



五校聯盟微課程

個體經濟學原理

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Government in the economy

- **Taxation and government spending 政府課稅與支出**
 - Tax revenues and spending 稅收與支出
 - Equity vs. efficiency of taxation 租稅的公平面與效率面
 - Tax incidence 租稅歸宿
- **Regulations 政府管制**
 - Price ceiling 價格上限
 - Price floor 價格下限
- **Government failure 政府失靈**
 - Bureaucracy and corruption 官僚與貪污
 - Underground economy 地下經濟

Major functions of government 政府職能

- Three major roles of government (by Richard Musgrave): 政府的主要職能
 - Provides public goods and corrects market failure. 提供公共財及矯正外部性
 - Redistributes income to achieve an equitable distribution of society. 所得重分配
 - Attains high levels of employment. 促進經濟與就業
- Tools for government 政府的政策工具
 - Fiscal policies: **taxation and government spending**. 財政政策(租稅與政府支出)
 - Monetary policies: controlled by the central bank, including the management of money supply and interest rate. 貨幣政策(貨幣供給與利率政策)
 - Regulation 管制

Major functions of government 政府職能

- Why does government tax and spend?
 - Raise revenues to pay for public goods.
課稅以支應公共財之支出
 - Redistribute income via transfer payments to address fairness issues.
利用移轉性支出達到所得重分配的目的(如社會福利支出)
 - Finance operations of government.
維持政府運作(如公務人員薪水)
 - Correct market failures and externalities.
矯正外部性

Taxation and government spending 政府收支

● Revenues and spending of central government 中央政府收入與支出

- 我國110年度中央政府總預算：歲入2兆450億元，歲出2兆1,615億元，赤字1,165億元
- 歲入有將近80%課稅收入

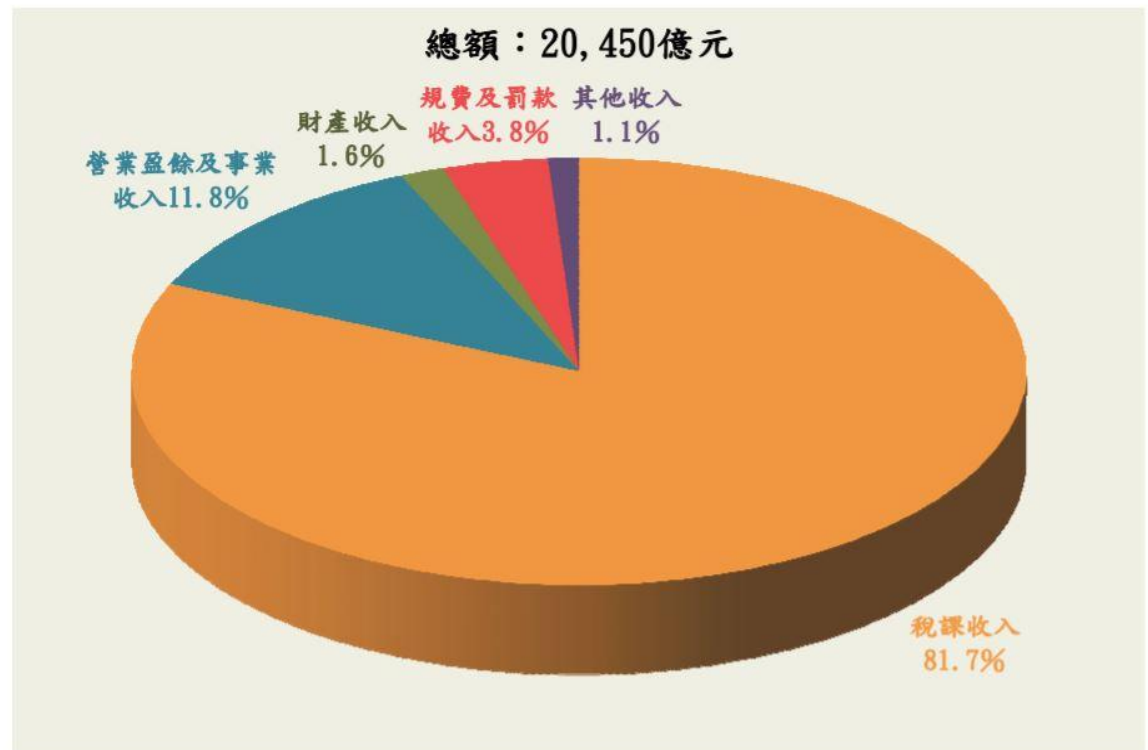
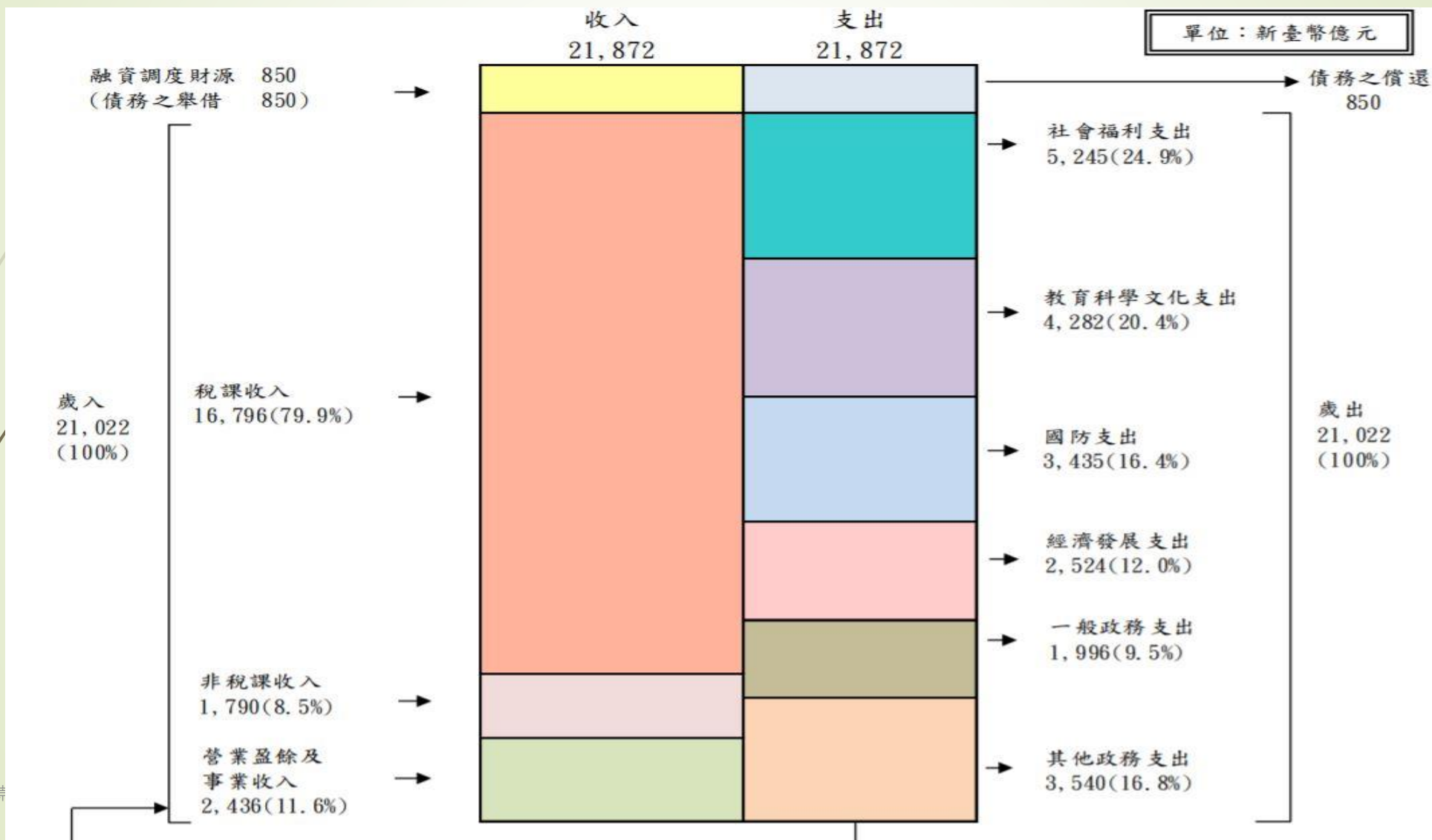


圖 3-2 110 年度總預算案歲入構成

資料來源：
主計總處

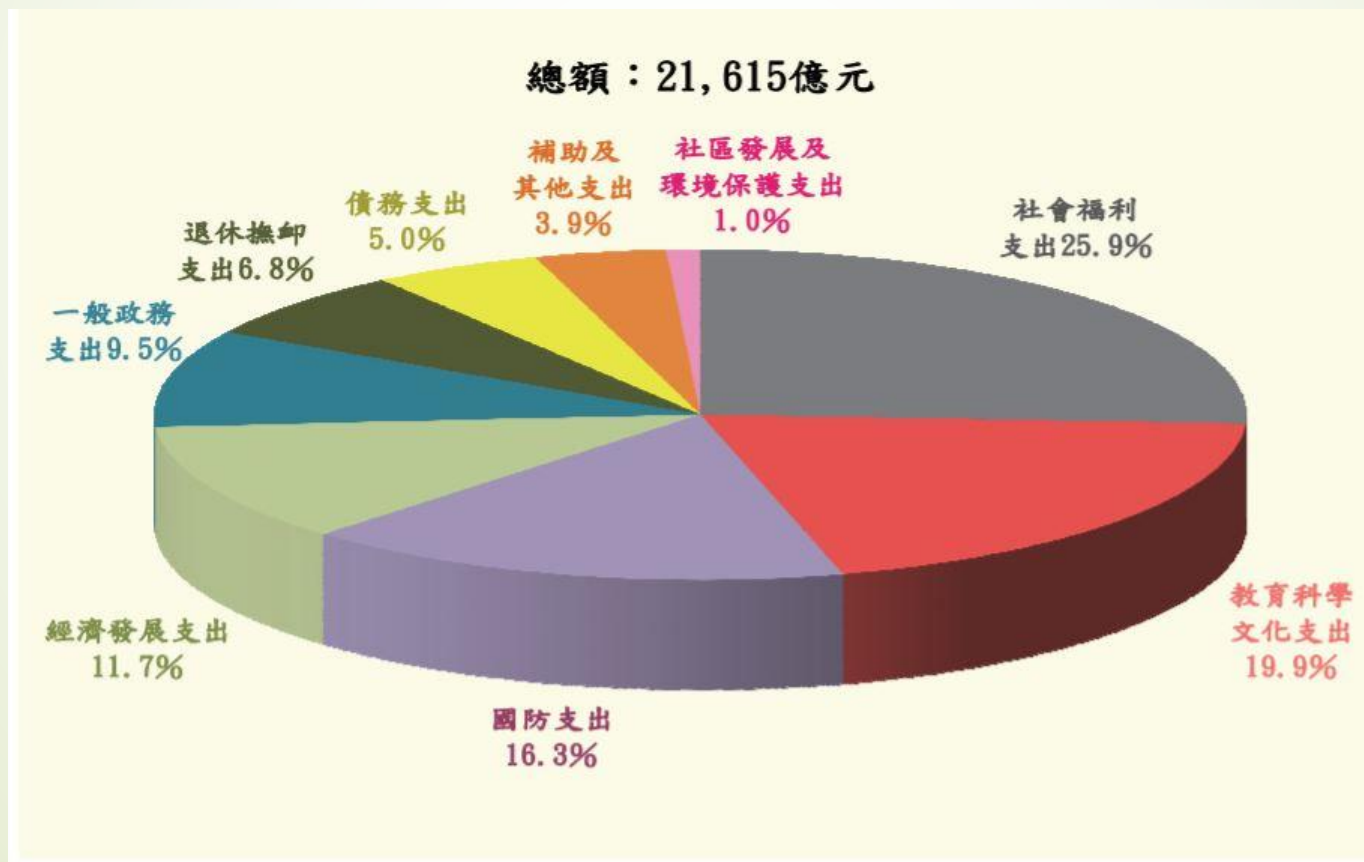
Taxation and government spending 政府收支



資料來源：
主計總處

Government spending 政府支出

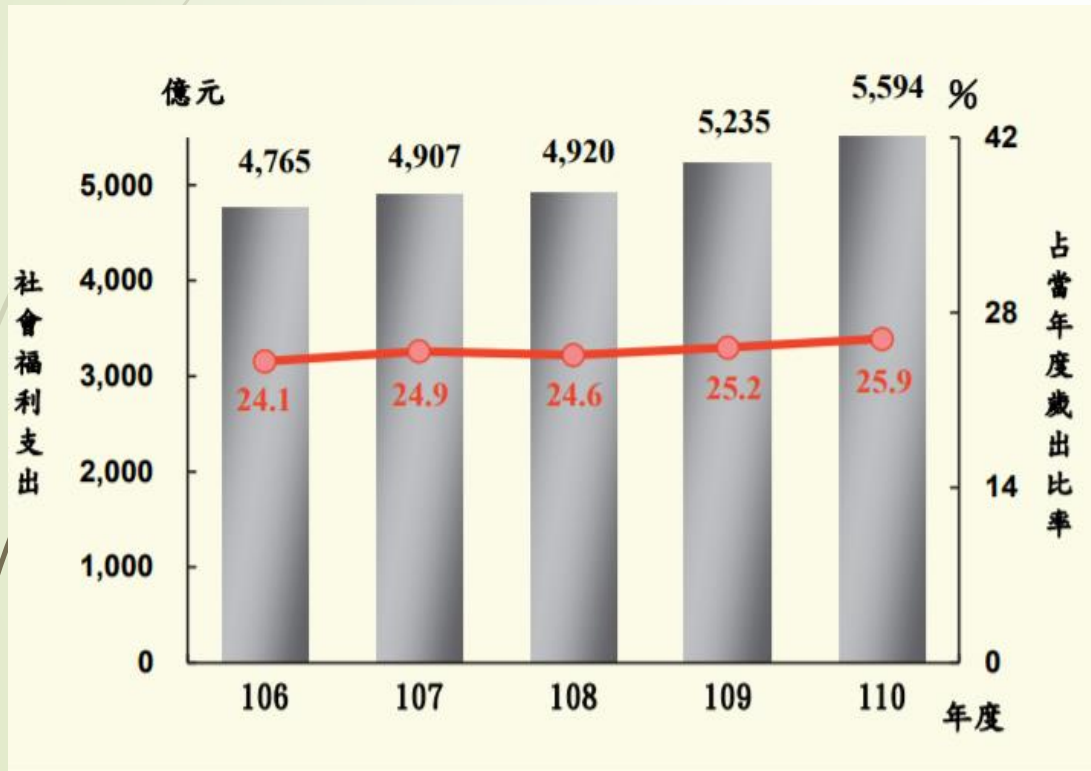
- 納稅人的錢到哪去?中央政府各項支出佔歲出比
近年來最大宗的支出是社會福利支出，其次為教科文支出。



