

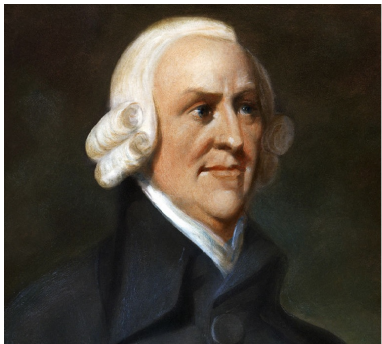
# Opportunity Cost and Comparative Advantage

Tara Shankar Shaw

IIT Bombay, Mumbai

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# Definition of Economics-Adam Smith (1793-1790)



*"Economics as a science of wealth which studies the process of production, consumption and accumulation of wealth."*

Wealth: Any goods and services which command value in exchange

Price-System

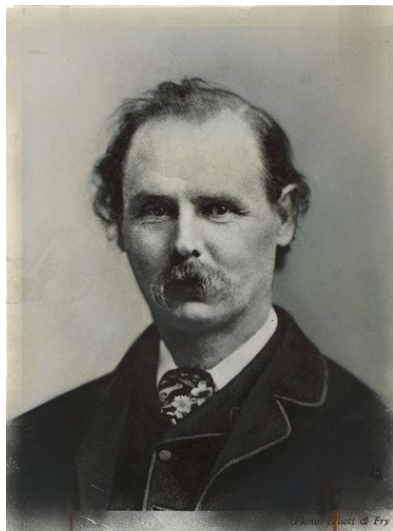
Criticism:

- Too narrow emphasizes "wealth-hunting"
- No role of choice and scarcity

Wealth of Nation

Theory of Moral Sentiments

# Definition of Economics-Alfred Marshal (1842-1924)



*"Economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well-being"*

It is a social science

Material part of welfare

Criticism:

- Welfare is not measurable
- Makes is normative

Principles of Economics

Economics of Industry

# Definition of Economics-Lionel Robbins (1898-1984)



*"Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses."*

Unlimited want and scarce resources

Focus in Optimization

Positive science

Criticism:

- Downplayed it as social science
- Ignores human welfare
- Ignores normative aspect

Essay on the Nature and Significance of Economic Science

# Definition of Economics

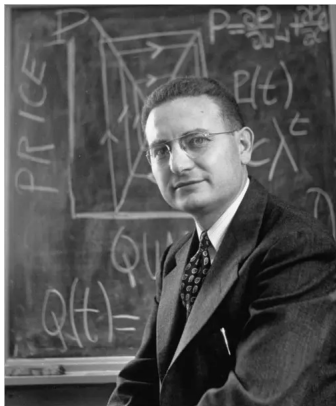


*"Economics is a science of thinking in terms of models joined to the art of choosing models which are relevant to the contemporary world. It is compelled to be this, because, unlike the typical natural science, the material to which it is applied is, in too many respects, not homogeneous through time. The object of a model is to segregate the semi-permanent or relatively constant factors from those which are transitory or fluctuating so as to develop a logical way of thinking about the latter, and of understanding the time sequences to which they give rise in particular cases."*

Correspondence with Roy Harrod

4-07-1938

# Definition of Economics-P.A. Samuelson (1915-2009)



*"Economics is the study of how men and society choose, with or without the use of money, to employ scarce productive resources which could have alternative uses, to produce various commodities over time, and distribute them for consumption, now and in the near future, among various people and groups in society"*

# Definition

Economics is the science of making choices. Modern economics is a science of rational choice or decision-making under conditions of scarcity.

# Is Economics Science?

- 16th century philosopher Francis Bacon who coined the term science

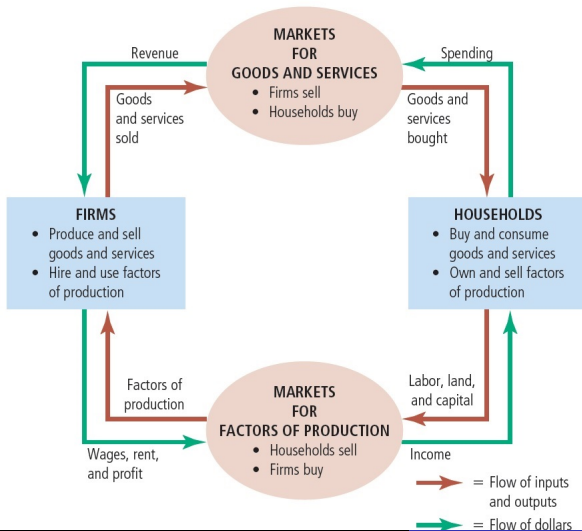
*Science* is the pursuit of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. Science Council, 2009

