Economics 1

Introduction to Economics

Summer 2003

Economics: Studying Choice in a World of Scarcity
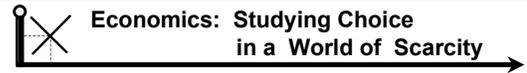
● Wants of individuals (and society) are boundless
● Cannot be satisfied with limited resources
● Therefore, having more of one thing usually means having less of another

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Economics: Studying Choice In a World of Scarcity
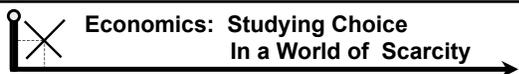
Wants vs. Resources

⬇

Scarcity

⬇

Choices

Economics: Studying Choice in a World of Scarcity
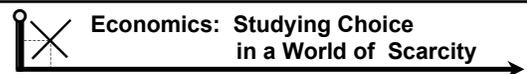
Economics is study of how people make choices under conditions of scarcity, and of the results of those choices for society.

Economics: Micro and Macro

Microeconomics

The study of individual choice under scarcity and its implications for the behavior of prices and quantities in individual markets. And, the study of the role of government when markets alone are not able to bring about the best choices for society.

Cartels & Cheating and Seasonal Demand for Oil

Opec members scheduled emergency meeting amid worries that prices were reaching unacceptably low levels. Analysts said that this was due to evidence of cheating on quotas by members and low seasonal demand for heating oil in the northern hemisphere.

[From New York Times,"Opec Plans Emergency Meeting to Discuss Pricing", April 7, 2003.]

Micro: A cartel's incentives can be understood using game theory. Seasonal demand patterns that shift the demand curve, given supply, cause fluctuating prices. When demand is low (shifts in), price falls.

Economics: Micro and Macro

Macroeconomics

The study of the performance of national economies, and of the policies that governments use to try to improve that performance

State Budget Crises

Almost every state is suffering severe budget shortfalls. States are having difficulty implementing increases in taxes in a recessionary environment. Hence, many vital programs in education and health (Medicare) are being cut. The crisis has caused drastic measures such as unscrewing every third light bulb in state buildings in Missouri! Governors requested aid from President Bush and were denied help.

[From New York Times, States, "Facing Budget Shortfalls, Cut the Major and the Mundane", April 21, 2003.]

Macro: Changes in government spending can be stabilization tool for recessionary gaps. Political wrangling can be avoided if automatic stabilizers (provisions in law) that increase spending during recessionary gaps are in place.

Consumer Spending

The commerce department reported a 0.1% drop in consumer spending for April. Consumer spending is 2/3 of US GDP. As incomes and wages are falling, any hope for increase in spending is expected to come from recent tax cuts.

[From Wall Street Journal, "Consumer Spending Dips as Shoppers Hold Back", May 30, 2003.]

Macro: Consumer spending is a vital component of GDP (which consists of spending on consumption, investment, government and net exports). Consumption spending rises with income and falls with taxes.

Economics: Models

- Models are abstract constructs (simplified descriptions) that allow us to analyze situations in a logical way
  - What is
  - What might be (predict)

- Examples of abstract models
  - Geography: Computer model of climate change
  - Biology: Growth Model for Species of Fish
  - Economics: Supply and Demand Model of Perfect Competition
  - Even a road map is a model!

Economics: Models

Graphs

Words

Equations (Algebra)

Tables

(Review Chapter 1 Appendix in Section)

Economics: Models (Example)

Table

Equation

$P = 6 - 0.25 \times Q$

Economics: Models (Example)

Daily Chicago Pizza Demand Model

Price
($ per slice)

Graph

4

3

2

Demand

Quantity
(1000s of slices per day)

8   12   16
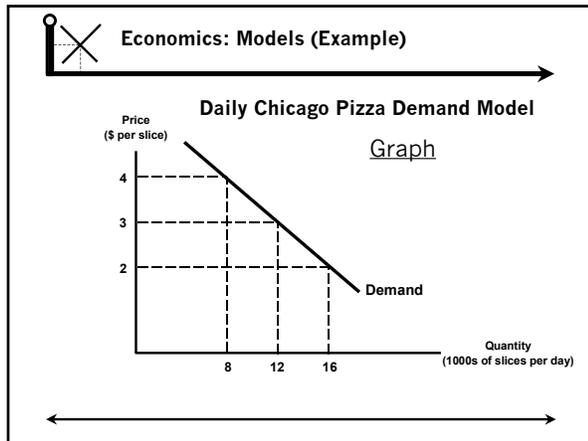
Economics: Models (Example)

Words

As price rises, quantity of pizza demanded falls. For example, as price rises from $3 per slice to $4 per slice, daily quantity of pizza demanded falls from 12000 slices per day to 8000 slices per day.