資料來源：
主計總處

Government spending 政府支出

- 社會福利支出占歲出比例逐年增加，而教科文化支出卻緩步漸少



Taxation revenues 稅收

- Tax revenues collected by the central government 國稅
 - 所得稅(包括綜所稅及營所稅)仍是我國最主要的稅收來源

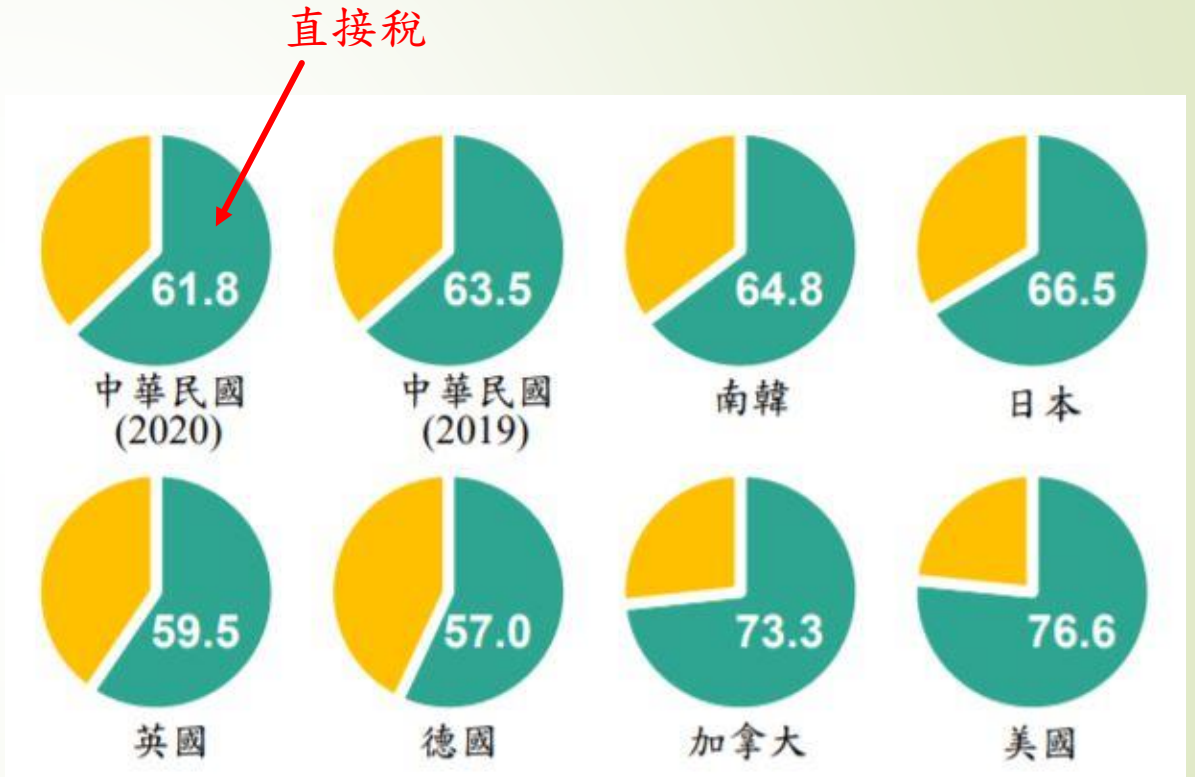
項 目	本年度預算數	
	金額 (A)	%
合 計	20,450	100.0
1. 稅課收入	16,719	81.7
所得稅	9,743	47.6
營業稅	2,475	12.1
貨物稅	1,606	7.9
關稅	1,207	5.9
2. 營業盈餘及事業收入	2,408	11.8
3. 規費及罰款收入	783	3.8
4. 財產收入	321	1.6
5. 其他收入	219	1.1

資料來源：
主計總處

Taxation revenues 稅收

● 按直接間接稅別區分

- 直接稅：包含所得稅、遺贈稅、土地稅、房屋稅
無法轉嫁，易達成租稅公平，納稅人痛苦感較大，稽徵手續複雜
- 間接稅：營業稅、貨物稅、關稅
可轉嫁，易於徵收，但缺乏中立性



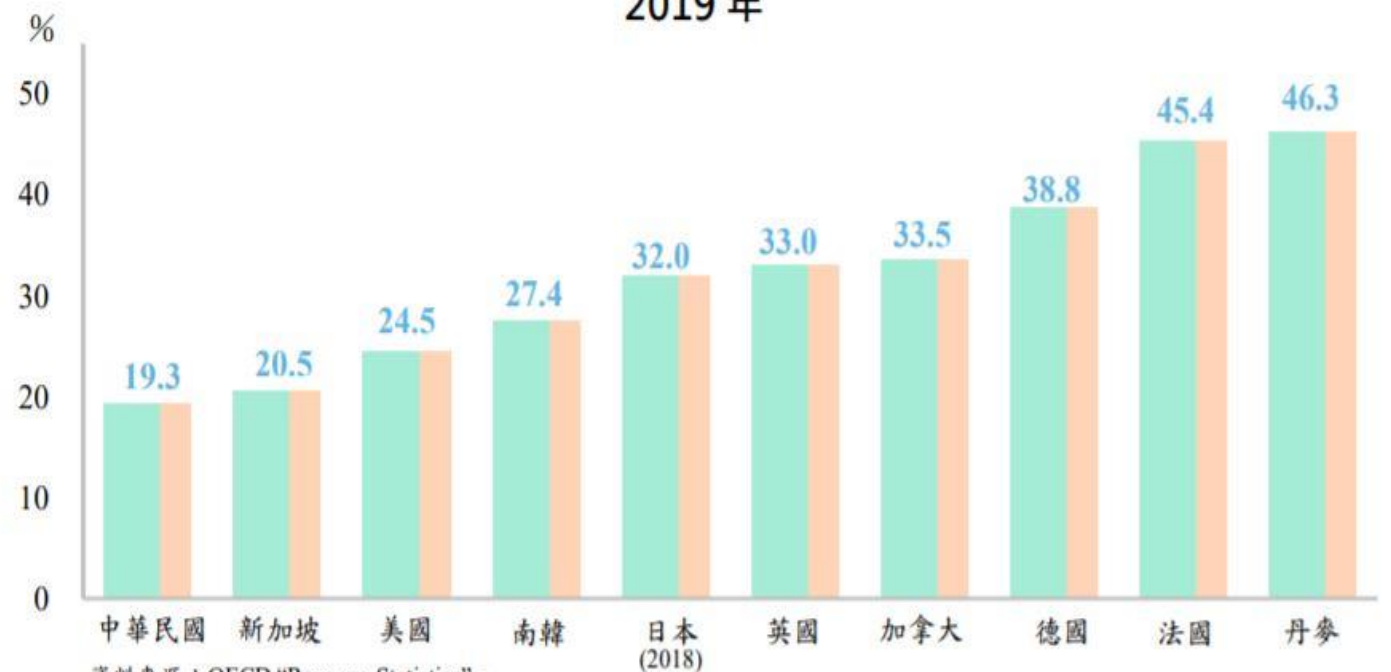
資料來源：
主計總處

Taxation revenues 稅收

- Cross-country comparison: 跨國比較
Tax revenue/GDP，又稱租稅負擔率

- 我國租稅負擔率仍居偏低水準，歐洲各國因有完善社會福利政策，賦稅負擔率相對較高
- 政府規模較小
- 租稅競爭力較高、增加外商來台投資誘因

圖 7 主要國家賦稅負擔率(含社會安全捐)
2019 年



資料來源：OECD "Revenue Statistics"。

說明：我國計算賦稅負擔率所採國內生產毛額(GDP)為行政院主計總處110年2月發布數。

Equity of Taxation 租稅的公平面

- Equity — progressive income tax system: 公平

- **Average tax rate** is the total tax paid divided by total income earned.
Marginal tax rate is how much of the last dollar income pays in taxes.
- The current income tax system is **progressive** (累進稅制), in that high-income individuals pay higher average taxes and higher marginal taxes.
- The purpose is to achieve **vertical equity** (垂直公平)

累進所得稅制是所得越高者所負擔的平均稅率與邊際稅率越高。其目的在達到垂直公平(所得高者應有較高的稅負)

Equity of Taxation 租稅的公平面

- 美國與台灣的個人綜合所得稅課稅級距與邊際稅率之比較

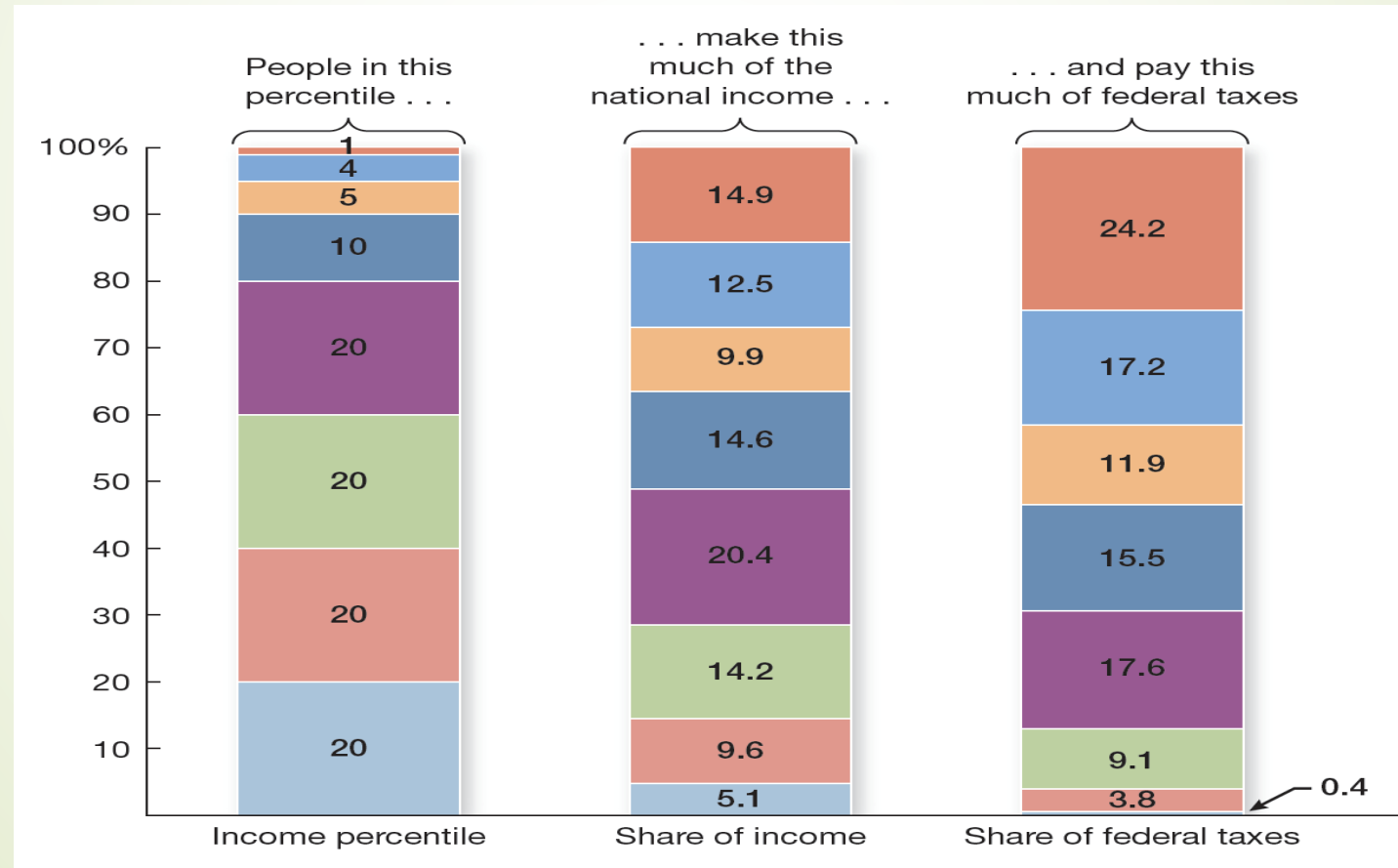
Taxable income (USD)	Tax brackets
0 – \$9,950	10%
\$9,950 – \$40,525	12%
\$40,525 – \$86,375	22%
\$86,375 – \$164,925	24%
\$164,925 – \$209,425	32%
\$209,425 – \$523,600	35%
Above \$523,600	37%

課稅級距(台幣)	稅率
0 - 54萬元	5%
54萬元 - 121萬元	12%
121萬元 - 242萬元	20%
242萬元 - 453萬元	30%
453萬元 - 1031萬元	40%
1031萬以上	45%

