

五校微課程 經濟學原理

林明仁

國立臺灣大學經濟學系教授

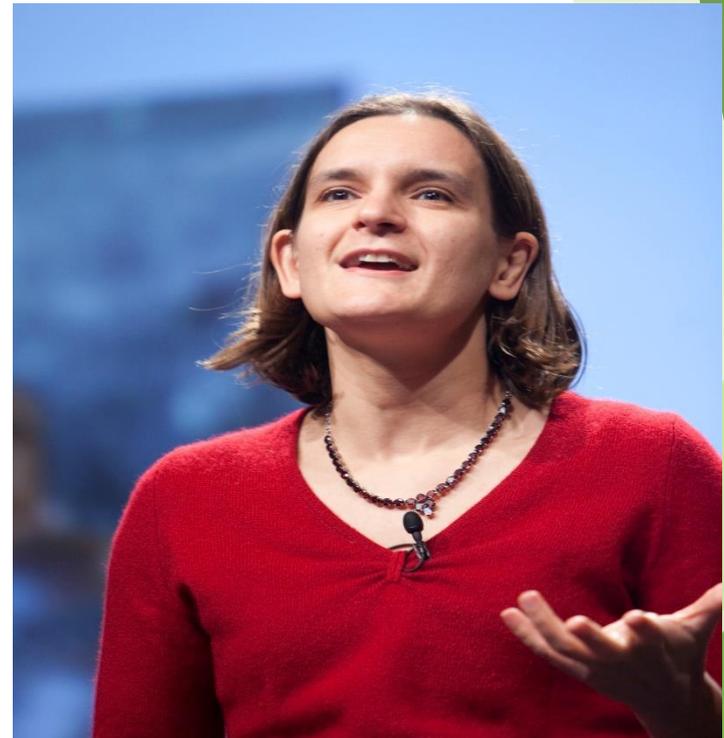


Some Stories:

(1) 誰能減緩愛滋病的流行? Who can Slow down the AIDS Pandemic?



教宗本篤16世



Ether Duflo, Professor of Economics, MIT
2019 Nobel Prize Winner



Some Stories:

(2) Female Leaders: Queens

The New York Times | <https://nyti.ms/3fUPMNo>

THE INTERPRETER

Why Are Women-Led Nations Doing Better With Covid-19?

A new leadership style offers promise for a new era of global threats.



By **Amanda Taub**

(3) Legalizing marijuana?



- Addiction and Permanent head damage?
- 突然抓狂倒是有可能
- Drug related crime?
- Gateway drug? (鄭仲辨)

It is an economic (empirical) problem!

Extensive vs intensive margin

Marijuana may be a substitute for heroin, but not cocaine.

Empirical Result

“Do medical marijuana laws increase hard-drug use?”

The Journal of Law and Economics, 58, 2 (2015), pp. 481-517.

Medical marijuana laws

- (1) increase these proxies for marijuana consumption by around 10–15%.
- (2) decrease possession arrests for cocaine and heroin 0-15% combined.
- (3) 20% decrease in admissions for heroin treatment. marijuana may be a substitute for heroin (cocaine is weaker)

Dutch Prisons are Closing



In this lecture, we ask:

What kinds of questions does economics address?

What are the principles of how people make decisions?

What are the principles of how people interact?

What are the principles of how the economy as a whole works?

What Economics Is All About

Scarcity refers to the fact that society has limited resources and therefore cannot produce all the goods and services people wish to have.

Economics is the study of how society manages its scarce resources, including

- how people decide how much to work, save, and spend, and what to buy

- how firms decide how much to produce, how many workers to hire

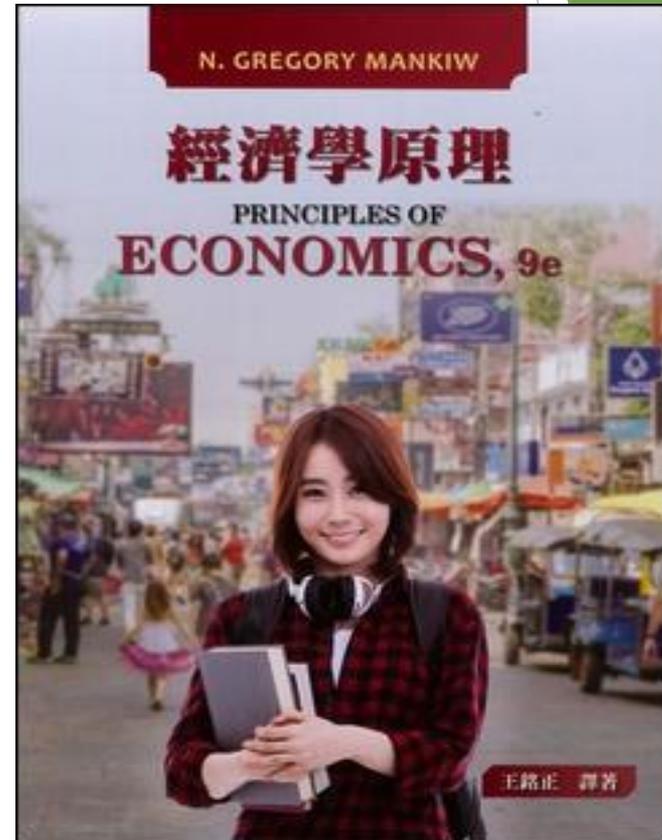
- how society decides how to divide its resources between national defense, consumer goods, protecting the environment, and other needs

TEN PRINCIPLES OF ECONOMICS

經原十誠



Gregory Mankiw, Professor of Economics, Harvard University



HOW PEOPLE MAKE DECISIONS

Decision making is at the heart of economics.

The first four principles deal with how people make decisions.

(1) People face trade-offs.

(2) The cost of something is what you give up to get it.

(3) Rational people think at the margin.

(4) People respond to incentives.

HOW PEOPLE MAKE DECISIONS

Principle #1: People Face Tradeoffs(取捨)

All decisions involve tradeoffs. Examples:

Going to a “五校聯合熱音成發” the night before your midterm leaves less time for studying.

Having more money to buy stuff requires working longer hours, which leaves less time for leisure.

Protecting the environment requires resources that might otherwise be used to produce consumer goods.

Things which are too good to be true won't be true!

HOW PEOPLE MAKE DECISIONS

Society faces an important tradeoff:

efficiency vs. equity (效率與公平)

efficiency: getting the most out of scarce resources

equity: distributing prosperity fairly among society's members

Tradeoff: To increase equity, we 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: How do we redistribute in the classroom?

