

CHAPTER 1:

WHAT IS ECONOMICS?

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Summary

This chapter is an introduction to economics from the perspective of the **neoclassical school**.

It introduces a number of concepts from this perspective, such as definition of economics, micro/macro distinction, theory and abstraction, and positive/normative economics.

What is economics?

“Economics is the study of choice under conditions of scarcity”

This is a neoclassical definition of economics.

Def. “Scarcity”

According to the neoclassical way of thinking, wants or desires are unlimited but goods and resources are limited.

In this sense, goods and resources are “scarce” and acquire price tags.

Choice

Consumers, who have a limited income, have to make a choice between purchasing goods.

Producers, who have a limited budget, have to make a choice between employing resources.

Def. Resources/ “factors of production”/ inputs:

labor , land and capital

Labor: hours of work / individual worker

Land: natural resources

“Capital”: goods (human made) that are used to produce other goods / Money?

Some books have also “entrepreneur” as the 4th factor.

Factors of production each have a “price”:

Labor:
wages and salaries

Land:
rent

“Capital”:
profit and interest

Neoclassicals believe that consumers and producers make their choices “rationally.”

“Rational behavior” means that both consumers and producers “optimize”:

- Consumers maximize “utility.”
- Producers maximize profit.

In optimizing, both consumers and producers use “marginal analysis.”

Def. Marginal analysis: an analysis involving incremental, infinitely small changes.

What is the textbook distinction between micro and macroeconomics?

Microeconomics is a set of theories dealing with the decisions made by individual consumer (buyer) and producer (seller, firm).

The result of this decision making is the determination of prices, distribution of income and allocation of resources.

Macroeconomics is a set of theories dealing with the overall performance of the economy or the economy as a whole, such as national income, average prices, and employment level.

What is a theory ?

Def. A **theory (model or law)** is a statement or a set of statements intended to explain or describe reality.

Examples of theories

Newton's universal law of gravitation:

$$F = g (m_1 \cdot m_2 / r^2)$$

The neoclassical "law of demand":

as price per unit increases, quantity demanded decreases.

All theories involve abstraction

Def. Abstraction:

setting aside that which is not essential

The concept of abstraction is related to the concept of generalization.

It is also related to "ceteris paribus."

The law of universal gravitation:

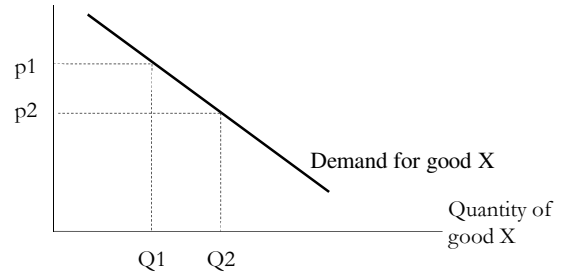
Distance traveled by an object is

$$D = \frac{1}{2} g t^2$$



The neoclassical "law of demand": price is inversely related to quantity demanded

Price per unit of good X



Abstraction in art



Mark Rothko
No. 14, 1960

Assumptions in theories

Theories involve certain assumptions.

H&L divide these assumptions into two kinds:

- 1) **Simplifying assumptions:**
make the model simple without changing its fundamental conclusions.
- 2) **Critical assumptions:**
can fundamentally change the conclusion of a model.

What are positive and normative analyses?

Def. Normative analysis:

involves value judgment, i.e., it deals with “what ought to be.”

Def. Positive analysis:

does not involve value judgment, i.e., it deals with “what is.”

Examples

- 1) The US government should not worry about the rising unemployment rate.
- 2) Inflation and unemployment are inversely related.
- 3) It is best to worry about the rising inflation rate than the declining rate of growth in GDP.

Mathematical Appendix

A review of what you should have learned very well before taking this class

Linear equations

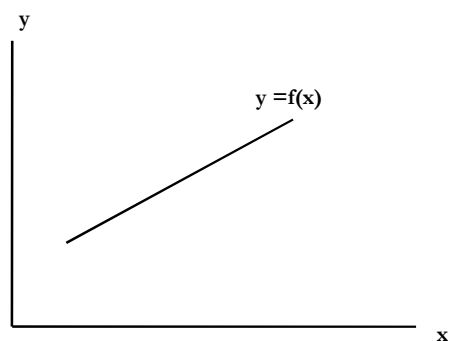
A linear equation, $y = f(x)$, takes values from the set of real numbers, x (independent variable), to the set of real numbers, y (dependent variable).