與美國相比，台灣稅制在使中低所得者面對較低的邊際稅率，而最高所得者面對較高的邊際稅率。

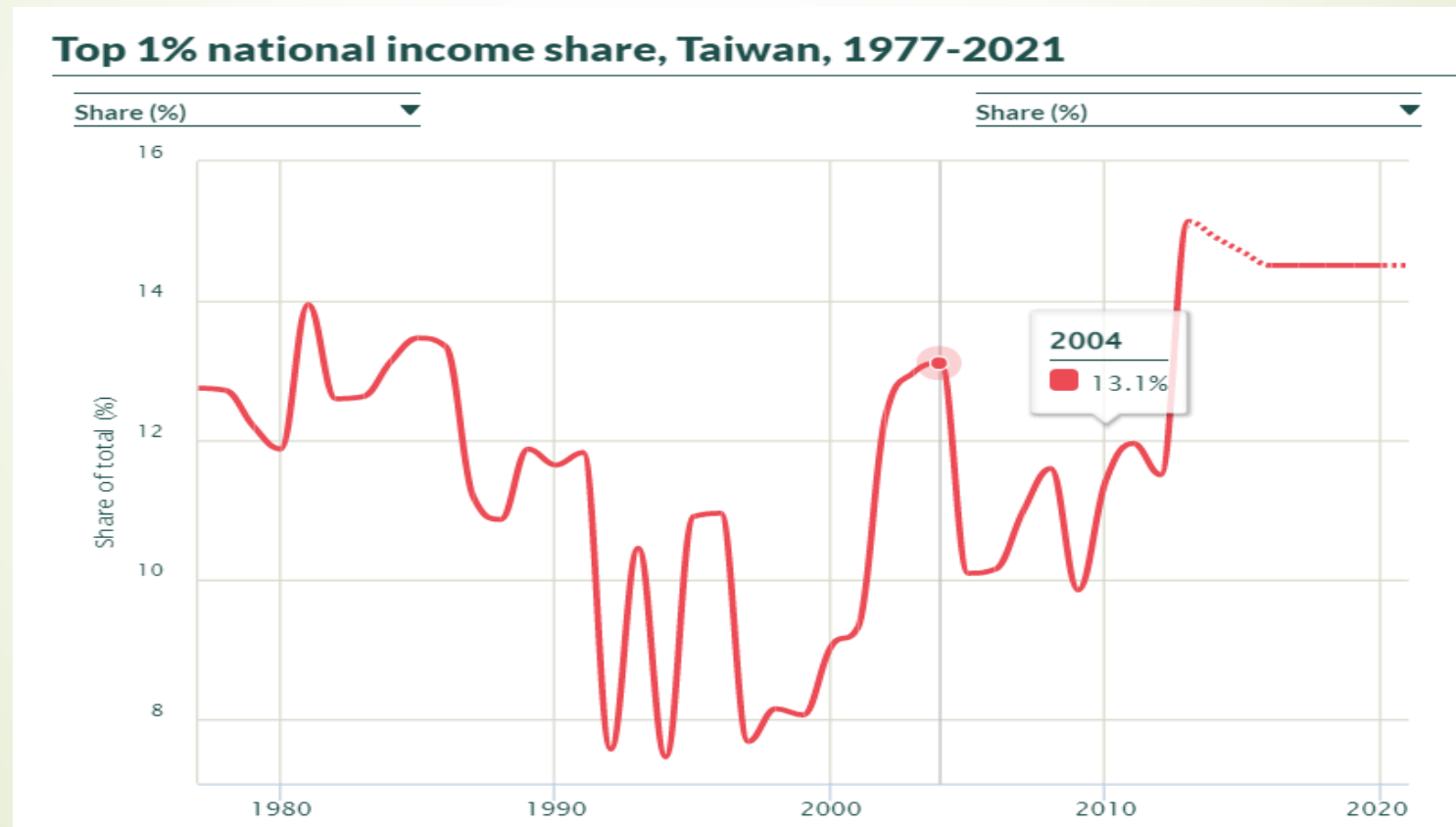
Equity of Taxation 租稅的公平面

- In the U.S., the richest 1% earns 15% of the national income, and pays 24% of the total taxes. This somehow shows **vertical equity**.



Equity of Taxation 租稅的公平面

- 近十年台灣最有錢的1% 佔國民所得的比例都在10%以上，而且有增加的趨勢，顯示貧富不均情況嚴重

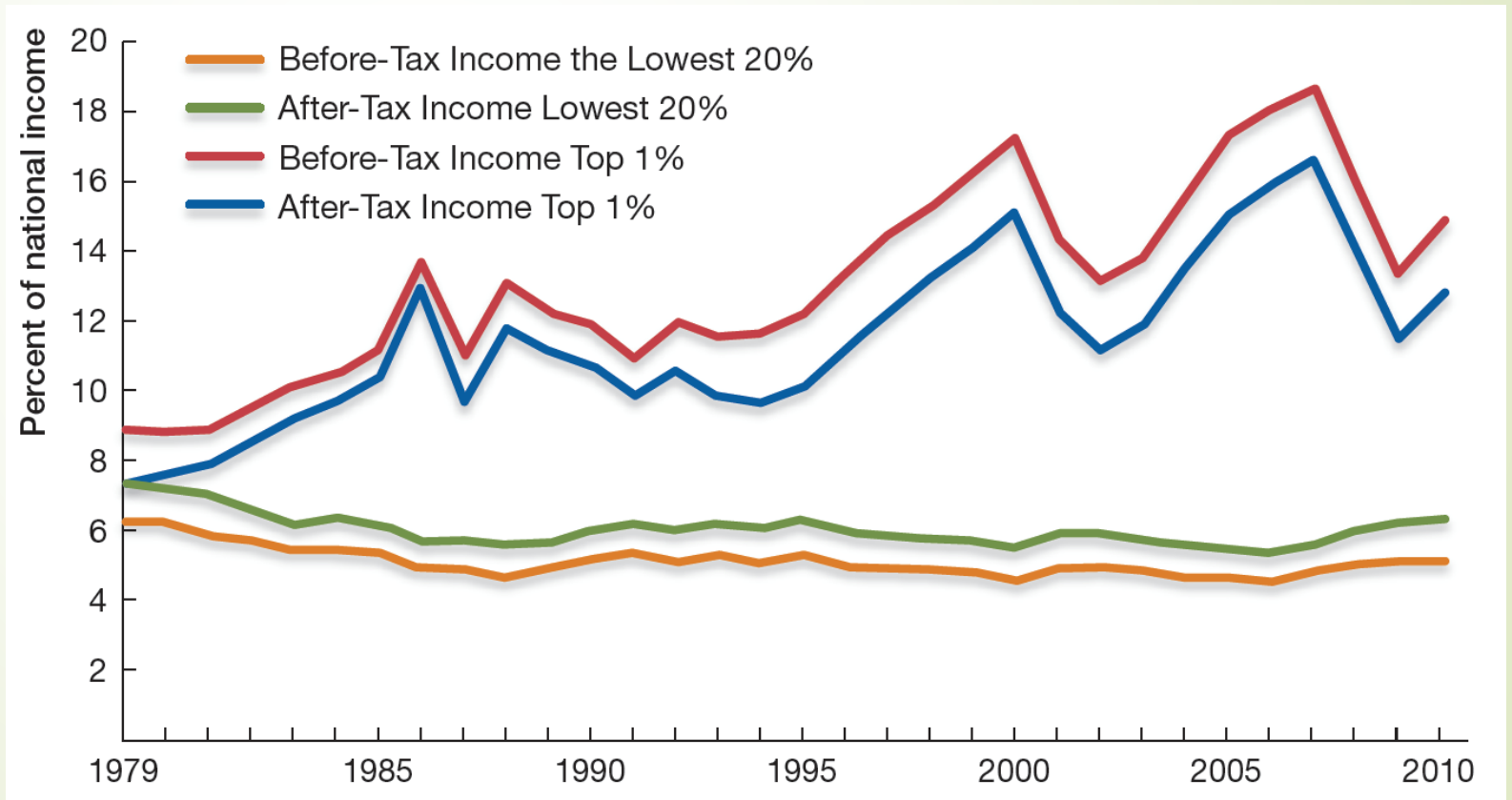


Source: World
Top Incomes
Database

Equity of Taxation 租稅的公平面

- The after-income tax income distribution is more equal than the before-tax income shares of the top 1% and the lowest 20% of households.

透過所得重分配與累進稅制，所得不均(貧富差距)程度減緩。然而所得不均仍日益惡化。



Efficiency of Taxation 租稅的效率面

- Deadweight loss 無謂損失

The decrease in social surplus caused by some market distortion.

- Main reasons for distortion:

- Government intervention to the market: price ceiling, price floor, taxes and subsidies, etc.

- Imperfect competition: monopoly, oligopoly, and monopolistic competition.

- The market no longer produces efficient outcome. **There is an inefficiency.**

無謂損失是因為某些對市場的扭曲所造成的社會福利損失，**形成不效率的現象**。主要的扭曲來源是政府的管制與不完全競爭市場的存在。

Tax Incidence 租稅歸宿

- Tax incidence for indirect taxes 間接稅的租稅歸宿
 - After a tax is imposed, those who **officially pay** the tax are the **statutory incidence**
名義上支付租稅者，稱為法定歸宿。
 - 轉嫁：indirect tax can be shifted through the price change.
間接稅可**透過商品價格的調整轉嫁**給消費者
 - However, some people may still bear some tax burden even though they don't officially pay the tax. They are the **economic incidence** of the tax.
經濟歸宿：交易雙方**實際上負擔**租稅的多寡

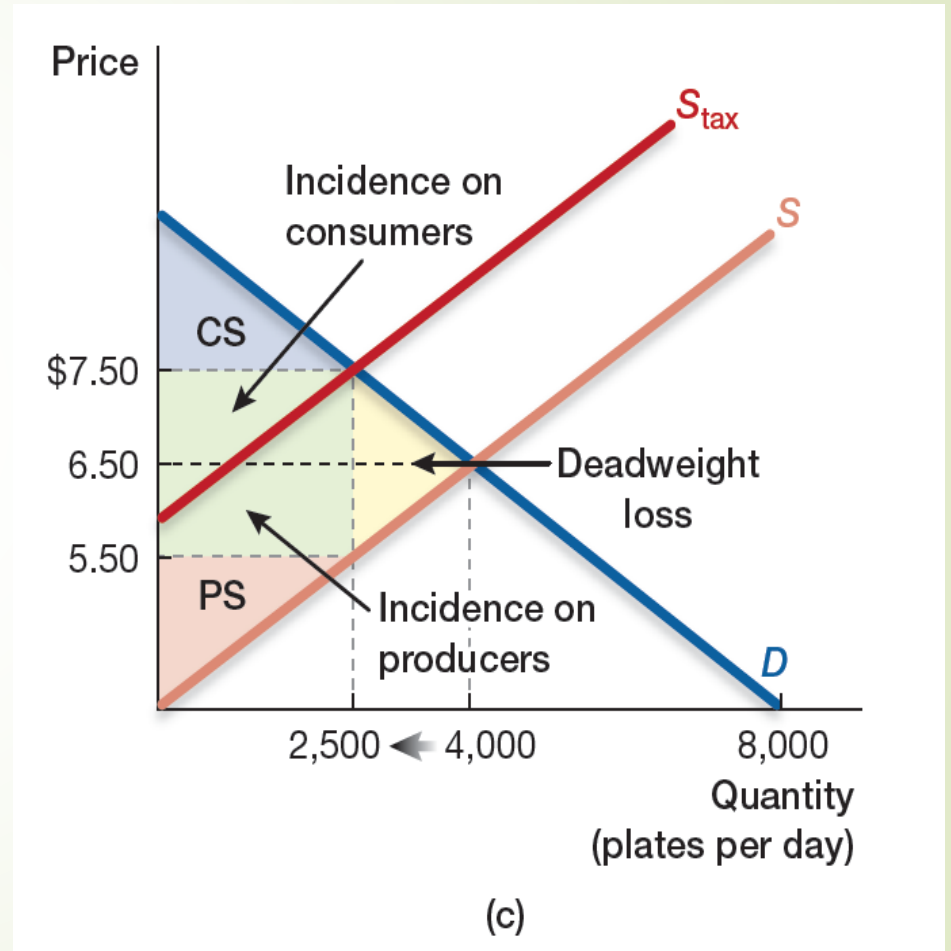
Tax Incidence 租稅歸宿

- Use demand-supply curves to analyze the effect of taxation.
- Before tax, the equilibrium price is \$6.5.
- Suppose that there is an excise tax of \$2 imposed on the **sellers**.

廠商是貨物稅的法定歸宿

- The extra tax is added to the marginal cost of the sellers. Thus, the **after-tax supply curve shifts upward** (the cost is higher).

廠商的邊際成本因租稅而提高
⇒供給線上移

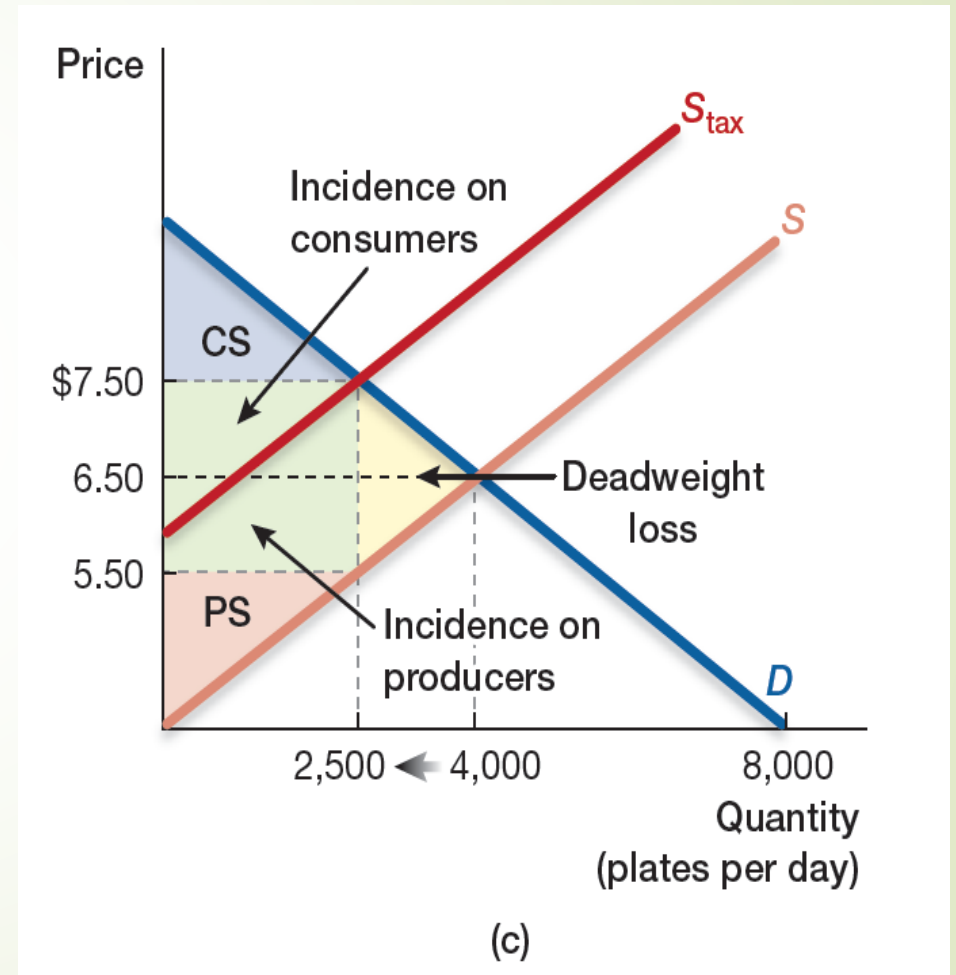


Tax Incidence 租稅歸宿

- The after-tax equilibrium price is \$7.5.
- Buyers actually **pay \$1 more for each unit** after the tax.
- The tax incidence on buyers is 50% of the \$2 tax, **even though the tax was imposed on sellers!**

租稅導致均衡價格提高，消費者實際上分擔了部分租稅(即使法定歸宿是廠商)
 ⇒ 廠商將租稅轉嫁給消費者!

