

# Chapter 12

MODERN PRINCIPLES OF ECONOMICS  
Third Edition

## Competition and the Invisible Hand



Tyler Cowen • Alex Tabarrok

# Outline

- Invisible Hand Property 1: The Minimization of Total Industry Costs of Production
- Invisible Hand Property 2: The Balance of Industries
- Creative Destruction
- The Invisible Hand Works with Competitive Markets

# Introduction

- The conditions for profit maximization under competition lead entrepreneurs to produce outcomes that have desirable properties:
  1. The  $P = MC$  condition balances production across firms in a way that minimizes total industry costs of production.
  2. Entry and exit signals balance production across different industries in a way that maximizes the total value of production.

# Minimization of Total Industry Costs

- All firms face the same market price.
- To maximize profits each firm adjusts its output until  $P = MC$ .
- Thus in a competitive market with  $N$  firms :

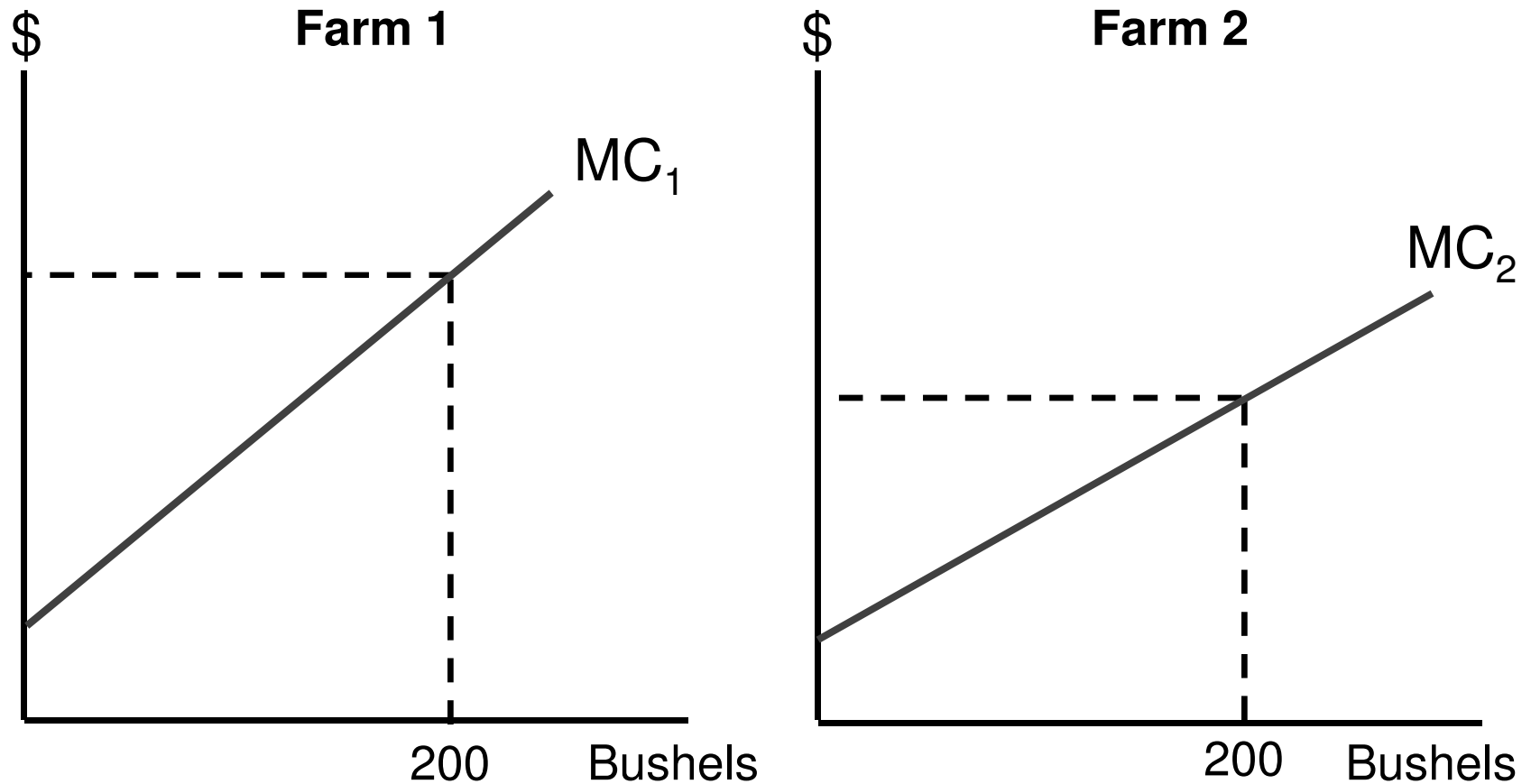
$$P = MC_1 = MC_2 = \dots = MC_N$$

- This results in minimizing total costs for the industry.

# Minimization of Total Industry Costs

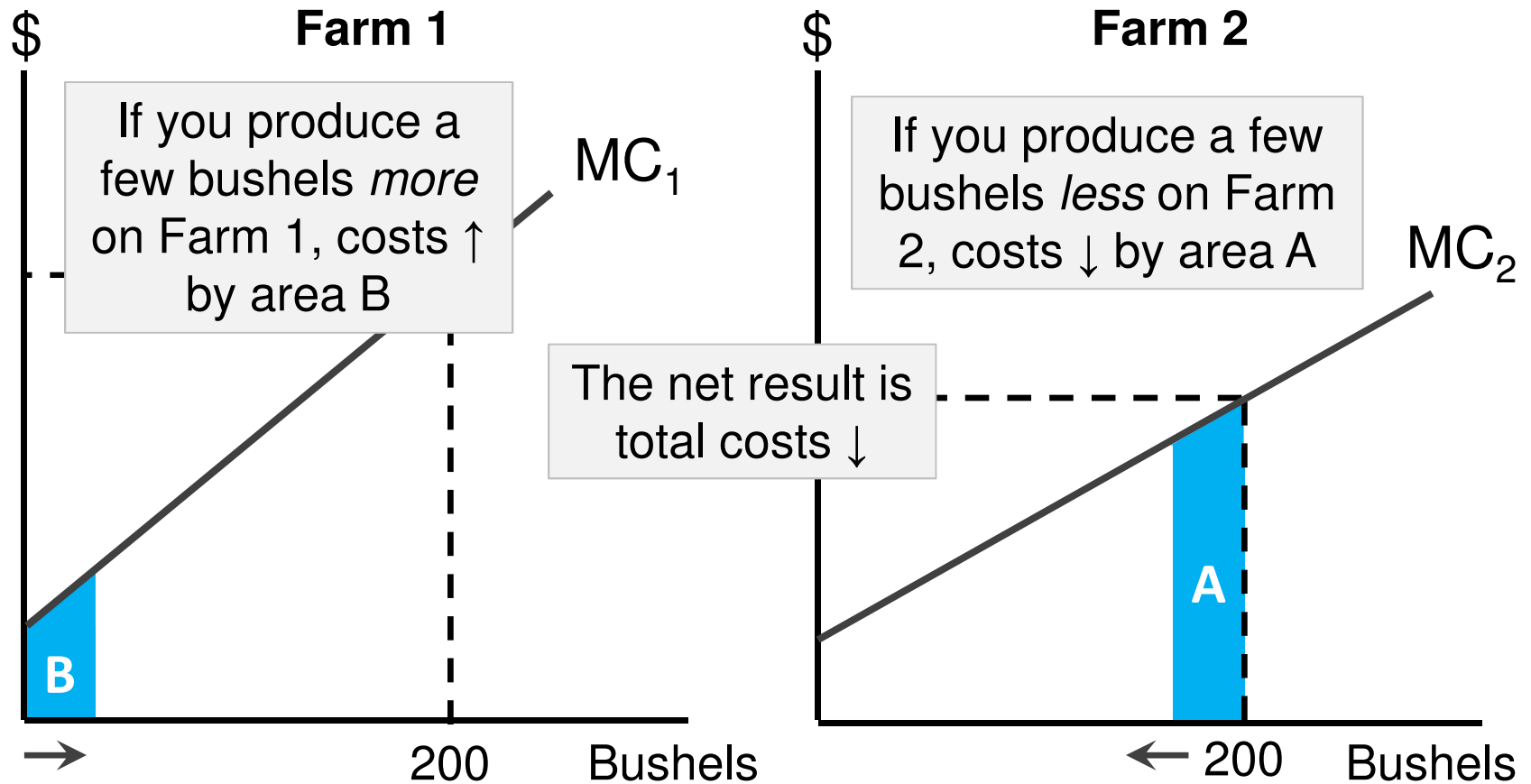
- Example:
  - Assume you own two farms.
  - Each has a different MC curve.
  - You wish to produce a total of 200 bushels of wheat.