Specifically, a linear equation is given by:

$$y = mx + b$$

where b is y intercept and m is the slope of the line, that is,

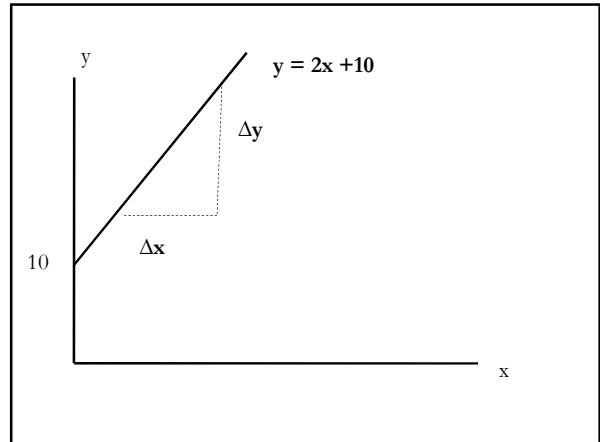
$$m = \Delta y / \Delta x = (y_1 - y_0) / (x_1 - x_0)$$



Examples:

$$y = 2x + 10$$

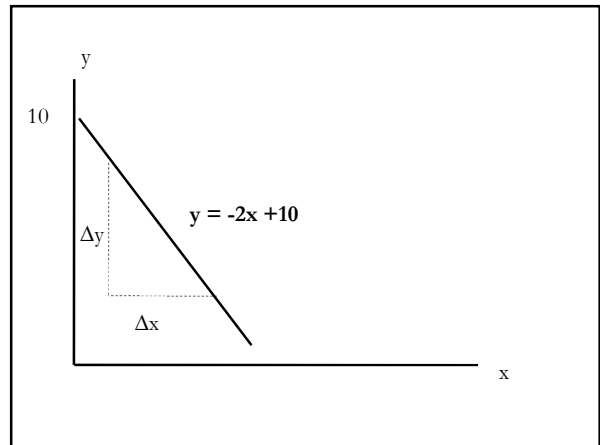
This is a positive relation: as x increase, y increases.



Examples:

$$y = -2x + 10$$

This is a negative relation: as x increase, y decreases.



Shifts or changes in curves

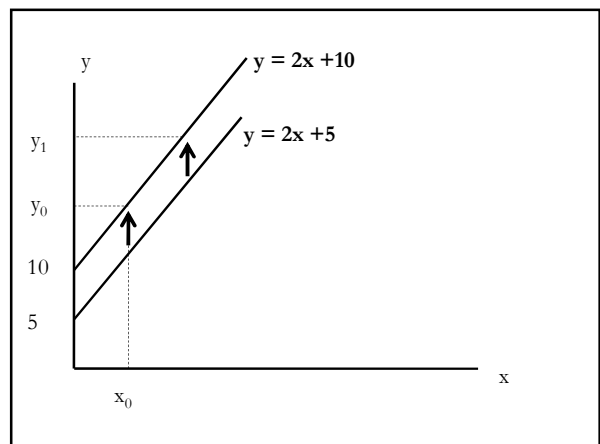
In the equation

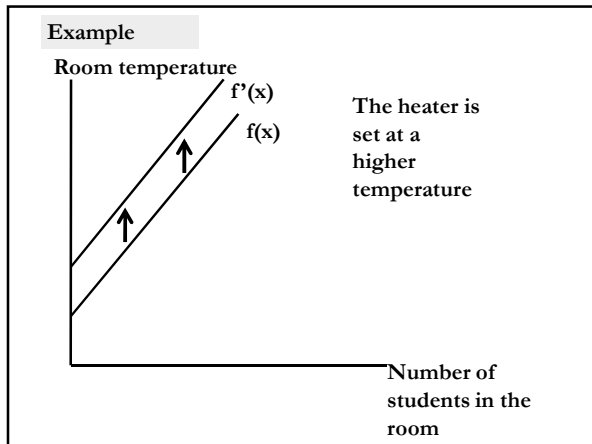
$$y = mx + b, \text{ b is constant.}$$

What would happen if b is a variable?

