

LECTURE 2: MODELS IN ECONOMICS

Today's Topics

1. **Economists apply the scientific method.**
2. **Assumptions and models in economics.**
3. **Two simple models.**
4. **Micro v. macro.**
5. **Description v. prescription.**
6. **Why economists may disagree.**

THE SCIENTIFIC APPROACH

Observation: prices are rising rapidly

Theory: government printing money too quickly?

Test: observe data on prices and money supply over time in many countries
→ evidence of theory?

Observation: sales of airconditioners lower than normal

Theory: cooler weather the cause?

Test: observe patterns of temperature, humidity, and compare with patterns of A/C sales

USE “NATURAL EXPERIMENTS”

- **effect on national economies of a spike in the world price of oil (e.g. Gulf War I)?**
- **effect on CD sales of Napster and its demise and the growth of peer-to-peer file sharing on the Internet?**
- **effect on house prices of higher interest rates?**
- **effect on house prices of the changes in flight patterns at Sydney Airport?**

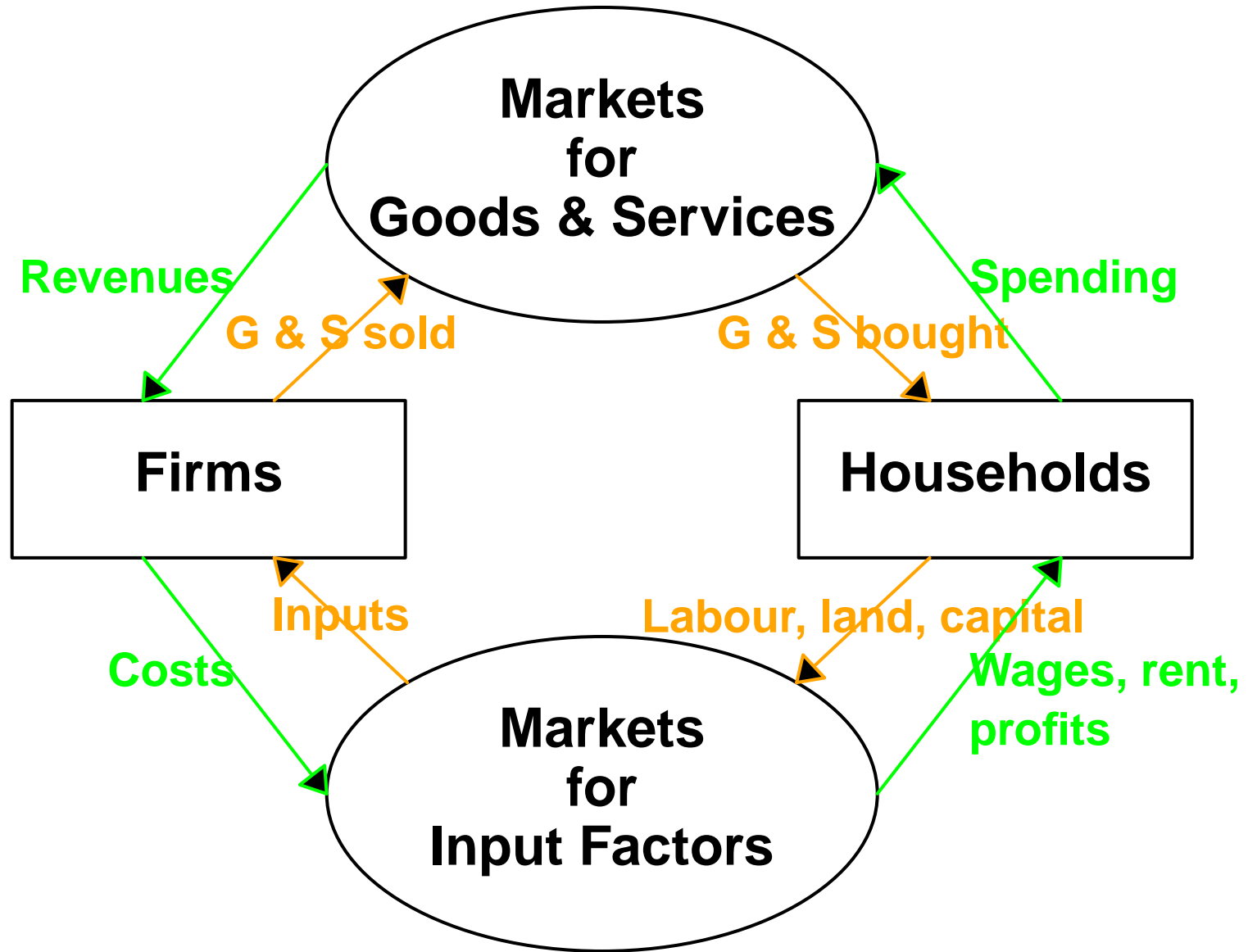
ASSUMPTIONS

- **make the world easier to understand**
 - **a 1:1 road map would not be of much use!**
- **an art in making the appropriate assumptions:**
 - **what to ignore?**
 - **over what time period?**

