market outcome has the largest total surplus, price just cover all opportunity costs of production and consumers' marginal benefit equals businesses' marginal cost.

addition benefits > costs

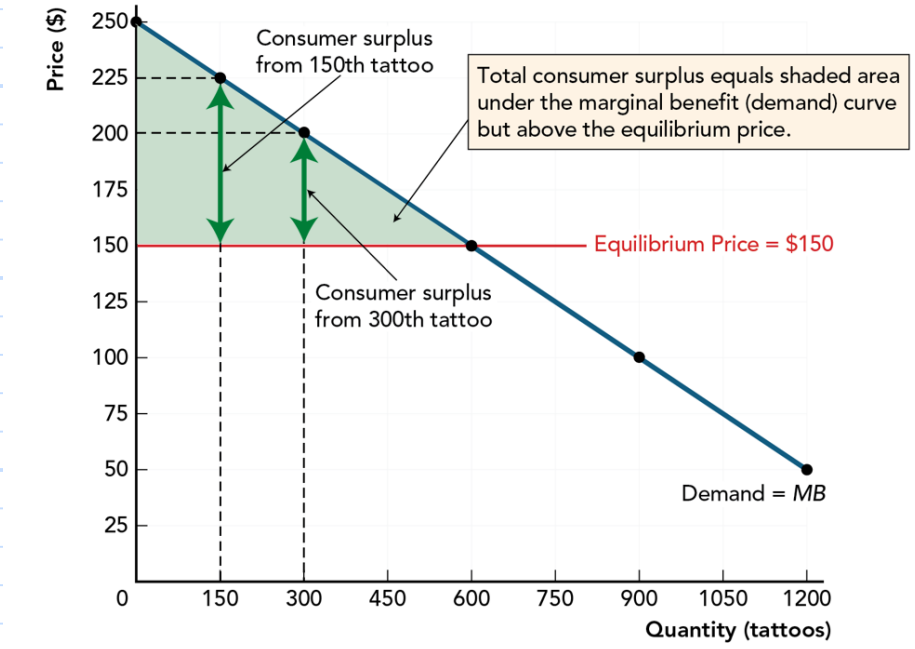
implicit costs > externalities

Consumer Surplus, Producer Surplus & Efficiency

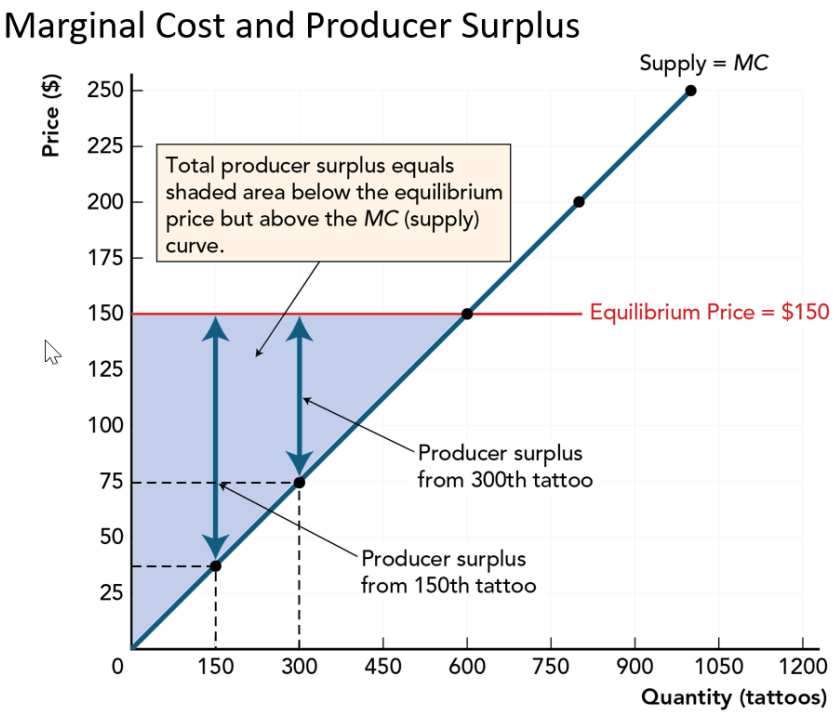
Reading demand & supply curves as marginal benefit & marginal cost curves reveals concept of

