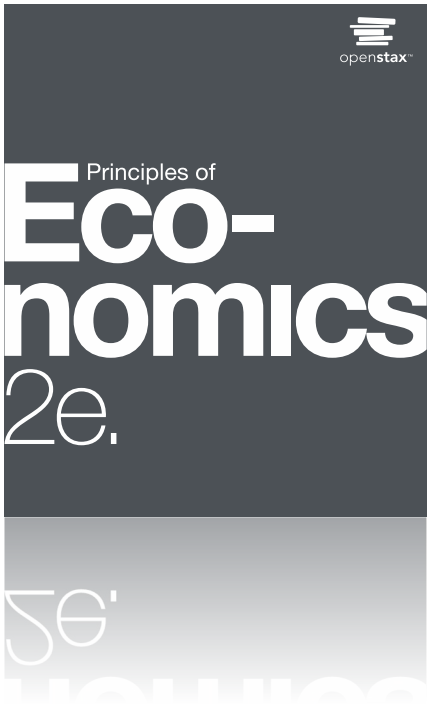
PRINCIPLES OF ECONOMICS 2e

Chapter 2 Choice in a World of Scarcity



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CH.2 OUTLINE

2.1: Individual Choices and Budget Constraints

2.2: Production Possibilities and Social Choices

2.3: Objections to the Economic Approach

Benefits to Educational Attainment

Educational choices affect lifetime economic prospects.

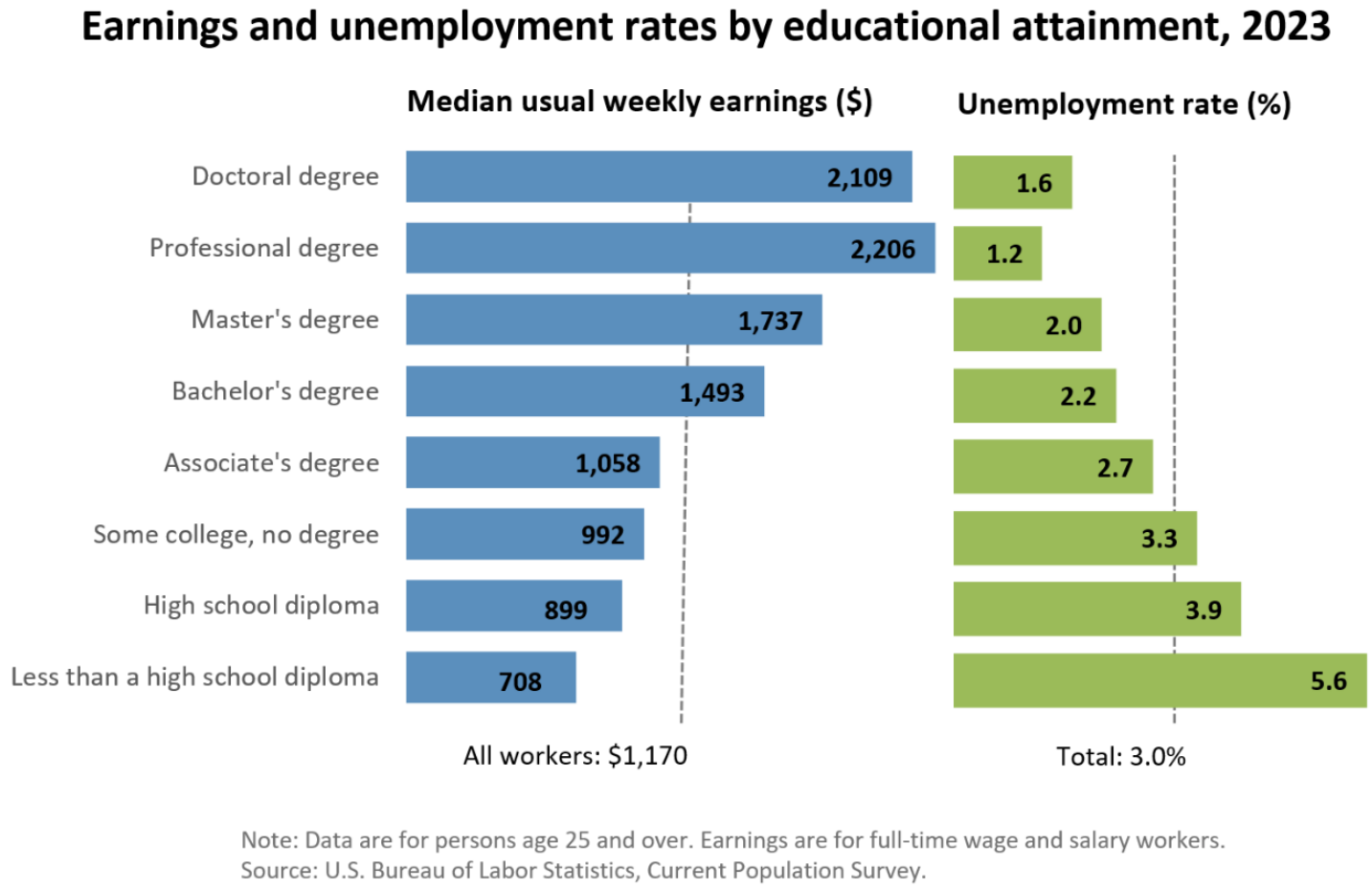


Image credit: BLS (https://www.bls.gov/emp/chart-unemployment-earnings-education.htm)

Choices and Tradeoffs

Roughly speaking, completing a higher the degree produces a higher salary.
So why aren't more people pursuing higher degrees?
The short answer: choices and tradeoffs.