ECONOMIC MODELS

- **Models of words
or diagrams
or numbers
or algebra**
- **Models are built on assumptions:
simplifications of reality**

MODEL 1: THE CIRCULAR-FLOW DIAGRAM



CIRCULAR FLOW

**What simplifications does the model make?
What is missing from the model?**

- **Governments**
- **International trade**
- **Finance markets**
- **Others?**

MODEL 2: THE PRODUCTION POSSIBILITIES FRONTIER

Assume: there are only two products: cars and computers. These two industries consume all of the economy's factor inputs.

Want to plot the economy's *Production Possibilities Frontier* (PPF): the various combinations of output the economy can produce, given available input factors and production technologies.

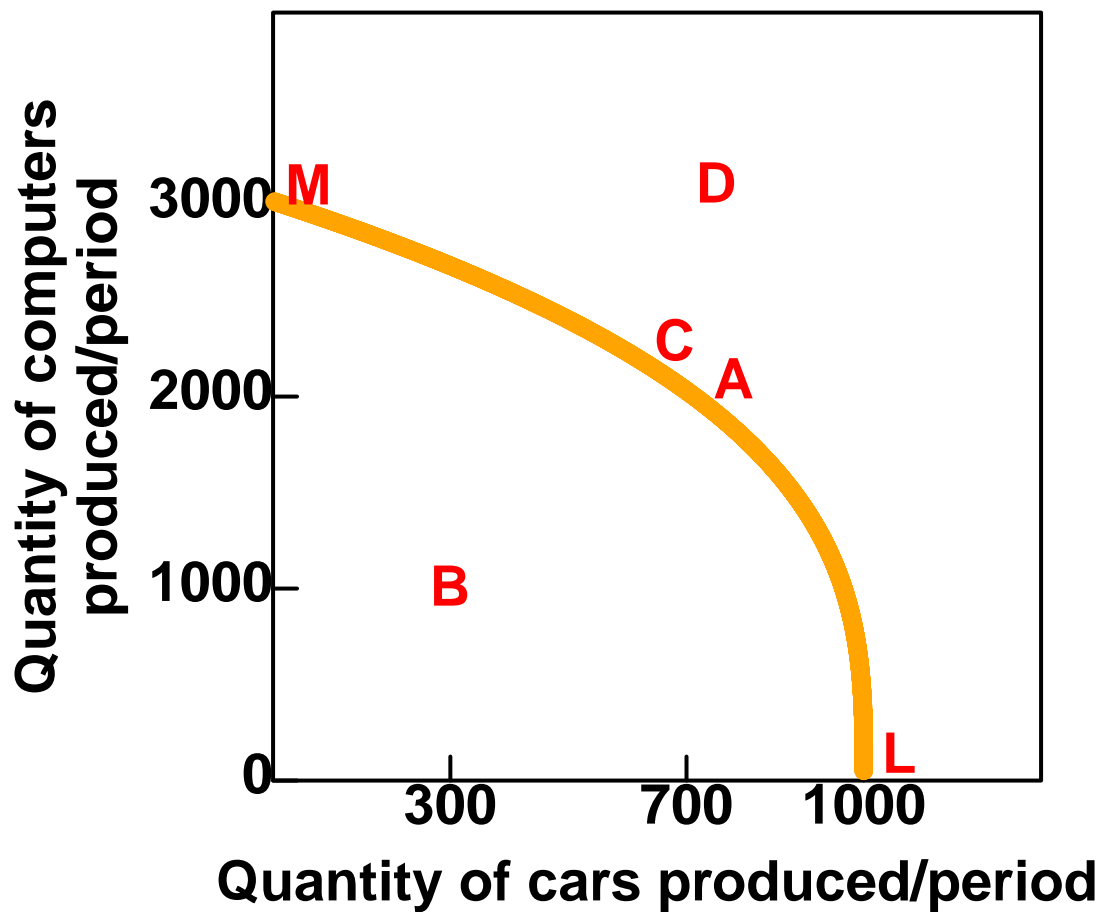
THE PPF: AN EXAMPLE

If all resources used in the car industry, then the economy produces 1000 cars/period and no computers (point L).