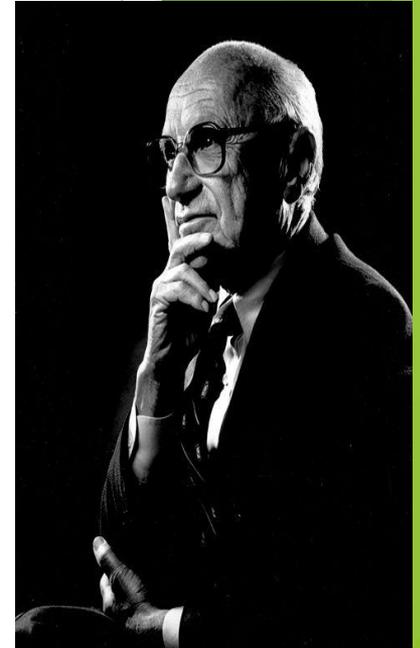
Bottom Line

To get one thing, we usually have to give up another thing.

As the founder of Chicago School, also your ‘intellectual’ great grand father, Milton Friedman always said:

There is no such thing as a free lunch!

“A society that puts equality ahead of freedom will end up with neither equality nor freedom.”



Who are "People"?

Exhibit 1.1 Examples of Economic Agents

-  Consumer
-  Boss
-  Kid
-  Parent
-  Pitcher
-  Thief
-  Family
-  Political Party
-  Firm

Everyone! Every Decision!

Individual

Group

Economic agent:
Individual or group
that makes choices

動漫都有教!

<https://www.facebook.com/watch/?v=360205464594730>



Principle #2: The Cost of Something Is What You Give Up to Get It

Making decisions requires comparing the costs and benefits of alternative choices.

The **opportunity cost** of any item is whatever must be given up to obtain it. It is the relevant cost for decision making.

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....

Evidenced-Based Economics Example: Is Facebook or IG free?



1.3 The Principles and Practice of Economics

Ex: in 2013, FB users spend 15mins on FB per day, but for college students: 1hr per day.(Now its IG)

Ask yourself: how much would someone need to pay you take away an hour of your free time?

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), 另一半未開發國家 \$ 1

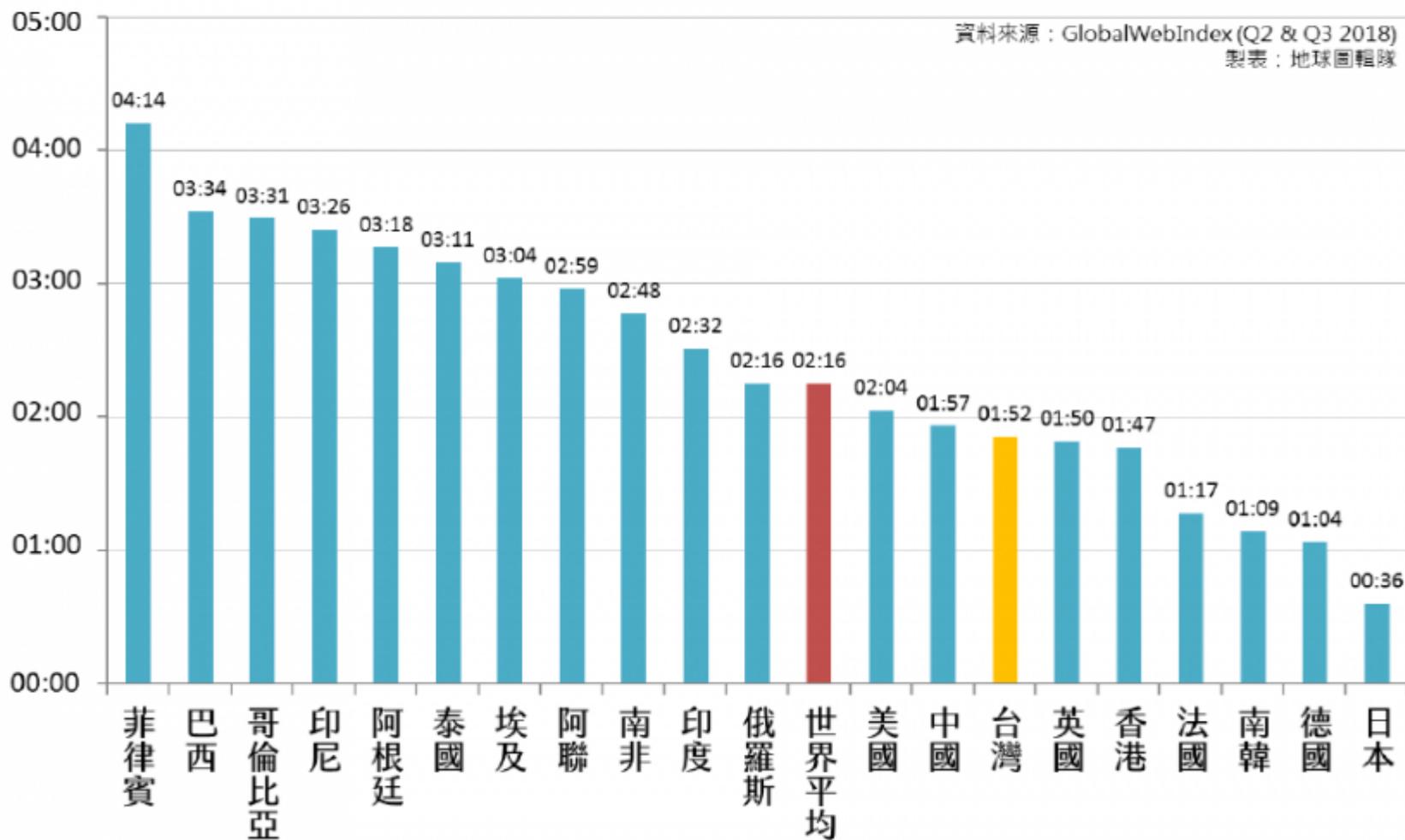
$250 \text{ millions/day} * \$5 \text{ day} * 365 = 450 \text{ billions}$

= 台灣GDP(2013年)

Your cost = $NT\$200 * 365 * n \text{ hr} = 73000 * n$

各國每人每天使用社群媒體時數

資料來源：GlobalWebIndex (Q2 & Q3 2018)
製表：地球圖輯隊



Two questions to think about:

放棄台大念亞大領360萬引熱議！女大生現身8點回應

根據亞洲大學主任秘書兼招生處長施能義表示，有2名學生成績可進台大，第一志願卻選擇亞大，立刻在網上引發討論，8日其中一名政大附中吳姓女學生，特別用朋友的PTT帳號PO文解釋，以解答網友的諸多疑惑。



亞大女跟在座台大生的機會成本是什麼？

台大女、中興男、葉教授的
機會成本是什麼？



台大女戰學歷分手中興男罵沒出息 還嗆教授葉丙成
「站著說話不腰疼」



16小時前



葉教授就是標準的站著說話不腰疼，今天他是「台大」且「電機系」的教授，才能對於這個話題高談論闊，因為對許多人來說，他早已是一位上進的人了，但是你們有想過我男友嗎？他講話份量夠重嗎？他有坦然面對自己嗎？

繼續網誌

第二：也是這幾天最為人詬病的問題，我的重點是「上進」，結果某些人刻意模糊焦點，把風向帶成「我要我男友一定要上台大」

而且為什麼輪得到「你們」來攻擊台大非醫牙電資的學系，即使台大某些科系的分數輸給你們所謂的四中電資，但單看科系而言，他們無非是那個領域最強的

台大女批男友不上進發文 被轉載到臉書

So.....