# Minimization of Total Industry Costs



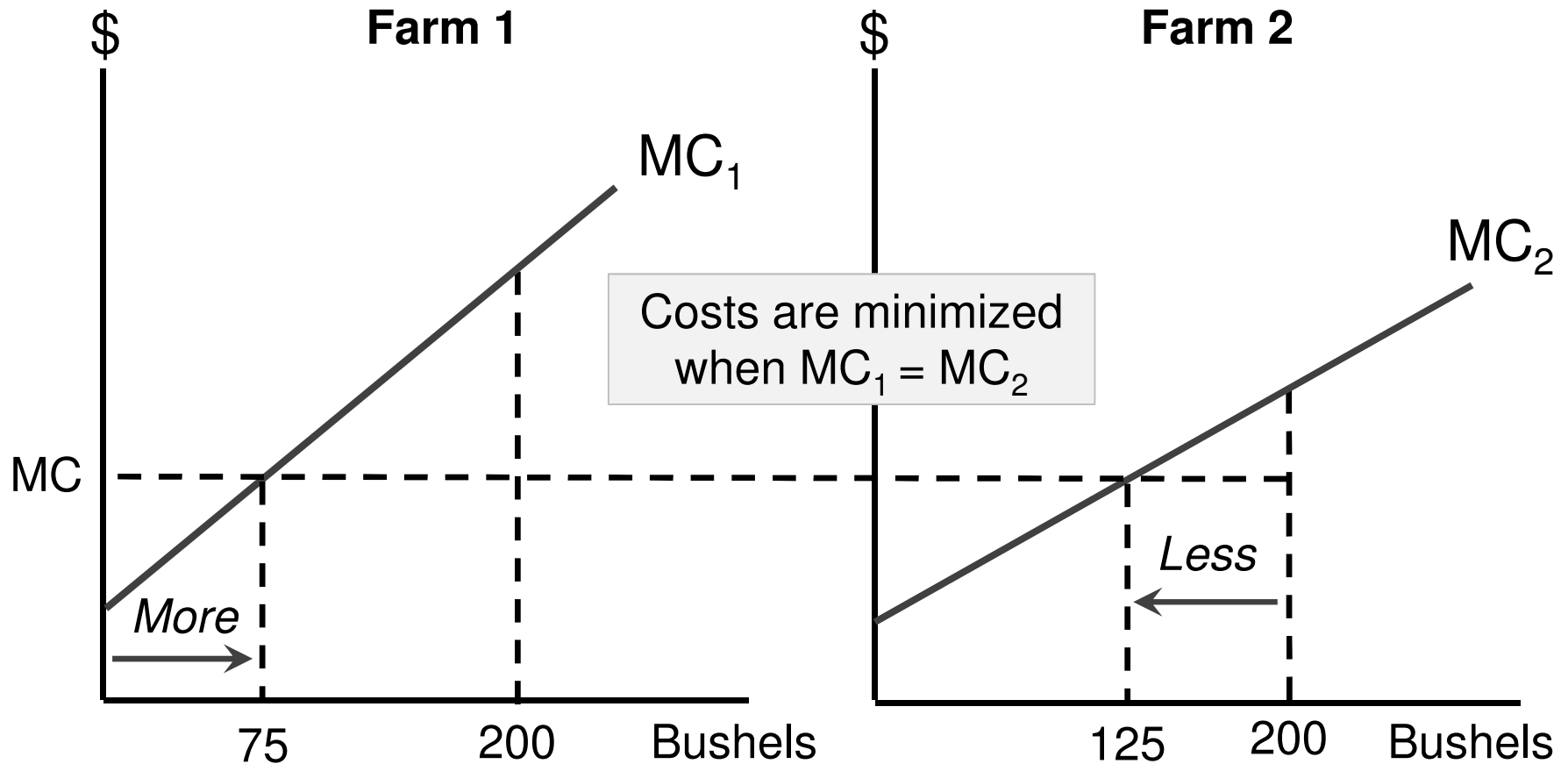
*It may seem the lowest-cost way is to produce all 200 bushels on Farm 2.*

