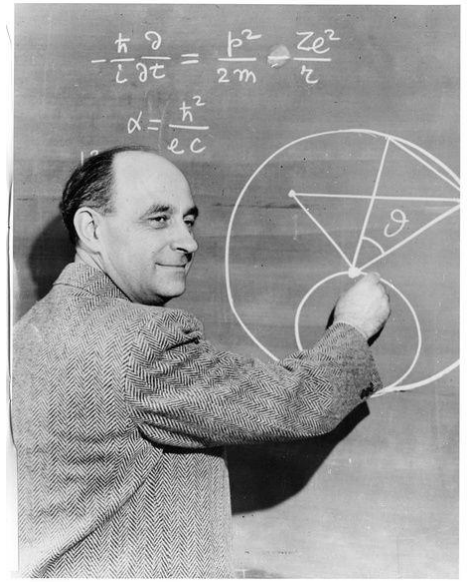
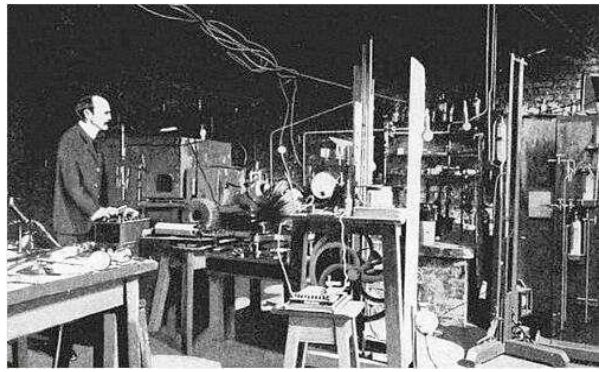
Thinking like an Economist

How do scientist approach the world?





Natural Science and Social Science

- **Natural science**: A science, that deals with the objects, phenomena, or laws of nature and the physical world. E.g. Physics, Chemistry, Biology, Astronomy, etc.
- **Social Science**: academic disciplines that study human society and social relationships. E.g. Economics, Philosophy, Political science, Psychology, etc.

It may seem like they are very different, but The essence of science, however, is the **scientific method**—the dispassionate development and testing of theories about how the world works.

Observation, theory and more observation

The Social Scientific Method

Economic deals with human society and behaviour, its approach to studying human society is based on the social scientific method.

To observe:

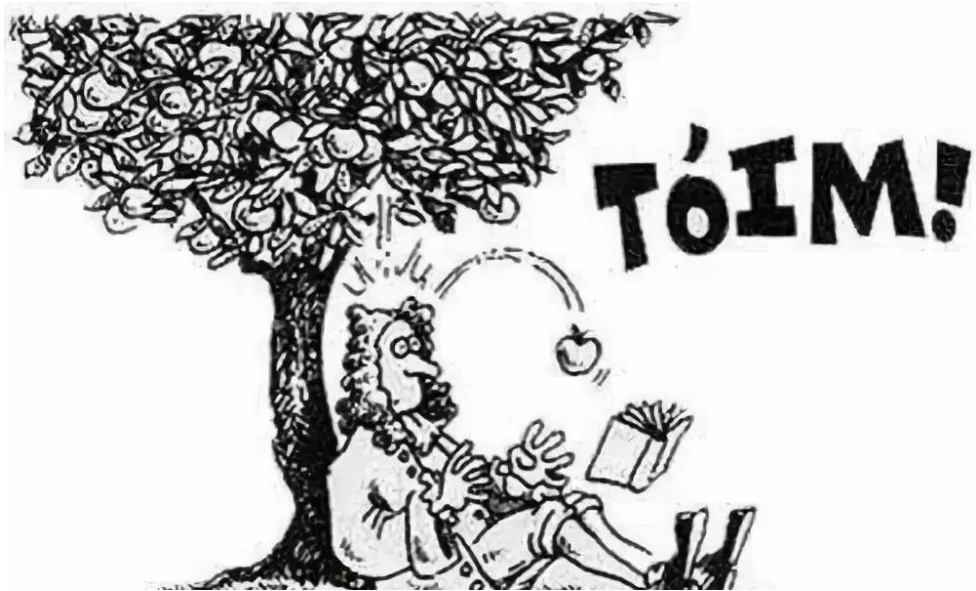
- Newton: apple falling from the tree.
- Economist: The price of commodities is raising.

Theory:

- Newton: Theory of universal gravitation
- Economist: inflation theory – when government launched too much currencies, high inflation occur, the price level will go up.

More observation:

- Newton and following scientist: test the theory and it is valid in most cases.
- Economist: Collect data from different country, analyze the relationship between price and national currency amount.



The use of empirical evidence

- Natural scientists often perform experiment to test their hypothesis.
- Economist compare the predictions of the hypothesis with real-world events, based on **empirical evidence**. They collecting data on the variables in the hypothesis, and examining whether the data fit the relationships stated in the hypothesis. (econometrics)

Empirical evidence refers to real-world information, observations and data that we acquire through our senses and experience

The use of logic

- Originally from Greek words means “reason”, it is a method of reasoning.
- Making a series of statements each of which is true if the preceding statement is true.
  1. *When it rains there are clouds in the sky.*
  2. *It is now raining.*
  3. *Therefore there are clouds in the sky*

  The truth of the third statement is based on the truth of the previous statements. we can say that the third statement is logical, as it is based on logic.