Principle #3: Rational People Think at the Margin (理性的人是在邊際上思考的)

A person is **rational** if she systematically and purposefully does the best she can to achieve her objectives.

Many decisions are not “all or nothing,” but involve **marginal changes** - incremental adjustments to an existing plan.

Evaluating the costs and benefits of marginal changes is an important part of decision making.

All or nothing is usually not optimal.

Ex: ex: 我兒子念國中的策略: 第八名 vs 第二名?

Marginal Decision Examples...



- How much do you clean your house or room?
 - Do you clean until 100% of the dirt and clutter has been removed when its just you and no company is expected?
 - Do you clean until 100% of the dirt and clutter has been removed when you expect company?
- You clean as long as the marginal costs are less than the marginal benefits!

HOW PEOPLE MAKE DECISIONS

Examples:

A student considers whether to go to college for an additional year, comparing the fees & foregone wages to the extra income he could earn with an extra year of education.

A firm considers whether to increase output, comparing the cost of the needed labor and materials to the extra revenue.

ACTIVE LEARNING 1:

Exercise

你的腳踏車鍊條壞了。但是你之前已經花了300元換坐墊

你可以花500元修理，也可以就按現況把它賣給別人。

請就以下兩個狀況，考慮你的決定

A. 你同學說 1500 如果鍊條好了。 1300 如果不是。

B. 1500 如果鍊條好了。 800 如果不是。

The 300 you previously spent on repairs is irrelevant. What matters is the cost and benefit of the *marginal* repair (the transmission).

A: cost of repair =500, marginal benefit of repair=200

B: cost of repair =500, marginal benefit of repair=700

Bottom Line

Marginal changes are small, incremental adjustments to an existing plan of action.

People make decisions by comparing costs and benefits at the margin

This is a very important concept! It could save your life!



Real Problem Versus the Perceived Problem



Professor: "You can't outrun the Bear, even in Running Shoes!"
Student: "I don't need to outrun the Bear, I only need to outrun you!"

Remark

Are people really rational?

(1) 95% at 95% argument

(2) irrational people will be wiped out by the market (東大特訓班?)

(3) are some behaviors really irrational?

Ex: (a) 一哭二鬧三上吊 (b) the benefit of declaring oneself as a crazy man (game theory)

(4) for economics, requirement for people to be rational is minimal- transitivity(遞移性), even 8 year old and crazy guys can do it!



Clip

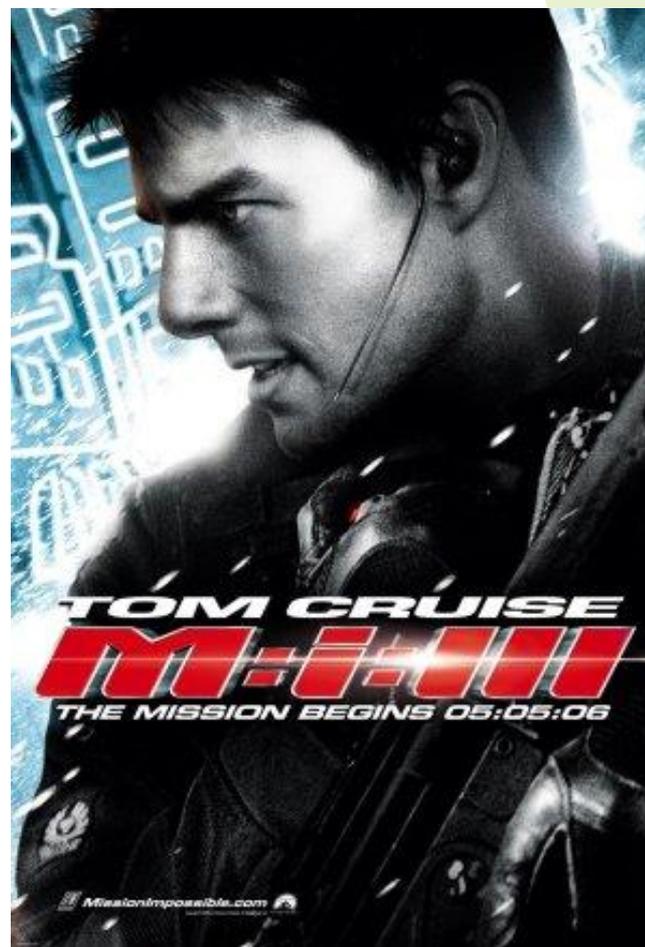
- (1) 其實念書也不是平等的
- (2) 也要念對書



所謂的輸，就是被騙的意思。你們這樣下去，一輩子都會被騙！這社會是有“規則“存在的，人必須活在規則下，但是...所謂的“規則“都是些聰明人所訂定的。你們知道這是怎麼回事嗎？這表示這些規則都是為了聰明人方便而訂出來的。相反地，對他們不利的部分，他們也會巧妙地隱藏起來，讓人無法看穿。不過，在這些遵循規則的人們中的聰明人，則會巧妙地利用這些規則，例如稅金、老人年金、保險醫療制度、薪資系統.....這全都是那些聰明人所安排好的，好讓人不容易理解，再從不好好調查現狀的愚者身上大量剝削錢財的制度。也就是說，你們這些不願意動腦筋、只怕麻煩的人將會被他們欺騙一輩子，持續支付高額的代價。聰明的人不會被騙，得到好處就藏起來。笨蛋則是會持續被騙、老是吃虧，這就是當今社會的結構。如果你們不想被騙、不想繼續吃虧，就給我讀書吧 --- 龍櫻第一集

Are people rational? Homo Economicus vs. Homo sapiens

Homo Economicus:
unswervingly rational,
and can solve the
most difficult
optimization problem.



Homo Economicus vs. Homo sapiens

Homo sapiens: easy to get deceived, distracted, bounded rationality.



