

ECON 1503

Module 2

Chapter 3

Competitive Dynamics and Government



Chapter 4

Costs of Production



DEVELOPER'S NOTES:

Treatment:

- Show text and graphic , then click Next

Graphic:

- Man with elastic band
- Car manufacturing plant

Sound:

- Elastic being stretched and released

Pop-up Definition:

- N/A

Rollovers

- N/A

Hot Spots

- N/A

Feedback:

- N/A

Animation:

- N/A

Chapter 3

Competitive Dynamics and Government

To get you started:

Review each slide, then complete the activity that follows.

Throughout the module, hover your mouse over or click on buttons, images and underlined text to display additional information.



DEVELOPER'S NOTES:

Treatment:

- Show text and graphic , then click Next

Graphic:

- Man with elastic band

Pop-up Definition:

- N/A

Hot Spots

- N/A

Feedback:

- N/A

Animation:

- N/A

Competitive Dynamics and Government

- Price elasticity of demand measures the percentage change in *quantity demanded* divided by the percentage change in price.



Price elastic

Price inelastic

Click on buttons above to see how quantity demanded is affected.

- The “midpoint method” for calculating percentage change involves using the average of the changing values, thereby eliminating the direction bias found in the traditional approach.
- The price elasticity of demand depends on:
 - The availability of close substitutes.
 - The proportion of income spend on the good.
 - The amount of time that buyers have to respond to a price change.



DEVELOPER'S NOTES:

Treatment:

- User to complete action and cannot advance slide until complete
- Sound will occur as noted. See audio file below.
- Then click Next

Graphic:

- Elastics

Pop-up Definition:

- N/A



Hot Spots

When user clicks on buttons, respective text and sound will appear/occur accordingly.

- Price elastic:** If the demand for a good is price elastic in the relevant range, quantity demanded is very responsive to a price change. (Sound of elastic and photo of elastic will appear)
- Price inelastic:** If the demand for a good is relatively price inelastic, quantity demanded is not very responsive to a price change. (No sound)

Feedback:

- N/A

Animation:

- N/A

Competitive Dynamics and Government

ED>1

ED<1

Hover mouse over buttons to see how total revenue is affected by demand type.

- A linear demand curve is **more price elastic** at *higher* price ranges and **more price inelastic** at *lower* price ranges, and it is unit elastic at the midpoint ($ED=1$)
- The cross-price elasticity of demand is the percentage change in the quantity demanded of one good divided by the percentage change in the price of another related good (complements and substitutes).
- The income elasticity of demand is the percentage change in quantity demanded divided by the percentage change in income (normal and inferior goods).



*Click on image on right to view video on **Price Elasticity of Demand***

DEVELOPER'S NOTES:

Treatment:

- Show text and graphic , then click Next

Graphic:

- Man with elastic

Pop-up Definition:

- ED: Elasticity of demand

Hot Spots

When user hovers mouse over buttons, respective text will appear.

- **ED>1** – If demand is price elastic ($ED>1$), total revenue will vary inversely with a change in price.
- **ED<1** – If demand is price inelastic ($ED<1$), total revenue will vary in the same direction as a change in price.

Feedback:

- N/A

Animation:

- Video: User to click on man with elastic for video (<https://www.youtube.com/watch?v=VhKI8cOaYLI>)

Competitive Dynamics and Government

- The price elasticity of supply measures the relative change in the quantity supplied that results from a change in price.
- Supply tends to be more elastic in the long run than the short run.



Tax incidence



Activity

DEVELOPER'S NOTES:

Treatment:

- User to click on hot spots and buttons
- Slide will not advance until action completed
- User then click Next

Graphic:

- Man with elastic
- CH 5 pumpkin on scale

Pop-up Definition:

- supply: shows image (will appear much larger than shown above – did not enlarge here in order to avoid blocking other information/images on slide)

Hot Spots

• Tax Incidence:

- Tax incidence refers to the analysis of the effect of particular taxes of the distribution of economic welfare.
- If demand is more elastic than supply, producers bear the greater burden of the tax; however, if supply is more elastic than demand, consumers bear the greater burden of the tax.

