Elasticity and its Application
Lecture 5

Elasticity: Measure of the **responsiveness** of demand and supply to their determinants

Elasticity of demand:

- Own price elasticity of demand

  = [change in %Q – change in %P]

  $= \frac{[Q2-Q1]/\{[Q2+Q1]:2\}}{[P2-P1]/\{[P2+P1]:2\}}$ ⟶ Interpreted as % change in QD due to a 1% change in P

E.g.

Price	QD
P1 = 15	Q1 = 100
P2 = 25	Q2 = 50

Own-price elasticity of demand:
$= \frac{[50-100]/\{[50+100]:2\}}{[25-15]/\{[25+15]:2\}} = -\frac{4}{3}$
➔ **1% change in P caused 1.33 % in QD**

Interpretation of elasticity of demand and effect on TR:

- Elastic: ↑ P by 1% -> QD ↓ by **more** than 1% (responsive) -> TR ↓
  - Using the example: TR1 = 15 x 100 = $1,500

    TR2 = 25 x 50 = $1,250
- Unit elastic: ↑ P by 1% -> QD ↓ by 1% -> TR stay the same
- Inelastic: ↑ P by 1% -> QD ↓ by **less** than 1% (unresponsive) -> TR ↑

Determinants of elasticity	**Direction of effect**	**Effect on own-price elasticity**	**Examples**
Degree of necessities	More necessary	Less elasticity	Medicine, food
Availability of substitutes	More substitutes	More elasticity	
Time horizon	Longer time horizon	More elasticity	LR vs SR in oil prices
Share of household budget	Higher budget share	More elasticity	House, education

Elasticity of supply:

- Own-price elasticity of supple = [change in %Q – change in %P]

Changes in equilibrium of Price and Quantity depends on:

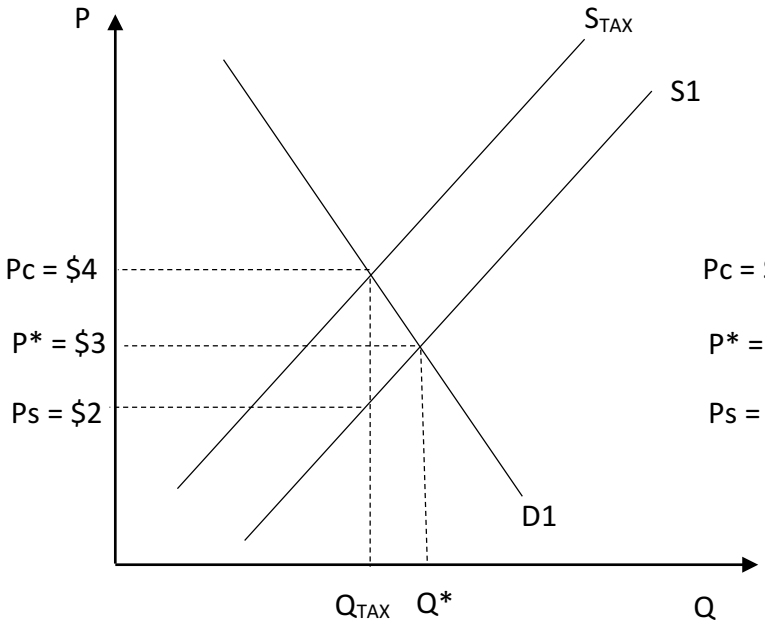
- **Magnitude** of the change in S & D
- **Elasticity** of S&D

