Lecture 1

Introduction and Math Review

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Principles of Microeconomics

Helpful hints

- **Economics doesn't have to be difficult**
- **BUT... some people make**
- **it difficult for themselves.**
- **I did.**
- **If a model is unclear, don't try to think of an example from the $10 trillion US economy.**
- **Instead, apply the model to a small rural village.**
- **Most important part of any economic model are the:**
  ASSUMPTIONS
- **If you understand the assumptions of the model, you will understand the conclusions.**
- **You will NOT understand the conclusions, if you don't understand the assumptions.**
- **WHEN READING, DON'T SKIP CHAPTERS!**

Scope & Method of Economics
Why should I study economics?

- **To learn a way of thinking!** Hopefully, you'll learn to use three key concepts in your daily lives:
  - **efficient markets**
  - **marginalism** and
  - **opportunity cost**

Efficient markets

- Profit opportunities are rare because everyone is looking for them.
- **Efficient markets** eliminate profit opportunities immediately.
- Ex. You'll never find a good parking space, because if there was a good one, it would already be taken before you got there.

Marginalism

Average cost – total cost divided by quantity

- If I spend 300 hours preparing 30 lessons for you:
- You had better study!
- My average cost per lesson is 10 hours.

Sunk cost – costs that can no longer be avoided because they have already been "sunk"

- If I teach this class again next semester, I will have already sunk 300 hours into preparation.

Marginal cost – cost of producing one more unit

- Next semester I can recycle my notes, so my marginal cost per lesson will equal 75 minutes.
- Compare that with my current 10 hours!

Opportunity Cost

- We all face choices. **Resources are "scarce."**
- We can't spend more time or money than we have, so we have to give up one opportunity to take advantage of another.
- If I have a choice between earning $1000 per month by teaching this course OR earning $500 per month by working at McDonald's, then:
  - It takes me one month to ***produce*** $1000 worth of teaching.
  - It takes me one month to ***produce*** $500 worth of burger flipping.
- **Q: What's my opportunity cost of teaching?**
- **A: Half a burger flipping per unit of teaching.**

$$\frac{\text{one month per \$1000 of teaching}}{\text{one month per \$500 of burger flipping}} = \frac{\frac{\text{one month}}{\text{\$1000 of teaching}}}{\frac{\text{one month}}{\text{\$500 of burger flipping}}}$$

$$= \frac{\text{\$500 of burger flipping}}{\text{\$1000 of teaching}} = \frac{1}{2}\frac{\text{burger flippings}}{\text{teaching}}$$

I'll give a much, much better example in the next lecture.

Math – tool of econ. analysis

Point plotting (X,Y):

- **the first point in a pair lies on the X axis** (horizontal axis)
- **the second point in a pair lies on the Y axis** (vertical axis)

Let's graph the following equation in red (square points):

y = –5x + 20

Connect points:
(0,20), (1,15), (2,10), (3,5) & (4,0)

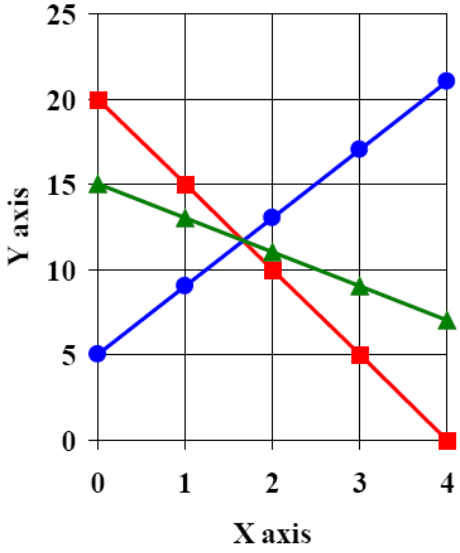
y-intercept:

- **the value of y, when x = 0**
- here it's **20**, because:
  20 = (–5*0) + 20

slope: (we'll get back to that)

More examples:

y = 4x + 5 (blue, round points)
y = –2x + 15 (green, triangle points)

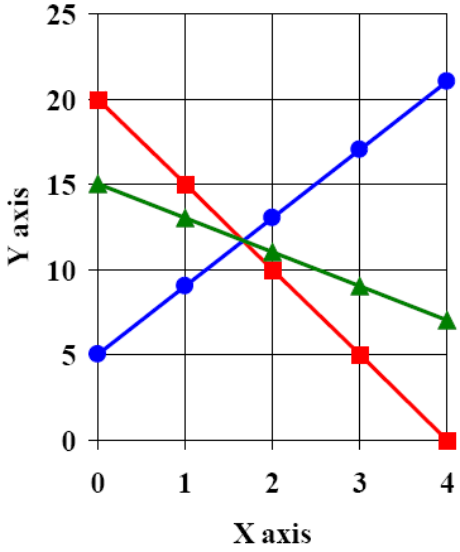


equation:	slope:	y-int:
y = –5x + 20	– 5	20
y = 4x + 5	4	5
y = –2x + 15	– 2	15

What is SLOPE?