$$y = mx + z, \text{ where z is changing.}$$

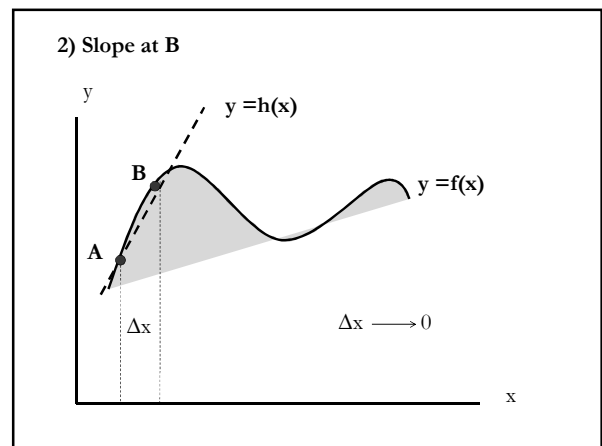
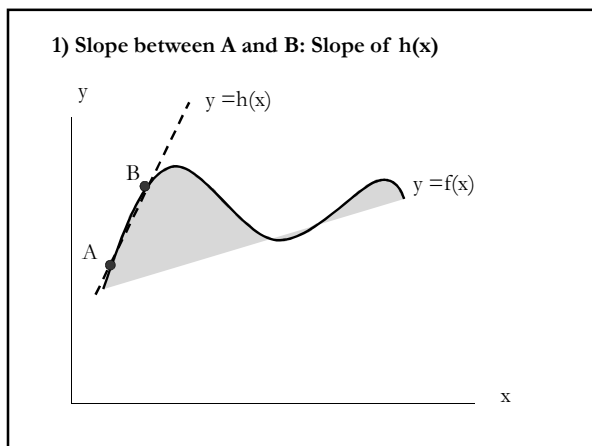
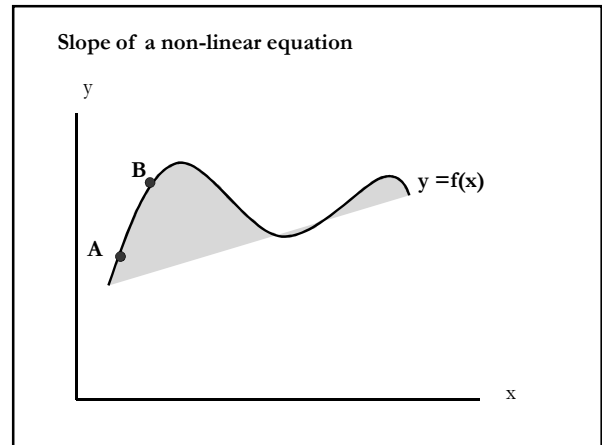
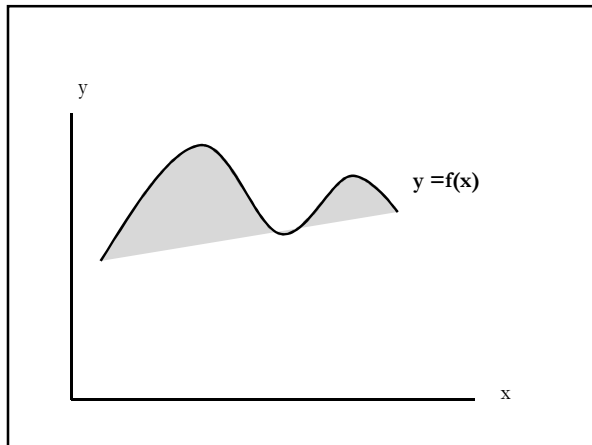
Then the line shifts or changes

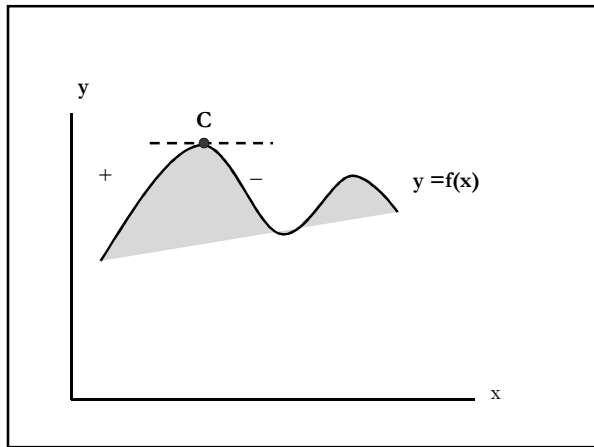
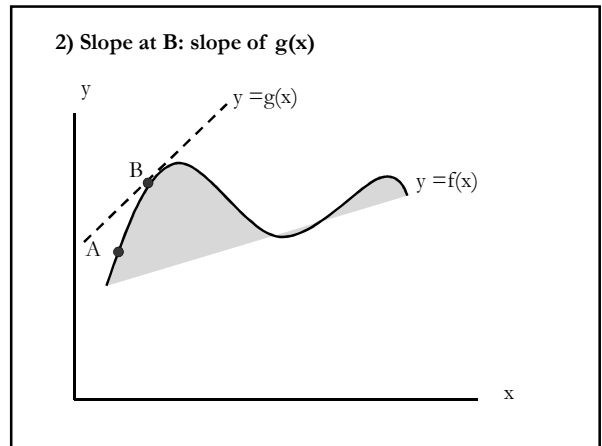
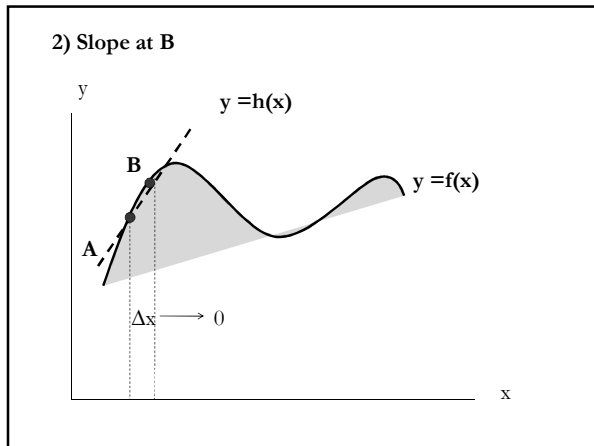