Government Regulation
Lecture 6

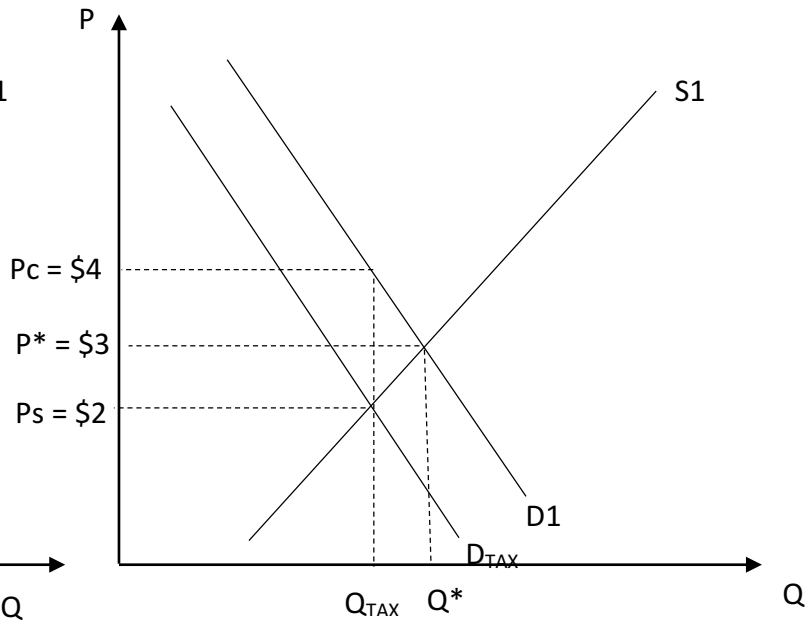
Types of government intervention:

- Indirect intervention: a payment to government per unit of good sold
    - Tax

Tax imposed on supplier



Tax imposed on customer



When the **same amount** of tax applied, the effect of tax imposed on supplier and customer are the **same**. In this case, when tax is imposed:

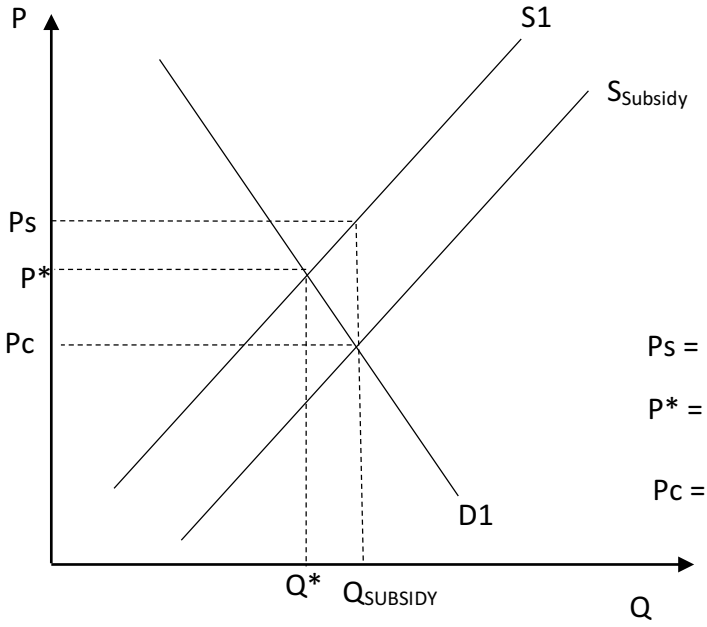
Pc = $4 P*= $3 Ps = $2

Q traded decrease from Q* to Qtax

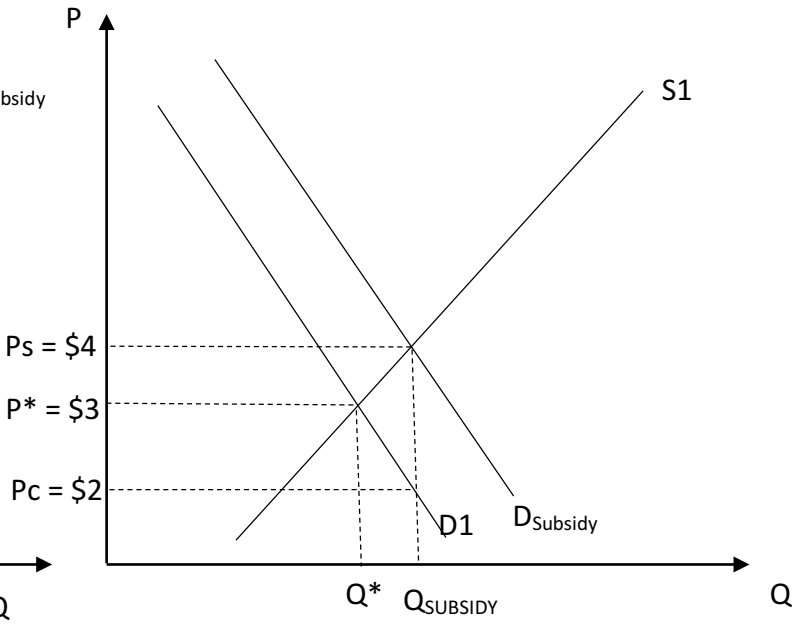
- Buyers pay $4 instead of $3
- Sellers receive $2 instead of $3
- Pc > P* ; Ps < P*
- Tax burden falls **more heavily** on the side of the market that is **less elastic**

