金程教育
GOLDEN FUTURE

专业·领先·增值

专业来自101%的投入!

CFA一级培训项目

Economics

单晨玮
金程教育资深培训师

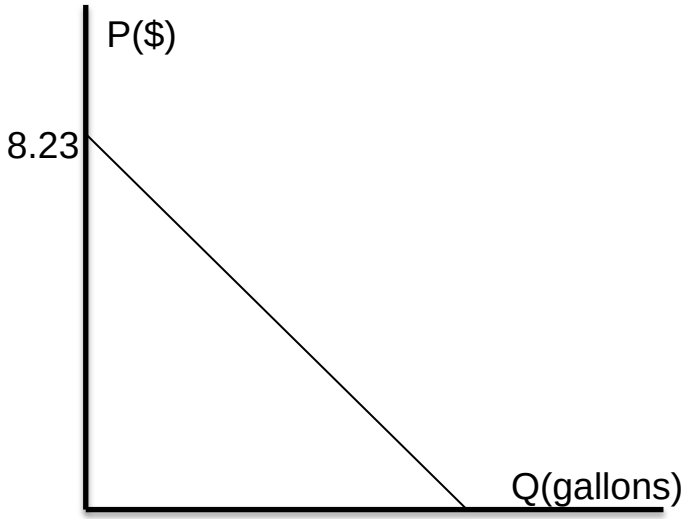
Topic Weightings in CFA Level I

Study Session 1	**Ethics & Professional Standards**	**15**
Study Session 2-3	Quantitative Methods	12
Study Session 4-6	Economic Analysis	10
Study Session 7-10	Financial Statement Analysis	20
Study Session 11	Corporate Finance	8
Study Session 12	Portfolio Management	5
Study Session 13-14	Equity Analysis	10
Study Session 15-16	Fixed Income Analysis	12
Study Session 17	Derivative Investments	5
Study Session 18	Alternative Investments	3
	Total:	**100**

Framework of Economics

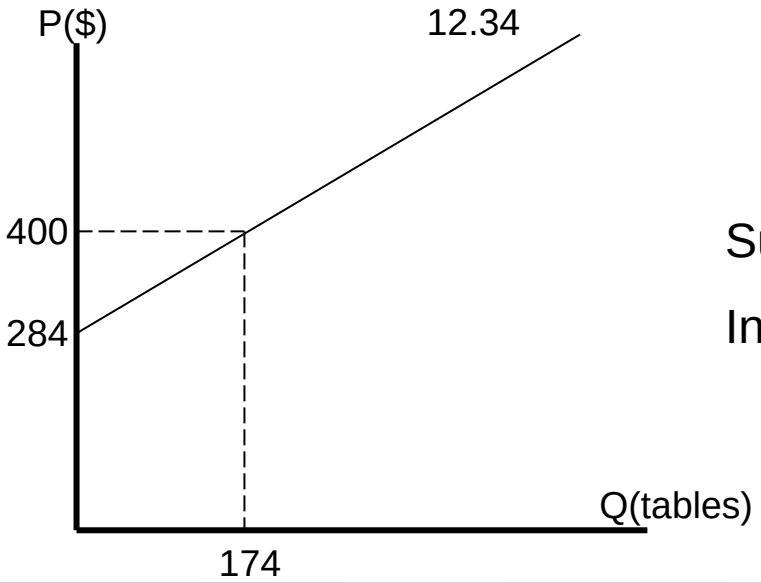
- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

Demand and Supply



Demand function: $Q_{gas}=12.34-15P_{gas}$,

Inverse Demand function: $P_{gas}=8.23-0.667Q_{gas}$



Supply function: $Q_{tables}=-426+1.5P_{tables}$

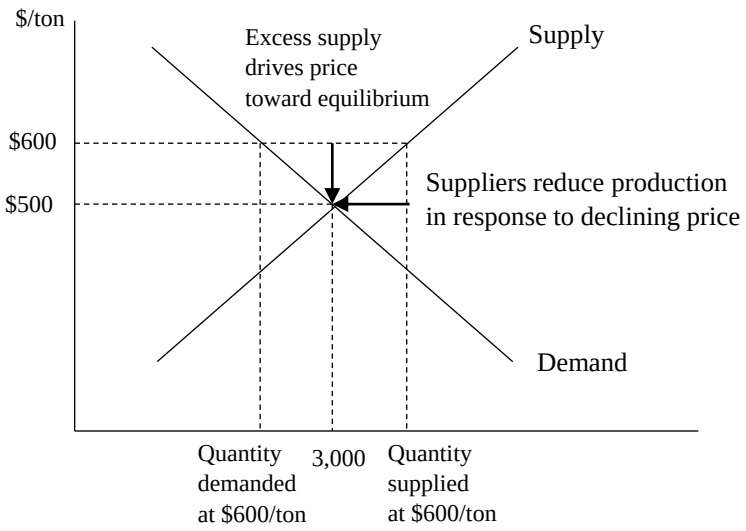
Inverse supply function: $P_{tables}=284+0.667Q_{tables}$

