CHAPTER 1:

What is Economics?

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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.

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.

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.

What is economics?

"Economics is the study of choice under conditions of scarcity"

This is a neoclassical definition of economics.

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 4^{th} factor.

Factors of production each have a "price":

Labor:
wages and salaries

Land:
rent

"Capital":
profit and interest

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.

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.

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.

In optimizing, both consumers and producers use "marginal analysis."

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

What is a theory ?

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

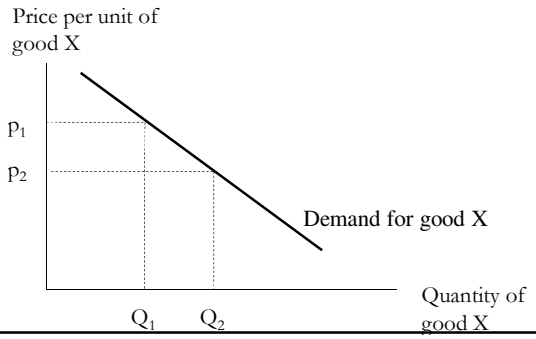
Examples of theories

- Newton's universal law of gravitation:

  $F = G (m_1.m_2 / r^2)$

- The neoclassical "law of demand":
  as price per unit increases, quantity demanded decreases.

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



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."

Abstraction in art

Mark Rothko
No. 14, 1960

The law of universal gravitation:

Distance traveled by an object is

$D = ½ gt^2$

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 involves value judgment, i.e., it deals with "what is."

Fractions

Examples

Real wage (w) = Nominal wage (W)/ Price index (P)

W= \$60/labor
P =\$2/loaf of bread

w=?

w= (\$60/labor)/ (\$2/loaf of bread)
= 30 loaf of bread/labor

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.

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).

Mathematical Appendix

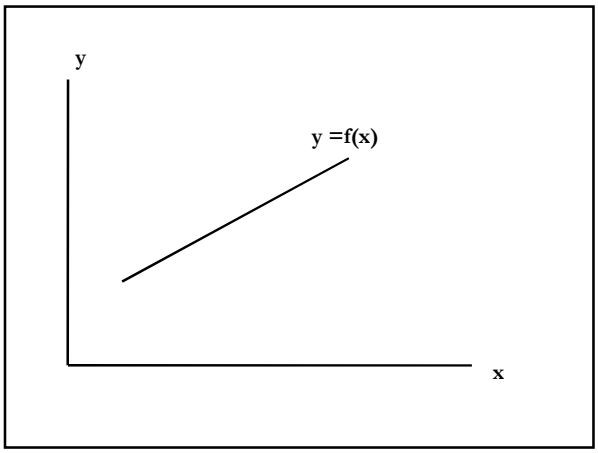
A review of what you should have learned very well before taking this class

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:

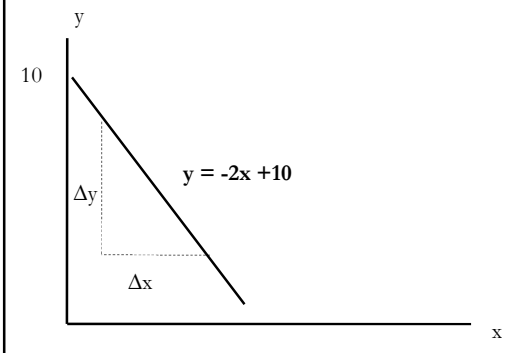
$y = -2x + 10$

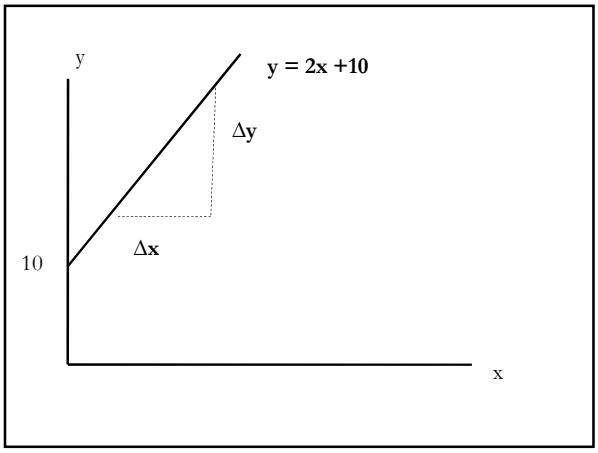
This is a negative relation: as x increase, y decreases.