- *Scientific investigation*: Systematic method of probing for an answer through scientific method
- *Scientific Method*: A method of investigation in which a problem is identified, relevant data are gathered, a hypothesis is formulated, and the hypothesis is empirically tested.
- Economics as social science can at best predict aggregative behaviour but not individual behaviours
- Economics is more akin to "Engineering" where the quest is to find solution to specific problem rather than a general solution



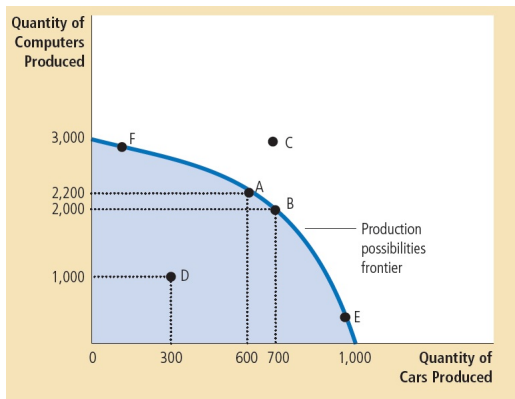
# Models 1-Circular Flow Diagram

Model simplifies reality to improve understanding



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Model simplifies reality to improve understanding



# Role of Economists

- Individuals are rational or bounded rational
- Given that economic agents are rational economist study incentives

Incentive is something that motives an agent to take an action. It can involve either satisfying cultural norm or financial rewards or punishment

Incentives changes due to culture, time, space

A general universal solution are not possible

- Economist observe a phenomena → Defines the problem → Studies the incentive structure (Develop Models) → Make hypothesis; Collects data → Test the hypothesis.
- Examples:
- The incentive structure can be manipulated by price-system determined from a market

# Role of Economists-Examples

A youtube video lecture by—Robert Litan

<https://www.youtube.com/watch?v=4SkoG9FWP4w>

Does incentive always work?

Unintended consequence of reform:

<https://www.youtube.com/watch?v=xzdeZdg6nxo>

- Microeconomics and Macroeconomics
- Positive and Normative

# Principle of Economics-1

- People face trade-offs
  - Efficiency and Equality trade-off
- Cost of something is what you give up to get it
- Rational People always think at margin
- People responds to incentive
- Trade can make everyone better off
- Market are efficient way to organize economic activity
  - Market Economy: an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services

- Governments can sometimes improve market outcomes
  - Market Failure
  - Externality
  - Market Power
- A Country's Standard of Living Depends on Its Ability to Produce Goods and Services
- Prices Rise When the Government Prints Too Much Money
- Society Faces a Short-Run Trade-off between Inflation and Unemployment

**Firms** Firm is an organisation that combines various factors of production to produce goods and services.

**Firms** directs the resources to achieve stated goal of the enterprise

- Direct the effort of others

- Purchase Inputs

- Making Decision

Role of Exchange

Scarcity of resources

Exercise of Choices

Specialization and Mutual Exchange of Goods and Services

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# Exchange and Trade

Trade is beneficial between individuals.

Trade is beneficial even between countries that have large disparity between resource and income.

This can be achieved by individual or international specialization

Barack Obama: Feb 23 2012

*"It provides tax break for moving jobs ad profits overseas and hits companies that choose to stay in America with one of the highest tax rate in the World..."*

Patrick Buchanan: Feb 14 1996

*"American rose growers are the casualties of free trade policies that my friend-excuse me Senator Dole-has supported again and again"*

# Opportunity Cost

To produce rose for the winter market in US the economy has to use Green houses that consumes resources like energy, capital etc. which could be used to produce other good like computer

## Opportunity Cost

**“Value of the next best alternative that is forgone for making a choice”**

What is the reason for Opportunity Cost?

# Example

In US given the amount of resource, it can be used to produce 10mn Kg of roses or 100,000 computers.

In Colombia the same amount of resources used to produce 10mn Kg of roses can produce . . . . . computers.

What is the opportunity cost of producing 10mn kg of roses in USA and Colombia?

Question: Which country should produce roses from the used of World resource? Why?

Efficiency

# Comparative Advantage

**Comparative Advantage** “A country/individual has CA in producing a good or service in terms of other goods or services in which it has lowest OC.

**Important:** *Trade/Exchange between country/individual can benefit both countries/individual if each country/individual exports/exchanges the good in which it has CA.*

## Questions

How CA or lowest OC is determined?

What are the determinant of CA?

Is there any gain from trade/exchange?

If country/individual exchanges goods or services what are the terms of trade?

# Comparative Advantage-1

CA in a production/specialization for a country/individual is determined by the efficiency of the use of its factor of production/s that is determined by its technology

Consider the following Example:

There are two countries “home” and “foreign”

One factor of production, say labor  $L$ , that is limited in supply

Both country can use labor to produce either or both of the

Technology is each country is determined by labor productivity of producing each good in each country.