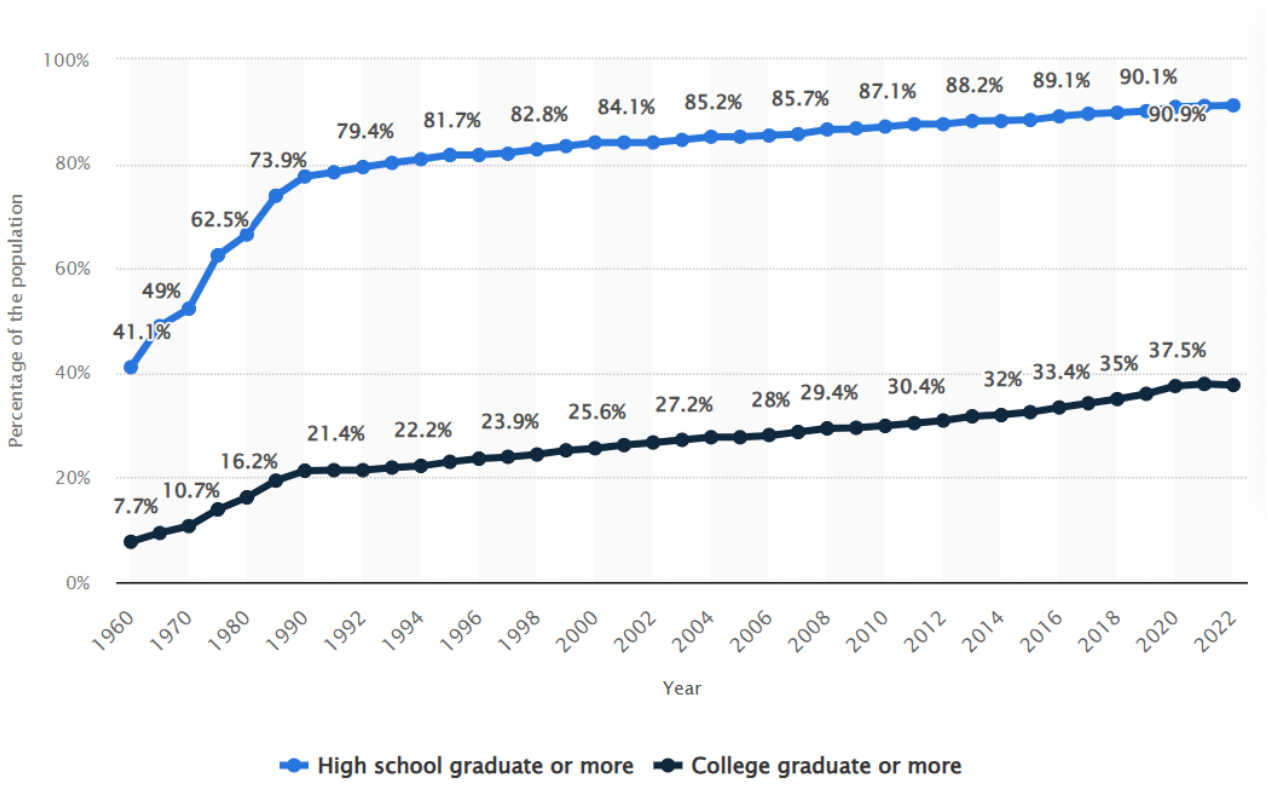


Image Credit: Statistica

Education Externalities

A more educated workforce may make even the less educated more productive. This is an example of an “education externality”.

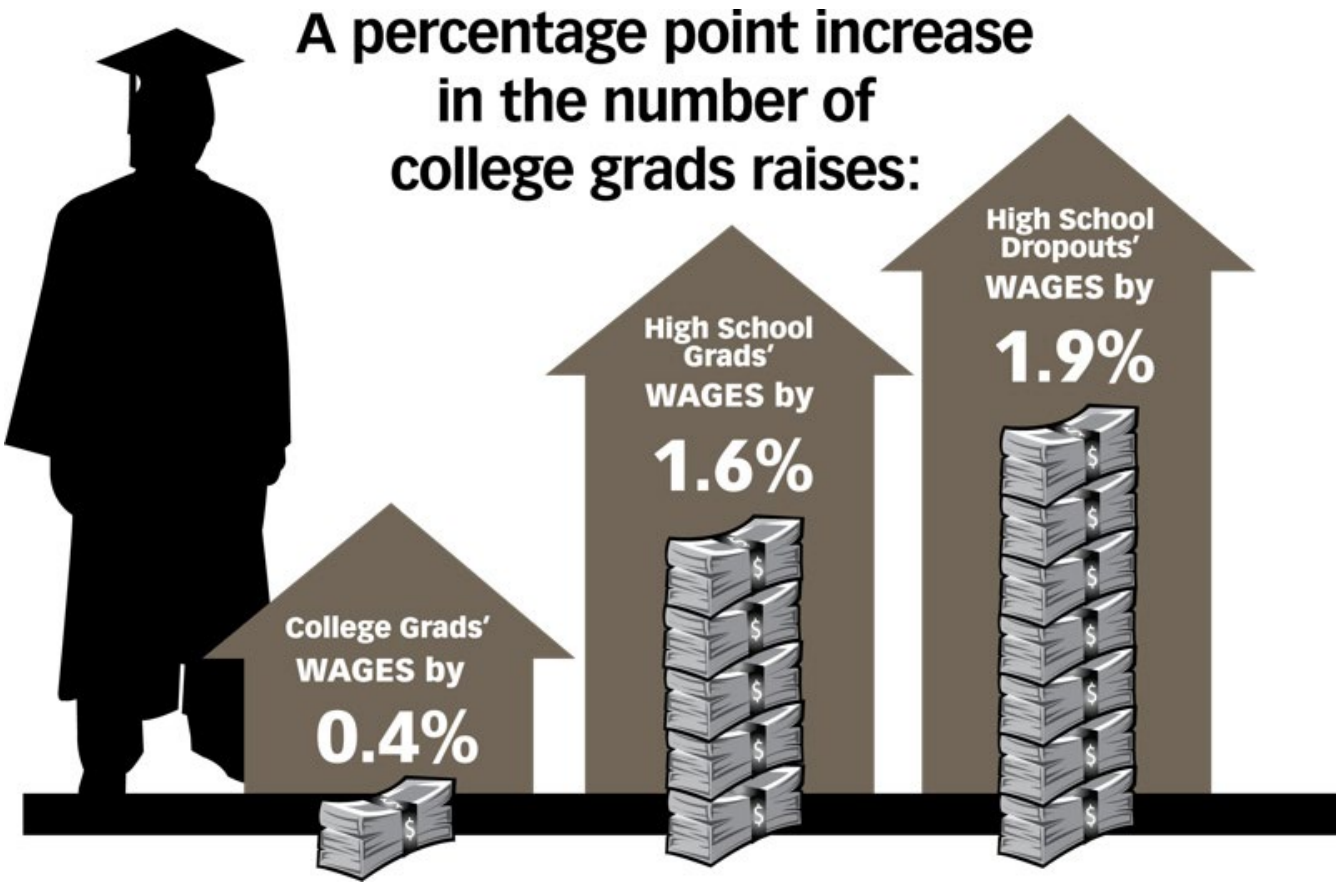


Image credit: Federal Reserve Bank of St Louis

https://www.stlouisfed.org/publications/regional-economist/january-2010/the-return-to-education-isnt-calculated-easily

