Basics of Economics

Alvin Lin

Principles of Microeconomics: August 2016 - December 2016

1 Governments and Markets

1.1 Price Ceilings

A **price ceiling** is a regulation making it illegal to charge more than specified price. A price ceiling set above the equilibrium price has no effect. A price ceiling set below the equilibrium price results in dead-weight loss.

1.1.1 Consequences of a Binding Price Ceiling

- Shortage
- A transfer of surplus from producers to consumers
- Deadweight loss
- Producer surplus decreases
- Consumer surplus increases

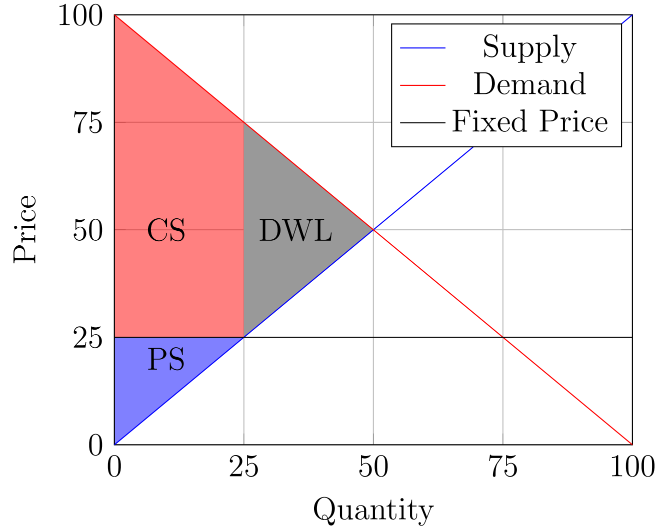
1.1.2 Rent Ceilings

A **rent ceiling** is a government regulation making it illegal to charge a rent higher than a specified level. Landlords will restrict the supply in response while the quantity demanded increases. This causes a housing shortage, dead-weight loss, and a transfer of surplus from landlords to renters. The opportunity costs to renters increases since finding an apartment requires more search.

1.1.3 Consequences of Rent Ceilings

The rent ceiling encourages an illegal market for apartments. Renters and landlords figure out ways to increase the rents. Landlords introduce "additional service" charges and engage in side deals. The effects of black market activities is determined by how strictly enforced rent control is. If the control is lax, the black market price is very close to the market price. If the control is strict, the black market price is much higher than the market price.

1.1.4 Example



At the equilibrium price, there was no dead-weight loss, with the consumer and producer surplus equal to 1250. At a fixed price of 25, there is align dead-weight loss of 625. The new consumer surplus is 1562.5. The new producer surplus is 312.5. The total surplus is 1875.

$$\Delta CS = +312.5$$

$$\Delta PS = -937.5$$

$$\Delta TS = -625$$

1.2 Price Floors

A **price floor** is a regulation making it illegal to charge less than a specified price. A price floor set below the equilibrium price has no effect. A price floor set above the equilibrium price results in dead-weight loss.

1.2.1 Consequences of a Binding Price Floor

- Surplus
- A transfer of surplus from consumers to producers
- Deadweight loss
- Consumer surplus decreases
- Producer surplus increases

1.2.2 Minimum Wage

Minimum wage is a government regulation making it illegal to pay a worker less than a specified wage. It is a price floor imposed on the labor market. The labor market has a supply of labor (workers), and demand for labor (producers of goods and services).

1.2.3 Consequences of a Minimum Wage

- Unemployment
- Deadweight loss
- A transfer of surplus from employees to workers
- Consumer surplus decreases
- Producer surplus increases or decreases
- Benefits workers that keep their jobs
- Hurts people that are looking for work and those that lose their jobs

