

# 個體經濟學原理與實習

## Chapter 1

### The Principles and Practice of Economics

江淳芳 Fall 2021



# Outline

- 1.1 The Scope of Economics
- 1.2 Three Principles of Economics
- 1.3 Optimization
- 1.4 Equilibrium
- 1.5 Empiricism
- 1.6 Is Economics Good for You?



# Evidenced-Based Economics Example: Is Facebook free?



# The scope of economics

- 經濟學家研究人類行為。
- 幾乎所有的行為都是由選擇形成的。
- Economics studies **how agents make choices** among **scarce resources** and **how those choices affect society**.



# 瞭解人們怎麼做選擇有什麼用呢？

## 實然面與應然面的經濟分析

### 1. Describe what people actually do (**Positive Economics**)

- Describing what has happened, or predicting what will happen. ( predictions should be testable).
- ex: In Taiwan, top1 % households earn 15% of the total income share.  
(objective statement)

### 2. What People **Ought** to do (**Normative Economics**)

- It depends on one's opinion or preference, and is subjective.
- ex: the top 1% should not earn more than 10% of the total income share. We should change our tax system.  
(subjective statement)



# Normative Analysis and Public Policy

Sometimes public policies create winners and losers,

- 愛鳥人士的候鳥保護區，可能是附近居民眼中的蚊子沼澤。
- 文化人士心中的古蹟，可能是附近居民眼中妨礙發展的廢墟。
- In these cases, policy makers will need to make some ethical judgements to conduct normative analysis.
- There are very few policies that make everyone better off.



- Ex: Society faces an important tradeoff:  
*efficiency vs. equity*
- **efficiency**: getting the most out of scarce resources
- **equity**: distributing prosperity fairly among society's members
- Tradeoff: To increase equity, can redistribute income from the well-off to the poor.  
But this reduces the incentive to work and produce, and shrinks the size of the economic "pie."
- Ex: 貿易協定

Be open minded !!



# Three Principles of Economics:

1. Optimization = making the best choice possible with given information
2. Equilibrium = when everyone is optimizing; no one would be better off with a different choice
3. Empiricism = using data to figure out answers to interesting questions





# The First Principle of Economics: Optimization

**Optimization** = making the best choice possible  
with given information

- People don't always succeed in optimizing—we are not calculating machines—but people generally try to optimize.
- We learn from our mistakes.



# What is the optimal level of crime?



# Optimization: tradeoff and budget constraint

- To understand optimization, we need to know:
- Trade-off 取捨
- Budget constraint 預算限制  
(金錢的限制，時間的限制)
- Opportunity Cost 機會成本



# Optimization: tradeoff and budget constraint

- Budget constraint(預算限制):the set of things a person can choose without breaking her budget.
- Ex: 星期五下午的五個小時，可以拿來休閒或工作

**Exhibit 1.2** Possible Allocations of 5 Free Hours (Round Numbers Only)

Each row reports a different way that a person could allocate 5 free hours, assuming that the time must be divided between surfing the Web and working at a part-time job. To keep things simple, the table only reports allocations in round numbers.

Budget	Hours Surfing the Web	Hours at Part-Time Job
5 hours	0 hours	5 hours
5 hours	1 hours	4 hours
5 hours	2 hours	3 hours
5 hours	3 hours	2 hours
5 hours	4 hours	1 hours
5 hours	5 hours	0 hours



# Optimization: opportunity cost

- Making decisions requires comparing the costs and benefits of alternative choices.
- The **opportunity cost** of any item is the best alternative activity that must be given up to obtain that item.
- It is the relevant cost for decision making.
- Ex: 今天晚上同時有五月天 蘇打綠 草東的演唱會
- 時間票價都一樣 只能去一場
- 選了草東, 機會成本就是其他兩個裡面你比較喜歡的那一個



# Optimization: opportunity cost

## More Examples:

The opportunity cost of

- going to college for a year is not just the tuition, books, and fees, but also the foregone wages.
- seeing a movie is not just the price of the ticket, but the value of the time you spend in the theater.
- coming to my class for three hours....