Or, for every $1 increase in price per slice, quantity demanded falls by 4000 slices per day.

Rational Behavior Assumption

Assume consistent behavior,
to get predictions from model

Rational individual means behaves consistently: has goals and does best to reach them

In other words, maximizes some criterion.

Maximize Economic Surplus

Economic Surplus of Activity =
Benefit of Activity - Cost of Activity

Cost of Activity includes Opportunity Costs

Opportunity Cost is the value of the *next best alternative activity* that must be forgone to undertake activity under consideration.

(Recall scarcity & tradeoffs!)

Cost-Benefit Principle

Cost-Benefit Principle: Individual (or firm or society) should take action if extra benefits at least as great as extra costs

Cost-Benefit Rule (Test): Individual should increase unit of activity if marginal benefit (MB) of additional unit exceeds marginal cost (MC), MB > MC.

In other words, increase up to level of activity where MB=MC.

Some Questions We Can Answer

1. Whether to do an activity?

Sometimes, can state as: whether to do first unit of activity. In other words, increase by one unit?

2. How much of activity to do?

That is, how many units to do?

3. For two or more activities, how much of each activity to do?

FB Example 1.1 (Discussion)

<u>Decision:</u> Go downtown to buy software?

(Caution: Be clear about decision. Here, it is not which one to buy, or whether to buy, or how much to buy ?)

<u>Benefit:</u> 10
<u>Cost:</u>   Must include opportunity cost. How?
      Assess value of time. Either:
      1) Do "hypothetical auction".
      2) Use wages you could earn

FB Example 1.1 (Discussion)

Let's alter the example a bit to study opportunity cost.

<u>Two Scenarios:</u>

<u>Scenario A:</u> In 30 minutes, can do RT walk downtown or stay at work and earn $24/hour

Cost = OC equal to $12. Here, MB=10 MC=12

<u>Scenario B:</u> In 15 minutes, can do RT bus trip at cost of $2 for RT fare. Or, stay at work and earn $24/hour.

Cost = $2 bus fare plus OC equal to $6.
Here, MB=10 MC=$8

FB Example 1.5 & 1.6 (Discussion)

<u>Congressional Decision:</u> Expand NASA program?
(That is , increase funding for more than the current 4 launches?

Here, it will boil down to how many units (launches) to do?

Or, we could have asked: do one more unit (ie expand)?
But, it will come down to question above

Expert Professor Banifoot assessed costs & benefits.
Testified that expansion is good since $6B benefit per launch (=24/4) exceeds $5B cost per launch (=20/4).
Good advice?

Let's look at cost schedule.

FB Example 1.5 & 1.6 (Discussion)

# of Launches	Total Cost ($ billion)	Average Cost ($ billion/launch)	Marginal Cost
0	0	0	0
1	3	3	3
2	7	3.5	4
3	12	4	**5**
4	20	5	8
5	32	6.4	12

Assume MB of every launch = 6

MC of 1st launch = 3 · 0 = 3

MC of 2nd launch = 7 · 3 = 4

How many launches passes cost-benefit test? Expand program?

Principle of Comparative Advantage

Can answer question about whether individuals (or nations) could gain from specialization?

Possible gain is greater, the greater the difference in relative opportunity costs.

Gains are possible even if one individual has absolute advantage in one or both activities over the other. Pretty Neat!

Later, we use idea to see gain from trade possible if world relative prices fall between range of OC.

FB Example 16.1 (Discussion)

- Example
  - <u>Production:</u> computers & coffee
  - (assume two good economy)
  - <u>Factors of Production:</u> Two workers who work 50 weeks/year
  - <u>Production Possibilities:</u>
    - Carlos
      - Can produce 100 lb/week or 1 computer/week
      - Can produce 5000 lb/year or 50 computer/year
    - Maria
      - Can produce 100 lb/week or or 2 computers/week
      - Can produce 5000 lb/year or 100 computer/year

Opportunity Cost

Carlos and Maria produce coffee & computers

Opportunity cost of *producing* a computer is amount of coffee production given up to produce additional unit computer. Vice versa for opportunity cost of coffee.

Opportunity Cost of Computer

Maria: 100/2 = 50

Carlos: 100/1=100

Comparative vs. Absolute Advantage

Absolute Advantage:

Carlos and Maria both can produce 100 lb coffee/week.. But, Maria can produce 2 computers per week and Carlos 1 per week. Neither has absolute advantage in coffee production. Maria has an absolute advantage in computer production.