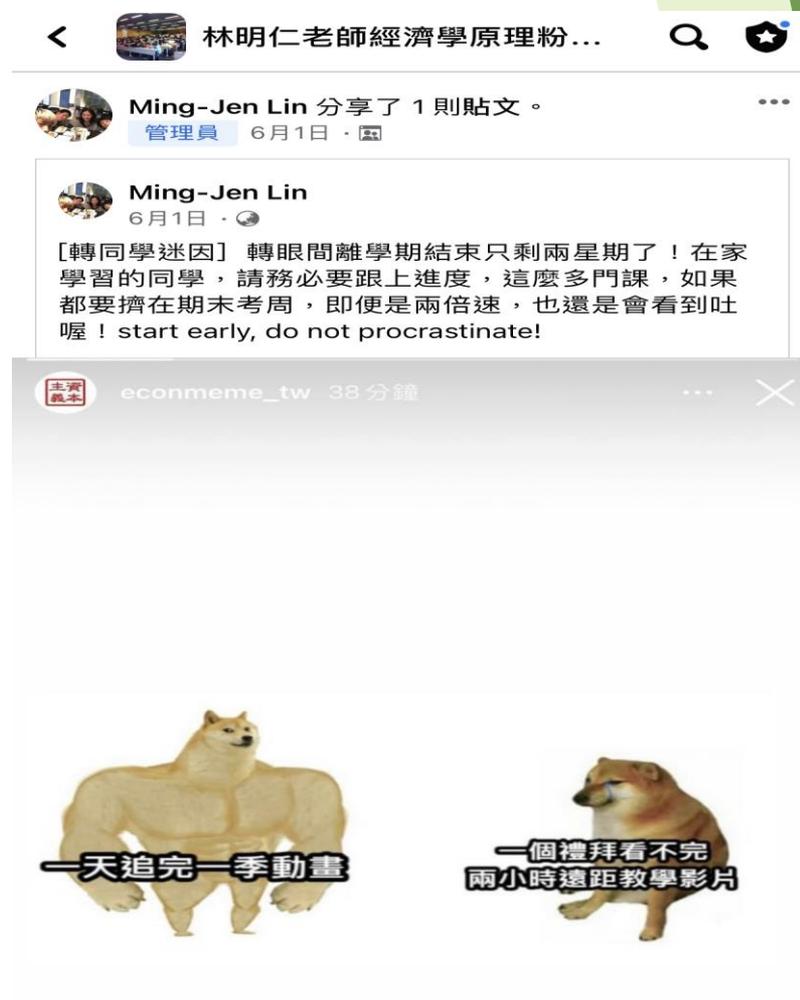
Both are very playful and childish, both are complete idiots, and both are troublesome annoyances to those around them.)

Procrastination (拖延)

懶惰

決策前後不一

明明本質是一樣的，換句話說或找帥哥正妹來跟你說，決策就不同了！

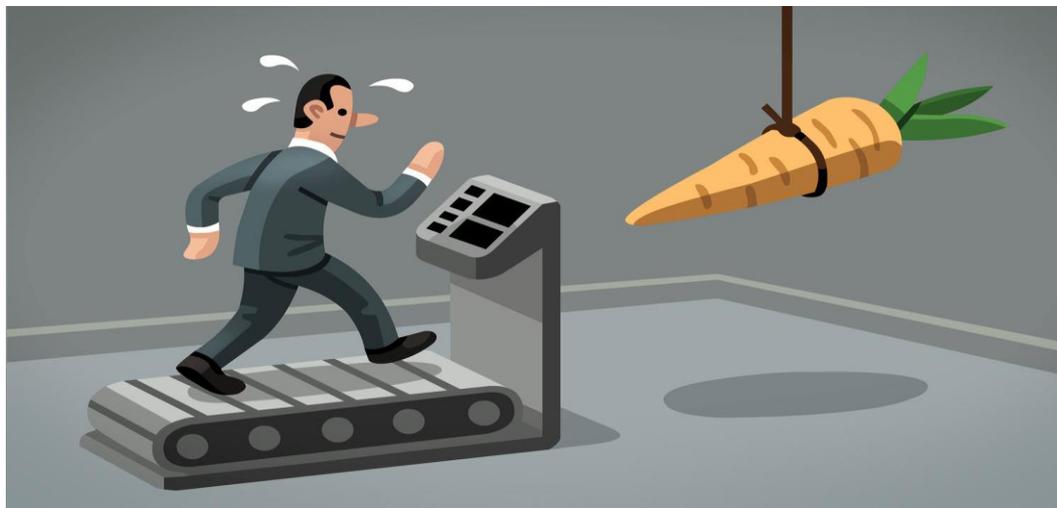


HOW PEOPLE MAKE DECISIONS

Principle #4: People Respond to Incentives(人們會對誘因結構做出反應)

incentive: something that induces a person to act, *i.e.* the prospect of a reward or punishment.

Rational people respond to incentives because they make decisions by comparing costs and benefits. Examples: 小七打折



Example

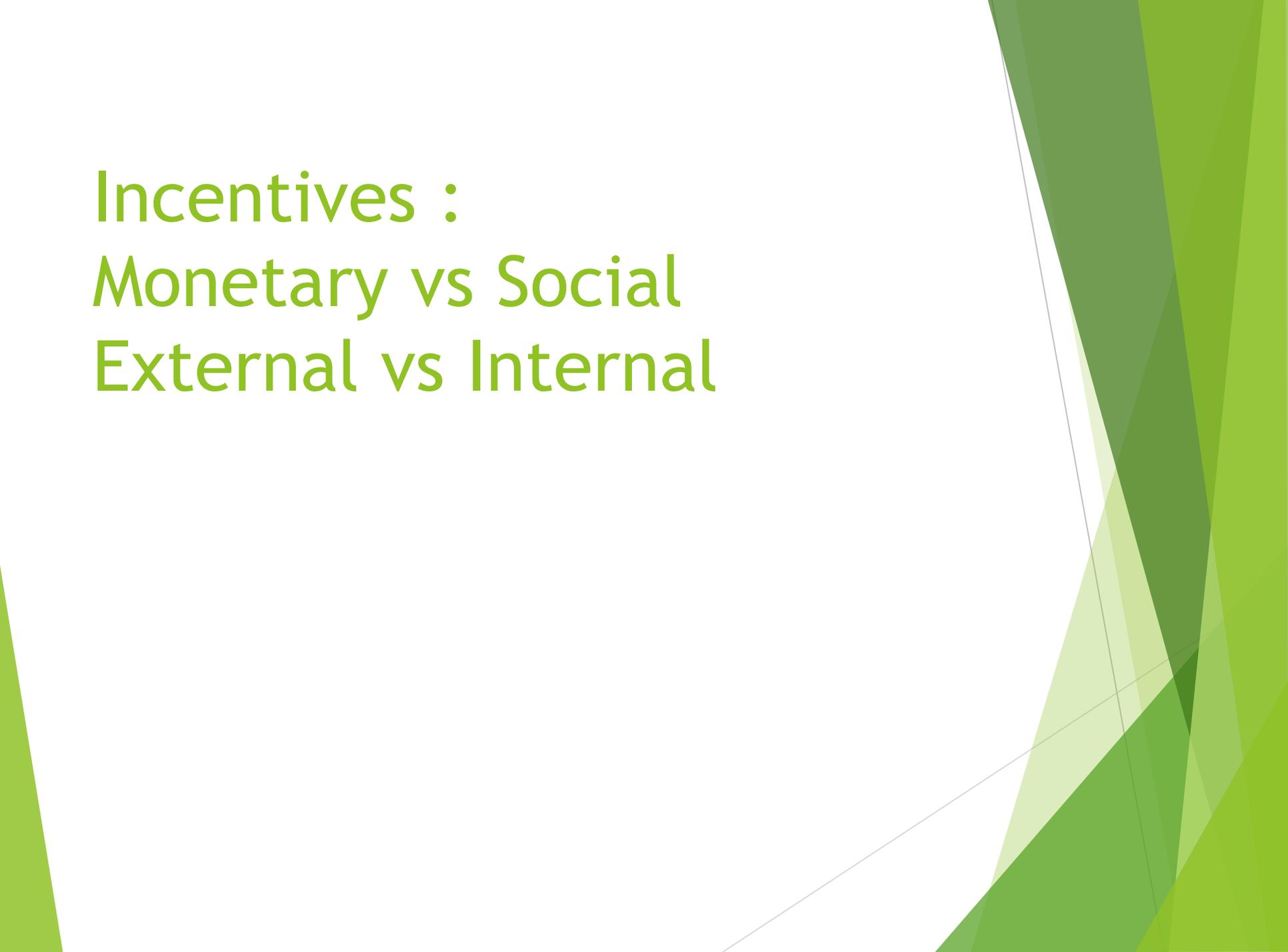


Basketball star LeBron James understands opportunity costs and *incentives*. He chose to skip college and go straight from high school to the pros where he earns millions of dollars.

