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Price Takers and the Competitive Process

Full Length Text — Part: 5 Chapter: 21
Micro Only Text — Part: 3 Chapter: 9

To Accompany "Economics: Private and Public Choice 12th ed."
James Gwartney, Richard Stroup, Russell Sobel, & David Macpherson
Slides authored and animated by:
James Gwartney, David Macpherson, & Charles Skipton


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Price Takers and Price Searchers

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Price Takers and Price Searchers

- **Price takers** produce identical products (for example, wheat, corn, soybeans) and because the firms are small relative to the market each must take the price established in the market.
- **Price-searcher** firms produce products that differ and therefore they can alter price. The amount that the price-searcher firm is able to sell is inversely related to the price it charges. Most real world firms are price searchers.

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Why Study Price Takers?

- Why do we study price-taker markets?
The competitive price-taker model ...
 - applies to some markets, such as agricultural products.
 - helps us understand the relationship between individual firms and market supply.
 - increases our knowledge of competition as a dynamic process.
- These markets are also called *purely competitive* markets.

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What are the Characteristics of Price-Taker Markets?

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Characteristics of the Competitive Price-Taker Markets

- The characteristics of price-taker markets are:
 - homogeneous products
 - all firms produce an identical product
 - many firms
 - there are numerous suppliers in the market
 - small firms
 - each firm supplies only a small portion of the total market output
 - no entry / exit barriers
 - firms may freely enter and exit the market

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Price Taker's Demand Curve

- Market forces (*supply & demand*) determine price.
- Price takers** have no control over the price that they may charge in the market. If such a firm was to charge a **price** above that **established by the market**, consumers would simply buy elsewhere.
- Thus, the **firm's demand curve** is **perfectly elastic** – it is horizontal at the price determined in the market.

Price
Firm
Market
Market
Firm's demand
Market demand
Market supply
Output
Output
P
P

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How does the Price Taker Maximize Profit?

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Marginal Revenue

- Marginal Revenue** is the change in total revenue divided by the change in output.

$$\text{Marginal Revenue (MR)} = \frac{\text{change in total revenue}}{\text{change in output}}$$

- In a **price-taker** market, marginal revenue (**MR**) = **market** price, because all units are sold at the same price (market price).

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Operating with Short-Run Losses

- The firm operates at an output level where $MR = MC$, but here $ATC > P$ resulting in a loss.
- The magnitude of the firm's short-run loss is equal to the size of the rectangle $CABP_1$.
- A firm experiencing losses but covering *average variable costs* will operate in the short-run.
- A firm will *shutdown* in the short-run whenever price falls below *average variable cost* (P_2).
- A firm will *exit the market* in the long-run when price is less than *average total cost* (ATC).

Price

Output

C

P_1

P_2

q

MC

ATC

AVC

Loss

$CABP_1$

$d (P = MR)$

$P = MC$

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The Firm's Short-Run Supply Curve

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Short-Run Supply Curve

- The *firm's short-run supply curve*:
 - A firm maximizes profits when it produces at $P = MC$ and variable costs are covered.
 - A firm's short-run supply curve is the segment of its *marginal cost* curve above *average variable cost*.
- The *market's short-run supply curve*:
 - The short-run market supply curve is the horizontal summation of the all the firms' short-run supply curves (segment of firms' *MC* curves above *AVC*).

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The Short-Run Market Supply Curve

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Supply Curve for the Firm & Market

- Given resource prices, the firm's marginal cost curve (above AVC) is the firm's supply curve.
- As price rises above the short-run *shutdown price* of P_1 , the firm will supply additional units of the good.
- The short-run market supply curve (S_{sr}) is merely the sum of the firms' supply (MC) curves.
- Note that below P_1 no quantity is supplied as $P < AVC$.

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Questions for Thought:

- How do firms that are price takers differ from those that are price searchers? What are the distinguishing characteristics of a price-taker market?
- How do firms in price-taker markets know what quantity to produce? Do firms in price-taker markets have a pricing decision to make?

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Questions for Thought:

3. Which of the following is a competitive price taker?

- a. McDonald's, a restaurant chain that competes in numerous locations
- b. a bookstore located a few blocks from a major university
- c. a Texas rancher that raises beef cattle

4. "A restaurant in a summer tourist area that is highly profitable during the summer but unable to cover even its variable costs during the winter months should operate during all months of the year as long as its profits during the summer exceed its losses during the winter." Is this statement true?

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Price and Output in Price-Taker Markets

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Economic Profits and Entry

- If price exceeds *average total cost*, firms will earn an *economic profit*.
- *Economic profit* induces both:
 - the *entry* of new firms, and,
 - expansion in the scale of operation of existing firms.
- Capital moves into the industry, shifting the market supply to the right. This will continue until price falls to *ATC*.
- In the long-run, competition drives economic profit to zero.