經濟歸宿：消費者與廠商各負擔50%的租稅

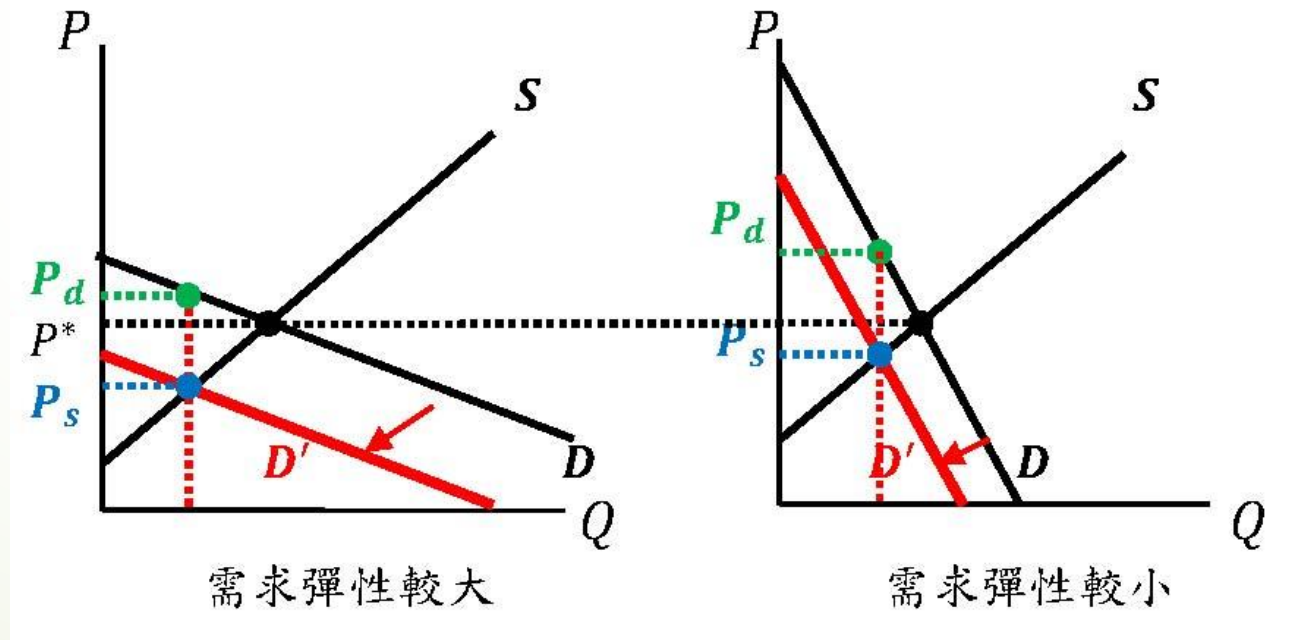


Tax incidence and elasticities 租稅歸宿與彈性

● Tax incidence and elasticities:

- Given the same supply function, the buyers whose demand curve is **more inelastic** bear **more tax burden**.

- 給定同一供給線，不同的需求彈性的消費者所面對的經濟歸宿亦不同
- 需求彈性越小，消費者將負擔越大經濟歸宿，因其對價格的反應能力較差。例如：菸酒稅



Efficiency of Taxation 租稅的效率

- Efficiency 效率：

A status where the well-being of everyone in society, or **the social welfare, is maximized.**

效率是指**社會福利達到最大**的狀態

- Social surplus = consumer surplus + producer surplus

社會福利最大，即社會的「剩餘」（賺到了的部分）達到最大。

而社會總剩餘 = 消費者剩餘 + 生產者剩餘

Consumer surplus 消費者剩餘

- The difference between what you are willing to pay and what you have to pay (the market price).

消費者剩餘是指每單位消費者的願付價格與實際付出的市場價格之間的差距。（「賺到了」）

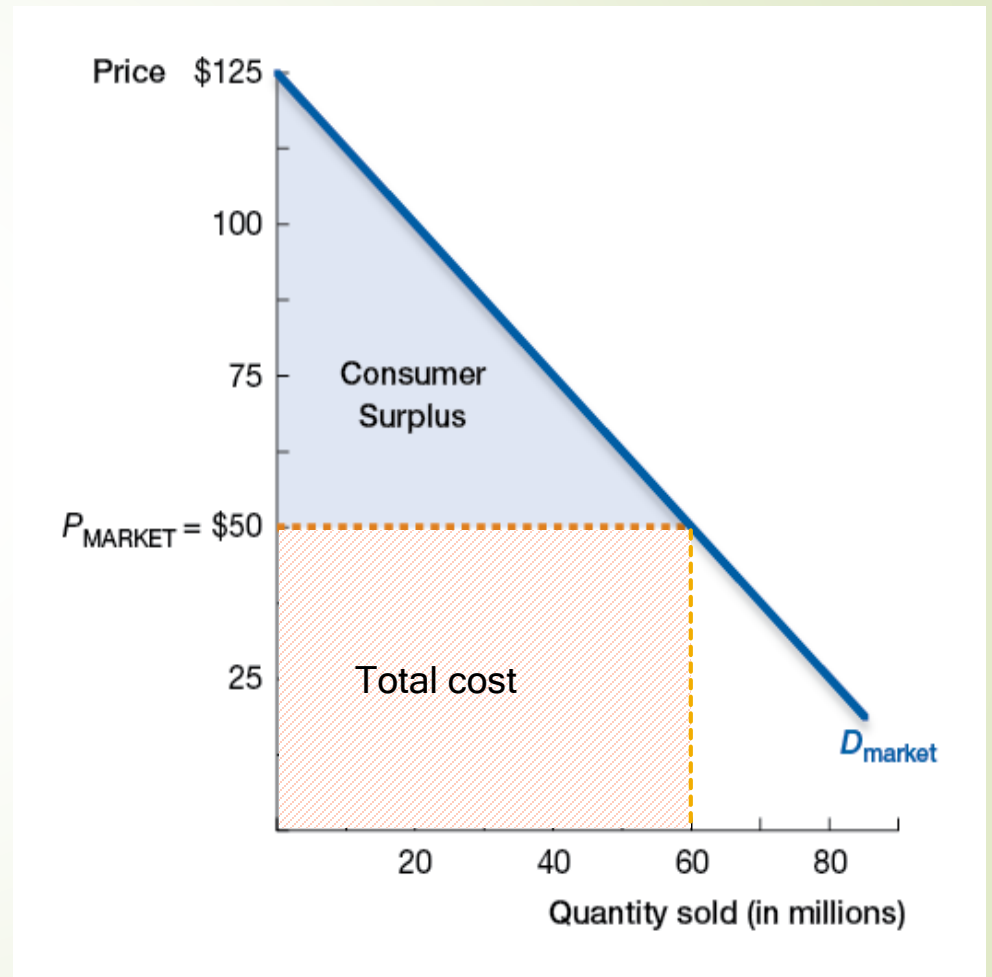
通常用來**衡量消費者的福利**。



Consumer surplus 消費者剩餘

- Consumer surplus = the area of triangle below the market demand curve and above the market price.
- $CS = \text{Total benefit} - \text{total cost}$

市場的消費者剩餘是將在市場交易量(60單位)之前所有單位的願付價格與市場價格之間的差距加總起來，也就是需求曲線與市場價格之間的三角形

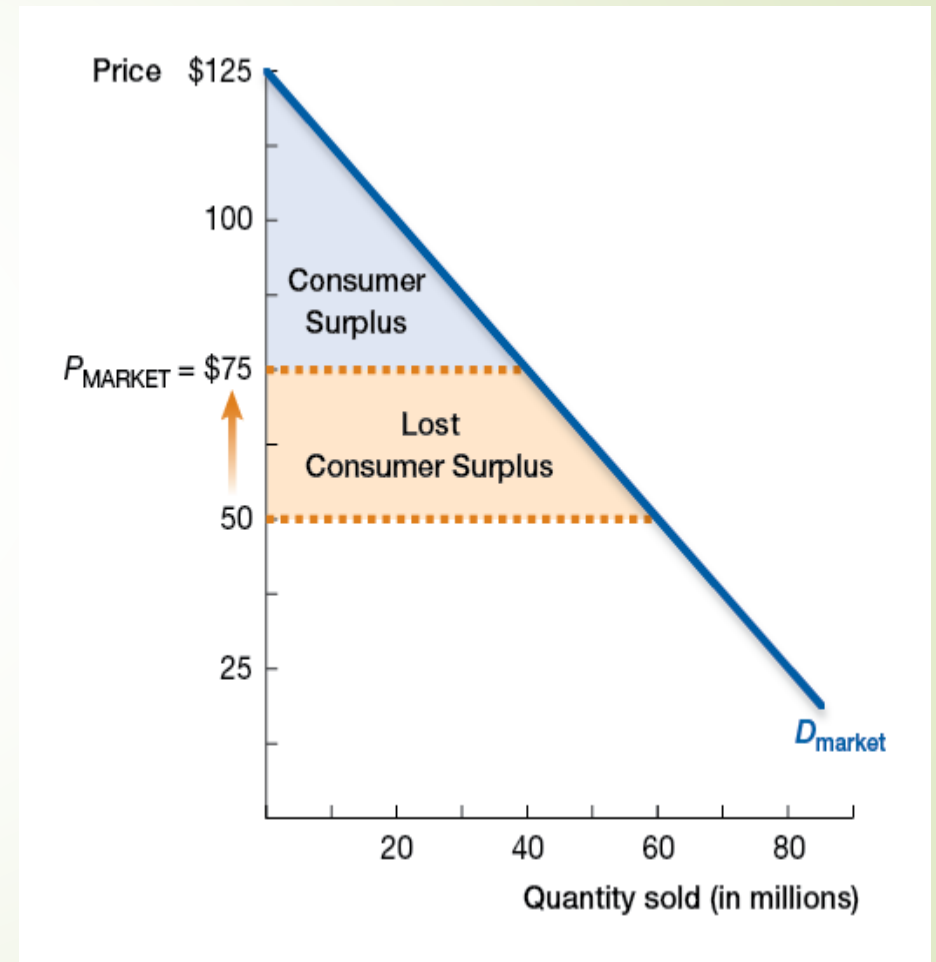


Consumer surplus 消費者剩餘

- Change in consumer surplus:

When price goes up (down), the consumer surplus decreases (increases), meaning that consumers feel worse off (better off) because of the price change.

當市場價格增加(下降)時，消費者剩餘將減少(增加)，表示消費者淨效益減少(增加)。



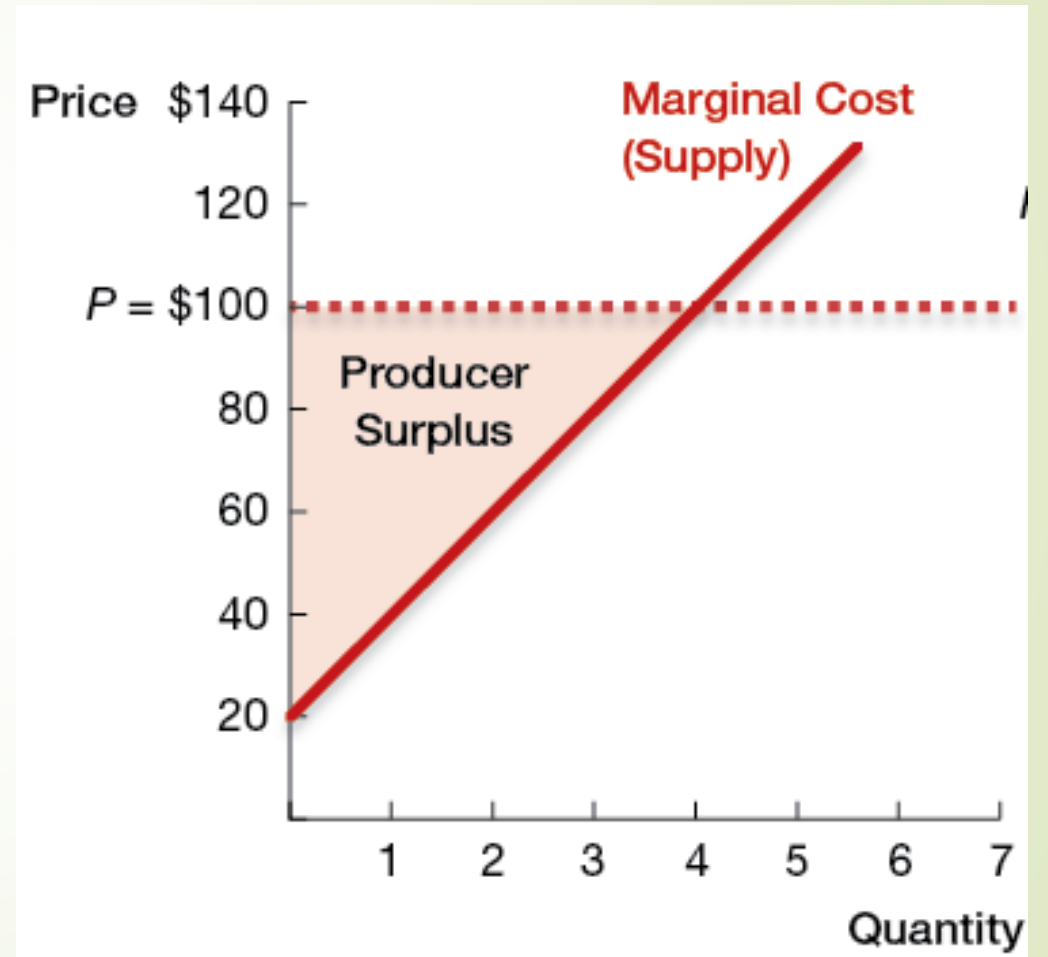
Producer surplus 生產者剩餘

- Definition:

The difference between the market price and the price that a firm would be willing to accept (i.e., the marginal cost).