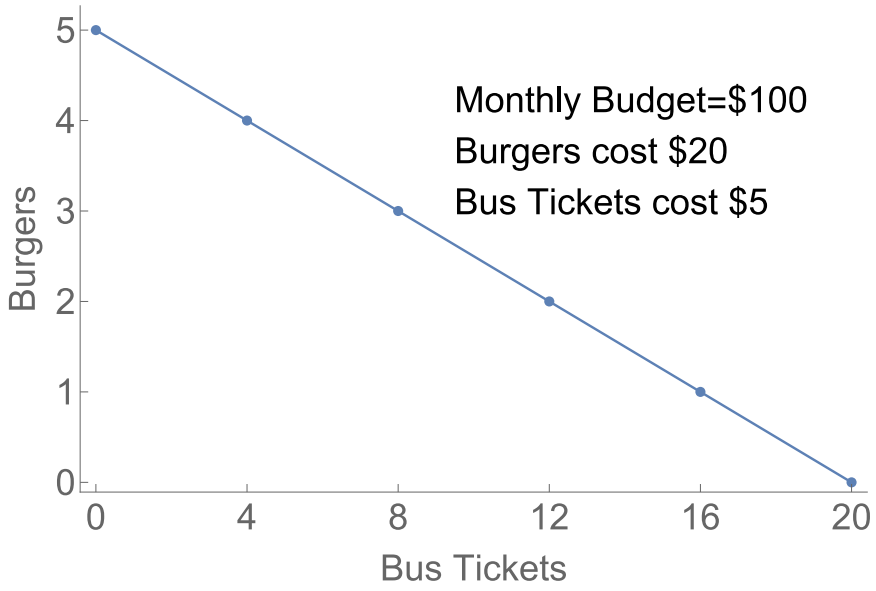
Individuals Make Choices but Face Constraints

- **Individual opportunity set:** all feasible (e.g., affordable) combinations of goods for an individual person
  - "feasible" depends on prices and on the individual's income

- **Individual budget constraint:** the boundary of the individual's opportunity set; the combinations of products the individual can afford (at current prices), when all of the individual's budgeted income is spent;.
  - depends on prices and the individual's income

- Desires exceed income!
  - -> consumers must make choices:
    - what is needed/preferred in the individual's opportunity set?

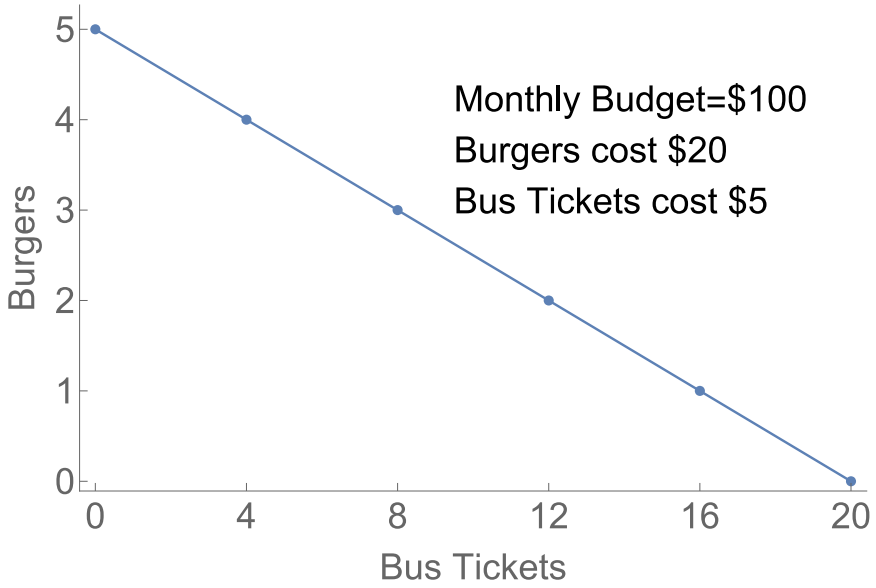
Budget Constraint: Consumption Possibilities



Given: a budgeted amount to spend, and the prices of two goods.

- **Infeasible:** a point outside the constraint is not affordable
  - it would cost more money than is in the budget.
- **Opportunity set:** every point on or inside the constraint is a combination of burgers and bus tickets that the individual can afford.
- **Budget constraint:** spending = budget ($100)
  - combinations of burgers and bus tickets that cost $100.
- Budget constraint **slope**: price of burgers in bus tickets (relative price).
  - You can give up one burger to gain four bus tickets.

The Concept of Opportunity Cost

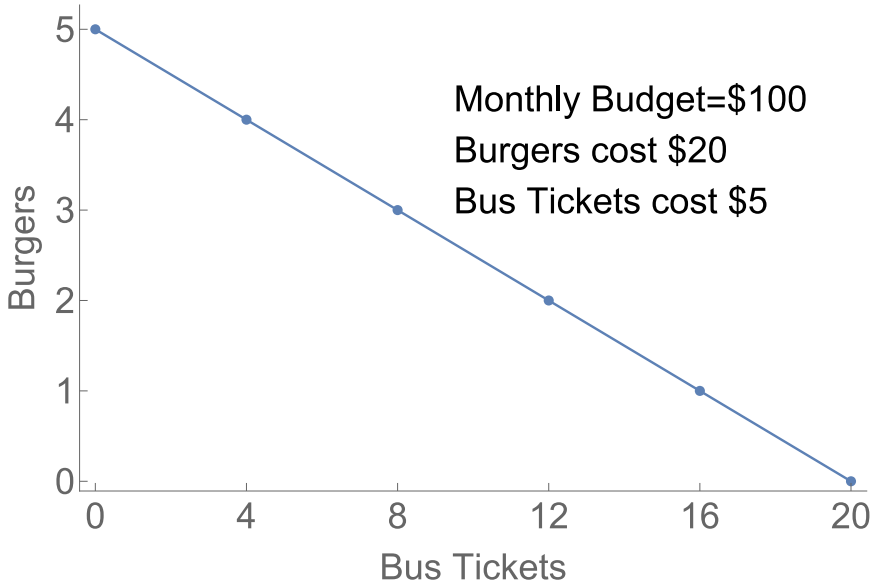


- **Opportunity cost:** what one must give up to obtain something.
  - the lost opportunity to do or consume something else.
  - the value of the best alternative.
  - the opportunity cost of a burger is four bus tickets.