- **Activity** - Jumps to Quiz

Feedback:

- N/A

Animation:

- N/A

Competitive Dynamics and Government

Read each statement below, then **click** the correct response on the right.



1. Price elasticity of demand is a measure of the responsiveness of the change in price to a change in quantity demanded.	True	<u>False</u>
2. Jake and Jennifer own a business providing personal fitness training services. After raising their prices by 10%, the quantity of hours they spend delivering training services fell by 6%. Demand for their services is price inelastic.	<u>True</u>	False
3. Demand is elastic when the price elasticity coefficient exceeds 1.0.	<u>True</u>	False
4. Demand is inelastic when the percentage change in the quantity demanded exceeds the percentage change in the price of a good.	True	<u>False</u>
5. When a 5% increase in price leads to an 8% increase in quantity supplied, supply is inelastic.	True	<u>False</u>

DEVELOPER'S NOTES:

Treatment:

- If user clicks underlined option – show “Correct” and Happy sound, otherwise show “Incorrect” and Sad sound.
- All statements must be attempted before user is instructed to “Continue” to next slide.

Graphic:

- Question mark indicating a quiz

Pop-up Definition:

- N/A

Hot Spots

- N/A

Feedback:

- Only feedback to show is either “Correct” or “Incorrect”.
- No other feedback provided.

Animation:

- Quiz image - emphasis

Competitive Dynamics and Government

Read each statement below, then **click** the correct response on the right.



6. When a 9% increase in price leads to a 6% increase in quantity supplied, supply is inelastic.	<u>True</u>	False
7. The demand for a normal good is downward sloping and the income elasticity is negative.	True	<u>False</u>
8. As we move down along a straight-line demand curve, demand becomes increasingly price elastic.	True	<u>False</u>
9. The cross-price elasticity between soda and salty chips is -3. From this we can tell that soda and salty chips are complements.	<u>True</u>	False
10. The cross-price elasticity between soda and salty chips is -3. From this we can tell that the demand for salty chips is elastic.	True	<u>False</u>

DEVELOPER'S NOTES:

Treatment:

- If user clicks underlined option – show “Correct” and Happy sound, otherwise show “Incorrect” and Sad sound.
- All statements must be attempted before user is instructed to “Continue” to next slide.

Graphic:

- Question mark indicating a quiz

Pop-up Definition:

- N/A

Hot Spots

- N/A

Feedback:

- Only feedback to show is either “Correct” or “Incorrect”.
- No other feedback provided.

Animation:

- Quiz image - emphasis



Chapter 4

Costs of Production

To get you started:

Review each slide, then complete the activity that follows.

Throughout the module, hover your mouse over or click on buttons, images and underlined text to display additional information.

DEVELOPER'S NOTES:

Treatment:

- Show text and graphic , then click Next

Graphic:

- Background of car manufacturing plant

Pop-up Definition:

- N/A

Hot Spots

- N/A

Feedback:

- N/A

Animation:

- N/A

Costs of Production

- Total cost consists of explicit costs and implicit costs.
- Profits are the **difference** between the *total revenues* of a firm and its *total costs*.
- **Accounting profits** are total revenues minus explicit costs; and,
- **Economic profits** are revenues minus total opportunity costs—both explicit and implicit.
- Finally, **sunk costs** are irretrievable and irrelevant to the firm, because they can never get them back.

Explicit costs

Implicit costs



Q: True or false? If a company owns its own building in a growing urban area, it can protect itself from rising rents.

A: False. The company cannot avoid implicit costs. If the company owned the building and rents increased, so would the opportunity cost of owning the building. That is, by occupying the building, the company is giving up the new higher rents it could receive from renters if it leased out the space. That is, even though the firm pays zero rent by owning the building, the rent that it could receive by leasing it to another company is a very real economic cost (but not an accounting cost) to the firm.