- Subsidy

Subsidy is paid to seller



Subsidy is paid to buyers



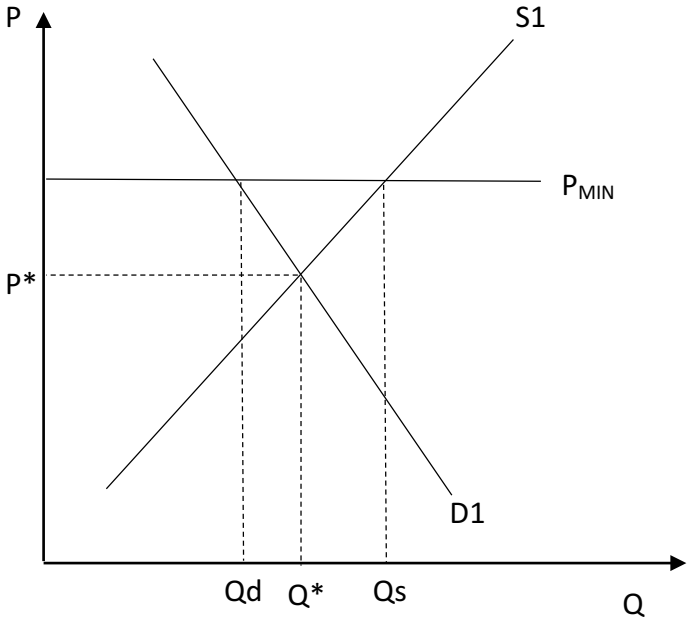
Effect on subsidy given to suppliers and buyers:

$Ps > P^*$ $Pc < P^*$

Q traded increase from Q* to Qsubsidy

- Direct intervention (control)
  - Price floor: Legal minimum on good's price

Price Floor



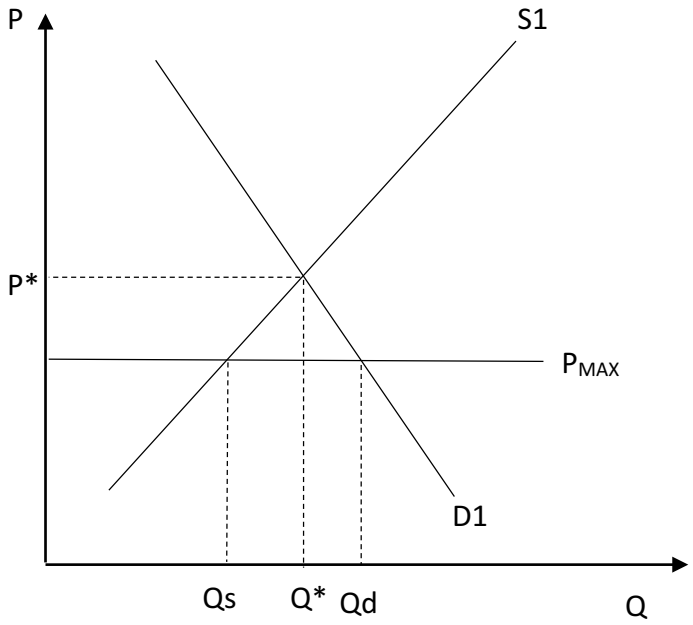
Binding constraint: Price floor is **higher** than P*

- Qs > Qd -> excess supply
- When P increase from P* to P_{MIN}, Q traded decrease from Q* to Qd