- **Consumer Surplus** -
  difference between amt a consumer is willing & able to pay, & prc actually paid; area under marginal benefit curve but above market price

Marginal Benefit and Consumer Surplus



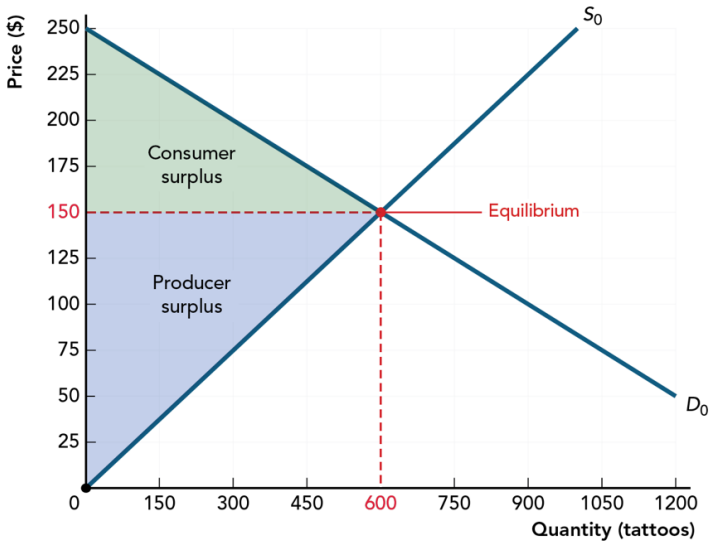
- Producer surplus - diff between amt a producer is willing to accept & prc actuall recieved; area below market price but above marginal cost curve; area below market but above marginal cost curve



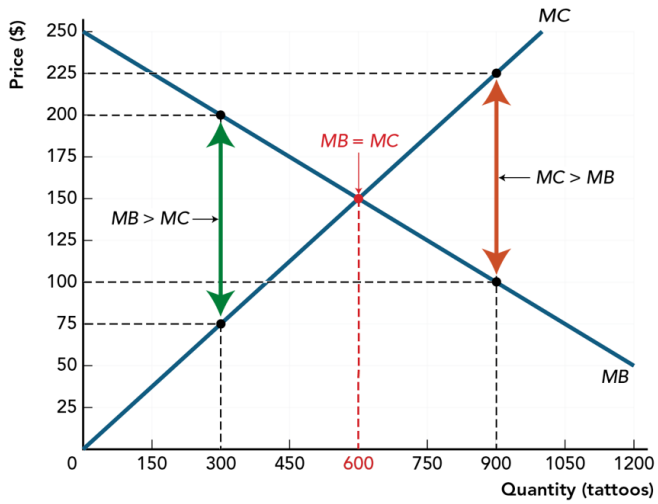
Efficient market outcome - coordinates smart choices of businesses and consumers so,

- consumer buy only products & services where marginal benefit is great than price
- product & services are produced @ lowest cost; prices just cover all opportunity costs of production
- products and services go to consumers most willing & able to pay
- Total surplus (consumer surplus plus producer surplus) is @ max