Examples:

$y = 2x + 10$

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





Shifts or changes in curves

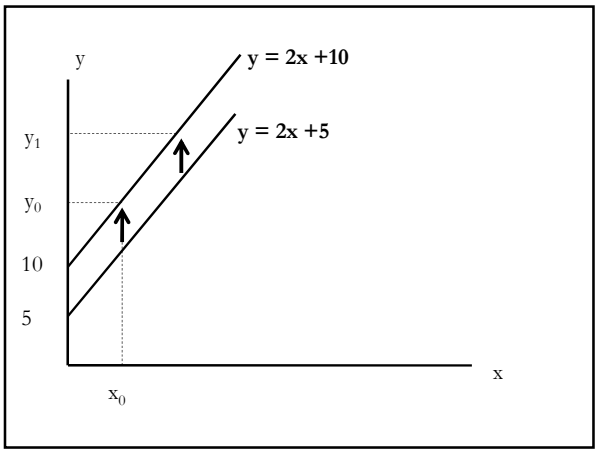
In the equation

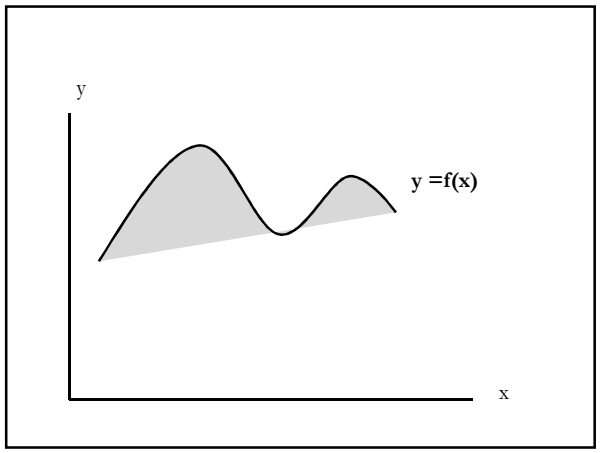
$y = mx+b$, b is constant.

What would happen if b is a variable?

$y = mx+z$, where z is changing.