Fundamental economic principle:

every choice has an opportunity cost.

Budget Constraint Equation: Algebra



$$budget == p_{tickets}\ q_{tickets} + p_{burgers}\ q_{burgers}$$

Here: $budget = 100$; $p_{tickets} = 5$; $p_{burgers} = 20$;

$$100 == 5\ q_{tickets} + 20\ q_{burgers}$$

$$q_{burgers} == 100/20 - (5/20)\ q_{tickets}$$

$$q_{burgers} == 5 - (1/4)\ q_{tickets}$$

$$\Delta q_{burgers} == -(1/4)\ \Delta q_{tickets}$$

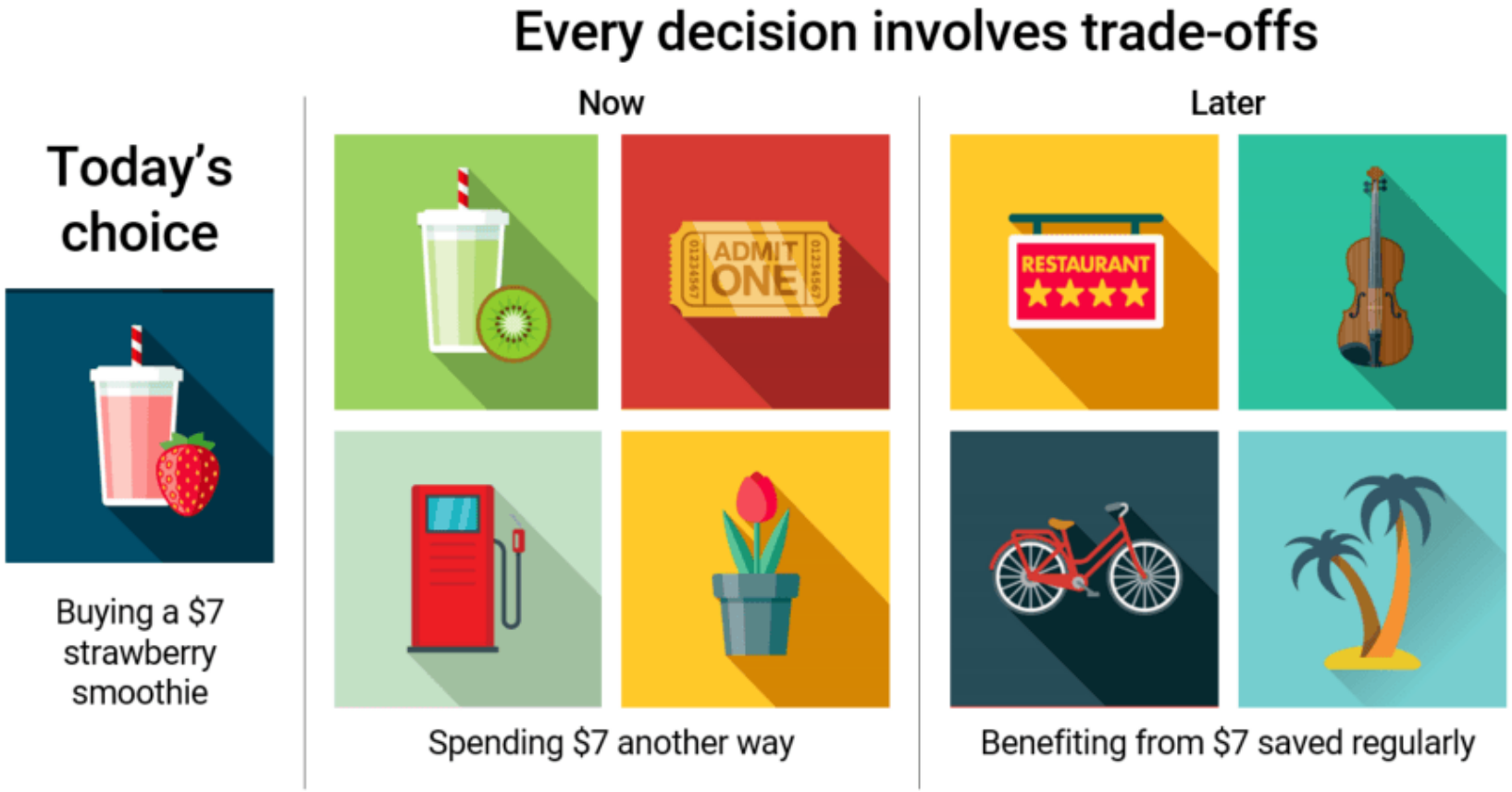
Identifying Opportunity Cost

- Often, price is a useful rough measure of opportunity cost
  - Example: You buy a new bicycle for $300, then $300 measures the amount of "other consumption" that you give up.

- Sometimes, price as measured in dollars does not accurately capture the true opportunity cost,
  - costs of time can be important!

  - Example: Attending college
    - The out-of-pocket costs of attending college include tuition, books, room and board, and other expenses.
    - Additionally, during the hours you are attending class and studying, it is impossible to work at a paying job.
    - So, college imposes both an out-of-pocket cost and an opportunity cost of lost earnings.

Trade-offs Are Everywhere



Inspired by Andrea Caceres-Santamaria, "Money and Missed Opportunities." *Page One Economics*, October 2019. Icons by Getty Images.