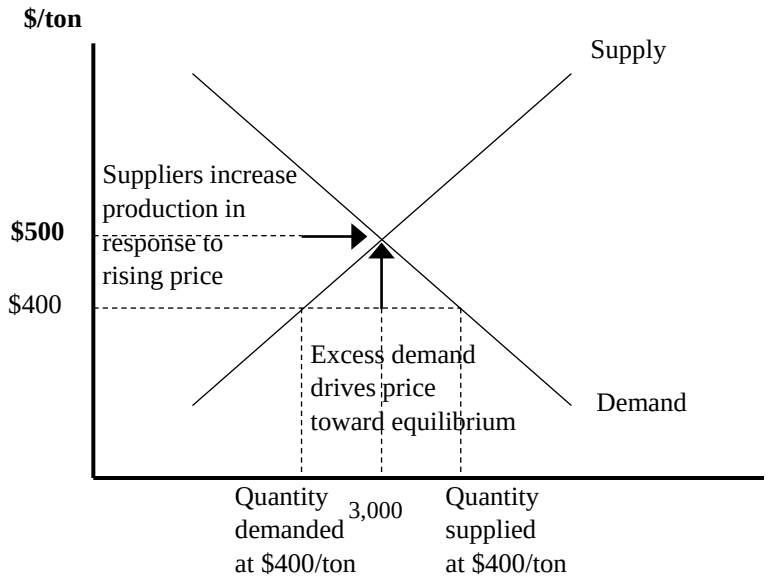
Shifts in and Movements along Demand and Supply Curves

- **Movements along demand and supply curves.**沿着需求（供给）曲线移动
  - A change in the market price that simply increases or decreases the quantity supplied or demanded is represented by a movement along the curve.
- **Shifts in demand and supply curves.**需求（供给）曲线本身发生移动
  - A change in one of the independent variables other than price will result in a shift of the curve itself.

Movement toward Equilibrium

- If the price is above its equilibrium level, the quantity willingly supplied exceeds the quantity consumers are willing to purchase, and we have ***excess supply***. Suppliers willing to sell at lower price will offer those prices to consumers, driving the market price down towards the equilibrium level.
- If the market price is below its equilibrium level, the quantity demanded at that price exceeds the quantity supplied, and we have ***excess demand***. Consumers will offer higher prices to compete for the available supply, driving the market price up towards its equilibrium level.