DEVELOPER'S NOTES:

Treatment:

- User will click on hot spots and text and/or image will appear.
- User will then click Next

Graphic:

- Company office

Pop-up Definition:

- N/A

Hot Spots

- **Explicit costs:** Explicit costs are the costs of production that require a monetary payment. They are out-of-pocket expenses, such as wages, which are relatively easy to measure by the money spent on the resources used.
- **Implicit costs:** Implicit costs are the *opportunity costs* that do not represent an outlay of money or a contractual obligation. Example: A typical farmer or small business owner may perform work without receiving formal wages, but the value of the alternative earnings forgone represents an implicit opportunity cost to the individual.
- **Photo (Company office):** When user clicks, with Q and A shown above will appear (larger than shown above to cover other text and buttons).

Feedback:

- N/A

Animation:

- N/A

Costs of Production

- Inputs like buildings and equipment that do not change with variations in output are called *fixed inputs*.
- Total output increases as *variable inputs* are increased.
- Marginal product initially rises, but eventually declines as variable inputs are added.

Short run

Long run



Click on image on right to view video on **Short Run vs Long Run**

DEVELOPER'S NOTES:

Treatment:

- User will click on hot spots and text and/or image will appear.
- User will then click Next.

Graphic:

- Car manufacturing plant

Pop-up Definition:

- Short run
- Long run
- Inputs

Hot Spots

- **Short run:** The *short run* is defined as a period too brief for some inputs to be varied, and so they will remain fixed;
- **Long run:** The *long run* is a period of time long enough to allow the firm to *adjust all inputs*;

Feedback:

- N/A

Animation:

- Video: User to click on image of car manufacturing plant (bottom right corner) for video (<https://www.youtube.com/watch?v=sPQ4bvTJNTA>)

Costs of Production

- Finally, negative marginal product can occur, indicating a fall in total output.
- Total fixed costs do not change with the level of output, total variable costs change as the level of output changes, and total costs are the sum of total variable costs and total fixed costs.

Average fixed cost
(AFC)

Average variable
cost (AVC)

Average total cost
(ATC)

Marginal cost
(MC)



DEVELOPER'S NOTES:

Treatment:

- User will click on hot spots and text and/or image will appear.
- User will then click Next.

Graphic:

- N/A

Pop-up Definition:

- Outputs

Hot Spots

- **Average total cost (ATC):** Average total cost (*ATC*) is total cost divided by output
- **Average fixed cost (AFC):** Average fixed cost (*AFC*) is fixed cost divided by output
- **Average variable cost (AVC):** Average variable cost (*AVC*) is variable cost divided by output.
- **Marginal cost (MC):** Marginal cost (*MC*) is the added cost of producing one more unit of output; it is the change in total cost associated with one more unit of output. It is this cost that is relevant to decisions to produce more or less.

Feedback:

- N/A

Animation:

- N/A

Costs of Production

- An inverse relationship exists between marginal product and marginal cost—as marginal product increases, marginal cost must fall, and when marginal product falls, marginal cost must rise.
- Adding a marginal amount of labor to a fixed amount of capital—the average will rise if the marginal product is larger (smaller) than the average product.
- Average total cost declines as output expands and increases as output expands.
- When marginal cost is less than average total cost, the average total cost must be falling; when marginal cost is greater than average total cost, the average total cost must be rising (falling).
- In the long run, firms can change and vary the inputs that are fixed in the short run, such as plant size and equipment, and in some cases, have lower average costs per unit.



burkhardt/Corbis

How many workers could be added to this jackhammer and still be productive (not to mention safe)? If more workers were added, how much output would be derived from each additional worker? Slightly more total output might be realized from the second worker, because the second worker would be using the jackhammer while the first worker was taking a break from “the shakes.”

However, the fifth or sixth worker would clearly not create any additional output, as workers would just be standing around for their turn. That is, the marginal product (additional output) would eventually fall because of diminishing marginal product.