FEDERAL RESERVE BANK of ST. LOUIS

Image credit: St Louis Fed (https://www.stlouisfed.org/open-vault/2020/january/real-life-examples-opportunity-cost)

Utility and Diminishing Marginal Utility

Economists use the word *utility* in a peculiar way.
Roughly speaking, it is synonymous with *satisfaction*.
A consumer derives utility from the consumption of desirable products.

- **Utility:** satisfaction, usefulness, or subjective value one obtains from consuming goods and services.
  - (part of the special jargon of economists)
- **Marginal analysis:** examining the benefits and costs of choosing a little more or a little less of a good; focuses on small changes.
- **Law of diminishing marginal utility:** the additional ("marginal") utility from consuming another unit of a good declines with each additional unit consumed.
  - Example: the first slice of pizza eaten brings more satisfaction than the sixth.

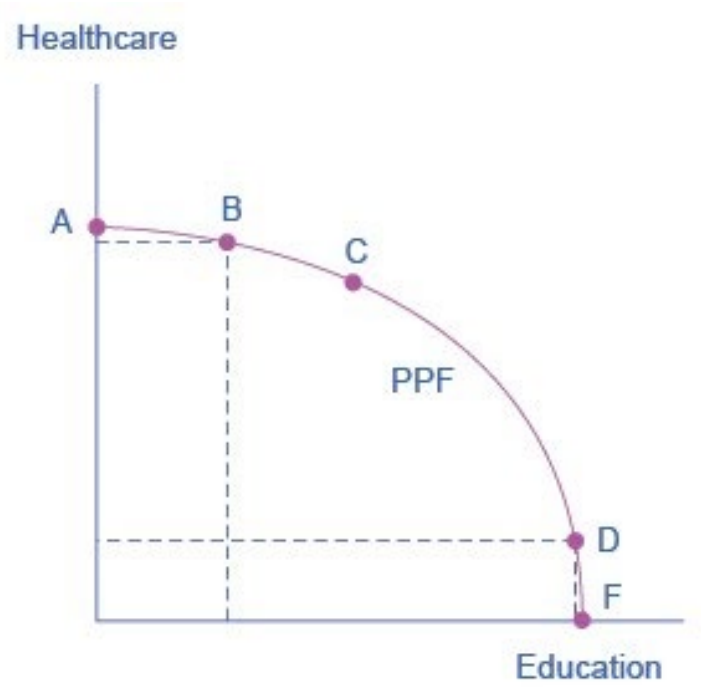
Sunk Costs

- **Sunk costs**
  - costs already incurred (in the past)
  - cannot be recovered (“sunk costs are sunk”)

- **Sunk cost fallacy**: people and firms alike sometimes weight sunk costs in current decisions.
  - Example: A firm finds it hard to give up on a new product that is doing poorly because much money was spent in creating and launching the product.
  - Example: people sometimes finish a boring movie or book because they started it. (Strough et al., 20008)

- **Bygones principle**: ignore the past errors and make decisions based on what will happen in the future.

2.2 Production Possibilities & Social Choices



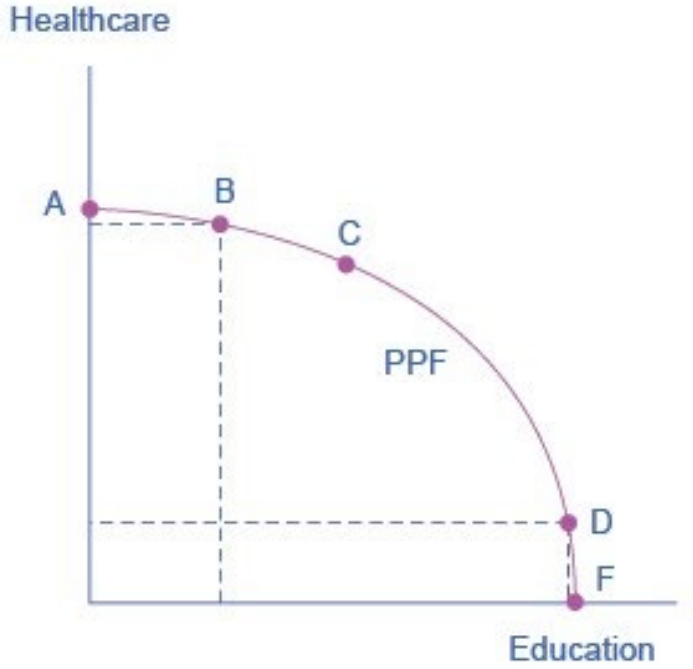
- **Production possibilities**:
  - combinations of products that an economy can produce, given the resources it has available.
- **Production possibilities frontier (PPF)**:
  - the productively *efficient* combinations of products that an economy can produce, given the resources it has available.

Production Possibilities Frontier (PPF)

[click] PPF video from Economic Lowdown

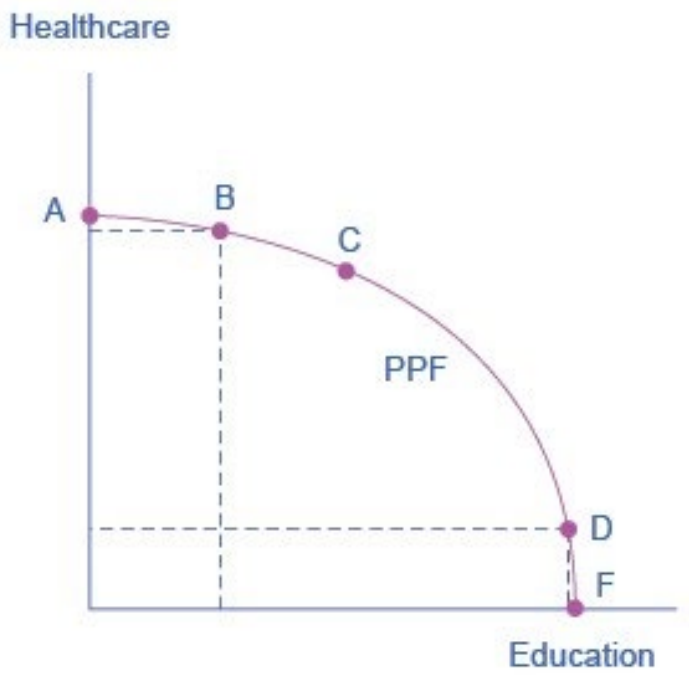
(Note: this introductory video ignores resource specialization, so it uses a linear PPF. See the follow-up Economic Lowdown video for a concave PPF.)