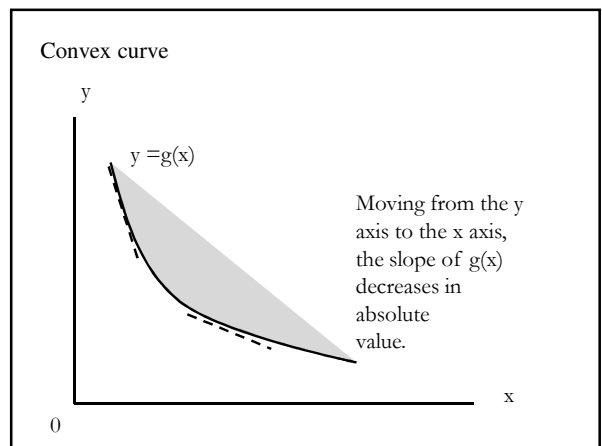
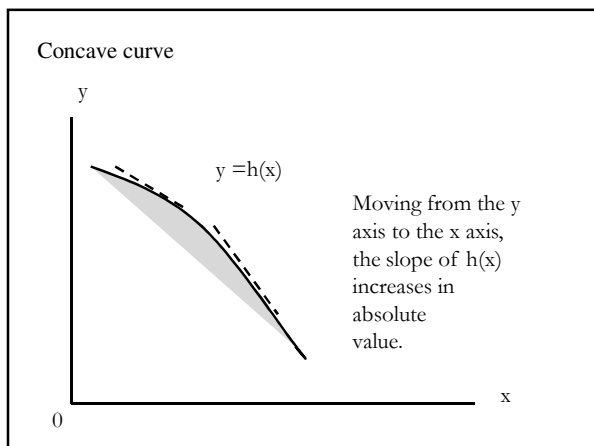
Non-linear equations

In this case the slope of the curve changes.





Concave and convex curves



Percentage change

If your grade changes from y_0 to y_1 , then:

$$\% \Delta \text{ in grade} = (y_1 - y_0) / y_0$$

Example:

Your grade changes from 25 to 35. Relative to the first grade, the percentage increase in your grade is equal to what?

$$\% \Delta \text{ in grade} = (35 - 25) / 25 = 10/25 = 40 \%$$

Product rule

If $A = B \times C$, then

$$\% \Delta \text{ in } A = \% \Delta \text{ in } B + \% \Delta \text{ in } C.$$

Quotient rule

If $A = B / C$, then

$$\% \Delta \text{ in } A = \% \Delta \text{ in } B - \% \Delta \text{ in } C.$$

Geometric series

$$\text{If } S = 1 + 1/2 + 1/4 + 1/8 + \dots$$

Then S converges to what?

$$S = 2!$$

Geometric series in general

If

$$S = a + ar + ar^2 + ar^3 + \dots$$

and $0 < r < 1$, then

$$S = a / (1 - r)$$

Example,

$$\text{If } S = 1 + 1/2 + 1/4 + 1/8 + \dots$$

Then S converges to what?

$$S = a / (1 - r) = 1 / (1 - 1/2) = 1 / (1/2) = 2$$

Another example,

If $S = 7 + 7/3 + 7/9 + 7/27 + \dots$

Then S converges to what?

$$S = a / (1 - r) = 7 / (1 - 1/3) = 7 / (2/3) = 21/2 = 10.5$$

Proof:

$$1) S = a + ar + ar^2 + ar^3 + \dots$$

$$2) rS = ar + ar^2 + ar^3 + \dots$$

Subtract 2 from 1:

$$\text{Factor } S \quad S - rS = a$$

$$\text{Divide by } (1-r) \quad S(1-r) = a$$

$$S = a / (1-r)$$

Next stop: Chapter 2!