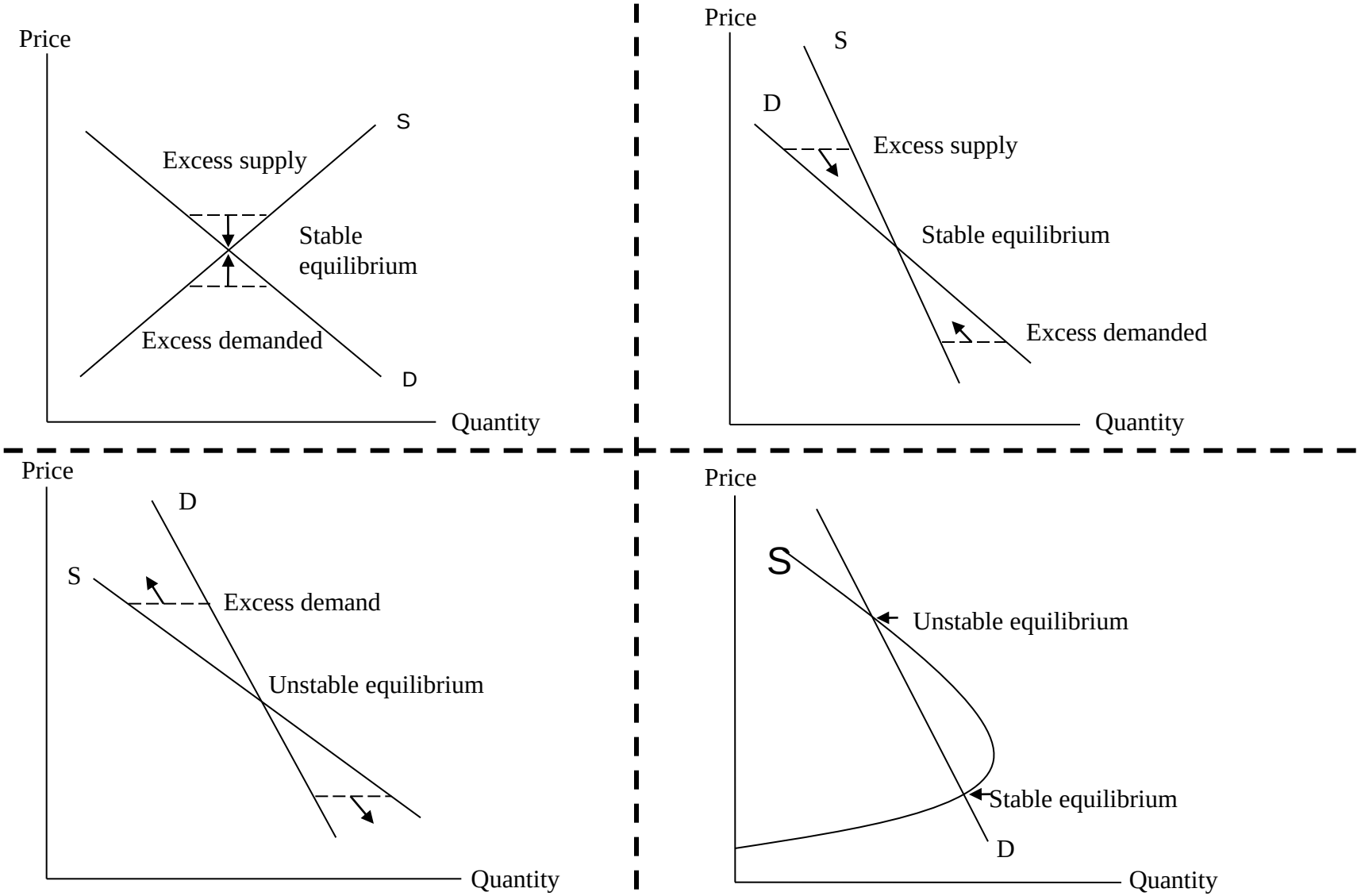




Stable and Unstable Equilibrium

- An equilibrium is termed **stable** when there are forces that move price and quantity back towards equilibrium values when they deviate from those values
  - as long as supply curve cuts through the demand curve from above, the equilibrium will be stable
- If the supply curve is less steeply sloped than the demand curve, and prices above (below) equilibrium will tend to get further from equilibrium. We refer to such an equilibrium as **unstable.**