The scientific method is based on the **use of logic.**

Hypotheses, theory and Law

Hypotheses: is an educated guess, usually indicating a cause-and-effect relationship about an event. Hypotheses are often stated as: if . . ., then . .

Theory: A theory is a general explanation of a set of interrelated events, usually (though not always) based on several hypotheses that have been tested successfully. A theory is a generalization about the real world that attempts to organize complex and interrelated events and present them in a systematic and coherent way to explain why these events happen.

Law: is a statement that describes an event in a concise way, and is supposed to have universal validity. laws are much simpler than theories, and do not try to explain events the way theories do.

Model

Models are a **simplified representation** of something in the real world to understand or explain real-world situations.

- represent **only the important aspects**
- ignoring unnecessary details
- focus on important relationships

Economists as model builders

In economics, models are:

1. Illustrated by use of diagrams showing the relationships between important variables.
2. Illustrated by use of mathematical equations in advanced economics.

Assumptions in economic model-building

In scientific method step 4:make assumptions

1. **Ceteris paribus** (Latin expression means “other things equal”)
   - ✓ Excepting the variables we are studying, everything else does not change.
   - ✓ The aim is to isolate the effect of each one of the variables.

2. **Rational economic decision-making**
   - ✓ Individuals are assumed to act in their best self-interest, trying to maximize the satisfaction they expect to receive from their economic decisions.
     a. Producers try to maximize the profits
     b. Workers try to secure the highest possible wage when they get a job
     c. Investors in the stock market try to get the highest return
     d. ··· etc.

Economist plays different roles

- As a **scientist**, economist make **positive statement** to describe and explain how things in the economy actually work.
- As a **policy adviser**, economist make **normative statement** to advise how things ought to work. (subjective)

Positive statements

- Positive statements are descriptive and objective.
- May be true or may be false.
- Positive statement are usually used to:
  - ✓Describe something
  - ✓Describe a Cause-and-effect relationship, such as in a hypothesis
  - ✓Make Statement in a theory, model or law.

Normative statements

- Normative statements are subjective and prescriptive.
- Cannot be true or false, it can only be assessed relative to beliefs and value judgement.

Positive economics

- **Positive economics** is the study of economics based on the scientific method, used to arrive at knowledge about the economic world. It tries to **describe**, **explain** and **predict** economic events by use of hypotheses, theories and models, it's about something that is, was or will be.
- Based on the use of logic. It is a method of reasoning, which involves making a series of statements each of which is true if the proceeding statements are true.
- It's may be true or false.
  - "the inflation rate is 4%" → describe
  - "When the price increase, the quantities of demand will fall" →explain
  - "the housing price will increase next month." → predict

Normative economics

- **Normative economics** forms the basis of value judgements about what economic goals and economic policies **should or ought to be**.
  - What is good or bad
  - What should happen
  - What is right or wrong

- Value judgements in normative economics are important for economic policy-making
  - “The unemployment rate should be lower”
  - “the government should make the covid-19 test free of charge”

- Identify the important economic problems that should be addressed and recommend policies to solve them. Economic policies are government actions that try to solve economic problems.
- It cannot be true or false. They can only be assessed relative to beliefs and value judgements.

The role of positive economics

1. **The use of logic** (a method of reasoning)
   - "when it rains there are clouds in the sky"
   - "It is now raining"
   - "Therefore there are clouds in the sky."

   →the truth of the 3rd statement is based on the truth of the previous statements.

2. **The use of hypotheses**
   - A hypothesis is an educated guess, usually indicating a cause-and-effect relationship about an event. It often stated as: if…, then…

   Step 1: Economists make observations of the world around them and identify a question they would like to answer.

   Step 2: make a hypothesis about how the variables are related to each other.

   →A cause-and-effect relationship
   - "If the price of oranges increases, then the quantity of oranges consumers want to buy each week will fall."

The role of positive economics

3. The ceteris paribus assumption

- An assumption is a statement that is supposed to be true for the purposes of building the hypothesis.
- Ceteris paribus – 'other things equal', all other things are assumed to be constant or unchanging.
- It helps us to isolate and study the effects of one variable at a time.

4. The use of empirical evidence

- Empirical evidence refers to real-world information, observations and data that we acquire through our senses and experience.
- Unlike natural scientist, there are limited possibilities for experiments for economists.
- Economists rely on a branch of statistics called econometrics to test hypotheses.- collecting data on the variables in the hypothesis and examining whether the data fit the relationships stated in the hypothesis.
- Compare the predictions of the hypothesis with real-world outcomes
  →Accept or reject the hypothesis

The role of positive economics

5. Theories in relation to hypotheses

- A theory is a general explanation of a set of interrelated events, usually (though not always) based on several hypotheses that have been tested successfully. → it attempts to make predictions.

Positive & Normative economics work together

- positive views about how the world works affect normative views about what policies are desirable.
- Much of economics is positive: It just tries to explain how the economy works. Yet those who use economics often have normative goals: They want to learn how to improve the economy.