生產者剩餘是指每單位市場價格與生產者的願受價格之間的差距。

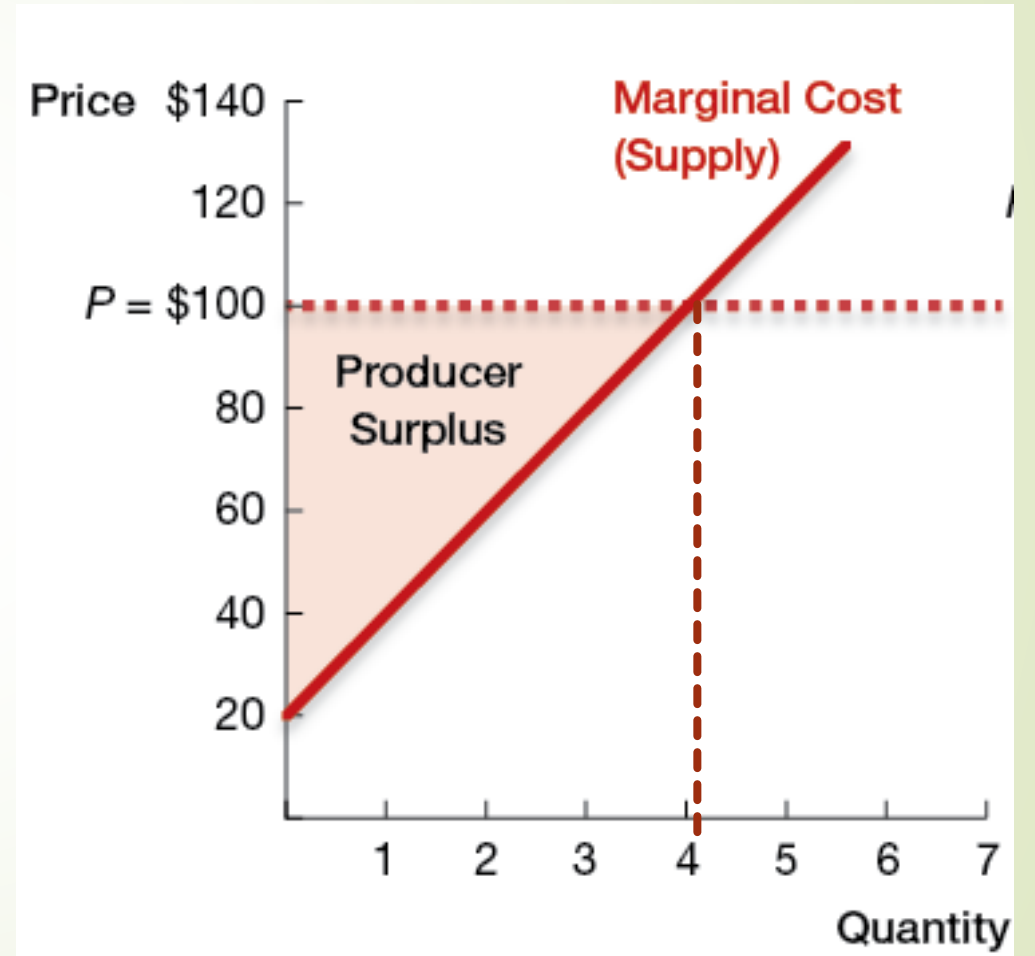
通常用來**衡量生產者的福利**。



Producer surplus 生產者剩餘

- Producer Surplus = The area of triangle below the market price and above the marginal cost curve.

生產者剩餘是將在市場交易量(4單位)之前所有單位的市場價格與願受價格之間的差距加總起來，也就是市場價格與邊際成本線之間的三角形面積

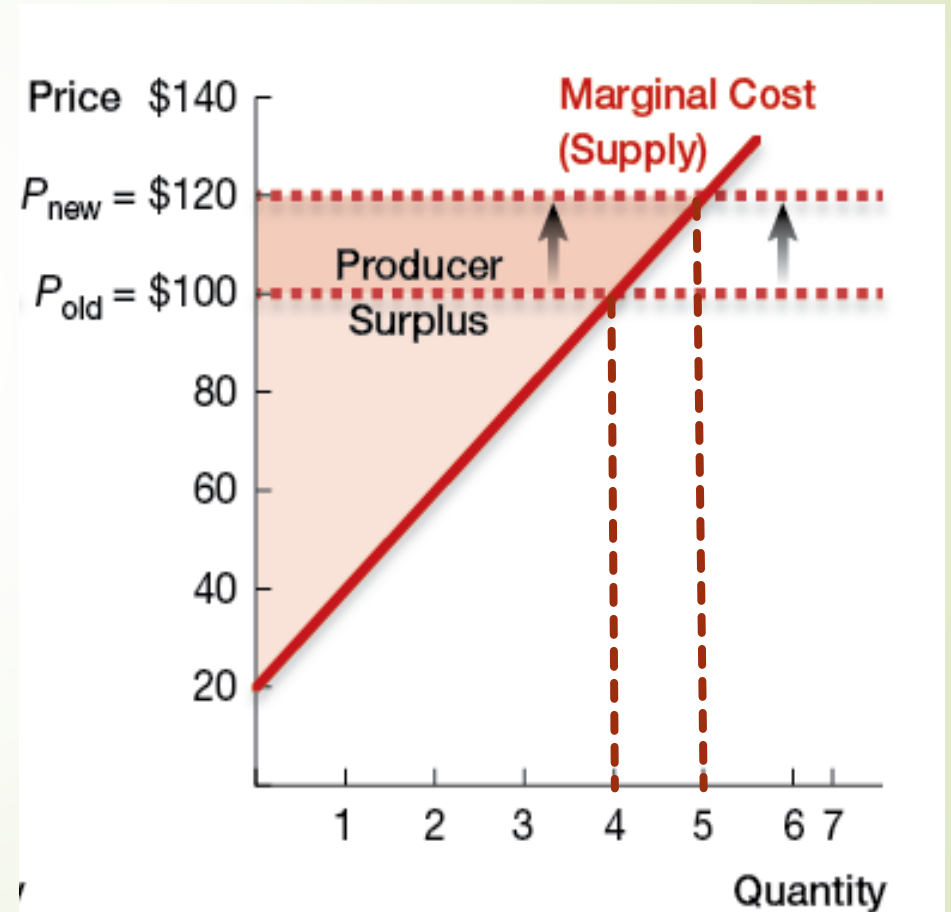


Producer surplus 生產者剩餘

- Change in producer surplus:

When price goes up (down), the producer surplus increases (decreases), meaning that producers feel better off (worse off) because of the price change.

當市場價格增加(下降)時，生產者剩餘將增加(減少)，表示生產者淨效益增加(減少)。



Deadweight loss 效率損失

- Deadweight loss caused by taxation:

- Social surplus before the tax (price is P^*)

$$CS = A+B+C+D$$

$$PS = E+F+G$$

$$SW = A+B+C+D+E+F+G$$

- Social surplus after the tax:

(buyers pay P_1 , and sellers obtain P_0)

$$CS = A$$

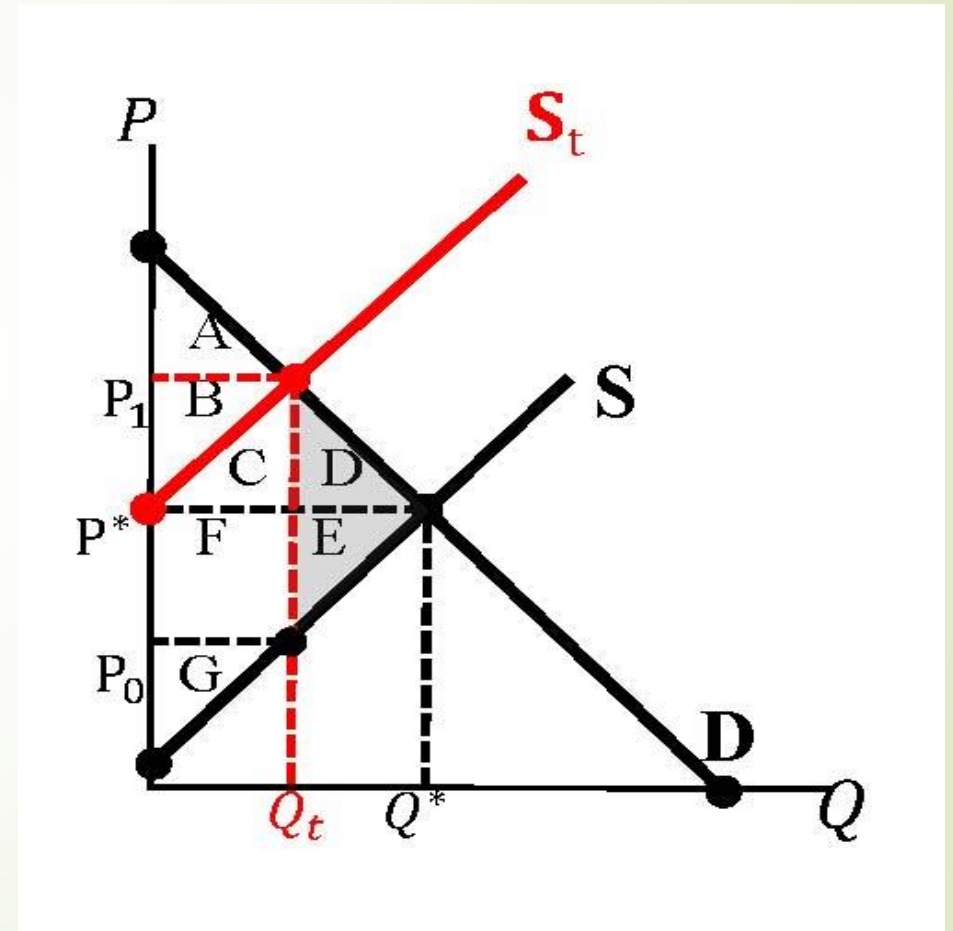
$$PS = G$$

$$\text{Tax revenue} = B+C+F$$

$$SW = A+B+C+F+G$$

- **Deadweight loss = $D+E$**

課稅使產量降低而造成社會損失 $D+E$ ，此為租稅所造成之不效率。



Deadweight loss 效率損失

● 租稅造成的無謂損失為何？

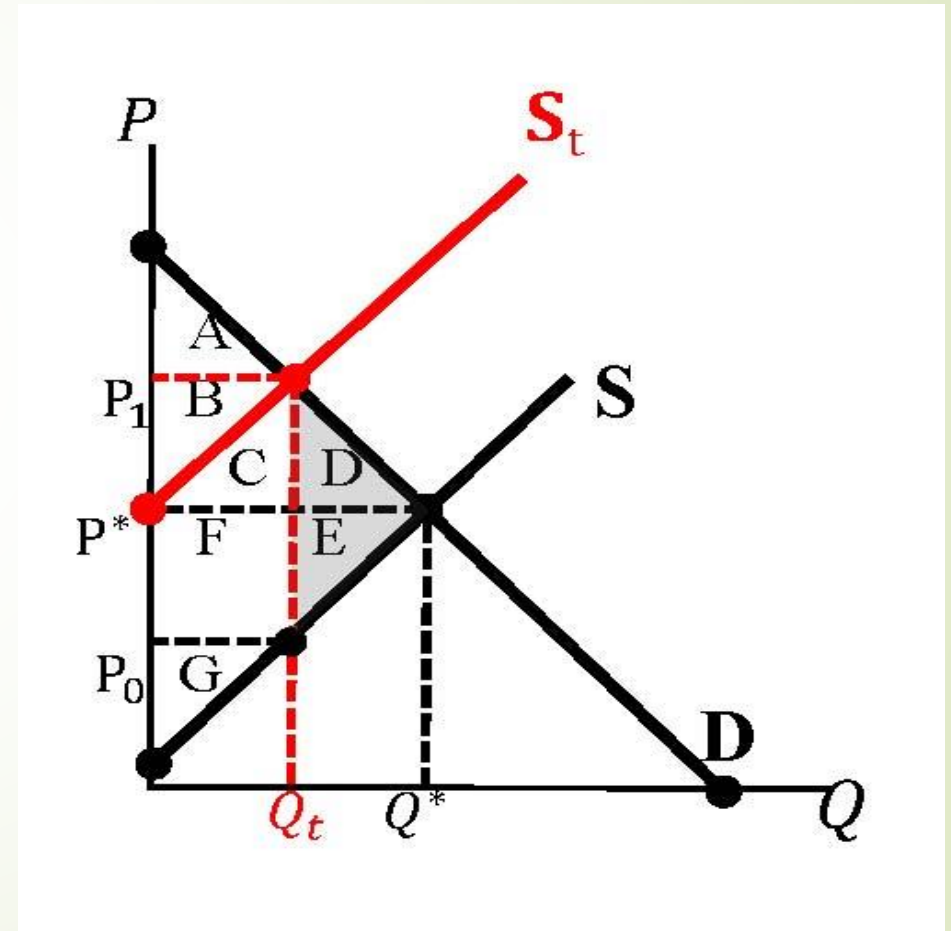
➤ $\Delta CS = -B-C-D$

$\Delta PS = -E-F$

Tax revenue = $B+C+F$

➤ **Deadweight loss = $D+E$**

- 消費者需要付出較高的價格，卻買到較少商品，因而受害
- 廠商收到的價格降低，卻賣出較少商品，因而也受害
- 課稅有收入，但無法補償前面兩項的損失，因此有無效率



Regulation 管制

- **Regulation** is a form of government intervention to markets through its command-and-control policies. The government directly takes some actions to control a certain activity in the economy.