Maximum Total Surplus for Efficient Market



Inefficiency When *MB* Not Equal to *MC*

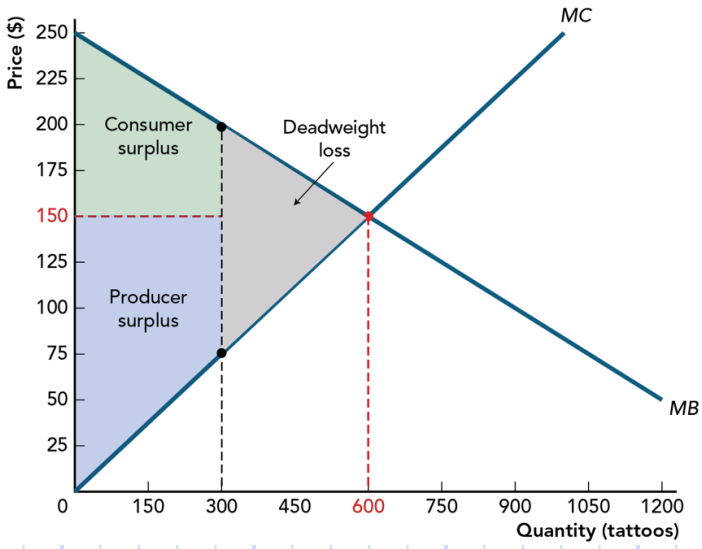


Inefficient Outcomes

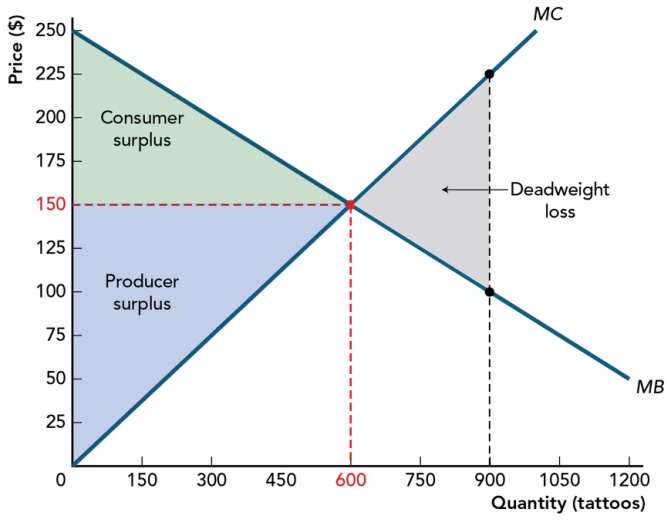
- Deadweight loss - decrease in total surplus compared to an economical efficient outcome

- for an inefficient outcome deadweight loss is subtracted, so total surplus is < for an economically efficient outcome

Inefficiency of Producing Too Little



Inefficiency of Producing Too Much



Demand Changes with changes in:	Supply Changes with changes in:
Preferences	Technology
Prices of related products	Prices of related products
Income	Prices of inputs
Expected future prices	Expected future prices
Number of consumers	Number of businesses
	Environment

Chapter 5

Elasticity measures how responsive qty demanded is to change in prc

Elasticity (or prc elasticity of demand) - measures by how much qty demandd. responds to change in price

prc elasticity of demand =

$$\frac{\%\ \Delta \text{ qty demanded}}{\%\ \Delta \text{ prc}}$$

$$\frac{2\%}{100\%} = 0.02$$

A DVD store lowered the price of its DVDs from $18 to $12. Correspondingly, sales increased from 1,900 to 2,100 per month.

Ignoring the negative sign, what is the price elasticity of demand?

(Round to two decimal places and use the midpoint formula for price elasticity of demand.)

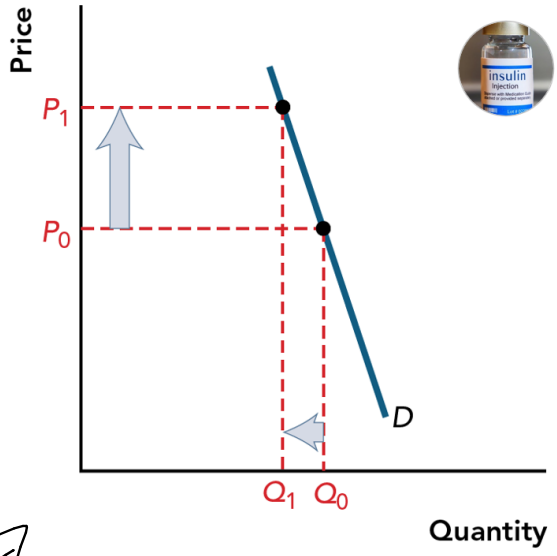
Using the midpoint formula:

$$\text{Price elasticity of demand} = \frac{\frac{2{,}100 - 1{,}900}{2{,}000}}{\frac{12 - 18}{15}} = \frac{0.10}{0.40} = 0.25.$$