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Economic Losses and Exit

- If **average total cost** exceeds price, firms will suffer an **economic loss**.
- Economic losses** induce:
 - the **exit** of firms from the market, and,
 - a reduction in the scale of operation of the remaining firms.
- As market supply decreases, price will rise to **average total cost**.
- Thus, profits and losses move price toward the zero-profit in long-run equilibrium.

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Long-run Equilibrium

- The two conditions necessary for long-run equilibrium in a price-taker market are depicted here.
- The quantity supplied and the quantity demanded must be equal in the **market**, as shown below at P_1 with output Q_1 .
- Given the price established in the market, **firms** in the industry must earn zero economic profit ($P = ATC$).

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Adjusting to Expansion in Demand

- Consider the market for toothpicks. A new candy that sticks to teeth causes the **market demand** for toothpicks to increase from D_1 to D_2 ... market price increases to P_2 ... shifting the firm's **demand curve** upward. At the higher price, firms expand output to q_2 and earn short-run profits.
- Economic profits will draw competitors into the industry, shifting the market **supply curve** from S_1 to S_2 .

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Long-Run Supply

- **Constant-Cost Industry:** industry where per-unit costs remain unchanged as market output is expanded
 - occurs when the industry's demand for resource inputs is small relative to the total demand for the resources
 - The long-run market supply curve in a **constant-cost industry** is horizontal.

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Long-Run Supply

- **Increasing-Cost Industry:** industry where per-unit cost rises as market output is expanded.
 - results because an increase in industry output generally leads to stronger demand and higher prices for the inputs
 - The long-run market supply curve in an **increasing-cost industry** is upward-sloping.
 - This is the most common type of industry.

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Long Run Supply

- **Decreasing-Cost Industry:** industry where per-unit costs decline as market output expands.
 - implies either economies of scale exist in the industry or that an increase in demand for inputs leads to lower input prices
 - The long-run market supply curve in a **decreasing-cost industry** is downward-sloping.
 - **Decreasing-cost industries** are rare.

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Increasing Costs & Long-Run Supply

- Consider an increase in the **market demand** that leads to a higher market price, leading to short-run profits for firms.
- Economic profit entices some new firms to enter the market and others to increase the scale of their operation ... shifting the **market supply** curve to the right. The stronger demand for resources (*inputs*) pushes their price up. Consequently, the firm's costs are now higher (ATC_2 & MC_2).

Firm q_1 **Market** Q_1 Q_2

Price P_1 P_2

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Increasing Costs & Long-Run Supply

- The competitive process continues until economic profits are eliminated. This occurs at equilibrium price $P_3 < P_2$ and output level $Q_3 > Q_2$.
- Because this is an **increasing-cost industry**, expansion in market output leads to a higher equilibrium price.
- Thus, the long-run supply curve S_L is upward sloping.

Firm q_1 **Market** Q_1 Q_2 Q_3

Price P_1 P_2 P_3

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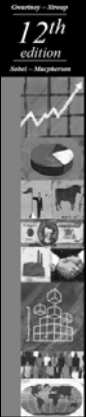
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Supply Elasticity and the Role of Time

- In the short run, fixed factors of production such as plant size limit the ability of firms to expand output quickly.
- In the long run, firms can alter plant size and other fixed factors of production.
- Therefore, the market supply curve will be more elastic in the long run than in the short run.

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Competition Promotes Prosperity

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Competitive Process

- The competitive process provides a strong incentive for producers to operate efficiently and heed the views of consumers.
- Competition and the market process harness self-interest and use it to direct producers into wealth-creating activities.

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Questions for Thought:

1. If the firms operating in a competitive price-taker market are making economic profit, what will happen to the market supply and price in the future?
2. How will an unanticipated increase in demand for a price-taker's product affect the following in a market initially in long-run equilibrium?
 - a. short-run market price, output, and profitability
 - b. long-run market price, output, and profitability

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Questions for Thought:

3. Which of the following will cause the long-run *market supply* curve for most products supplied in competitive-price taker markets to slope upward to the right?

- a. higher profits as industry output expands
- b. higher resource prices and costs as industry output expands
- c. the presence of economies of scale as the industry output expands

4. *Which of the following is true?* Self-interested business decision makers operating in competitive markets have a strong incentive to

- a. produce efficiently (*at a low-cost*).
- b. give consumers what they want.
- c. search for innovative improvements.

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Questions for Thought:

5. Why is market competition important? Is there a positive or negative impact on the economy when strong competitive pressures drive firms out of business? Why or why not?

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**End
Chapter 21**

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