管制是政府透過法規或行政命令對市場進行干預，以達到特定的目標

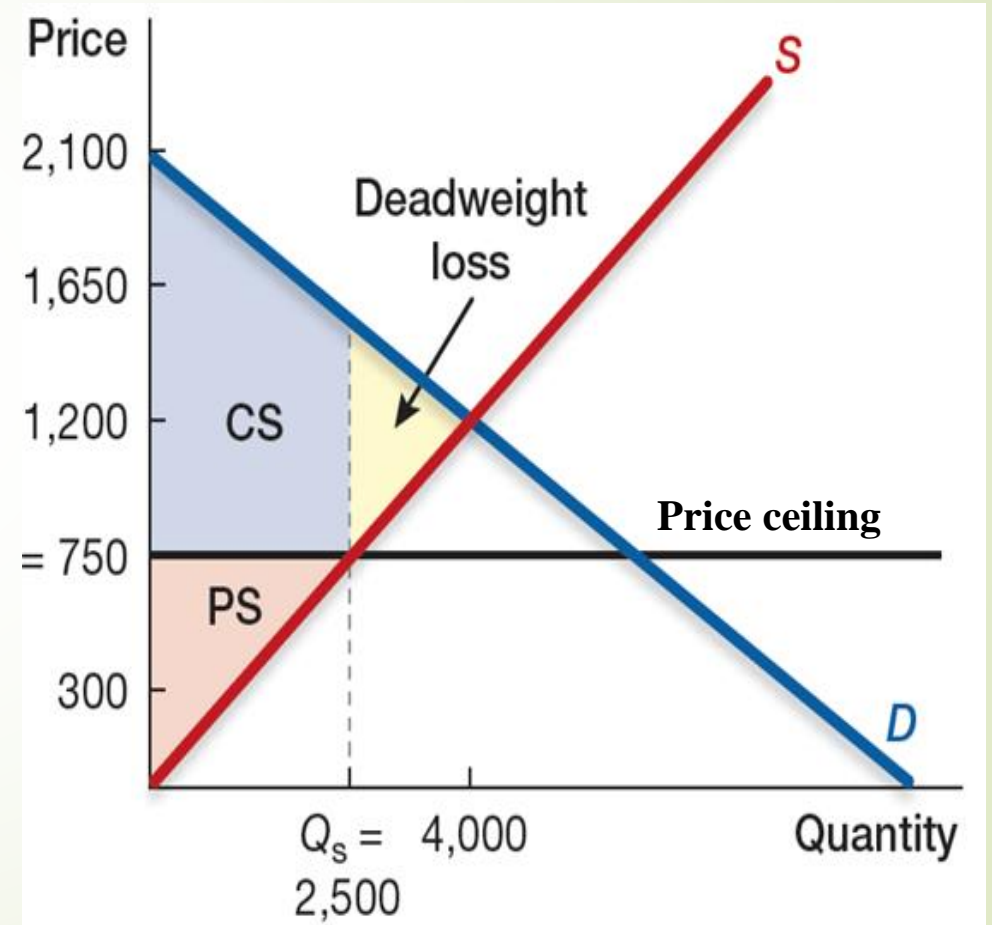
例如：食品安全管制政策、汙染管制政策、價格管制

Regulation 管制

- Price ceiling 價格上限
 - Price ceiling puts a cap (or maximum) on the price, e.g., rent control.
 - There is a shortage under the price ceiling. The new equilibrium quantity reduces to 2,500 units.

政府規定價格不得高於某一個水準，此水準低於現在市價

例如：rent control 租金管制



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Regulation 管制



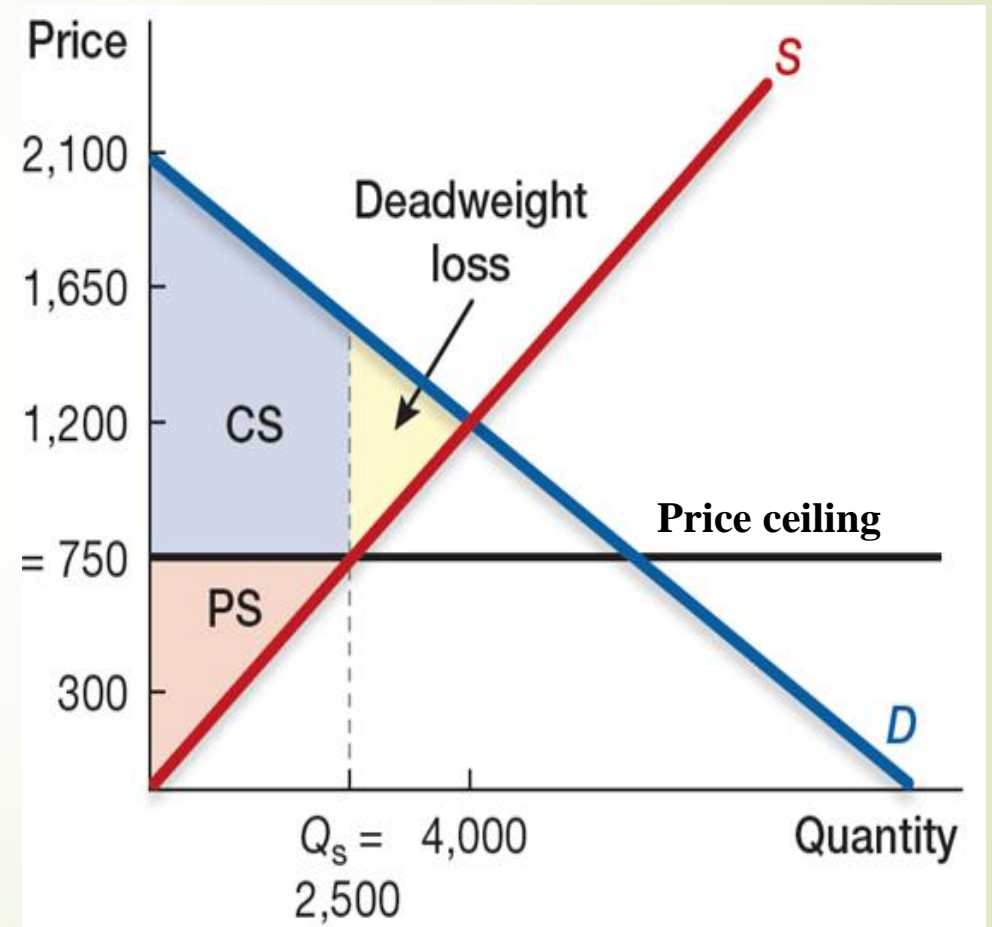
蔡崇聖 (五校聯盟微課程)

Movie:
Duplex
(2003)

Regulation 管制

- Price ceiling 價格上限
 - Producers must be worse off.
 - Consumers **may or may not be better off**, even though this policy is meant for their benefit.
 - There is a deadweight loss.

租金管制的出發點是為了消費者。但因為房東出租誘因下降，成交數量減少，最終卻可能使得消費者受到損害，造成無謂損失



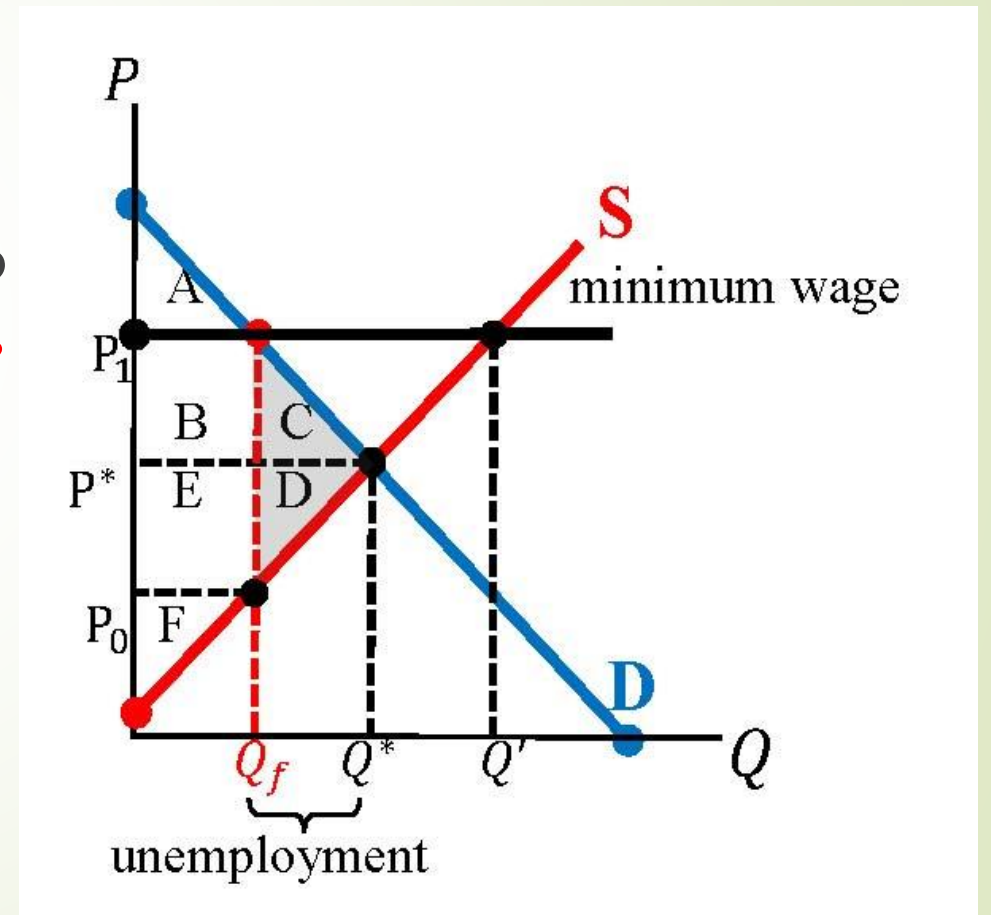
Regulation 管制

● Price floor 價格下限

- Puts a lower limit on the price, e.g., minimum wage policy. (最低工資政策)
- The equilibrium quantity now reduces to Q_f . **There are some unemployed workers now** (with an amount of $Q^* - Q_f$).

2022年最低工資政策規定工資不得低於月薪25,250元、時薪168元

立即的影響是受雇勞工工資提高，但有些人($Q^* - Q_f$)因此失業

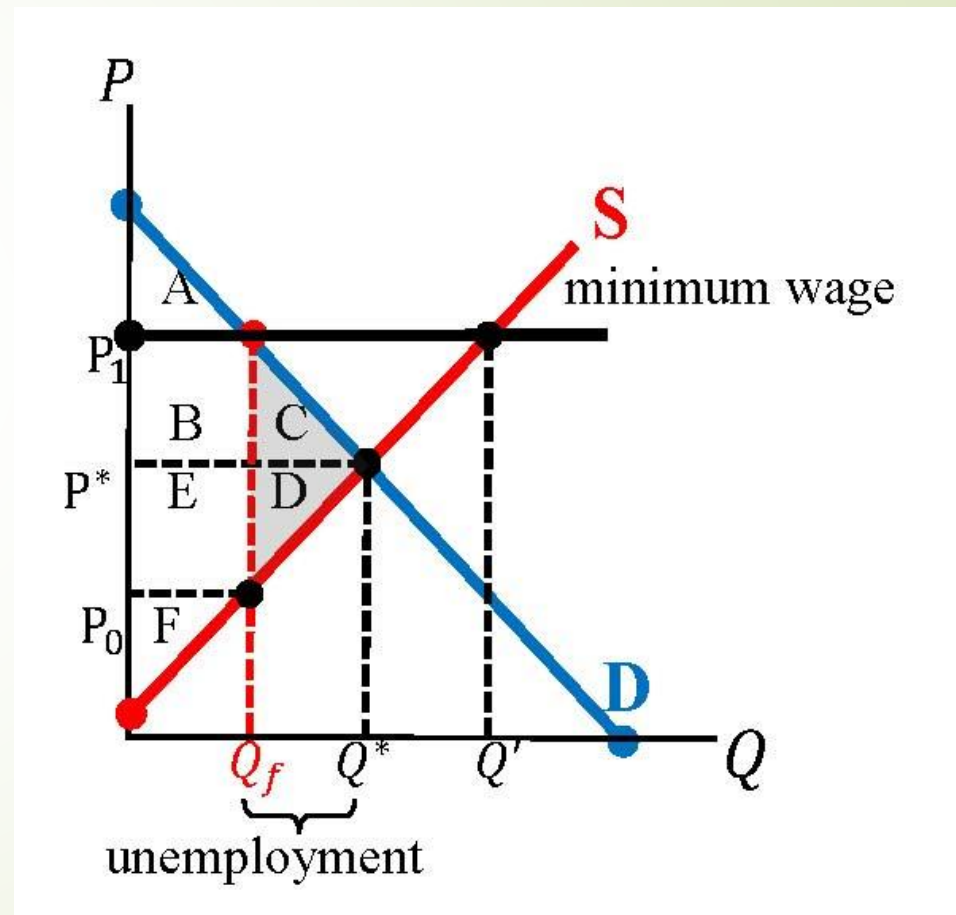


Regulation 管制

● Price floor 價格下限

- Firms must be worse off because wage increases.
- Workers may or may not be better off, even though this policy is meant for their benefit.
- There is a deadweight loss $C+D$.

最低工資出發點是為了勞工，但因為雇主工資成本提高，只能減少雇用量，最終卻可能使得勞工受到損害，造成無謂損失



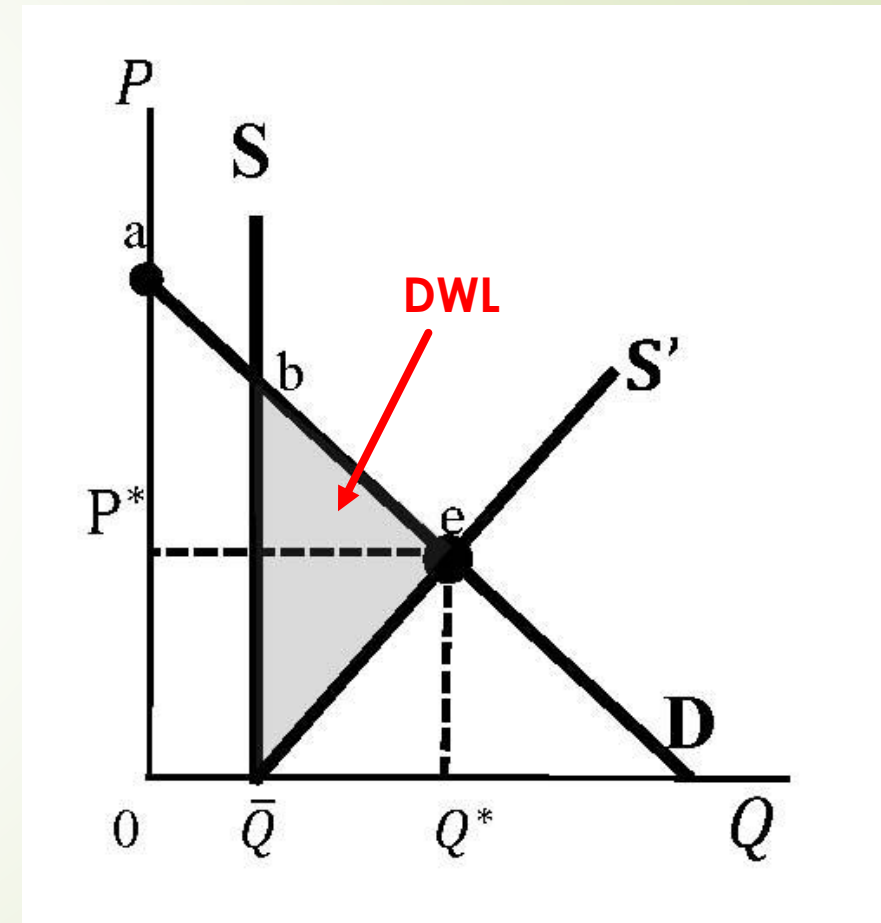
Should there be a Red Market?