# Minimization of Total Industry Costs



*You can decrease overall costs by shifting some production from Farm 2 to Farm 1.*

# Minimization of Total Industry Costs



*To minimize total production costs, set output on the two farms so that marginal costs are equal.*



# Minimization of Total Industry Costs

- If  $MC_1 > MC_2 \rightarrow \downarrow Q_1, \uparrow Q_2 \rightarrow \downarrow$  Total Costs
  - Costs saved by  $\downarrow Q_1 >$  costs incr by  $\uparrow Q_2$
- If  $MC_1 < MC_2 \rightarrow \uparrow Q_1, \downarrow Q_2 \rightarrow \downarrow$  Total Costs
  - Costs incr by  $\uparrow Q_1 <$  costs saved by  $\downarrow Q_2$

# Minimization of Total Industry Costs

- If  $MC_1 = MC_2 \rightarrow$  Total costs are minimized.
  - Market price allocates production across firms so that  **$MC_1 = MC_2$**
  - Each firm faces the same market price
  - Each firm maximizes profits by producing where  **$P = MC$**

Therefore,  $P = MC_1 = MC_2 \dots = MC_N$

# Minimization of Total Industry Costs

- Invisible Hand Property #1 –

*Even though no actor in a market economy intends to do so, in a free market  $P = MC_1 = MC_2 = \dots = MC_N$  and as a result the total costs of production are minimized.  
(with no central planning!)*

# Self-Check

In a competitive market, total industry costs are minimized because each firm produces where:

- a. Price = Total cost.
- b. Price = Marginal cost.
- c. Total revenue = Marginal revenue.

**Answer: b** – *Price = Marginal cost.*

# Balance of Industries

- Competitive markets ensure that the right amount of a good is produced.
- Entrepreneurs seek profit and avoid losses.
- Profit is a signal that labor and capital are being used productively in satisfying our wants.
- Profit seeking aligns with the social incentive to move labor and capital out of low-value industries and into high-value industries.

# Balance of Industries

- Resources flow from low-profit industries to high-profit industries.
  - If  $P > AC$ , profits are above normal, causing capital and labor to enter the industry.
  - As firms enter, supply  $\uparrow$  price  $\downarrow \rightarrow$  profits  $\downarrow$ .
  - If  $P < AC$ , profits are below normal, causing capital and labor to exit the industry.
  - As firms exit, supply  $\downarrow$  price  $\uparrow \rightarrow$  profits  $\uparrow$ .
- The profit rate in all competitive industries tends toward the same level.

# Balance of Industries

## *Invisible hand property #2*

*Entry and exit decisions not only work to eliminate profits and losses, they work to ensure that labor and capital move across industries to optimally balance production so that the greatest use is made of our limited resources.*

# Definition

## **Elimination principle:**

*above-normal profits are eliminated by entry and below-normal profits are eliminated by exit.*