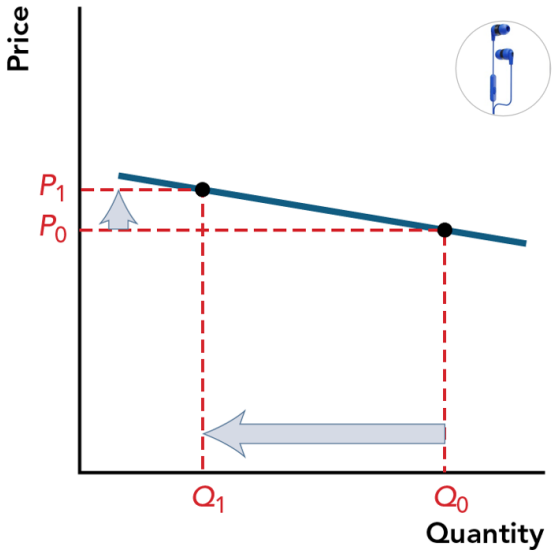
20 − 6

2 − 220

Fig. 5.1 Inelastic vs Elastic Demand



a) Inelastic Demand for Insulin

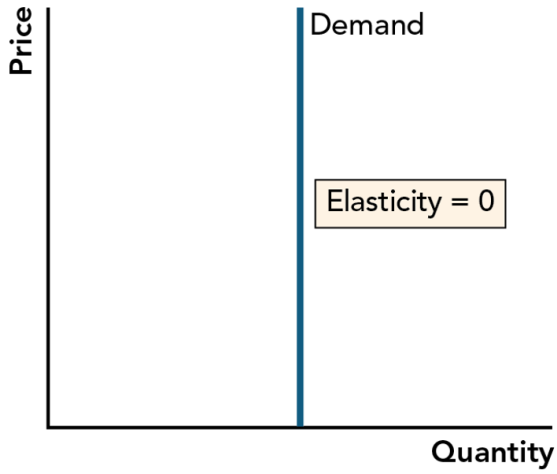


b) Elastic Demand for Earbuds

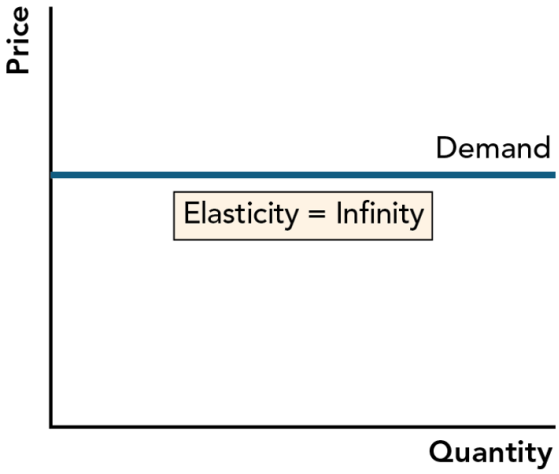
Inelastic demand - sml response in qty demanded when prc ↑
- Elasticity < 1
- Low willingness to shop elsewhere

Elastic demand - lrg response in qty demanded when prc ↑
- Elasticity > 1
- High willingness to shop elsewhere

Fig. 5.2 Extreme Elasticities of Demand



a) Perfectly Inelastic Demand

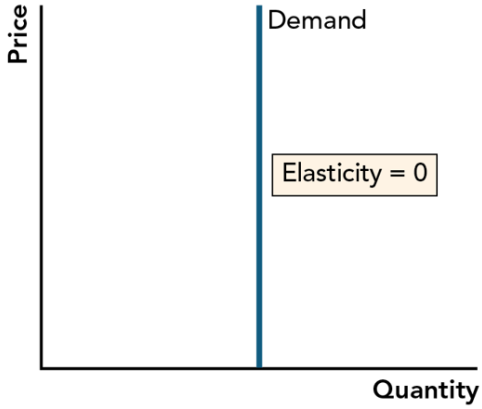


b) Perfectly Elastic Demand

Perfect inelastic demand - prc elasticity of demand = zero

Qty demanded does not respond to Δ prc

– Vertical demand curve



a) Perfectly Inelastic Demand

Price elasticity of demand is influenced by
- available substitutes - more substitutes mean more elastic demand
- Time to adjust - longer time to adjust means more elastic demand
- Proportion of income spent - greater proportion of income spent on a product or service means more elastic demand

Elasticity determines business pricing strategies to earn max total revenue
- cut prices when demand is elastic
- raise prices when demand is inelastic