E.g. of price floor: minimum wage

- Price Ceiling: legal maximum on good's price

Price Ceiling



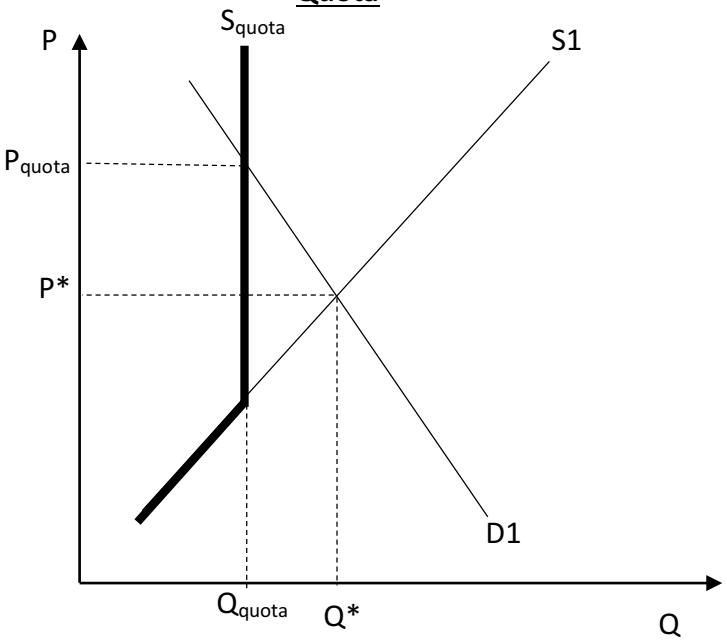
Binding constraint: Price ceiling is **lower** than P*

- Qs < Qd -> excess demand (shortage)
- When P decrease from P* to P_{Max}, Q traded decrease from Q* to Qs

E.g. of price floor: CEO salary limit, rent controls, price control during war/conflict.

- Quota: maximum quantity traded

Quota



Binding constraint: maximum quantity traded is **lower** than Q*.

- When Q decrease from Q* to Q_{QUOTA}, P increase from P* to P_{QUOTA}

E.g. of price floor: taxi license

Welfare and Markets 1
Lecture 7

Welfare economics: Study of how allocation of resources affect society's well being

Surplus: Net gains that buyer and seller receive from economic activity

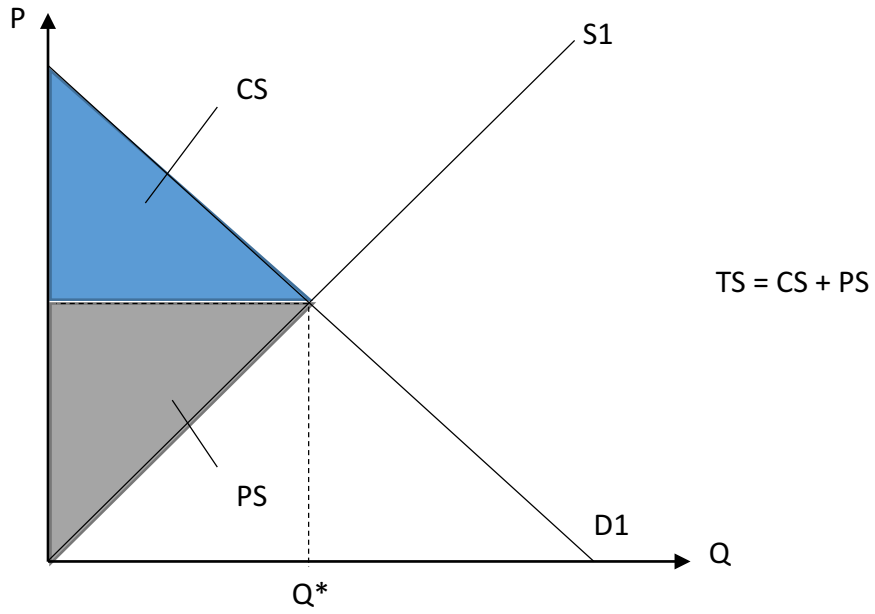
Buyer's well-being = total net gain to all buyers from trade

- Max willingness to pay (WTP) = b
- Net gain to buyer = b-p

Supplier's well-being = total net gain to all sellers from trade

- Opportunity cost of supplier = c
- Net gain to supplier = p-c

Wellfare



Efficiency: Quantity traded in the market in which total surplus is **maximized**.

- Efficient -> when Q* = Qtraded
    - Because mutually beneficial trades increase TS -> improve well-being
    - Where all **mutually beneficial trades** occur when the market PC is **on equilibrium**