是否應開放器官買賣？

- Current policy 現行政策不允許器官買賣
 - Illegal for people to sell their organs (available only by donations)
 - Government has imposed a price ceiling of zero.
 - Typical patient waits several years for a kidney transplant, and every year thousands of people die because a kidney cannot be found
- Benefits to allowing a free market in organs 開放器官買賣對買賣雙方的利益
 - People are born with two kidneys, and usually need only one
 - Few people desperately want a kidney and are willing to pay a lot
- Cost: concerns for **fairness**. The market benefits the rich at the expense of the poor
有錢人的命比較值錢？

Should there be a Red Market?

- If a kidney market opens: 若開放器官買賣市場
 - Sellers get paid, and buyers get to live (win-win).
 - There is no shortage of kidneys, and the allocation is efficient.
- The social welfare increases:
 - The social welfare before the open = $CS + PS = \square ab\bar{Q}0$ ($PS = 0$ since $P = 0$)
 - The social welfare after the open = $CS + PS = \Delta aeP^* + \square P^*e\bar{Q}0 = \square ae\bar{Q}0$
 - **Deadweight loss from regulation = $\Delta be\bar{Q}$.**



Government failures 政府失靈

- **Government failures** refer to a broader set of inefficiencies associated with government interventions, including the deadweight losses of taxation or inefficiencies from price controls or direct regulation.
- Some other reasons that cause government failures relate to the **agency problem**, including bureaucracy and corruption.

政府失靈是因政府干預所引發的不效率性；除了上述因租稅或管制所導致的政府失靈，還有一些是與**代理人問題**有關的，如官僚和貪污。

Government failures 政府失靈

● Bureaucracy and corruption 官僚與貪汙

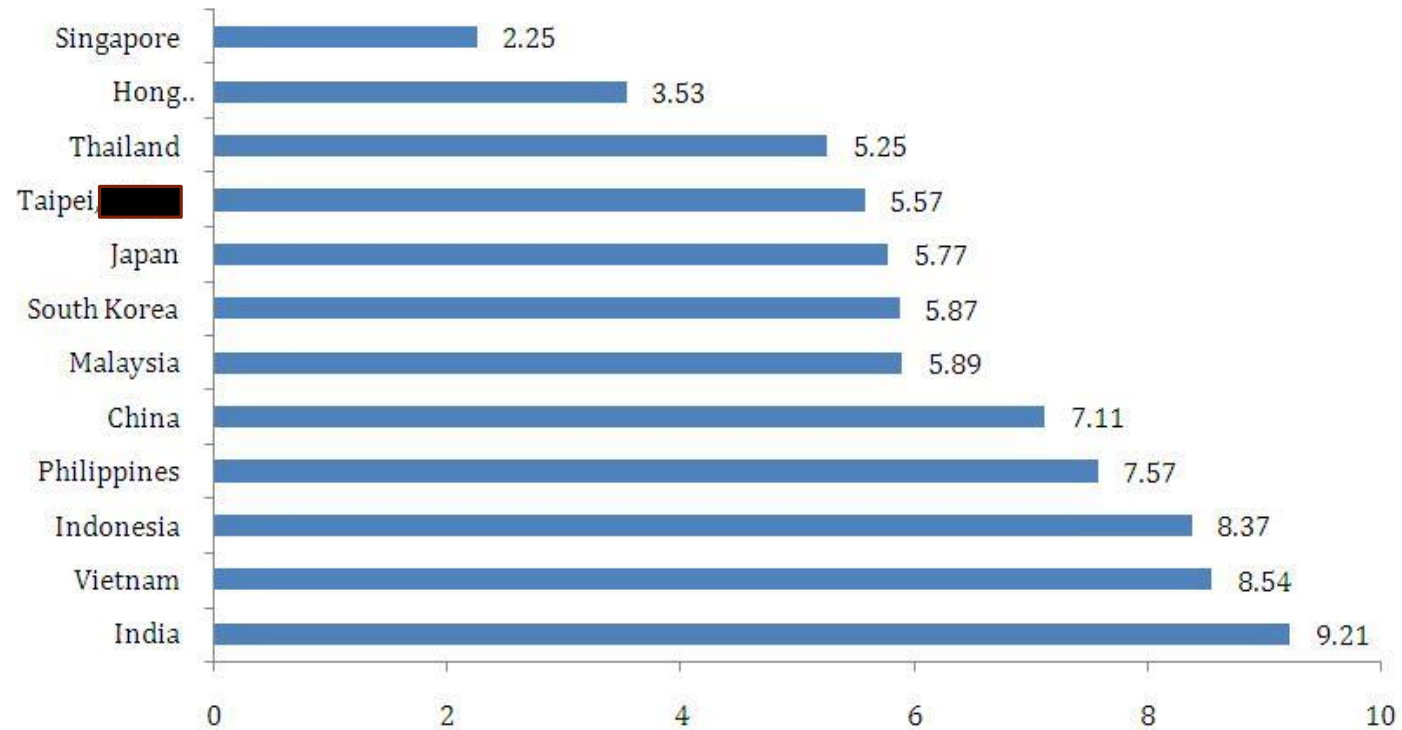
- The public sector often lacks of competition and of the profit motive for the workers to make efforts or to behave good.
- There can be **moral hazard** problem, in that bureaucrats are lazy or do something good for themselves but bad for the government or the society.
- There incurs a **bureaucracy cost** when bureaucracies don't function efficiently.

公部門因不像私部門，一般而言缺乏競爭，官員往往有道德危險的問題，產生不效率

Government failures 政府失靈

- Cross-country comparison:

Efficiency of Bureaucracy 2012, Scores



Source: PERC Ltd, Jan 2012; Note: 1-Best, 10-Worst

Source:
POLITICAL &
ECONOMIC RISK
CONSULTANCY

Government failures 政府失靈

- **Corruption** refers to the misuse of public funds or the distortion of the allocation of resources for personal gain.
- The methods include accepting bribes, embezzlement, theft and fraud, etc.
- For example, the World Bank estimates the **total amount of bribes** paid in both developing and developed countries in years 2001-2002 to be 1 trillion dollars, **about 3 % of world GDP**.

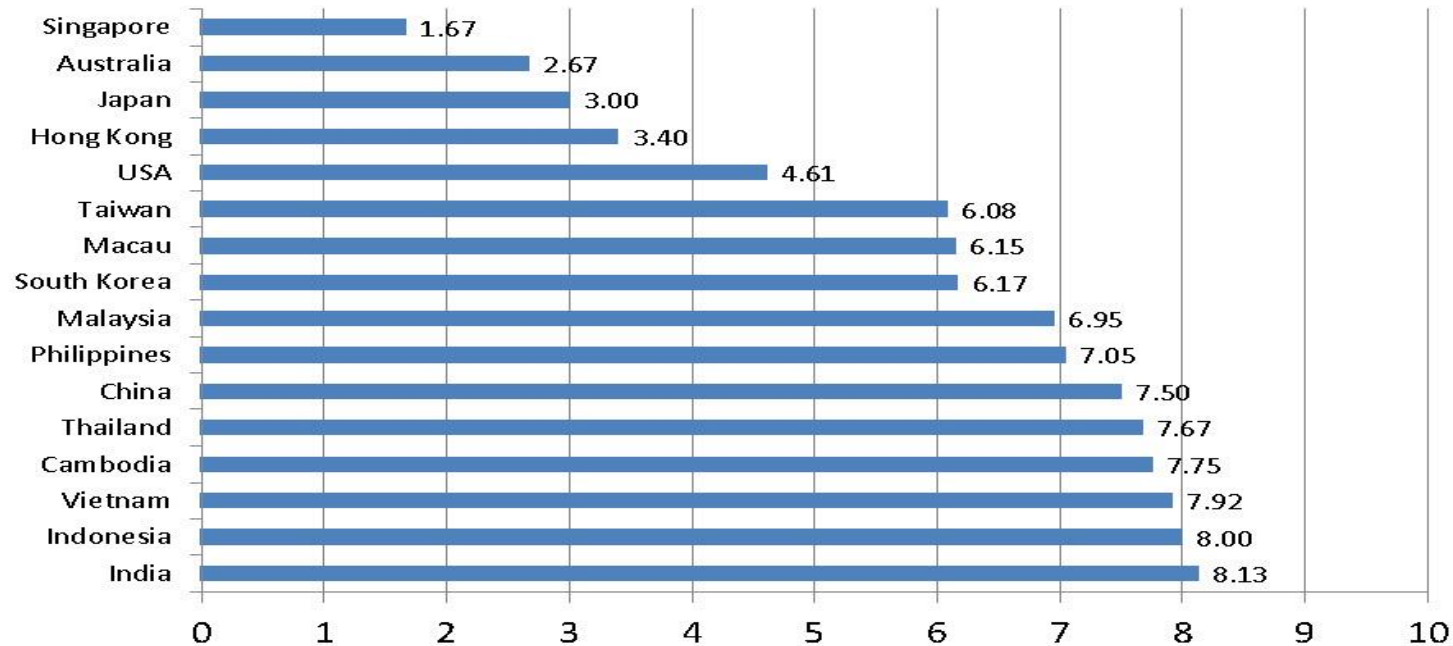
貪汙為國家資源流入私人所用

世界各國貪汙的金額，可能高達GDP的3%

Government failures 政府失靈

- Cross-country comparison:

Perceptions of Corruption in Asia, the US and Australia

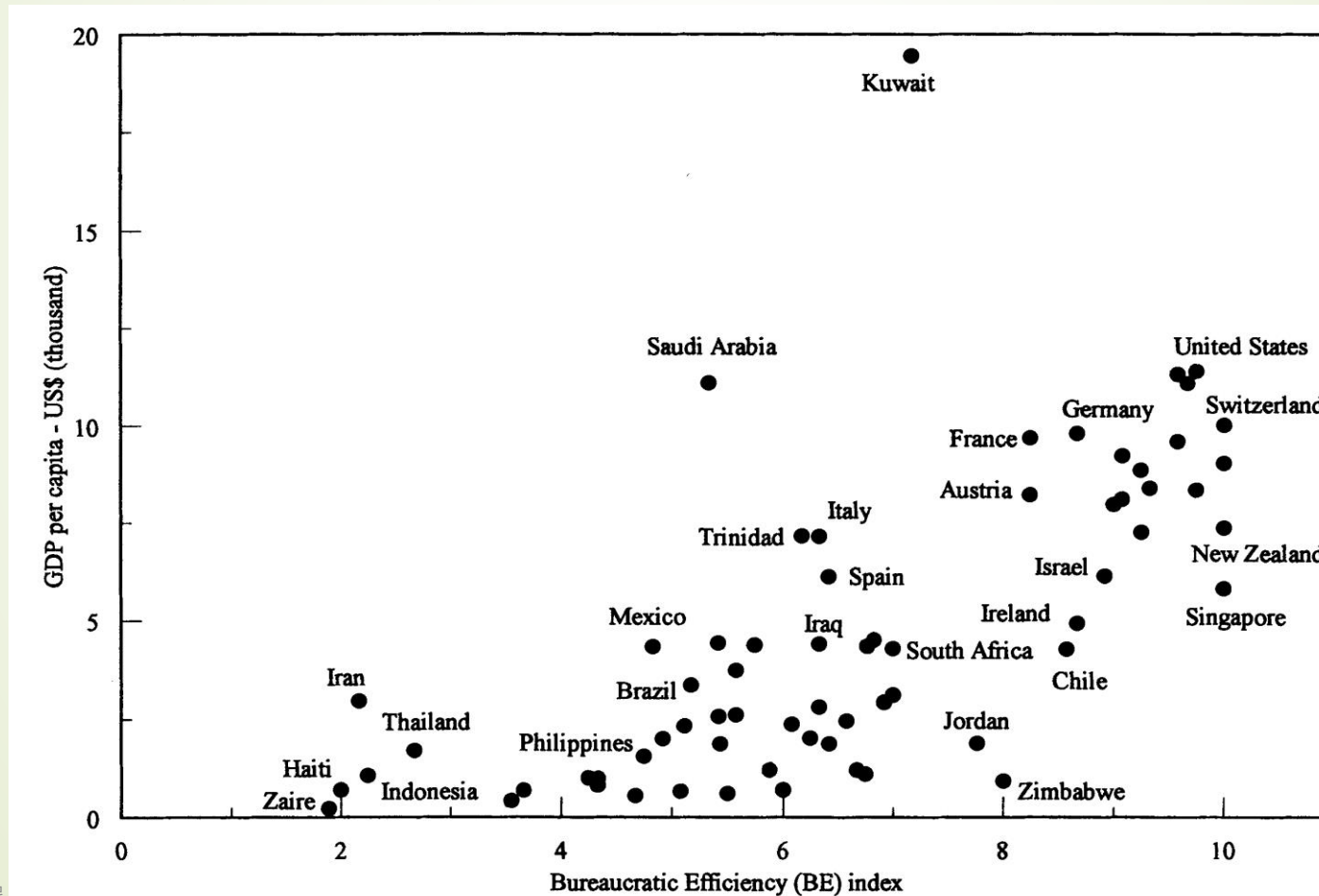


Grades are scaled from zero to 10, with zero being the best grade possible and 10 the worst. The question asked was: "How do you grade the problem of corruption in the country in which you are working?"