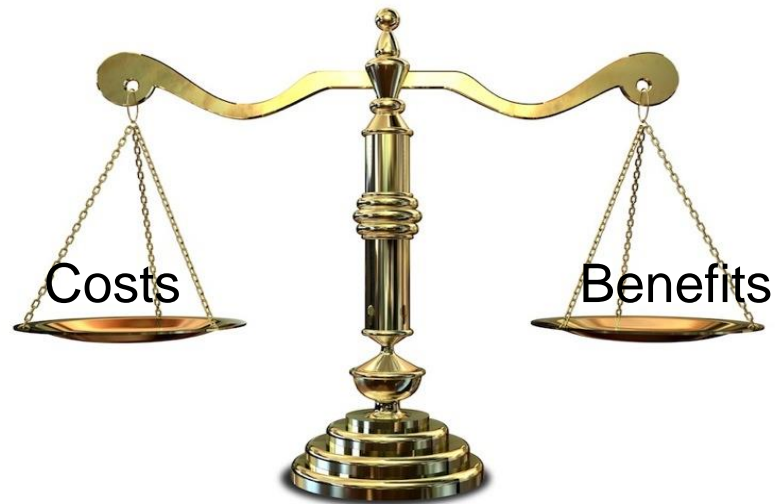
Economist usually assign monetary value to an opportunity cost.

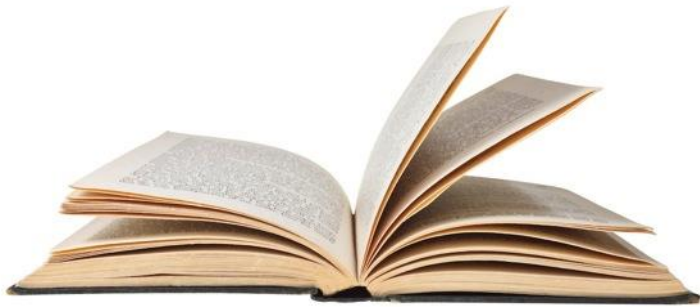
Say the average wage is NT\$200(or \$10 in US ), per hour. If we ignore all the non wage attributes(risk, commute time,) then the opportunity cost of an hour is NT\$200.



# Optimization: cost-benefit analysis

- The process of using the concept of opportunity cost to solve optimization problem is called cost-benefit analysis.
- It adds up costs and benefits using a common unit of measurement, i.e. dollar.



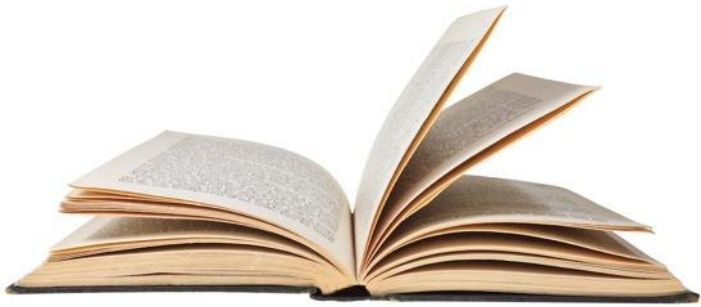


You want to buy a \$20 book. If you drive 3 miles, you can buy it for \$10.

You want to buy a \$1,000 computer. If you drive 3 miles, you can buy it for \$990.







What does it cost you  
to not drive to buy the  
book?

What does it cost you  
to not drive to buy the  
computer?

**\$10!**



# Evidenced-Based Economics Example:

## Is Facebook free?



# Is Facebook free?

In 2013, FB users spend 15mins on FB per day, but for college students: 1hr per day.

In 2016, FB users spent over 500 million hours on FB each day.

What's the opportunity cost of

- FB 大約一半來自已開發國家。假設他們每小時時間成本 \$9 (最低工資)，另一半來自開發中國家，薪水比較低，假設機會成本約為 \$1。
- 平均大概是 \$5/hour
- $250 \text{ millions/day} * \$5 \text{ day} * 365 = 450 \text{ billions}$
- = 台灣GDP
  
- $\text{Your cost} = \text{NT}\$200 * 365 * n \text{ hr} = 73000 * n$



So....