Production Possibilities Frontier: Healthcare vs. Education



- This production possibilities frontier shows a tradeoff between devoting social resources to healthcare and devoting them to education.
- At A all resources go to healthcare and at B, most go to healthcare.
- At D most resources go to education, and at F, all go to education.

Healthcare vs. Education Production Possibilities Frontier



- A society could choose to produce any combination of healthcare and education on the production possibilities frontier.
- It does not have enough resources to produce outside the PPF.
- Because the PPF is downward sloping from left to right, the only way society can obtain more education is by giving up some healthcare.

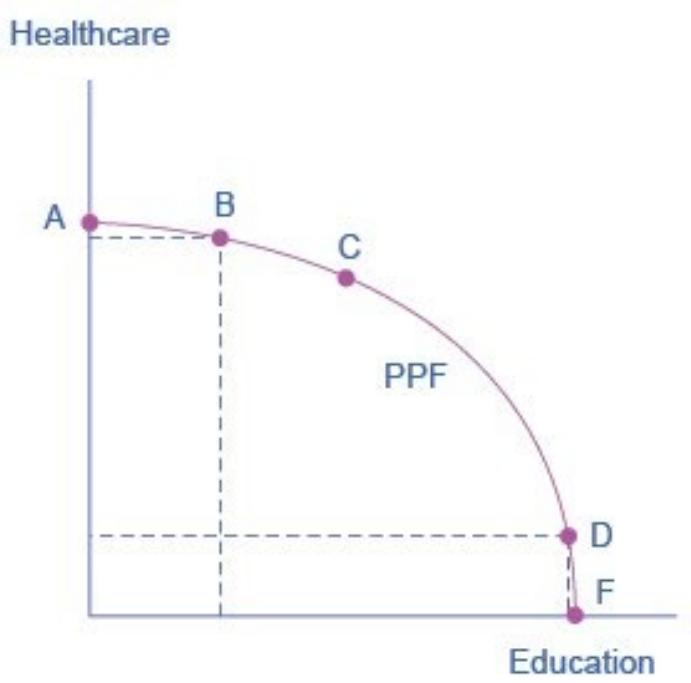
Shape of the PPF: The Law of Increasing Opportunity Cost

- The **slope** of the production possibilities frontier shows the opportunity cost.
- **Law of Increasing Opportunity Cost:**
  - the trade-off worsens as more and more of a good is produced
  - Your book subsumes this under the law of diminishing returns
- **Law of diminishing returns**:
  - the additional ("marginal") benefit from additional resources declines as more of the resources are added.
    - Along a PPF, the benefit is the production a good or service

Comment:

The law of diminishing marginal utility is also a case of the law of diminishing returns.

Healthcare vs. Education Production Possibilities Frontier, Continued



- The PPF has concave curvature:
  - so as we add more resources to education, moving from left to right along the horizontal axis, the original gains are fairly large, but gradually diminish.
  - similarly, as we add more resources to healthcare, moving from bottom to top on the vertical axis, the original gains are fairly large, but again gradually diminish.

Differences - Budget Constraint and PPF

Two major differences between a **budget constraint** and a **PPF**:

PPF is mostly conceptual:

- The amount of resources in an economy is not easy to define or measure.

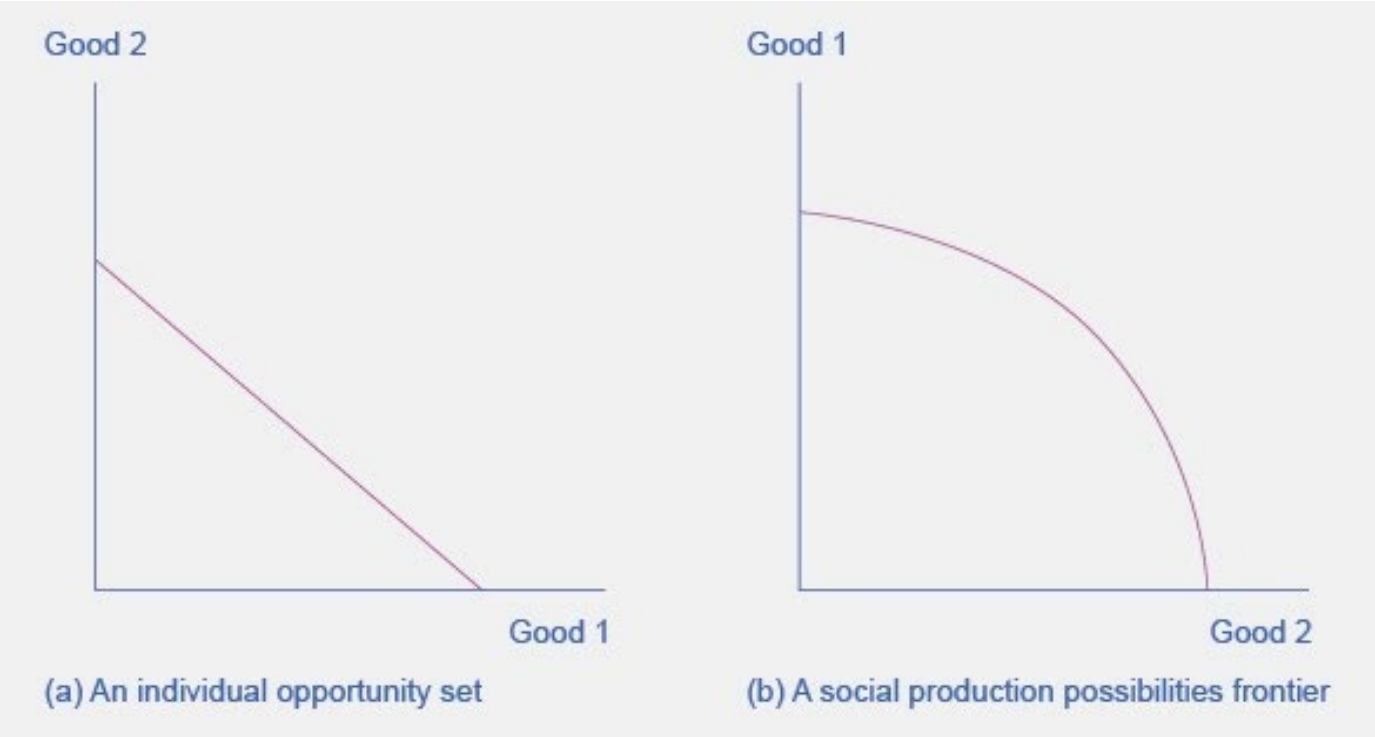
Budget constraint is easier to measure:

- given an amount to spend, the goods to spend it on, and prices, we can easily construct a budget constraint.