DEVELOPER'S NOTES:

Treatment:

- User will click on hot spots and text and/or image will appear.
- User will then click Next.

Graphic:

- Construction Worker

Pop-up Definition:

- Outputs

Hot Spots

- **Photo (Construction worker):** When user clicks, with Q and A shown above will appear (larger than shown above to cover other text and buttons).

Feedback:

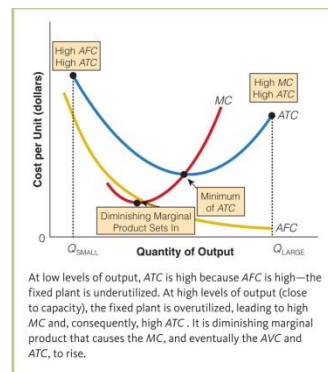
- N/A

Animation:

- N/A

Costs of Production

- The long-run average total cost curve shows the lowest average total cost for producing each output in the long run.
- At low output levels, when all inputs can be varied, some firms will experience *economies of scale*, where their per-unit costs are decreasing as output increases
- In intermediate output ranges, firms may exhibit roughly *constant returns to scale*; in this range, their per-unit costs remain stable as output increases.
- Firms that expand all inputs beyond a certain point will encounter *diseconomies of scale*, incurring rising per-unit costs as output grows in the long run.
- Input prices, taxes, technology, and regulation can shift the cost curves.



[Click on image to enlarge](#)



Activity

DEVELOPER'S NOTES:

Treatment:

- User will click on hot spots and text and/or image will appear.
- User will then click Next.

Graphic:

- Chart

Pop-up Definition:

- **Total cost curve:** The total cost (TC) curve is the summation of the total variable cost (TVC) and total fixed cost (TFC) curves.

Hot Spots

- **Photo (Chart):** When user clicks, with Q and A shown above will appear (larger than shown above to cover other text and buttons).
- **Activity** - Jumps to Quiz

Feedback:

- N/A

Animation:

- N/A

Costs of Production

Read each statement below, then **click** the correct response on the right.



1. The period of time that is too short for the firm to change the quantity of certain resources used in production, known as fixed inputs, is called the short run.	<u>True</u>	False
2. Economists define the long run as any production time period lasting over one year.	True	<u>False</u>
3. In the short run, all costs are variable.	True	<u>False</u>
4. When marginal cost is increasing, average total cost must be increasing.	True	<u>False</u>
5. Total cost equals total variable cost plus marginal cost.	True	<u>False</u>

DEVELOPER'S NOTES:

Treatment:

- If user clicks underlined option – show “Correct” and Happy sound, otherwise show “Incorrect” and Sad sound.
- All statements must be attempted before user is instructed to “Continue” to next slide.

Graphic:

- Question mark indicating a quiz

Pop-up Definition:

- N/A

Hot Spots

- N/A

Feedback:

- Only feedback to show is either “Correct” or “Incorrect”.
- No other feedback provided.

Animation:

- Quiz image - emphasis

Costs of Production

Read each statement below, then **click** the correct response on the right.



6. When marginal cost exceeds the average variable cost, average variable cost must be increasing.	<u>True</u>	False
7. An increase in the price of raw materials will shift both the MC and the ATC curves upward.	<u>True</u>	False
8. In the long run, firms can vary all inputs in the production process.	<u>True</u>	False
9. If a firm experiences economies of scale, the average total cost of production increases as output expands.	True	<u>False</u>
10. Diseconomies of scale are present when the long-run average total cost of production declines as output expands.	True	<u>False</u>

DEVELOPER'S NOTES:

Treatment:

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Graphic:

- Question mark indicating a quiz

Pop-up Definition:

- N/A

Hot Spots

- N/A

Feedback:

- Only feedback to show is either “Correct” or “Incorrect”.
- No other feedback provided.

Animation:

- Quiz image - emphasis