43 millions in 3 years , to be exact

(Kobe was the earlier example)

Incentives :
Monetary vs Social
External vs Internal

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The text is positioned on the left side of the slide against a plain white background.

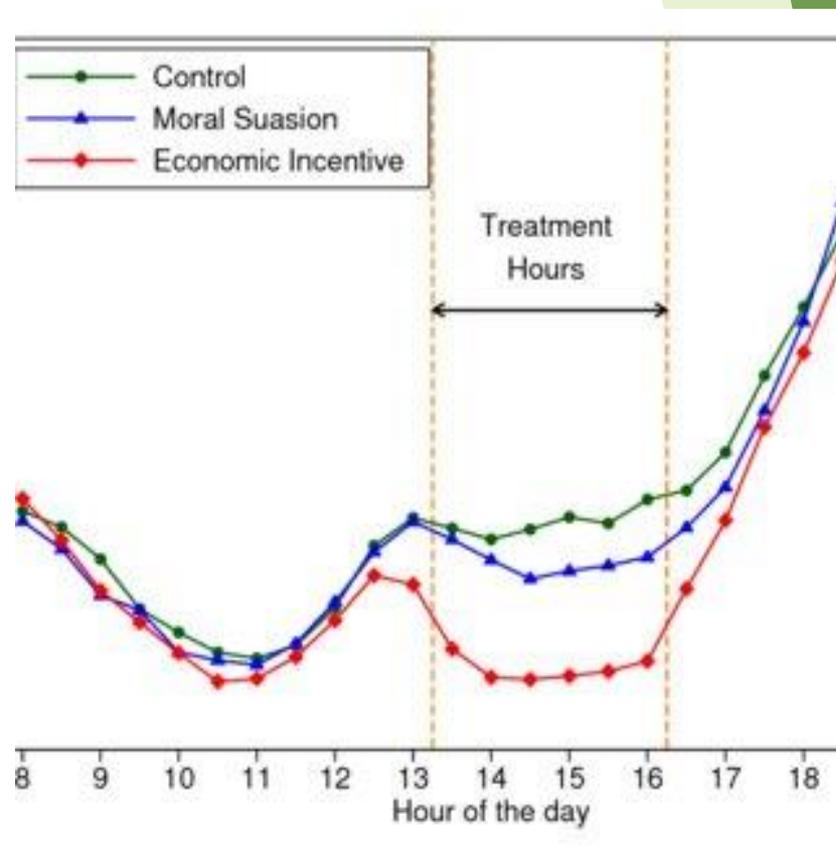
(4)如何節電?

American Economic Journal: Economic Policy 2018, 10(1): 240–267
<https://doi.org/10.1257/pol.20160093>

Moral Suasion and Economic Incentives: Field Experimental Evidence from Energy Demand†

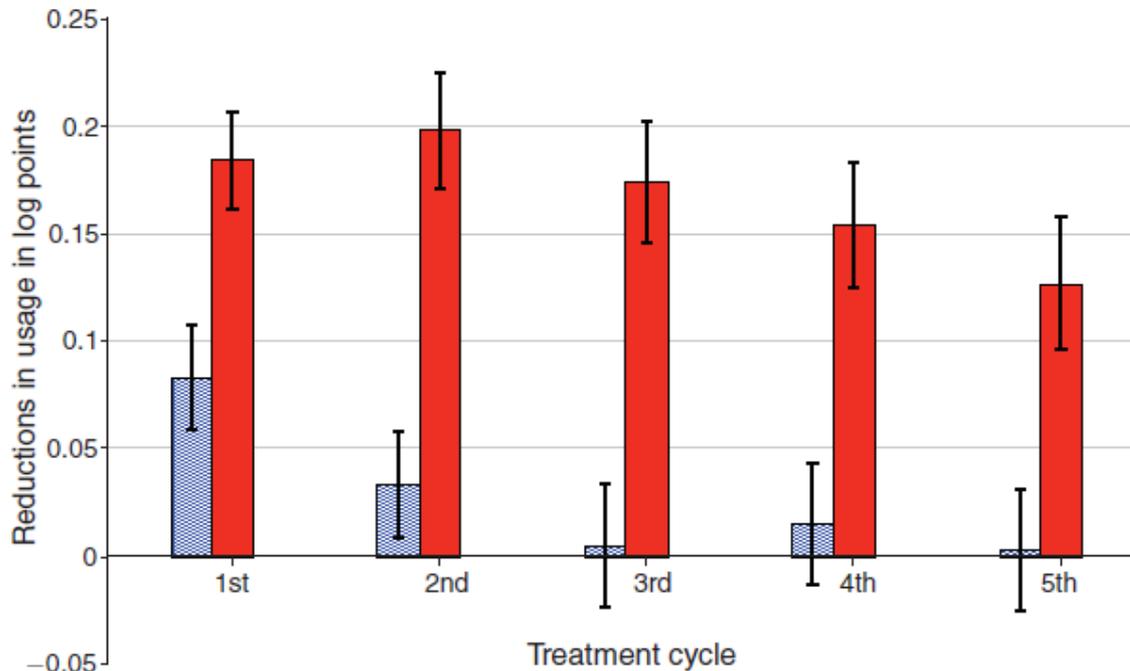
By KOICHIRO ITO, TAKANORI IDA, AND MAKOTO TANAKA*

Firms and governments often use moral suasion and economic incentives to influence intrinsic and extrinsic motivations for economic activities. To investigate persistence of such interventions, we randomly assign households to moral suasion and dynamic pricing that stimulate energy conservation during peak-demand hours. We find significant habituation and dishabituation for moral suasion—the treatment effect diminishes after repeated interventions but can be restored to the original level by a sufficient time interval between interventions. Economic incentives induce larger treatment effects, little habituation, and significant habit formation. Our results suggest moral suasion and economic incentives produce substantially different short-run and long-run policy impacts. (JEL C93, D83, L94, L98, Q41, Q48)



沒有介入後，調價格的那組還是繼續節電。
而道德組呢？

Panel A. Summer experiment



一個cycle 3天

HOW PEOPLE INTERACT

An “economy” is just a group of people interacting with each other.