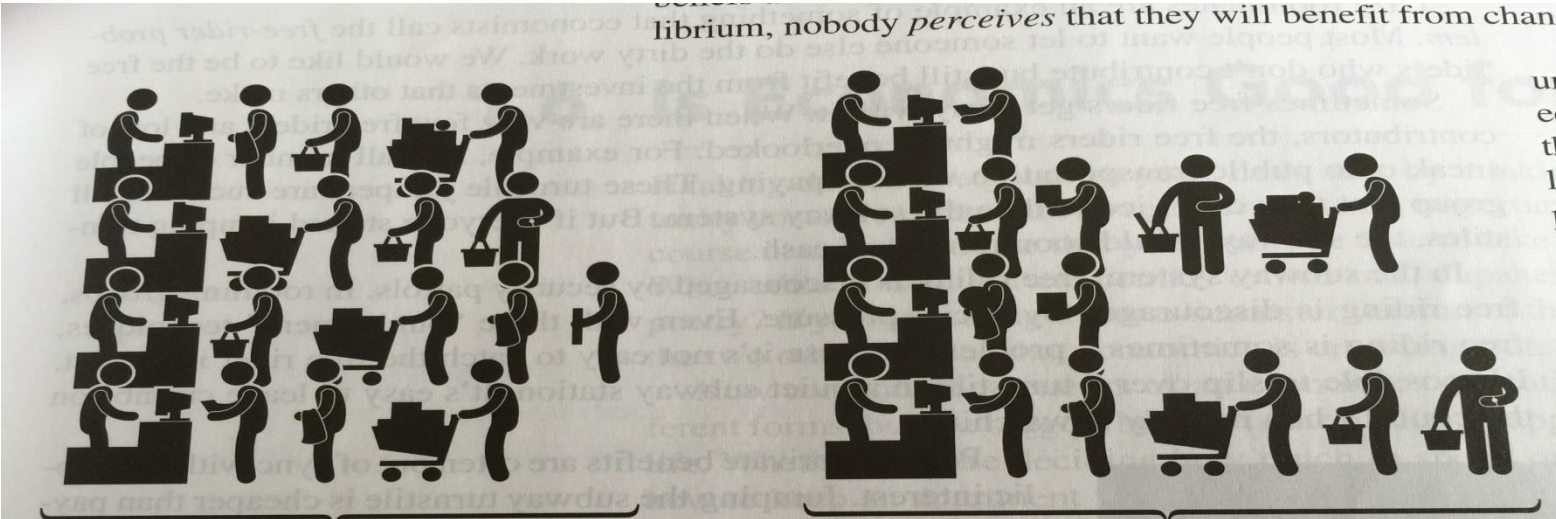
**CLOSE  
FACEBOOK  
AND OPEN  
YOUR  
BOOK**



# The Second Principle of Economics: Equilibrium

A situation in which no one benefits by changing his/her behavior

librium, nobody *perceives* that they will benefit from chang



**In equilibrium**  
In equilibrium, everyone is simultaneously optimizing, so nobody would benefit by changing his or her own behavior.

**Out of equilibrium**  
thing that you can see, including the number of items i  
mistis say that “in equilibrium” all of the checkout lines  
When the wait times are expected to be the same, no sl  
In other words, nobody perceives that they will benefit  
Here’s another example. Suppose the market price  
line market is in equilibrium. Three conditions will



# The Second Principle of Economics: Equilibrium

- . In most economic situation, you are not the only one trying to optimize. Other people's behavior will affect you, too.
- . So you change your behavior, affect other people, he/she optimize according to the new condition, it affect you and other people...etc.
- . 當所有人都已經做出對自己最佳的決策，沒有一個人可以選出對自己更好的選擇時，我們就達到了一個均衡。



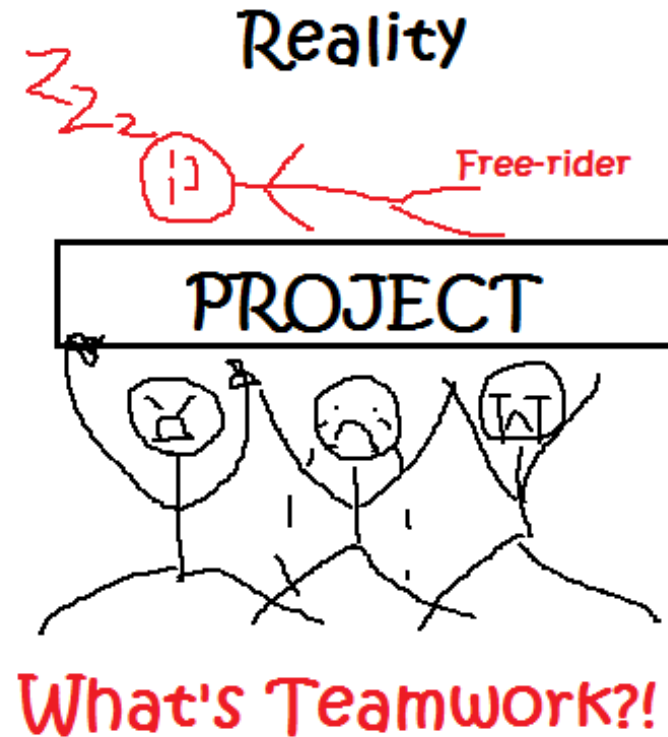
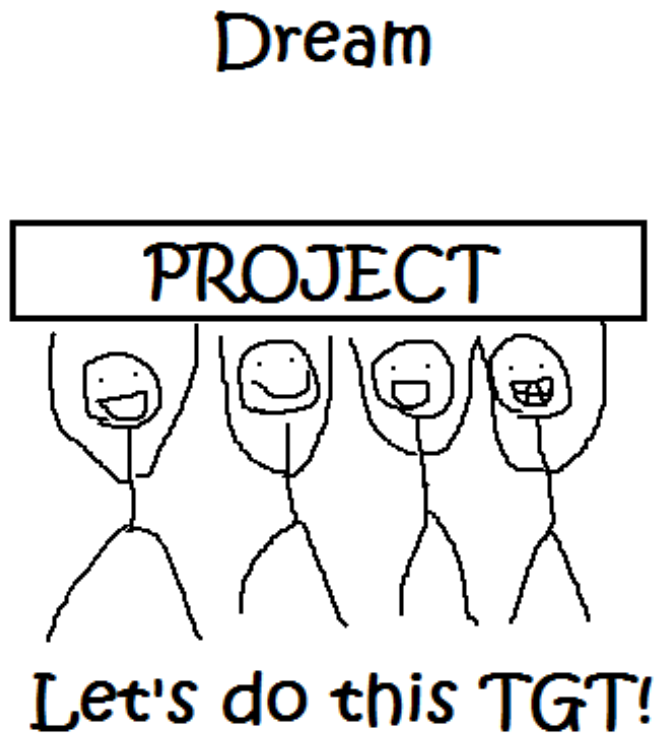
# The Free Rider Problem