Source:
POLITICAL &
ECONOMIC RISK
CONSULTANCY

Government failures 政府失靈

- Bureaucracy efficiency and GDP per capita:

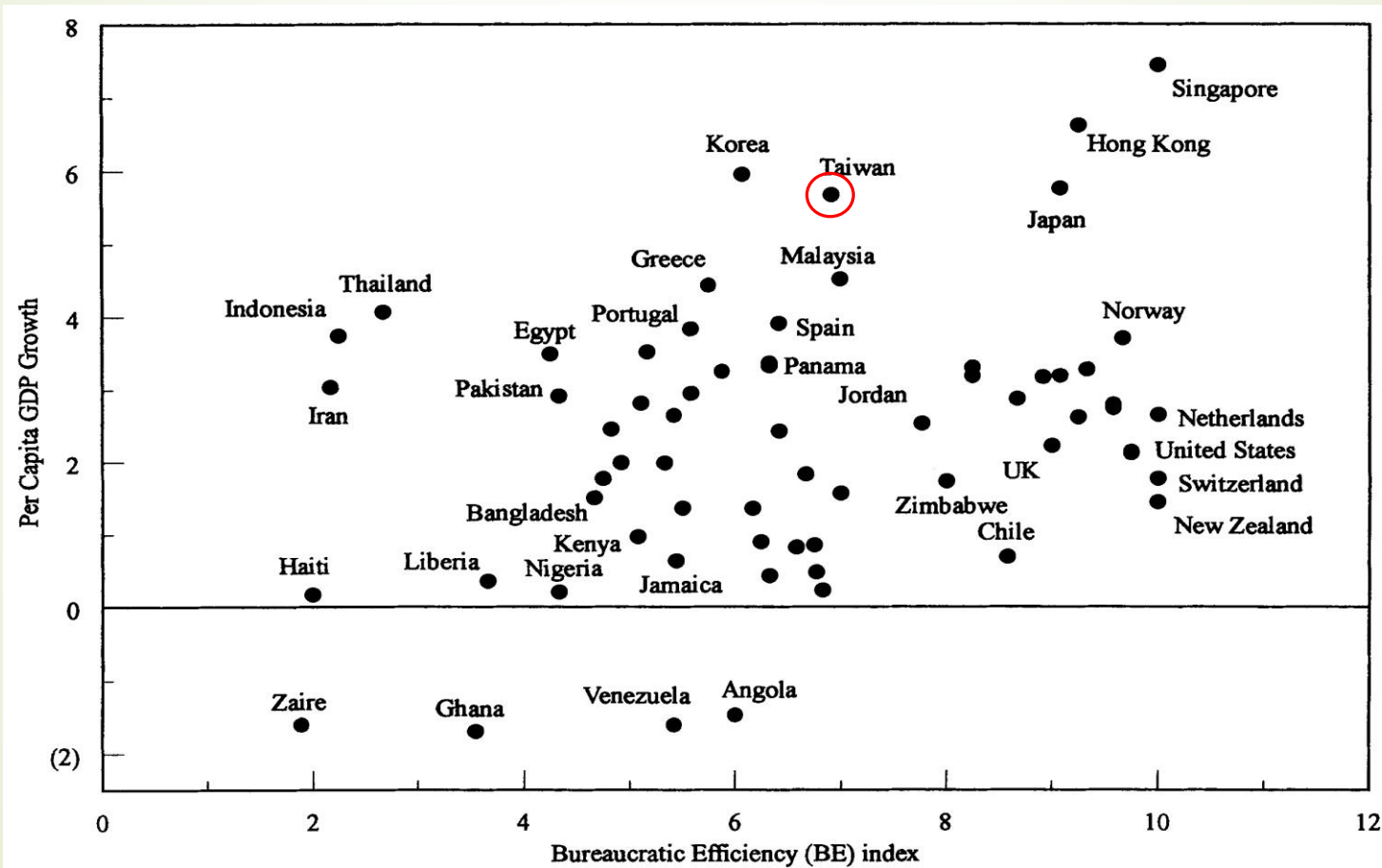


以世界各國平均而言，官僚效率與人均GDP間的正向關係較強烈。

Source:
“Corruption and Growth” by Paolo Mauro, QJE (1995)

Government failures 政府失靈

- Bureaucracy efficiency and GDP growth rate:



但官僚效率與成長率關係較不明顯。難道官僚效率較好未必促進成長嗎?

Be careful:
correlation vs.
causation!

Source:
"Corruption and
Growth" by Paolo
Mauro, QJE (1995)

Underground economy 地下經濟

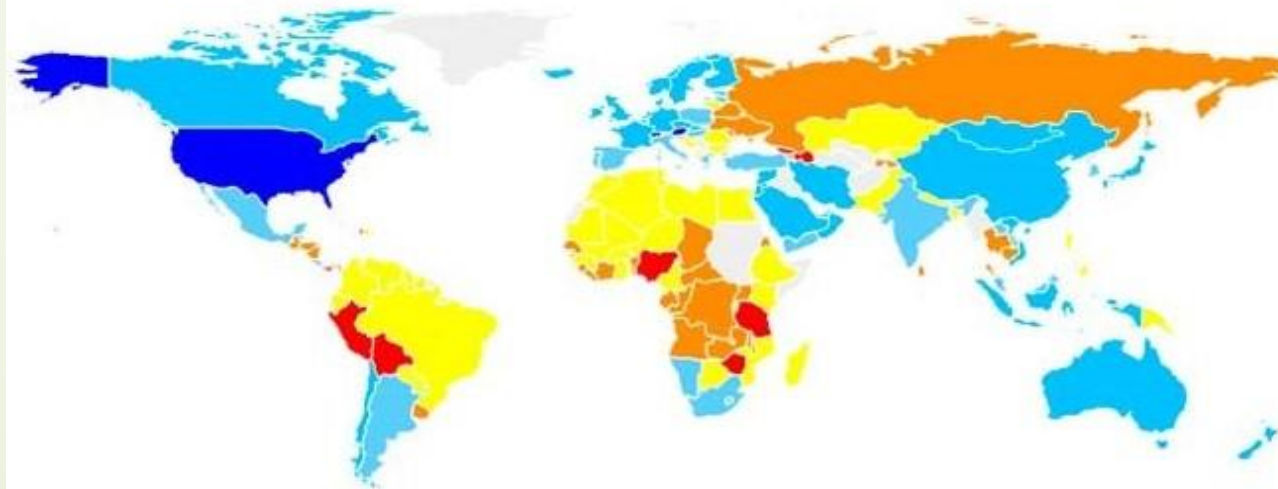
- The underground economy (black market) includes activities where income **taxes are evaded or avoided**, as well as illegal activities, such as drug dealing and prostitution.
- The cost of underground economy:
 - It jeopardizes the effectiveness of government policy or regulation.
 - It puts legitimate business at a disadvantage.
 - Governments must levy higher taxes to compensate for the lost revenue.
 - It costs the government to stop the illegal activities.

地下經濟屬於政府無法課徵到稅收的經濟活動，如攤販、毒品交易

Underground economy 地下經濟

- Size of underground economy: cross-country comparison

Figure 1. Size of Shadow Economy
(In percent of GDP)



Size of shadow economy in 2006 (% of GDP)



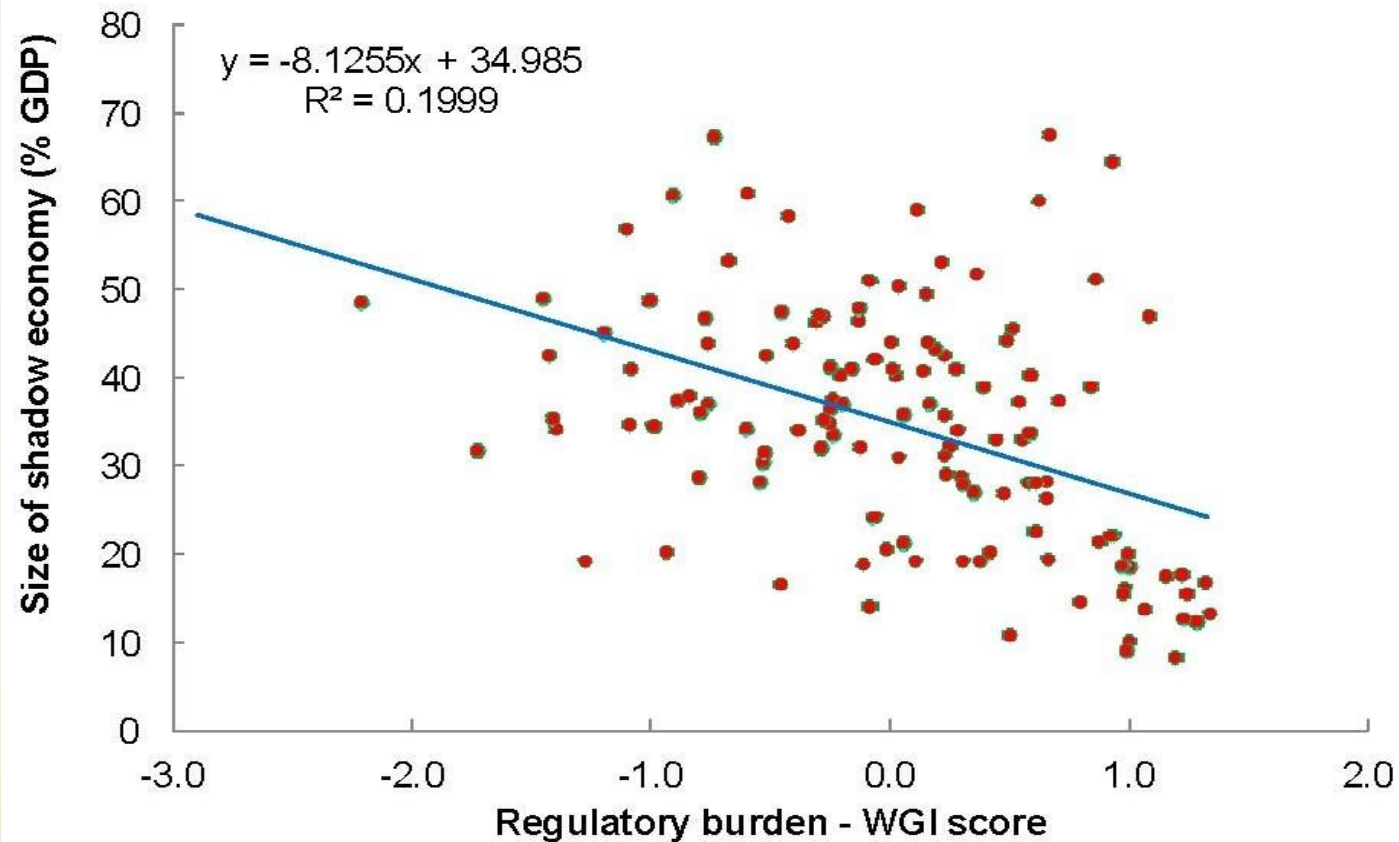
Source:

“Inclusive Growth, Institutions, and the Underground Economy”
by Singh, Jain-Chandra, and
Mohammad (2012)

Underground economy 地下經濟

- Size of underground economy and regulatory burden:

Figure 4. Size of Shadow Economy and Regulatory Burden

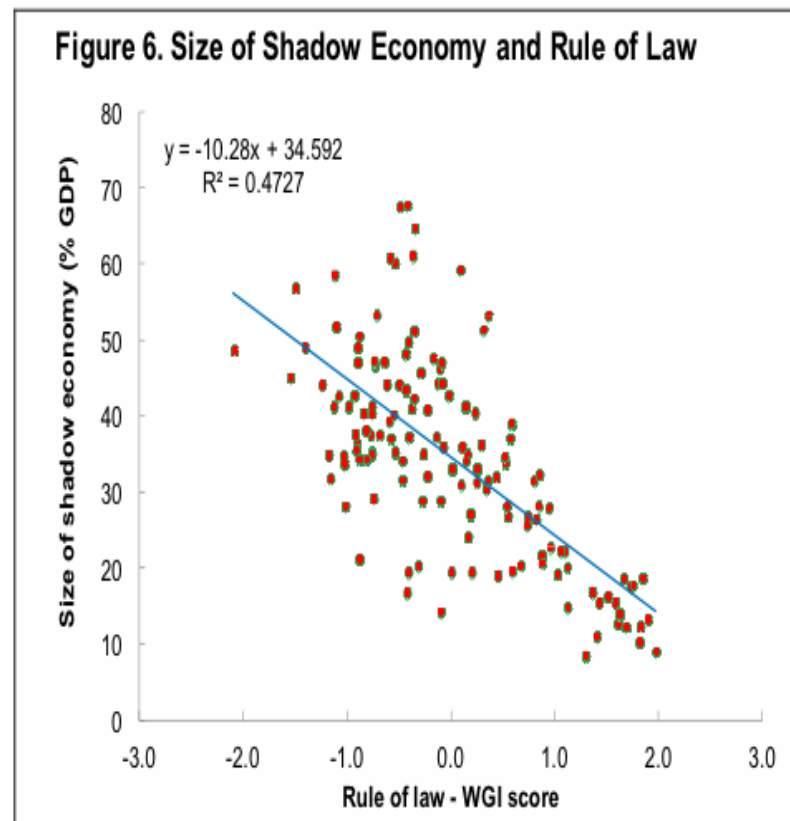
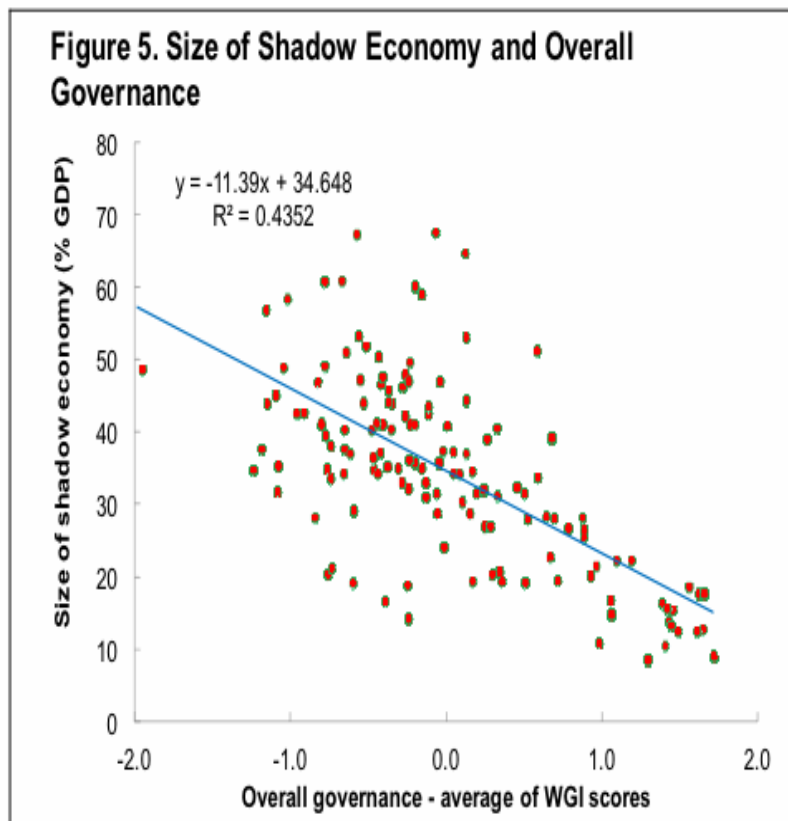


管制越多、造成社會成本負擔越大的國家，地下經濟的規模越大。(橫軸數字越大，表現越好，表示管制越少)

Source:
“Inclusive Growth, Institutions, and the Underground Economy”
by Singh, Jain-Chandra, and Mohommad (2012)

Underground economy 地下經濟

- Size of underground economy and regulatory burden:



政府組織、法令規章越健全
的國家，地下
經濟的規模越
小。

Source:

“Inclusive Growth, Institutions,
and the Underground Economy”
by Singh, Jain-Chandra, and
Mohammad (2012)