The next three principles deal with how people interact.



Principle #5: Trade Can Make Everyone Better Off

Rather than being self-sufficient, people can specialize in producing one good or service and exchange it for other goods.

Countries also benefit from trade & specialization:

- get a better price abroad for goods they produce

- buy other goods more cheaply from abroad than could be produced at home



Principle #6: Markets Are Usually A Good Way to Organize Economic Activity

A **market** is a group of buyers and sellers.
(They need not be in a single location.)

“Organize economic activity” means determining

what goods to produce

how to produce them

how much of each to produce

who gets them

HOW PEOPLE INTERACT

In a market economy, these decisions result from the interactions of many households and firms.

Famous insight by Adam Smith in *The Wealth of Nations* (1776):

Each of these households and firms acts as if “led by **an invisible hand**” to promote general economic well-being.



HOW PEOPLE INTERACT

The invisible hand works through the price system:

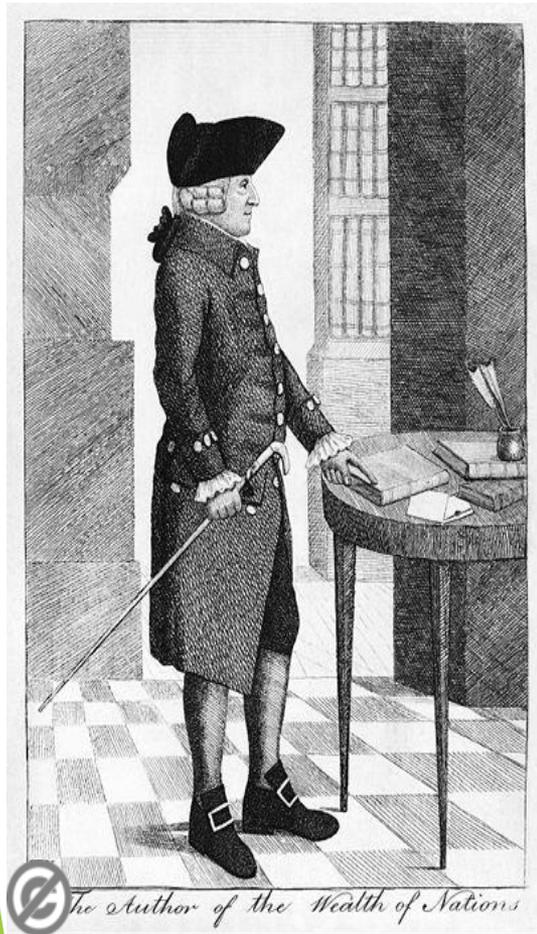
The interaction of buyers and sellers determines prices of goods and services.

Each price reflects the good's value to buyers and the cost of producing the good.

Prices guide self-interested households and firms to make decisions that, in many cases, maximize society's economic well-being.

Price is a signal to aggregate market information.

Adam Smith, Invisible hand, and the Birth of Economics as a Modern Social Science



- Adam Smith made economics a social science.
- Born in 1723 in Scotland, Smith's masterpiece was *An Inquiry into the Nature and Causes of The Wealth of Nations*, published in 1776, same year American revolutionaries signed the Declaration of Independence. Coincidence? 乾隆皇帝在幹啥?
- Why, Adam Smith asked, are some nations wealthy while others are poor?
- His answer:
 - the division of labor
 - free markets.

Division of Labor

- Using hand tools, one person might make 20 pins a day.
- By breaking the process into a number of individually small operations in which people specialize—by the **division of labor**—ten people could make a staggering 48,000 pins a day.
- Marriage, 大學教授從博雅到專精 (think of Aristotle! Or Johnny Kon!) are examples of “division of labor”, too.
- But a firm must sell 15 million pins a year to stay in business!
- So markets are needed too.

Invisible Hand

1. Although participants in the economy are motivated by self interest, the invisible hand of the marketplace guides this self interest into promoting general well being.
 - Ex: 越南的卡車
 - Ex: Chicago's Bus Driver (p9)
 - [荷蘭的裁縫師](#)
2. Are morals not important?
 - 道德不會改變人的行為
 - 價格才會
 - 道德改變行為的幅度相對於誘因（價格）改變的影響太小
3. It ain't no good to share!(分享的壞處)

Principle #7: Governments Can Sometimes Improve Market Outcomes

Important role for govt: enforce property rights
(with police, courts)

People are less inclined to work, produce, invest, or purchase if large risk of their property being stolen.

A restaurant won't serve meals if customers do not pay before they leave.

A music company won't produce CDs if too many people avoid paying by making illegal copies.

HOW PEOPLE INTERACT

Govt may alter market outcome to promote efficiency

market failure(市場失靈), when the market fails to allocate society's resources efficiently. Causes:

Externalities(外部性), when the production or consumption of a good affects bystanders (e.g. pollution)

market power(獨佔), a single buyer or seller has substantial influence on market price (e.g. monopoly)

In such cases, public policy may increase efficiency.

Principle #8: A country's standard of living depends on its ability to produce goods & services.

Average income in rich countries is more than ten times average income in poor countries.

The U.S. standard of living today is about eight times larger than 100 years ago.

Productivity, is the amount of goods and services produced per unit of labor.

Productivity depends on the equipment, skills, and technology available to workers.

20.1 Inequality Around the World

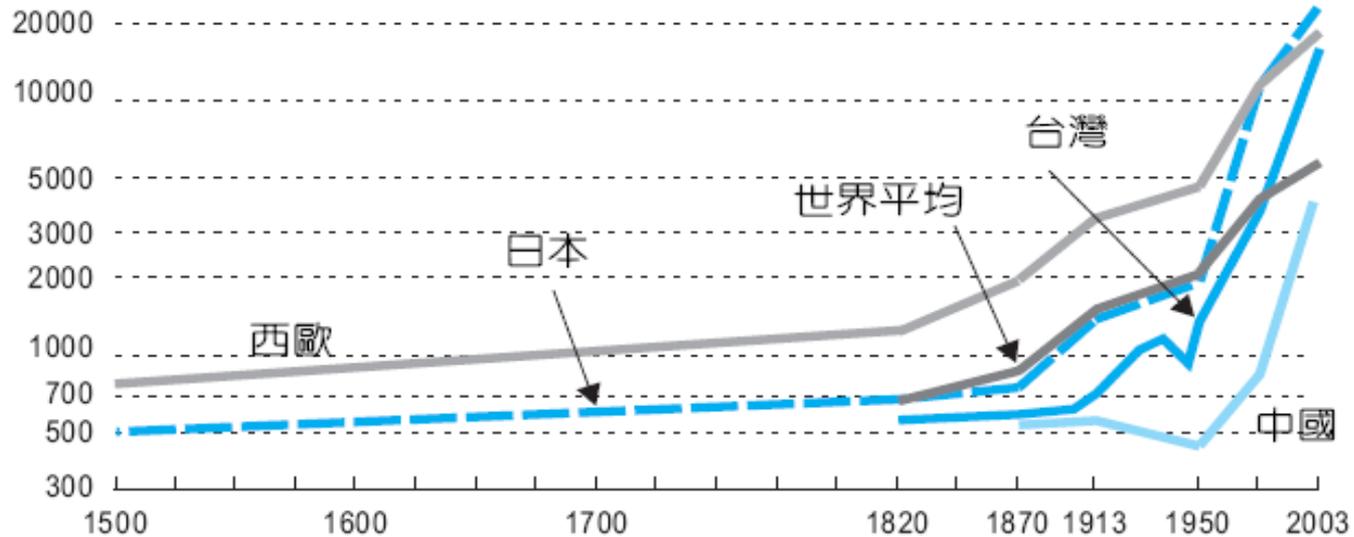
A Picture is worth a thousand words



Bombay



How does this happen? (Data: [Madison Project](#))



單位: 1990年美元。

平均每人GDP 長期變動

Note: (1) 縱軸取log, so slope is the growth rate ($d \ln Y / dY = 1/Y$).