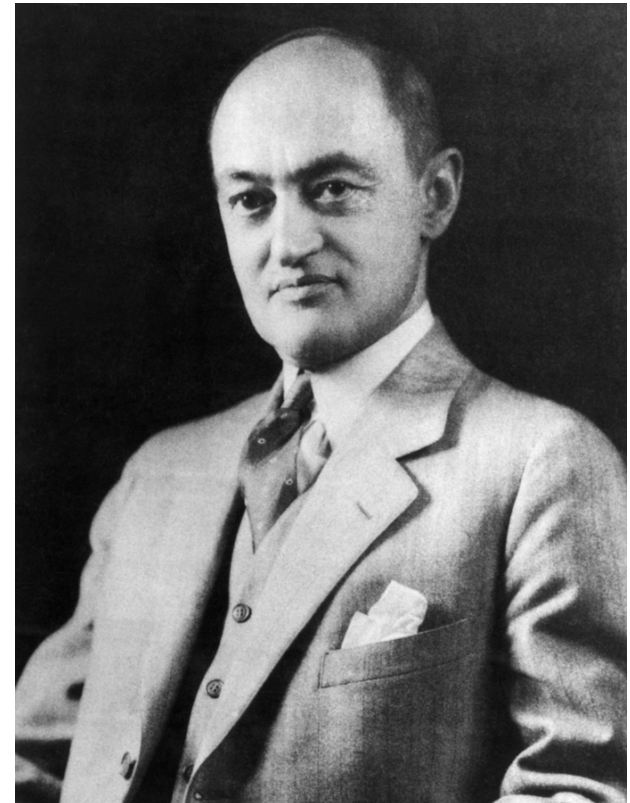
# Creative Destruction

- Resources move toward an increase in the value of production.
- Entrepreneurs move resources from unprofitable industries to profitable industries.
- Implication of the elimination principle:
  - Above normal profits are temporary.
  - To earn above-normal profits, entrepreneurs must innovate.

# Creative Destruction

- Schumpeter believed innovation was far more important than price competition.
- Innovation makes competitors obsolete.

*“This process of creative destruction is the essential fact about capitalism”.*



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**Joseph Schumpeter**  
1883 - 1950

# Creative Destruction

*Since no one profits from the commonplace, an entrepreneur must innovate to earn above normal profits.*

*Furthermore, those who fail to innovate will be displaced by those who do, i.e. **“Creative Destruction.”***



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**Joseph Schumpeter**  
1883 - 1950

# Self-Check

The idea that above-normal and below-normal profits are eliminated by firms entering and exiting an industry is called:

- a. Elimination principle.
- b. Creative destruction.
- c. Profit maximization.

**Answer: a** – *the elimination principles states that above- and below-normal profits are eliminated through entry and exit.*

# Self-Check

**In a competitive industry, if a firm wants to continue to earn positive economic profits, it must**

- a) try to prevent other firms from entering the industry.
- b) try to raise its prices to earn more revenue.
- c) innovate and find new ways of producing output.
- d) force its suppliers to lower the price they charge for raw materials

# Self-Check

**Let's suppose that the demand for allergists increases in California. How does the invisible hand respond to this demand?**

- a) Allergists from other states (or countries) could move to California.
- b) Surgeons, hematologists, and other doctors in California could switch over to allergy after some retraining.
- c) New people could enter medical school, specialize in allergy, and move to California.
- d) All of the above are correct.

# The Invisible Hand

The invisible hand will not work if...

- Prices do not accurately signal costs and benefits.
  - There is no optimal balance between industries.
- Markets are not competitive.
  - Monopolists and oligopolists produce less than the ideal amount.
  - Firms make above normal profits, and entry is limited.
- Commodities are public goods.
  - Self interest does not align with social interest.

# Takeaway

- Invisible Hand Property 1:
  - by producing where  $P = MC$ , the profit-seeking behavior of entrepreneurs minimizes the total industry costs of production.
- Invisible Hand Property 2:
  - Entry and exit decisions eliminate profits.
  - Entry and exit also ensures that labor and capital move across industries to optimally balance production so that the greatest use is made of limited resources.



# Takeaway

- The elimination principle says that:
  - Above-normal profits are eliminated by entry and below-normal profits are eliminated by exit.
  - To earn above-normal profits, a firm must innovate.
- Competitive markets align self-interest with the social interest.
- Not all markets are competitive.