Let

1 unit of labor/labor-hour can produce 1pb of Cheese

1 unit of labor/labor-hour can produce 2Gallon of wine

# Productivity

Let  $a_{LC}$ : Number of labor/labor hour required to produce one unit of cheese in the home economy

Let  $a_{LW}$ : Number of labor/labor hour required to produce one unit of cheese in the home economy

Let  $Q_C$ : Total production of Cheese in home

Let  $Q_W$ : Total production of Wine in home

Total labor used in the production of Cheese in Home economy is .....

Total labor used in the production of Wine in Home economy is .....

Total labor used in the production in the home economy.....

# Production Possibility Function(PPF)

Production possibility frontier: It is the maximum amount of goods or services that an economy can produce given the amount of resource.

Draw the PPF; Interpret the slope of the PPF.

Opportunity Cost of Good Cheese: Is the amount of W that has to be given up to produce 1 unit of Wine and *vice-versa*

$a_{LW}$  unit of labor can produce — 1 gallon of Wine

1 unit of labor can produce —  $\frac{1}{a_{LW}}$  gallon of Wine

$a_{LC}$  unit of labor can produce —  $\frac{a_{LC}}{a_{LW}}$  gallon of Cheese

Thus, the OC of producing 1 unit of **Cheese** is  $\frac{a_{LC}}{a_{LW}}$  **Wine**.

The OC of producing 1 unit of **Wine** is .....

The OC of 1 unit of Cheese is  $\frac{a_{LC}}{a_{LW}}$  is Wine.

**What is the Intuition:**.....

The foreign economy

Let  $a_{LC}^f$ : Productivity of labor in the production of cheese in the foreign economy

Let  $a_{LW}^f$ : Productivity of labor in the production of Wine in the foreign economy

Let  $Q_C^f$ : Total production of Cheese in foreign

Let  $Q_W^f$ : Total production of Wine in foreign



# Home Economy CA

The OC of the producing cheese in the foreign country in terms of the Wine is  $--- \frac{a_{LC}^f}{a_{LW}^f}$

Suppose

$$\frac{a_{LC}}{a_{LW}} < \frac{a_{LC}^f}{a_{LW}^f}$$
$$OC_C < OC_C^f$$

**Home country has CA** in the production of cheese and it should **specialize** only in the production of cheese.

**Intuition:** *The amount of labor (scarce resource) that is required to produce cheese relative to wine is less in home compared to the foreign country*

In which commodity the foreign country have CA?

## **Absolute Advantage (AA)**

*If a/an country/individual can produce a unit of good with less labor(or the scarce resource) than another country/individual then we say that the country/individual has absolute advantage in the production of good and service*

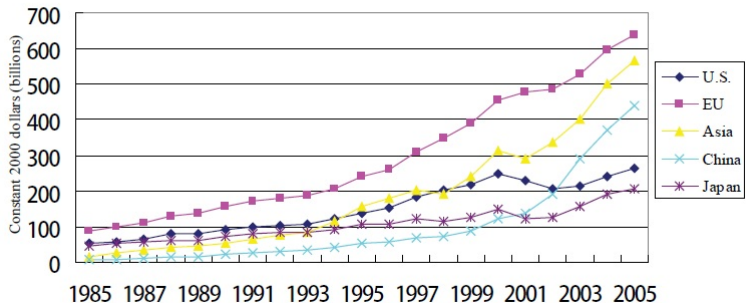
Suppose  $a_{LC} < a_{LC}^f$ ; Home economy has AA in the production of cheese

Also,  $a_{LW} < a_{LW}^f$ ; Home economy has AA in the production of Wine

Does it implies that the home country has **CA** in the production of Cheese and Wine.

# Is CA Static for a Country

Figure 1 Export volume of advanced-technology manufactures, by region/country, 1985–2005



# Conclusion

Individual/Country produces goods and specializes in the production of that good in which it has CA.

CA is determined by the technology in production of the good and services which determines the productivity of the factors of production

A country/individual has CA in the production of good in which it uses the factor or production more efficiently than the other good.

## **CA of India between 1995 – 2005**

Textile

Natural and Cultured Pearl

Footwears and Handgears

Raw hides and skin

Vegetable products

# Problem-1

Suppose home country can produce textile and computer with a given amount of labor. The productivity of labor in the production of textile is 20 man-hour and the productivity of labor in the production of computer is 10 man hour. The foreign country can also produce textile and computer with the given amount of labor. The productivity of labor in the foreign country in the production of textile is 40 man-hour and the productivity of labor in the production of computer is 20 man hour.

Do any country have CA in the production of Textile.

Suppose there is a technological innovation and the productivity of laborers in the production of computers increased. A computer can be produced in 5 man-hour.

Does the technological advancement made the home country competitive in the production of computer.