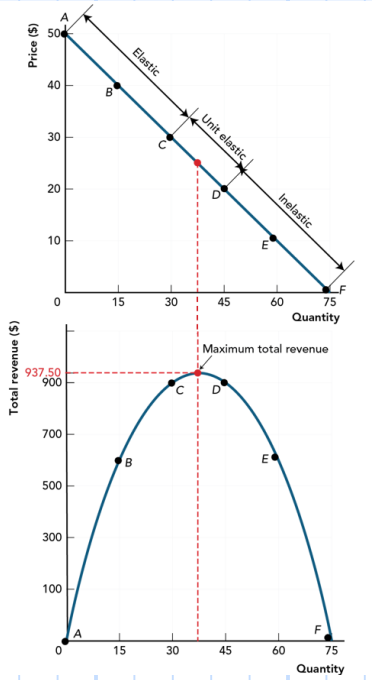
Total revenue = all money a business recieves from sales
= prc/unit (P) x qty sold (Q)
- For businesses facing elastic demand (>1), prc cuts increas total revenue
- For businesses facing inelastic demand (<1), prices rises increases total revenue

Elasticity & Total Revenue

As you move down a straight line demand curve, elastic Δ is not the same as slope
- Elasticit goes from elastic, to unit elastic, to inelastic
- Total revenue increases, reaches a maximum when elasticity equals 1 the decreases

Fig. 5.5

Elasticity and Total Revenue



Elasticity of supply measures the responsiveness of qty supplies to change in prc, and depends on the difficulty, expense, and time involved in increasing production

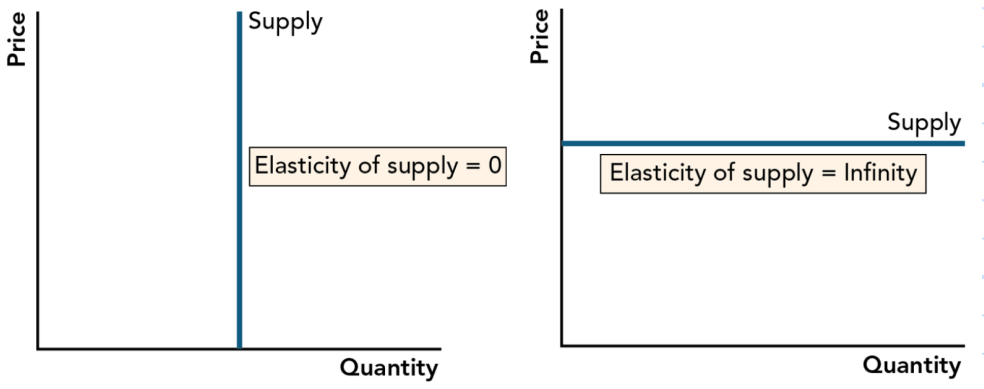
Elasticity of supply - measure by how much qty supplied responds to Δ prc

$$\text{Elasticity of supply} = \frac{\% \Delta \text{ qty supplied}}{\% \Delta \text{ prc}}$$

Inelastic supply - Small responce in qty supplied when prc rises
- Difficulty / Expensive to increase producti
- Elasticity of supply < 1
- Ex: supply of mined gold

Elastic supply: large responce in qty supplie when price rises
- Easy and inexpensive to increas production
- Elasticity of supply > 1
- Ex: snow shoveling servies

Fig 5.6 Extreme Elasticities of Supply



a) Perfectly Inelastic Supply

b) Perfectly Elastic Supply

If the price elasticity of supply is 2.0, when prices rise by 20%, the quantity supplied will

$$\text{Elasticity of Supply} = \frac{\%\text{ change in quantity supplied}}{\%\text{ change in price}}.$$

$$\text{Elasticity of supply} \times \%\text{ change in price} = \%\text{ change in quantity supplied.}$$