- **the change in y divided by the change in x**
  - y = –5x + 20
  - x increases from 1 to 2
  - y decreases from 15 to 10
  - slope: $\frac{10-15}{2-1}=\frac{-5}{1}=-5$
- **positive slope:** x and y increase and decrease together
- **negative slope:** x and y increase and decrease inversely (when one rises the other falls)

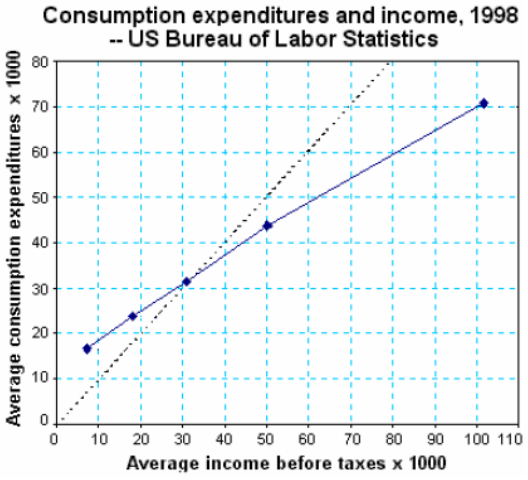
Math – tool of econ. analysis



NB: in linear functions (such as the ones here) the slope equals the value of the parameter by the variable X.

- **Why does curve slope up?**
- **When is avg. consumption greater than avg. income? How is this possible?**
- **A statistical estimation of the relationship between avg. income and avg. consumption is:**
  AC = 0.57*AI + 13,539
  where: AC = avg. consumption and AI = avg. income
- **What's the significance of the y-intercept** ($13,539)**?**
- **What's the significance of the parameter next to the AI-variable** (0.57)**?**

Analyzing Graphs



The graph illustrates relationship between average household income and average consumption expenditure. Along the 45 degree line, income equals expenditure.

AC = 0.57*AI + 13,539
marginal propensity to consume

I'm using an example from macroeconomics, because some of you have already taken a macro course. If you haven't … Don't worry. We're just reviewing basic algebra.

- **If your boss increased your income from $31,000 to $32,000, how much more would you consume?**
  - **On average, you would consume an extra $570 worth of goods.**
  - **Put differently, if you were an average person, your expenditure on consumption goods would rise from $31,209 to $31,779.**
- **Every $1000 increase in income raises consumption by $570. Why?**
- **marginal propensity to consume = 0.57** (NB: that's the slope of the line!)

- **What if you got fired? How much would you consume?**
- **Your income would fall to zero, but you'd still consume $13,539 worth of goods. After all, you've got to eat!**

- **When your income is less than $31,486 your expenditures on consumption goods exceed your income.** (You run down your savings)**.**
- **When your income is more than $31,486 your income exceeds your expenditures on consumption goods.** (You save some of your income)**.**

A few more definitions

AC = 0.57*AI + 13,539

- **Model** – the formal statement of a theory, often presented using mathematical equations
- **Variable** – a measure that can change such as consumption or income
  - **Dependent variable**
  - **Independent variable**
  - In the example above, consumption **depends** on income.
- **Parameters** – values which remain constant in an equation (here: 0.57 and 13,539)

Y = C + I + G + (X–M)

- **Ceteris paribus – "all else equal"**
- How does an increase in investment, **I**, affect national income, **Y**?
- To answer this question we must hold all other variables constant, while we determine the effect of investment alone.

Micro vs. Macro

MICROeconomics

- Study of the decision-making of individuals, households and firms
- Study of distribution of wealth

MACROeconomics

- Study of aggregates
- What factors affect:
  - Gross Domestic Product?
  - the price level?
  - the unemployment rate?

Positive vs. Normative Economics

Positive

- No judgements
- Just asking how the economy operates

Normative

- Makes judgements
- Evaluates the outcomes of economic behavior
- Policy recommendations

Economic policy

- **Positive** – economic policy starts with positive theories and models to develop an understanding of how the economy works
- Then economic policy evaluates **(normative)** on the basis of:
  - **Efficiency** – Is the economy producing what people want at the least possible cost? (quantifiable)
  - **Equity** – Is the distribution of wealth ***fair***? Are landlords treating low-income tenants ***fairly***? (non-quantifiable)
  - **Growth** – Increase in total output of the economy. Note: efficiency gains lead to growth (quantifiable)
  - **Stability** – steady growth, low inflation and full employment of resources – capital and labor (quantifiable)
- And recommends **(normative)** courses of action to policy-makers (presidents, congressmen, etc.)