If all resources used in the computer industry, then the economy produces 3000 computers/period and no cars (point M).

If resources divided between the two industries, the economy could produce 700 cars and 2000 computers (point A).

THE PPF: PLOTTED



THE PPF: FEASIBILITY, EFFICIENCY

Point D not feasible: the economy does not have enough resources, and known technology does not allow existing resources to attain that rate of production.

An outcome is *efficient* if the economy is squeezing all the output it can from the scarce resources available. Points on the frontier (such as L, M, and A) are efficient; points outside (such as D) are infeasible; points inside (such as B) are inefficient.

Point B is inefficient: output could be higher in terms of cars or computers or both (to the NE).

THE PPF: TRADE-OFFS

**People face trade-offs:
possible to move from point A to point C, and
produce 200 more computers, but at the expense
of producing 100 fewer cars.**

**The cost of something is what you must forgo to
get it: at point A the *opportunity cost* of 200
computers is 100 cars.**

THE PPF: TRADE-OFFS DIFFER

The shape of the PPF reflects the fact that when the economy is focussed on making cars (near point L), the opportunity cost of computers in terms of cars forgone is low.

But when the the economy is focussed on computer manufacturing (near point M), the opportunity cost of computers in terms of cars forgone is high.

It is also possible to ask what the cost is in terms of computers forgone of making an additional car.

HOW CLOSE ARE WE TO THE PPF?

Without having a clear idea where the PPF is (it depends on available resources and technologies), can we tell whether we're near it or not? How?

Look at the markets for inputs — is there unemployment? Look at the firms — is there idle capacity?

If “Yes”, then we're not at the PPF.

Does the converse follow? No. Bad management could waste inputs — that's where you come in!

THE PPF & NEW TECHNOLOGY

The Production Possibility Frontier can shift as new technology appears. Two things happen:

- combinations of output previous infeasible (such as D) become feasible, and**
- the opportunity costs (or trade-offs) can change.**