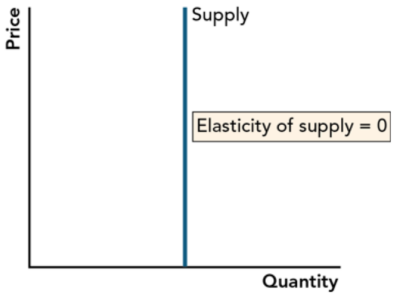
$$2.0 \times 20\% = \%\text{ change in quantity supplied.}$$

$$= 2.0 \times 20\% = 40.0\%.$$

$$\text{Elasticity of Supply} = \frac{\%\text{ change in quantity supplied}}{\%\text{ change in price}} = \frac{40.0\%}{20\%}.$$

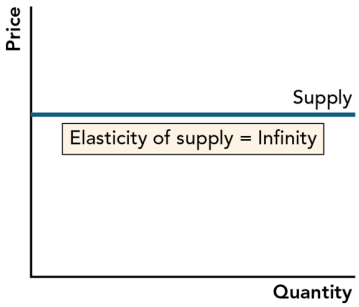
If the percentage change in quantity supplied (in the numerator) is greater than the percentage change in price (in the denominator), elasticity of supply is greater than 1 and the supply is called elastic. Quantity supplied is relatively responsive to a change in price.

- Perfectly inelastic supply — price elasticity of supply = 0. Quantity supplied does *not* respond to change in price.



a) Perfectly Inelastic Supply

- Perfectly elastic supply — price elasticity of supply = infinity. Quantity supplied has infinite response to change in price.



b) Perfectly Elastic Supply

Elasticity of supply influenced by
- availability of additional inputs ↑ available inputs means more elastic supply
- Time production takes – less time means more elastic supply
- Elasticity of supply allows more accurate predictions of future outputs ↑ prices, helping businesses avoid disappointing customers

Measures of elasticity explain the responsiveness of qty demanded to Δprc of related products ↑ income, ↑ the division of a tax between buyer ↑ sellers

More Elasticities of Demand

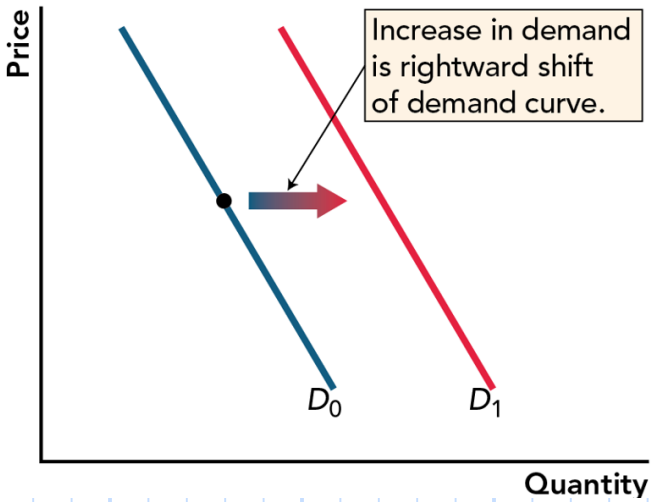
- Cross elasticity of Demand - measures responsiveness of the demand for product/service to a Δ price of a substitute/complement

> Cross elasticity of Demand = $\frac{\%\ \Delta \text{ qty demanded}}{\%\ \Delta \text{ price of substitute/complement}}$

- Cross elasticity of demand is posetive number for substitutes

> cross elasticity of demand = $\frac{\%\ \Delta \text{ qty demanded}}{\%\ \Delta \text{ price of substitutes}}$

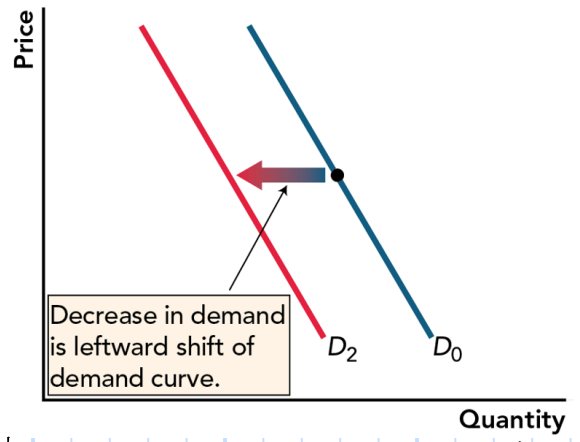
The larger the #, the
- Larger the change in demand
- Larger the shift of the demand curve
- Closer the products/services are to perfect substutes