1.2.4 Example

$$Supply: P = 1 + Q$$

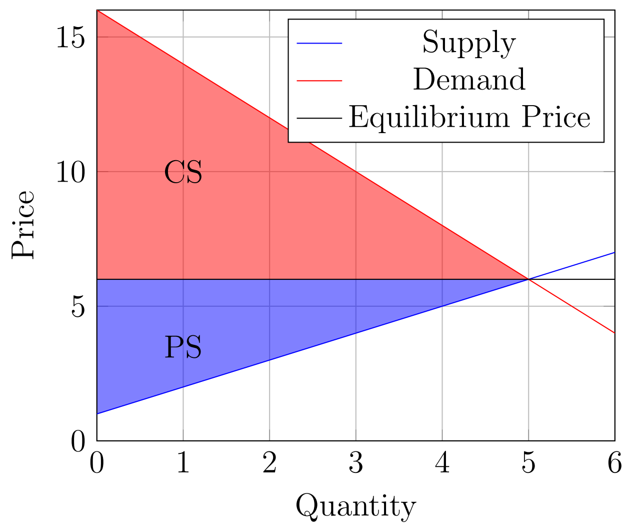
$$Demand: P = 16 - 2Q$$

$$S = D$$

$$1 + Q^* = 16 - 2Q^*$$

$$3Q^* = 15$$

$$Q^* = 5$$



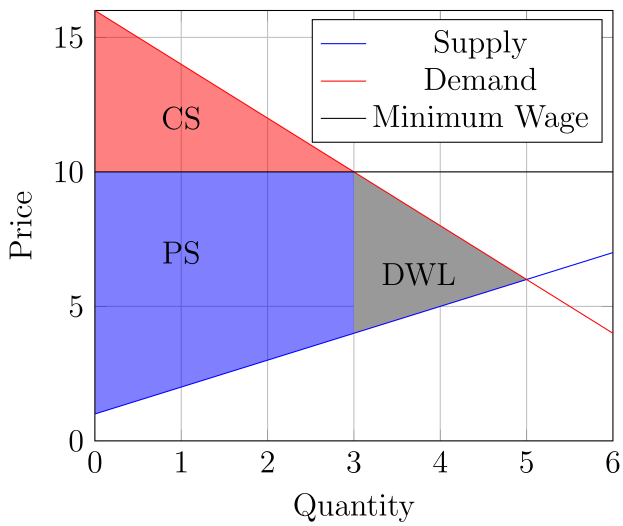
At Q^*:

$$PS = \frac{1}{2}bh = \frac{1}{2}(5)(5) = 12.5$$

$$CS = \frac{1}{2}bh = \frac{1}{2}(10)(5) = 25$$

$$TS = 37.5$$

What is the effect of a minimum wage of $10 on consumer surplus, producer surplus, and total surplus?



At the fixed minimum wage:

$$PS = \frac{1}{2}(b_1 + b_2)h = \frac{1}{2}(9+6)(3) = 22.5$$

$$CS = \frac{1}{2}bh = \frac{1}{2}(3)(6) = 9$$

$$TS = 31.5$$

Change:

$$\Delta PS = 10$$

$$\Delta CS = -16$$

$$\Delta TS = -6$$

1.3 Taxes

A tax a levy imposed on an individual or other legal entity by the state. Failure to pay is punishable by law. In the market, a tax on sellers is a fixed fee per unit sold. A tax on buyers is a fixed fee for each unit purchased.

Other taxes include taxes on trade, proportional taxes on expenditure or revenue, estate taxes, gift taxes, and fixed flat taxes.

1.3.1 Key Questions

- How much tax revenue is raised?
- Does the tax result in an inefficient quantity traded?
- Who bears the burden of the tax?
- What are the effects on producer surplus, consumer surplus, and total surplus.

1.3.2 Tax Incidence

Tax Incidence is the division of the burden of a tax between buyers and sellers. If a tax is imposed on the sale of a good, the price faced by consumers might increase by the whole amount, part of it, or by nothing at all. If the price does not change, then the cost of the tax is borne by sellers.