(2) the whole world's GDP per capita hardly grew between 1500 to 1800 (population and "total" GDP grew, though)

(3) look at all the critical break points....

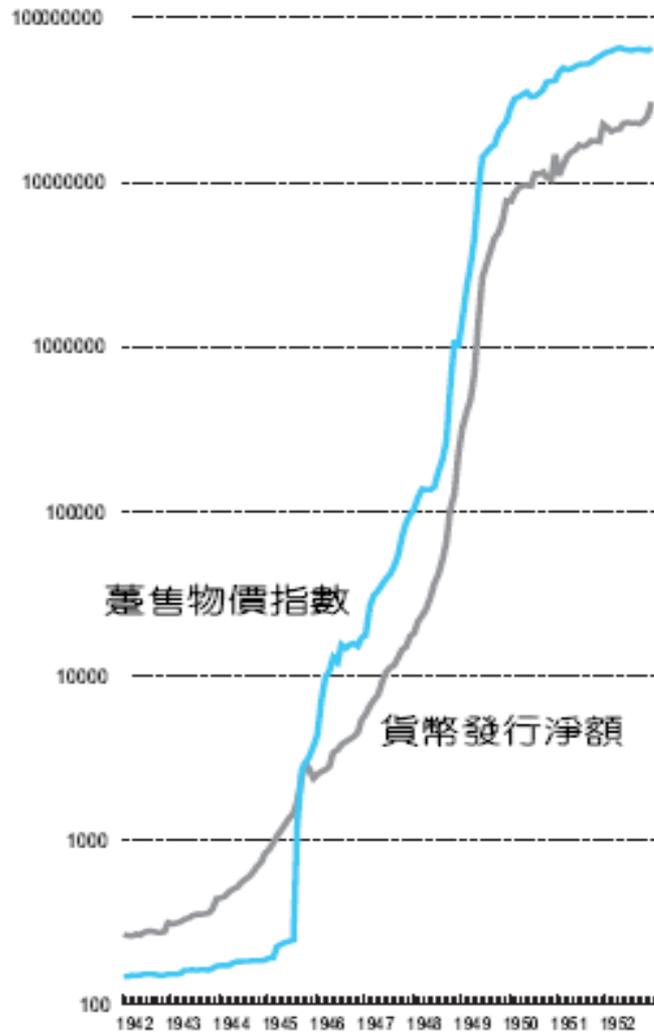
Principle #9: Prices rise when the government prints too much money.

Inflation: increases in the general level of prices.

In the long run, inflation is almost always caused by excessive growth in the quantity of money, which causes the value of money to fall.

The faster the govt creates money, the greater the inflation rate.

台灣的惡性物價膨脹



1945-49年間, 台灣的物價上漲超過一萬倍。



Henri Cartier-Bresson 美國《生活》雜誌特派攝影記者1948飛抵北平，
卡了一年才離開

1923

(Keynes: The Economic Consequences of the Peace:
Versailles Treaty)



Zimbabwe story

<https://www.youtube.com/watch?v=78-BlZXm7wA>

Principle #10: Society faces a short-run tradeoff between inflation and unemployment

In the short-run (1 - 2 years), many economic policies push inflation and unemployment in opposite directions.

Other factors can make this tradeoff more or less favorable, but the tradeoff is always present.

This short run trade off plays a key role in the analysis of ‘business cycle’.

BC: fluctuations in economic activity, such as employment and production.

How can economics help you?