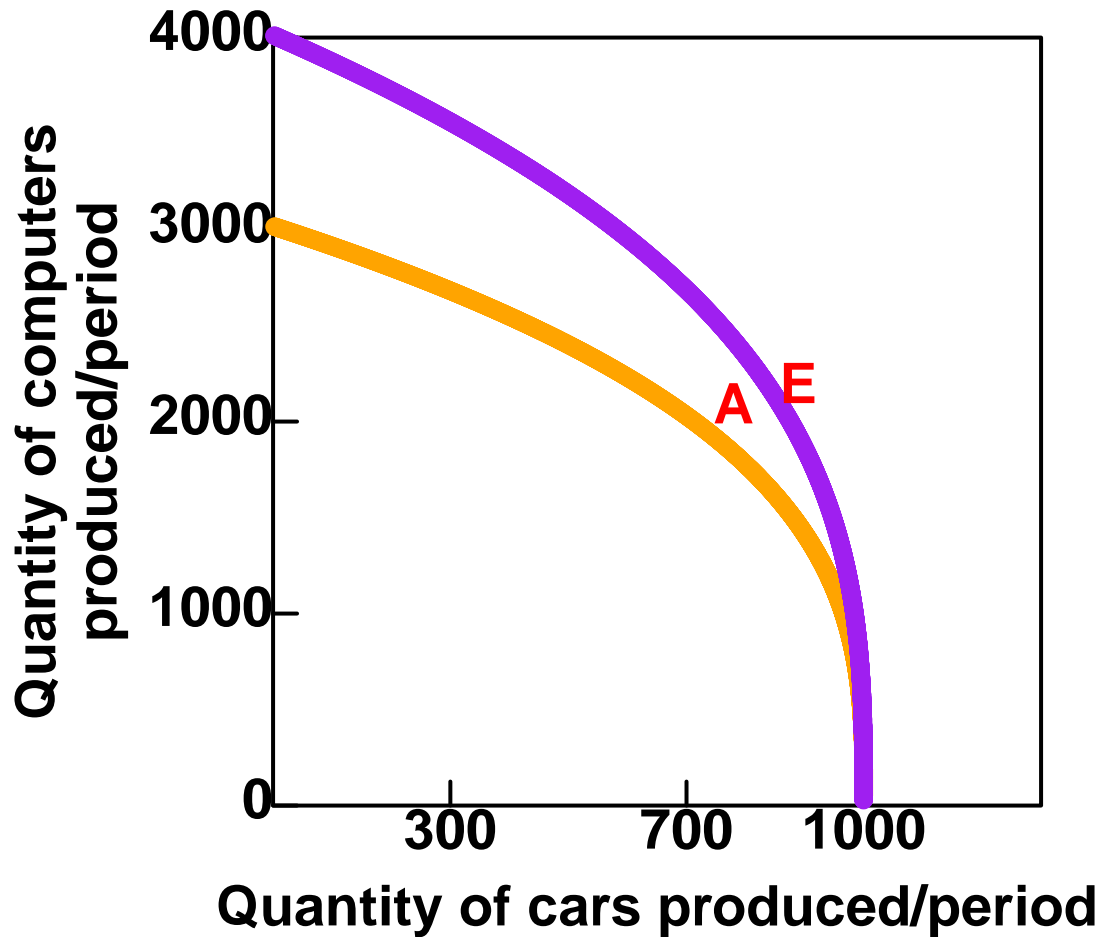
THE PPF SHIFTS

For instance, if a technological advance in the computer industry allows workers' productivity (the number of computers a worker can make per period) to rise, then the economy can make more computers for any given number of cars.

The production possibility frontier shifts outwards, as shown.

The economy might shift production from point A to point E: producing both more computers and more cars.

THE PPF SHIFT PLOTTED



MICRO v. MACRO

Microeconomics: how households and firms make decisions, how they interact through markets (for output, and for inputs), how firms in an industry interact as they compete and perhaps collude, and looking inside the firm at outsourcing and contracting.

Examples: competition policy, the profitability of different industries, changes in access to foreign markets and increased foreign competition in Australian markets.

MICRO v. MACRO

Macroeconomics: the study of the national economy, issues of growth, employment, exchange rates, interest rates.

Examples: impact of changes in monetary policy on interest rates, on financial markets, and on the real economy; changes in fiscal policy (government borrowing and spending).

THE ECONOMIST AS POLICY-MAKER

Economics can describe economic interactions (*positive economics*) to aid our understanding, and can suggest ways to improve the efficiency and equity of the economy (*normative economics*).

Economists have influenced government policy at both the micro and macro level: how to ration scarce facilities in an industry; parallel importation of books and music; monetary and fiscal policy.

But MBA students focus on descriptions of how individuals, households, and firms behave and interact, with little focus on policy-making.

ECONOMISTS ARE HUMAN, TOO

And they may disagree about policy. Why?

- **because they disagree about which is the correct positive theory about how the world works, and/or**
- **because they have different values about how the world should be (e.g. public schooling is a good leveller, v. choice of schools is better than none, and competition prevents schools' complacency).**

Nonetheless, there is widespread agreement (see Table 2.2 in the text).

Issues in Microeconomics

(Not for discussion today.)

- How can bad weather help farmers?
- How do borrowing and lending help smooth consumption across years?
- What impact does a fall in discount rates have on this pattern?
- Why do some people choose not to work?
- Why do some people choose not to work longer when their wage rates increase?
- Why is there a greater reliance on machinery in Australian construction than in Chinese construction?
- When will higher tax rates raise tax revenues, and when will such revenues fall?
- Why do some firms go out of business?
- Why do some restaurants offer “weekday specials”?
- Why do high interest rates discourage investment?

- **Why might price controls result in queuing?**
- **How could minimum wage laws result in lower employment?**
- **When might governments use quotas (which raise no revenues) rather than tariffs (which, as taxes on imports, do raise revenues)?**
- **How can growing demand for computers accompany lower prices for computers?**
- **How best should governments allocate scarce resources, such as the electro-magnetic spectrum?**
- **When is a monopoly not a monopoly? (Or, should the Australian Competition and Consumer Commission care that there is only a single manufacturer of Coca Cola in Australia?)**
- **Are Australian CD prices too high?
If so, why, and what could the Government do to reduce them?**
- **Why have slide rules disappeared from sale?**
- **Why does Telstra charge a monthly amount, plus an amount per call?**
- **How could Telstra change its billing, and how would subscribers' behaviour change?**

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- **What methods do firms use to reduce loafing on the job?**
 - **Why are employee-owned firms rare?**
 - **What is the difference between a firm's average cost and marginal cost? And does it matter?**
 - **What information does the firm need to calculate both costs?**
 - **How do decision makers respond to future uncertainty?**
 - **What if advertising were prohibited?**
 - **What if coffee drinking (or cigarette smoking) were prohibited?**
 - **What is Gresham's Law and why is it important in times when the *quality* of goods and services is not easily observed before purchase?**
 - **How to sell music? Bundled on a CD, or track by track over the Internet?**