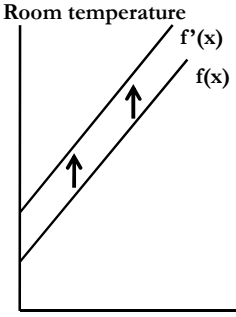
Then the line shifts or changes





Example

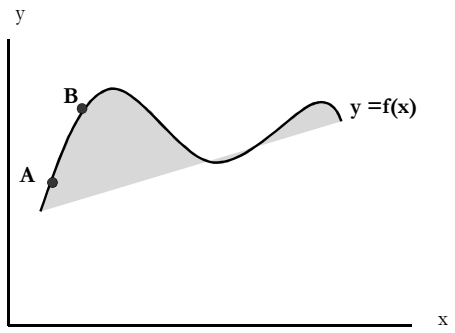
Room temperature



The heater is set at a higher temperature

Number of students in the room

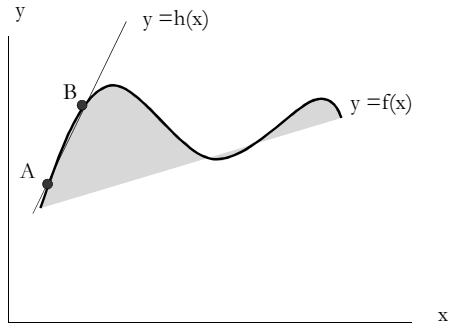
Slope of a non-linear equation



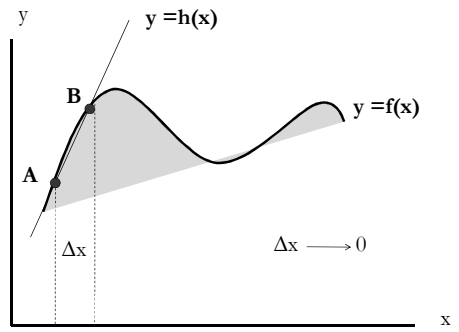
Non-linear equations

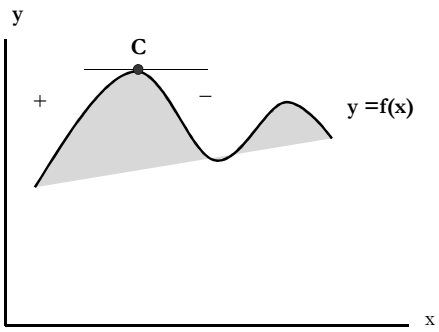
In this case the slope of the curve changes.

1) Slope between A and B: Slope of h(x)

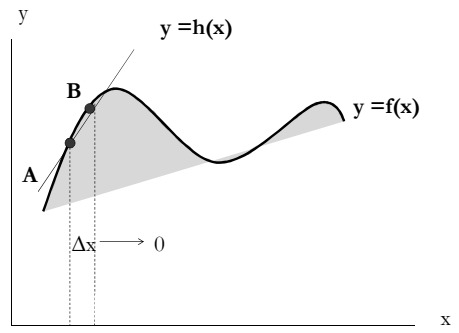


2) Slope at B



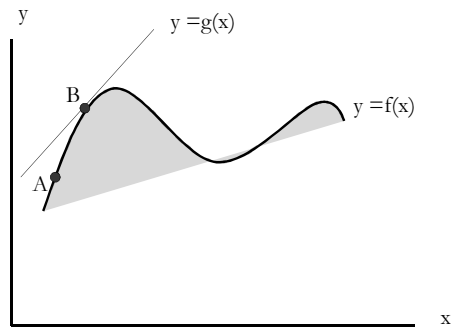


2) Slope at B

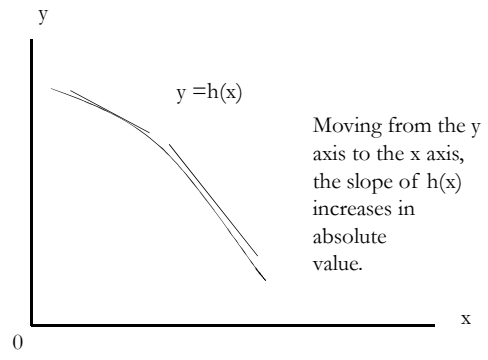


Concave and convex curves

2) Slope at B: slope of g(x)

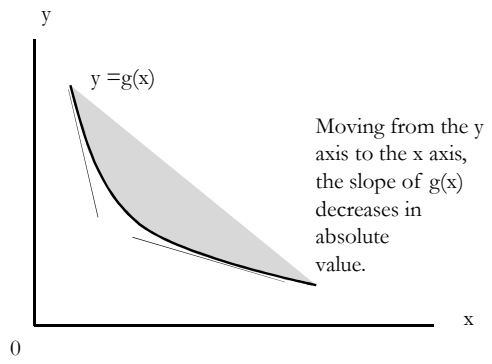


Concave curve



Moving from the y axis to the x axis, the slope of h(x) increases in absolute value.

Convex curve



Quotient rule

If A = B / C, then

% Δ in A = % Δ in B – % Δ in C.

Percentage change

If your grade changes from y_0 to y_1, then:

% Δ 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?

% Δ in grade = (35– 25) / 25 = 10/25 = 40 %

Geometric series

If S = 1 + 1/2 + 1/4 + 1/8 +. . . .

Then S converges to what?

S=2!

Product rule

If A = B x C, then

% Δ in A = % Δ in B + % Δ in C.

Geometric series in general

If

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

and $0<r<1$, then

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

Example,

If S = 1 + 1/2 + 1/4 + 1/8 +. . .

Then S converges to what?

S = a /(1 − r) = 1/ (1- ½) = 1/(½) = 2

Next stop: Chapter 2!

Another example,

If S= 7+ 7/3 + 7/9 + 7/27 +. . .

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 + …**

2) r **S = ar + ar^2 + ar^3 +….**

Subtract 2 from 1:

S - r S = a

Factor S

S (1-r)=a

Divide by (1-r)

S = a/1-r