The PPF is curved; the budget constraint is a straight line.

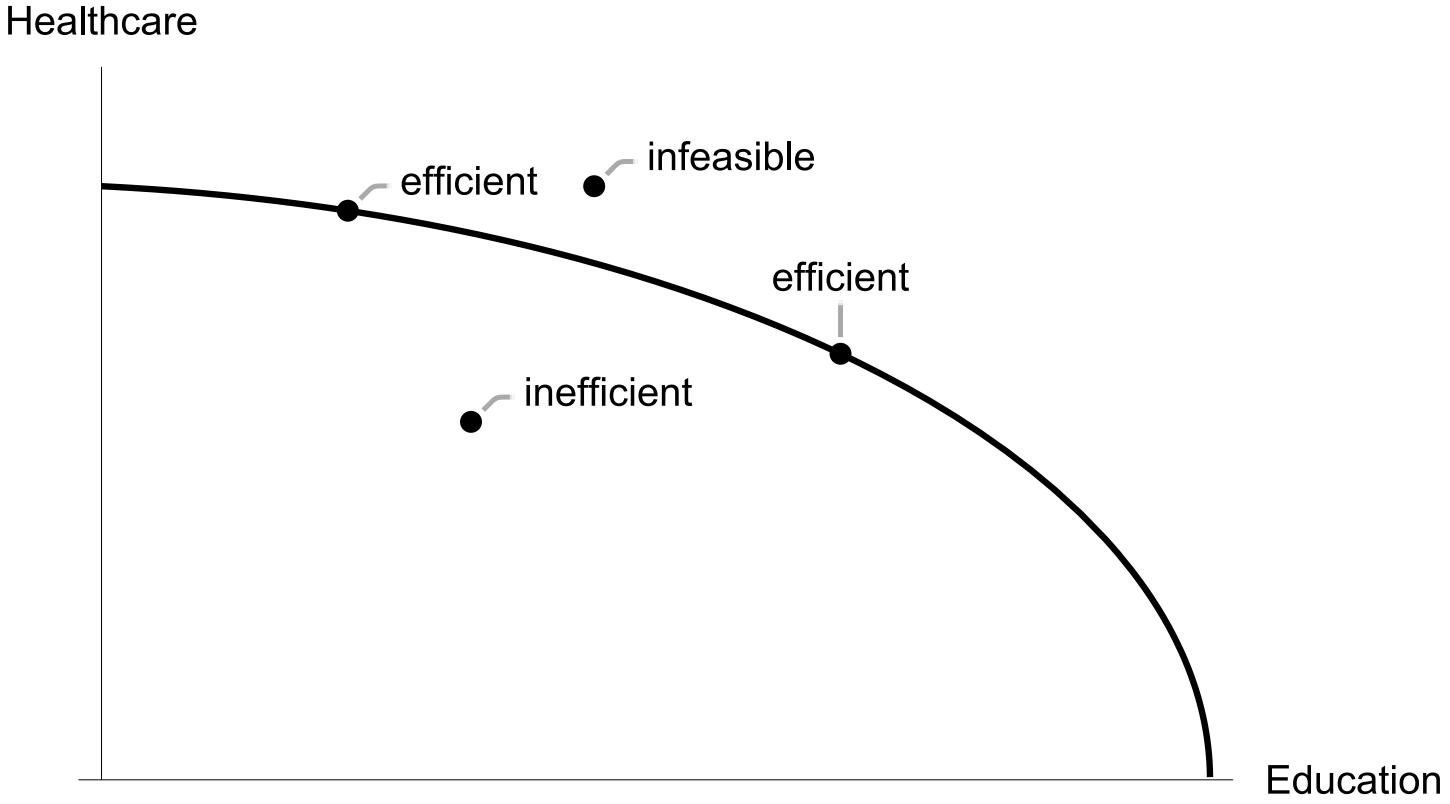
- Budget constraint slope is given by the relative prices of the two goods, which are given, so slope doesn't change.
- PPF has a curved shape because of the law of diminishing returns, so slope is different at various points on the PPF.

Constraints and Trade-Offs: Budget Constraint and PPF



- Like the budget constraint, the social production possibilities frontier (PPF) illustrates constraints and trade-offs.
- Both diagrams show the tradeoff in choosing more of one good at the cost of less of the other.

Productive Efficiency



- Points along a PPF production are efficient.
- Points inside are inefficient
  - inside the PPF curve, not all resources are being used.
    - unemployed labor is an example of inefficient resource use.
- Points outside are infeasible

Productive Efficiency vs Allocative Efficiency

- **Productive efficiency**:
  - when it is impossible to produce more of one good (or service) without decreasing the quantity produced of another good (or service)
  - Any choice inside the PPF is productively inefficient because it is possible to produce more of one good, the other good, or some combination of both goods.

- **Allocative efficiency:**
  - when the mix of goods produced represents the mix that "society" most desires
    - fleshing out the meaning of this is very hard

Invisible Hand

- Social good can emerge from self-interested individual actions.
- E.g., consumers frequent businesses that offer goods and services that meet their needs.