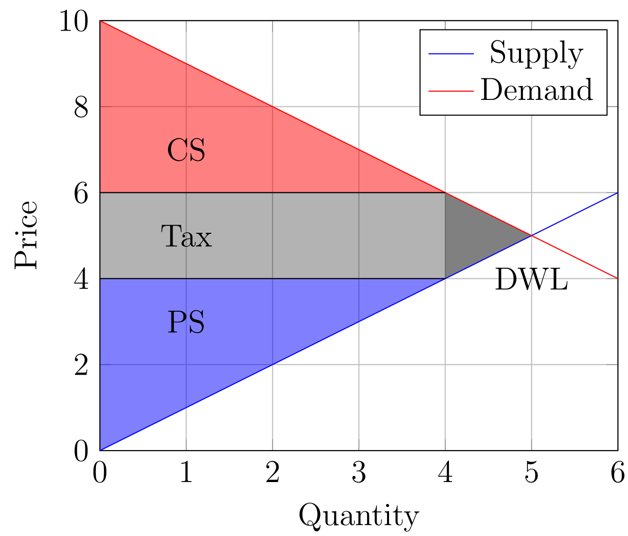
It does not matter whether the consumer or the producer is taxed.

1.3.3 Consequences of Taxes

- Increases in the price
- Decrease in quantity traded
- Producer surplus and consumer surplus decrease
- Deadweight loss
- Tax revenue raised by the government

1.3.4 Example

Suppose the government imposes a $2 tax on sellers:



1.3.5 Practice Problem

Brownies:

P	Q_D	Q_S
\$0.50	5	3
\$0.60	4	4
\$0.70	3	5
\$0.80	2	6
\$0.90	1	7

What is Q_* and P_* with no tax?

$$P_* = 0.60 \quad Q_* = 4$$

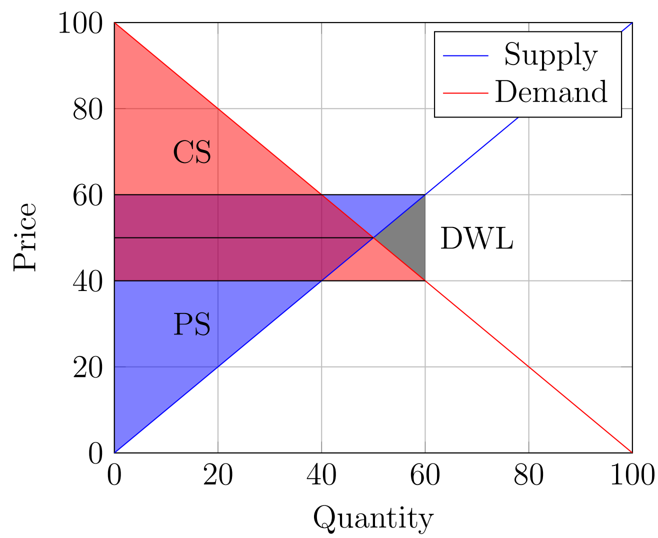
If sellers are taxed \$0.10 per brownie and buyers taxed \$0.10 per brownie, then the price paid is \$0.70 per brownie and the price received is \$0.50 per brownie. The quantity demanded and supplied is 3.

1.4 Subsidies

A subsidy is a payment made by the government to a producer, or a consumer. A subsidy has the opposite effect of a tax.

1.4.1 Example

Suppose there is a \$20 subsidy to sellers:



The consumer surplus and producer surplus both increase by 550. The cost of the policy is 1200 (the rectangular region including the surpluses and the dead-weight loss), so the total surplus decreases.

If a \$10 tax is imposed on buyers and a \$10 subsidy is imposed on sellers, both curve shifts cancel and there is no net effect.

1.4.2 Consequences of Subsidies

- Increases in supply
- Decrease in price
- Inefficient overproduction
- Consumer surplus and producer surplus increase
- Increases in surplus are offset by the cost of the subsidy, resulting in deadweight loss

1.5 Production Quotas

A production quota is an upper limit on the amount of a good that can be produced. It is usually intended to help producers by raising prices.

1.5.1 Consequences of a Production Quota

- Increase in price
- Decrease in consumer surplus
- Increase in producer surplus
- Transfer of surplus from consumers to producers
- Deadweight loss
- Provides an incentive for producers to cheat and overproduce

1.6 Markets for Illegal Goods

If illegal goods are taxed, it raises tax revenue for the government. On the other hand, the government profits from the trade of harmful substances. Formerly illegal drugs are now legitimate and thus might influence the preferences of consumers.

You can find all my notes at `http://omgimanerd.tech/notes`. If you have any questions, comments, or concerns, please contact me at alvin@omgimanerd.tech