Comparative Advantage:

Maria's OC of computers is 50. Carlos' is 100. Maria is relatively more efficient at computer production.

Maria has a comparative advantage in computers. Carlos has a comparative advantage in coffee. Why?

Production Possibilities Frontier

Production Possibilities Frontier (PPF):

Summarizes Information on production possibilities and shows how gains are possible from specialization and, later, from trade.

Horizontal Axis: Computers
Vertical Axis: Coffee

Horizontal Intercept: Max computers = 150 per year
Vertical Intercept: Max lbs coffee = 10000 per year

Points in PPF: attainable, inefficient (not max production)
Points outside PPF: not attainable

Production Possibilities Frontier

Slope of PPF:

Ask: Starting from zero computers and only coffee (at vertical intercept) who should produce first unit computer?

Maria: she can do it most cheaply. Slope should reflect Maria's OC for computer
Slope = -100/2 = - 50

When max number of computers are produced by Maria, producing more requires Carlos' input. Slope beyond 100 computers reflects Carlos' OC for computer.
Slope = -100/1= - 100

PPF: Coffee-Computer Economy (with 2 workers)
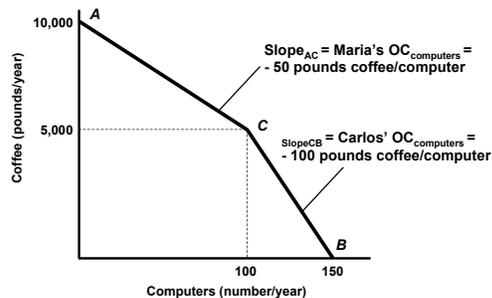
PPF: Coffee-Computer Economy (with 3 workers)

PPF: Coffee-Computer Economy (many workers)

Observations
- The OC of producing an additional unit = the slope of the line that touches the point
- OC will increase as output of on good increases
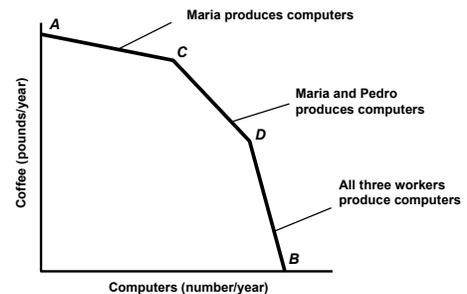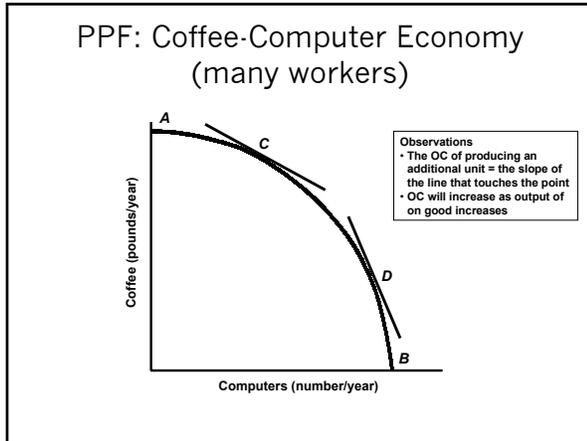
Comparative Advantage

Sources: Skill, training and talent
  Architects design buildings
  Lawyers draft contracts
Natural resource or cultural endowments
  Land & forest in Canada
  Research universities in US
Institutions
  Laws that foster entrepreneurship
Sources of Shift Out of PPF (growth, see fig 2.7):
  Increase in resources
    Investment in factories, equipment
    Population increase (opposing effects)
  Increase in productivity
    More Knowledge, education
    Change in technology

Principle of Comparative Advantage & Specialization

See Lecture 2 for re-statement and summary of discussion on specialization and its relation to points on PPF and inside PPF.

Sample Problem: For Carlos & Maria economy, calculate joint gains from specialization (gain in total production). Assume that without specialization, each spends half time on each good.

See Lecture 2 for discussion.

Summary

Individuals that make decisions based on the cost benefit principle maximize economic surplus. Decisions must pass the cost-benefit test.

Economic costs include opportunity costs.

Principle of comparative advantage enables gains when individuals (nations) specialize in activities for which they incur the lowest opportunity costs.

June 24: Optional Math Review, 6:30P, 10 Evans

June 25: Submit Questionnaire Start of Lecture