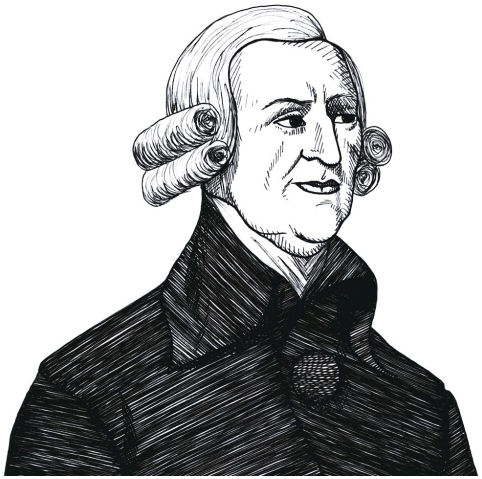
- **Invisible hand**:
  - prefigured by The Fable of the Bees (Mandeville 1729)
    - private vice (pride, greed) -> public benefit (work, production)
  - identified in Adam Smith's *The Wealth of Nations*.

Scope limitation:

- self-interest in economic activity does not imply self-interest in all aspects of life.

Invisible Hand

“It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages. Nobody but a beggar chuses to depend chiefly upon the benevolence of his fellow-citizens.”



Adam Smith (1723-1790)
Image credit: Liberty Fund (https://oll.libertyfund.org/quote/adam-smith-butcher-brewer-baker)

Note: In *Theory of Moral Sentiments* (IV.1.10, 1759), Smith makes it clear that the invisible hand of the market is that of "Providence."

Comparative Advantage

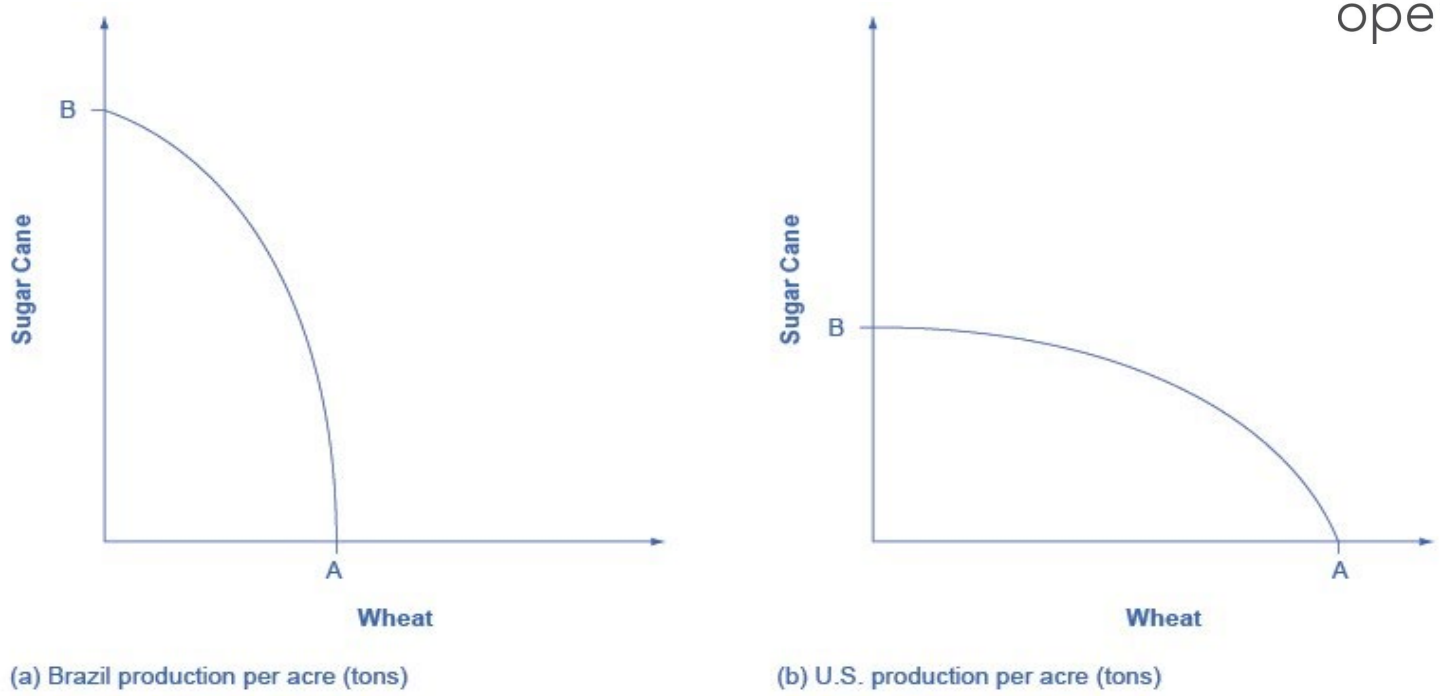
When a country alone would face a lower marginal opportunity cost of producing a good, we say it has a **comparative advantage** in the production of that good.

When two countries trade, each finds it advantageous to produce according to comparative advantage.

Comparative Advantage and Trade

- A country can produce what it consumes or trade for it.
- The decision depends on how expensive it is to produce it versus buying it from a different country.
- Countries tend to have different opportunity costs of producing a specific good, either because of technology differences or resource differences
  - different climates, geography, or skills.

Comparative Advantage and the PPF



- The U.S. PPF is flatter than the Brazil PPF implying that the opportunity cost of wheat in terms of sugar cane is lower in the U.S. than in Brazil.
- Conversely, the opportunity cost of sugar cane is lower in Brazil.
- The U.S. has comparative advantage in wheat and Brazil has comparative advantage in sugar cane.

Objections to the Economic Approach

Objections to the economic approach to human behavior :

Positive (descriptive) objections:
People, firms, and society often do not appear to act in a way that fits the economic way of thinking.

Responses: economics …

- nevertheless, may be reasonable, as a first approximation, to analyze people and firms.
- appearances can be deceiving
- the economic approach is more fully generalized in a later chapter on *consumer choices*.

Objections to the Economic Approach

Objections to the economic approach to human behavior:

Normative (ethical) objection:

The economic approach portrays people as self-interested, but people, firms, and society often should not act this way.

Responses: economics …

- *is not a form of moral instruction.*
- embraces **positive statements**, intended to describe the world as it is. (Positive statements are factual statements.)
- eschews **normative statements**, which describe how the world should be. (Normative statements are subjective statements of opinion.)
- is an intentionally simplified description of economic behavior, which has proven usefulness (for prediction and policy).

END