- 經濟學家傾向於分析均衡的狀態，比如說完全競爭市場下的市場均衡。有些時候，均衡狀態不見得是對社會最好的狀態。
- **Using the concept of equilibrium to illustrate the free rider problem**
- **Free rider problem** exists when an individual or group is able to enjoy the benefits of a situation without incurring the costs.



# The Free Rider Problem

- For example: The free-rider problem in a group project.





# How do we deal with this Free Rider?

Considering problem of lazy roommates,

- Equilibrium analysis helps us design special institutions—like **financial contracts**— that reduce or even eliminate free riding.
- For example, what would happen in the rooming group if everyone agreed to pay \$5 per week so the roommates could **hire a cleaning service**?
- It would be easier to enforce \$5 weekly payments than to monitor compliance with the rule “clean up after yourself, even when nobody is here to watch you.”

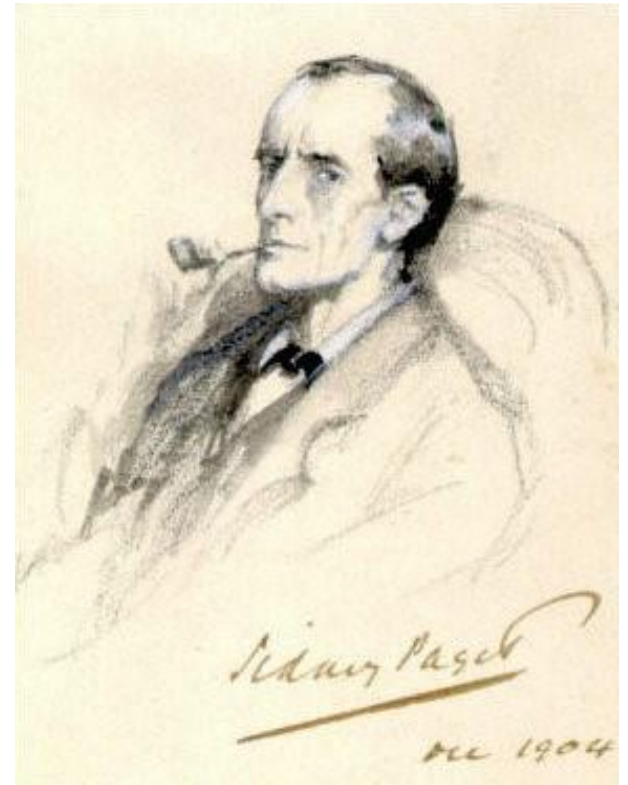


# The Third Principle of Economics: Empiricism

*“It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.”*

*-- Sherlock Holmes*

*A Scandal in Bohemia*



# Empirical Analysis

- Economists test their ideas with data. Such evidence-based analysis is called empirical analysis or empiricism.
- Economists use data to determine whether our theories about human behavior— like optimization and equilibrium— match up with actual human behavior.
- We want to know if our theories **fail** to explain what is happening in the world.
- In that case, we need to come up with **better theories**.
- That is how economic science, and **science in general**, progresses.
- Economists are also interested in understanding what is **causing** things to happen in the world.



# Is Economics Good for You?

**What are the costs and benefits of this course?**



## Costs

- Tuition
- Other courses
- Sleep?
- Stress?

## Benefits

- Graduation
- Knowledge
- Higher earnings potential?
- Learning to think like an Economist!



# To see the world through “economists’ eyes”!