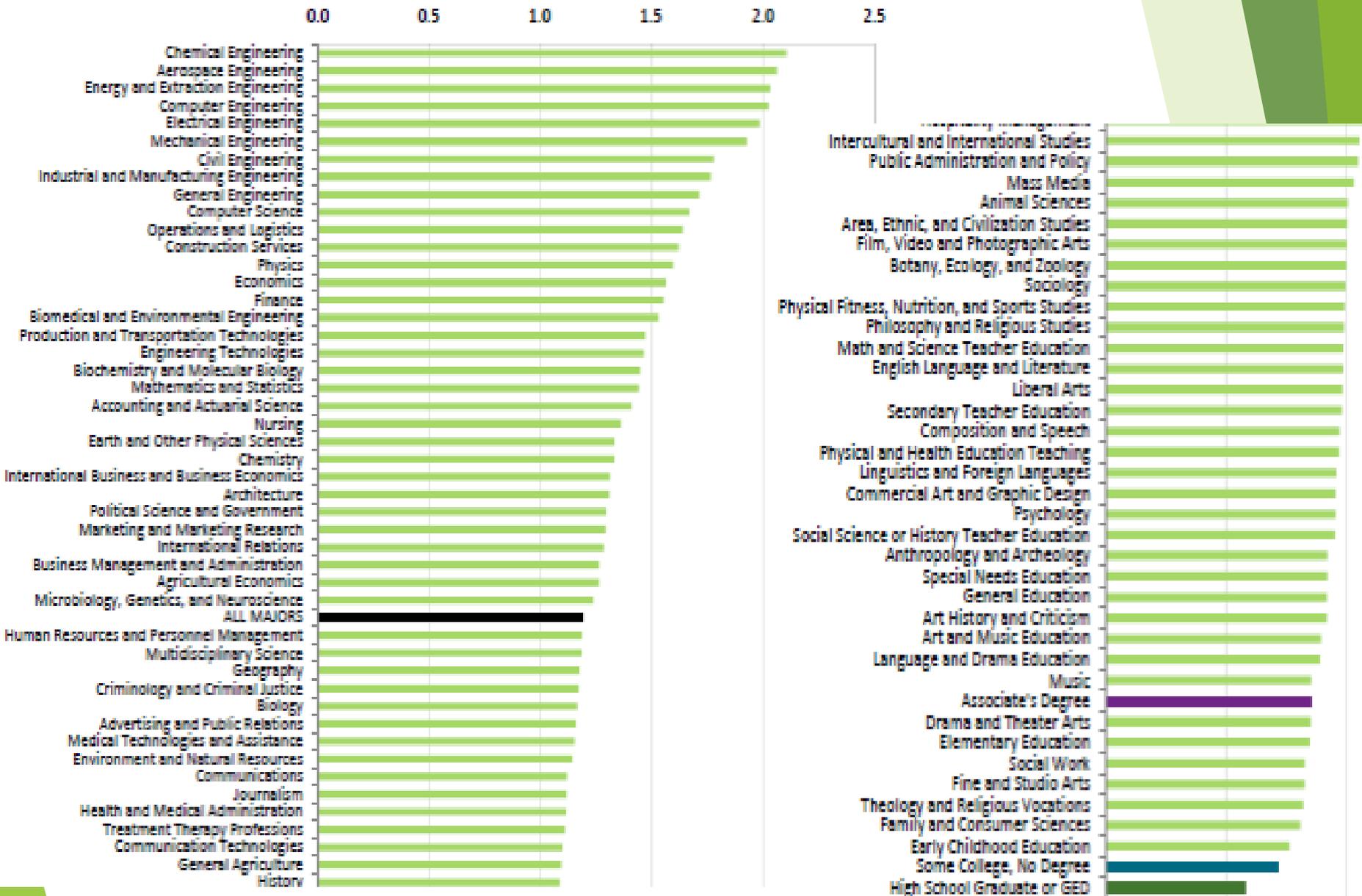
(A)談理想

有節奏、有方法、有現實感的理想主義者

In order to make the world a better place,
you need to know where it is ugly, or how
the bad guy thinks (東大特訓班，[遠山呼喚](#))。

(B)談現實

Figure 2a: Median Lifetime Earnings, by College Major (millions of dollars)



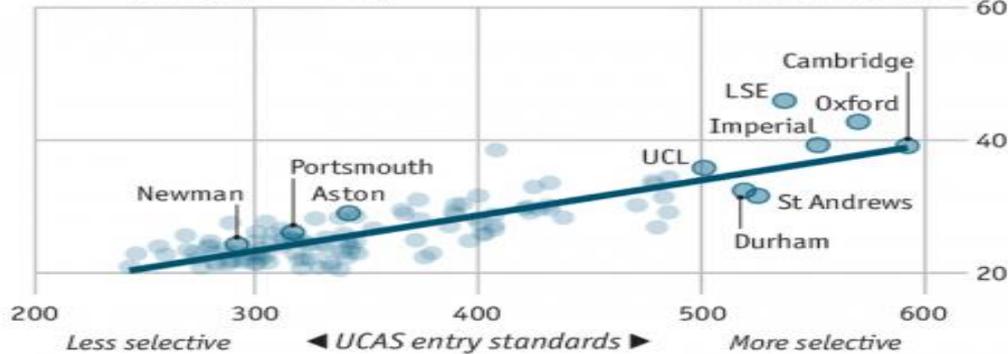
How about the great Britain?

■ Hire education

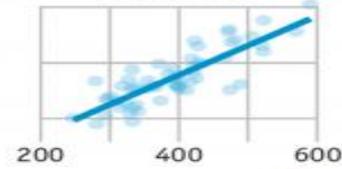
Britain, median salary five years after graduation*, by programme of study, 2014, £'000

All subjects, by university

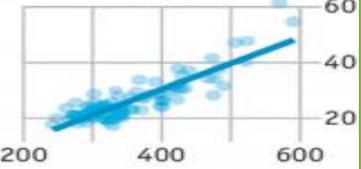
Median salary, £'000



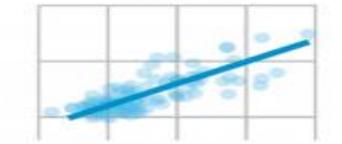
Economics



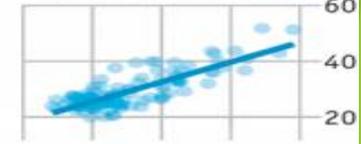
Law



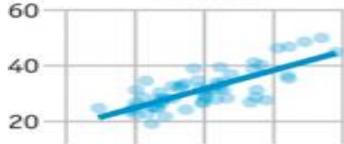
Business



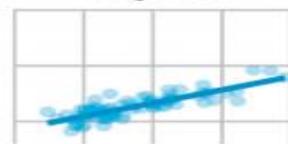
Computer science



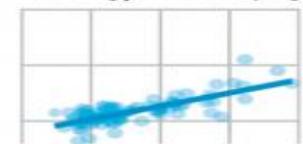
Maths



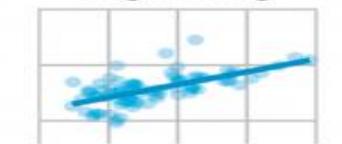
Physics



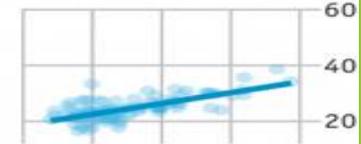
History/Philosophy



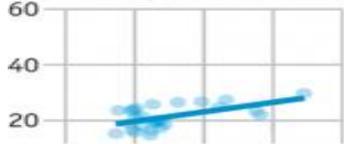
Engineering



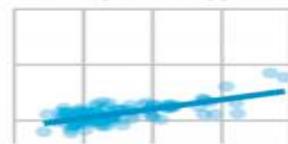
Social studies†



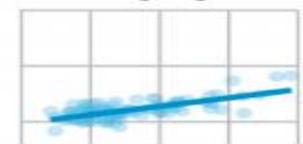
Agriculture



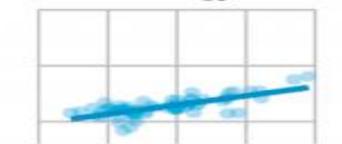
Psychology



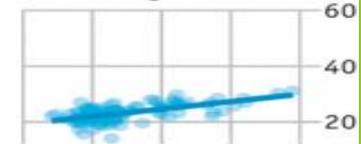
Languages



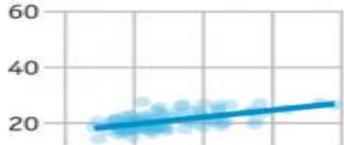
Biology



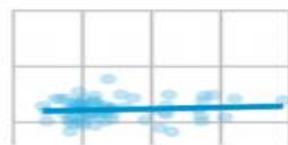
English



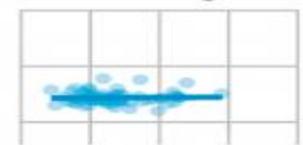
Creative arts



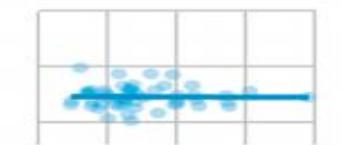
Education



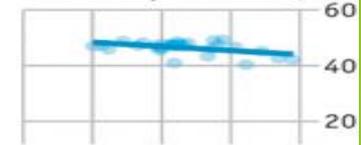
Nursing



Architecture



Medicine/Dentistry



UCAS entry standards

Sources: Department for Education; UCAS; The Economist

UCAS entry standards

*From 124 institutions †Excluding economics