Cross elasticity of demand is a negative # for complements

$$\text{cross elasticity of demand} = \frac{\% \Delta \text{ qty demanded}}{\% \Delta \text{ price of complement}}$$

the larger the # the
- larger the Δ demand
- larger the shift of the demand curve
- closer the products/service are to perfect complements



Income elasticity of demand - measures responsiveness of the demand for a product/service to a Δ income

$$\text{Income elasticity of demand} = \frac{\% \Delta \text{ qty demanded}}{\% \Delta \text{ income}}$$

Positive for normal goods; increase in income
- increase demand for normal goods
- rightward shift of demand curve

Income elasticity of demand = $\frac{\%\Delta \text{ qty demanded}}{\%\Delta \text{ income}}$

negative for inferior goods, increase in income
- decreases demand for inferior goods
- leftward shift of demand curve

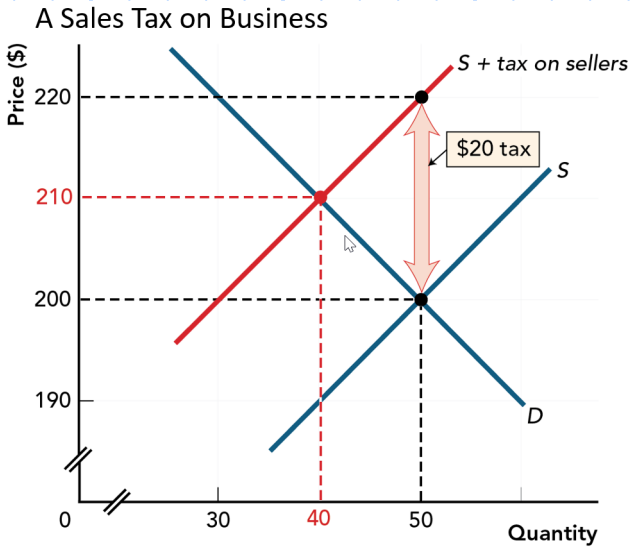
Income inelastic demand
- income elasticity < 1, but > 0
- $\%\Delta$ qty $< \%\Delta$ income
- normal goods that are necessities

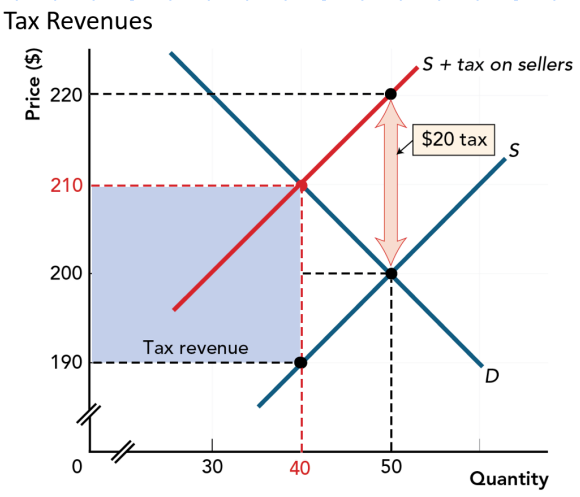
Income elastic demand
- Income elasticity > 1
- $\%\Delta$ qty $> \%\Delta$ income
- Normal goods that are luxuries

Who pays a tax depends on elasticities of demand & supply - the more inelastic demand, the more buyers pay, & the more inelastic supply, the more sellers pay

Tax Incidence & Goverment Tax Choise

- Tax incidence - the division of tax between buyes & sellers; depends on elasticities of demand & supply
- The more inelastic demand & supply are, greater the tax revenue for government
- For max revenue, goverment try to tax products & services with inelastic demands & supply





Elasticity and Tax Incidence

When Demand Is	Tax Incidence
Perfectly inelastic	Buyers pay all of a tax
Inelastic	Buyers pay more of a tax
Elastic	Sellers pay more of a tax
Perfectly elastic	Sellers pay all of a tax
When Supply Is	**Tax Incidence**
Perfectly inelastic	Sellers pay all of a tax
Inelastic	Sellers pay more of a tax
Elastic	Buyers pay more of a tax
Perfectly elastic	Buyers pay all of a tax