Stable and Unstable Equilibrium



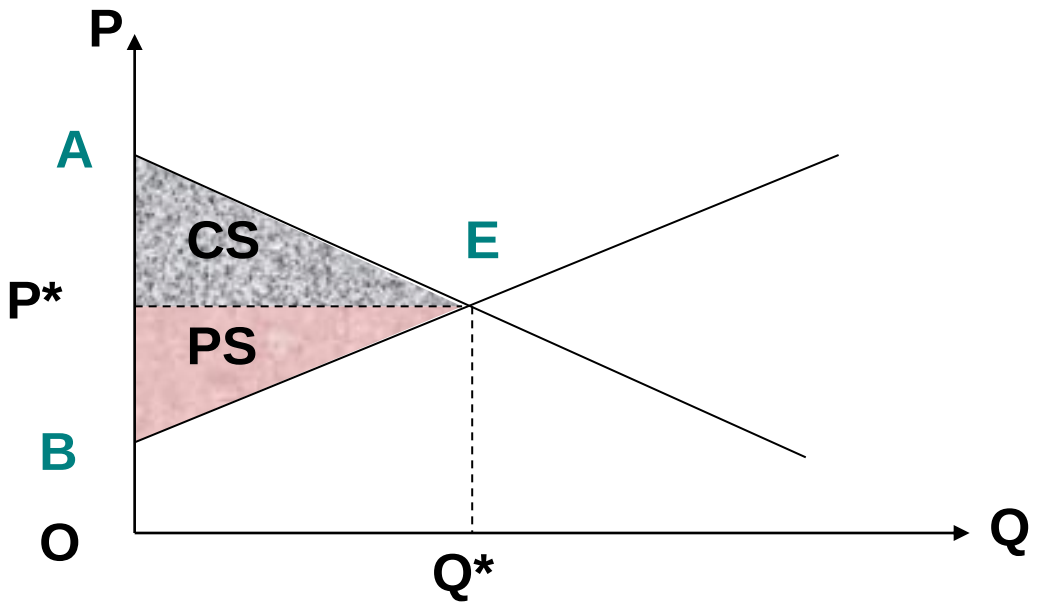
Types of Auctions

- Auction is an alternative to markets for determining an equilibrium price.
- Types of Auction: Common value auction vs. Private value auction
  - **common value auction**
    - ✓ value of the item to be auctioned will be the same to any bidder
    - ✓ Winning bidder mostly overestimate the value (**winner's curse**)
  - **private value auction**: The value that each bidder places on an item is the value it has to him, and we assume that no bidder will bid more than that. (e.g., art, collectibles)
- Common type of auctions:
  - ascending price auction (English auction)
  - sealed bid auction
    - ✓ the first sealed bid auction
    - ✓ second price sealed bid auction (Vickrey auction）
  - descending price auction (Dutch auction)
- ***Single price auction*** is used in **selling U.S. Treasury securities**. 2015.06 (1) 2014.06 (1)
  - But bidders may also submit a noncompetitive bid. Such a bid indicates that those bidders will accept the amount of Treasuries indicated at the price determined by the auction, rather than specifying a maximum price in their bids.

Consumer Surplus, Producer Surplus, and Total Surplus

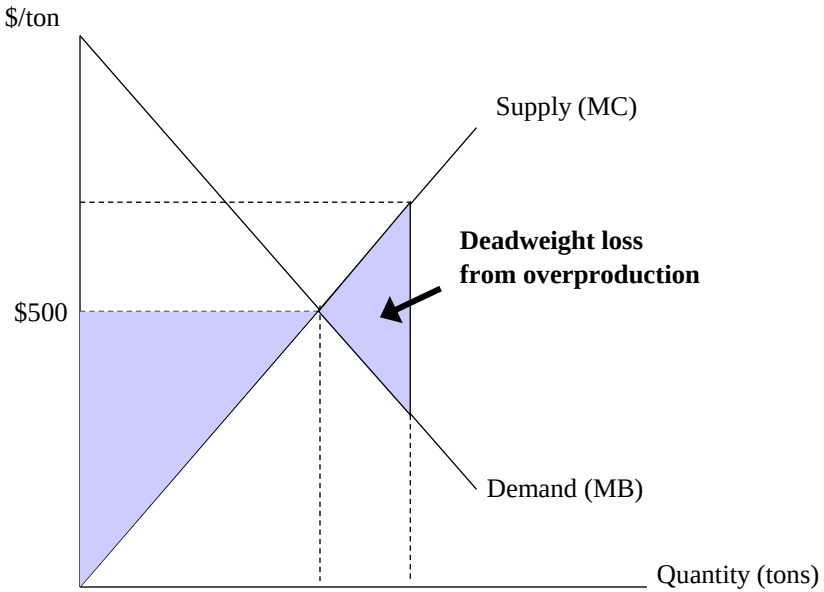
2015.12 (1)
2014.12 (1)

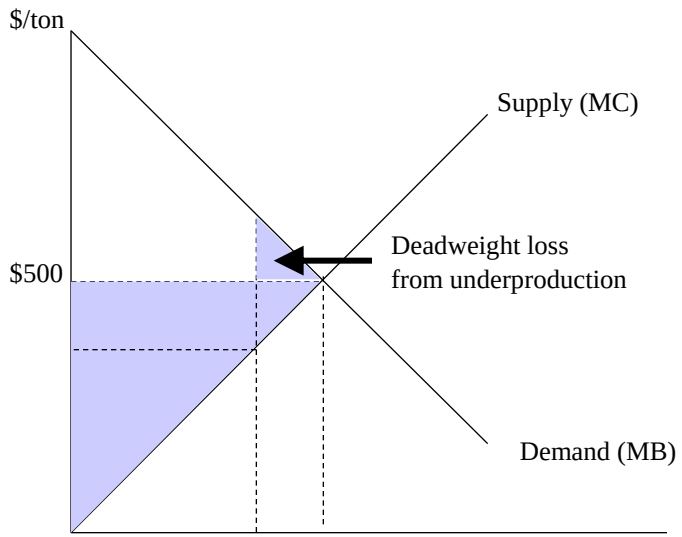
- The difference between the total value to consumers of the units of a good that they buy and the total amount they must pay for those units is called ***consumer surplus***
- ***Producer surplus*** is the excess of the market price above the opportunity cost of production
- ***Total surplus*** = consumer surplus + producer surplus



Deadweight Loss

- Deadweight Loss
  - The reduction in consumer and producer surplus due to underproduction or overproduction is called a ***deadweight loss***.





Obstacles to Efficiency

Obstacles to Efficiency

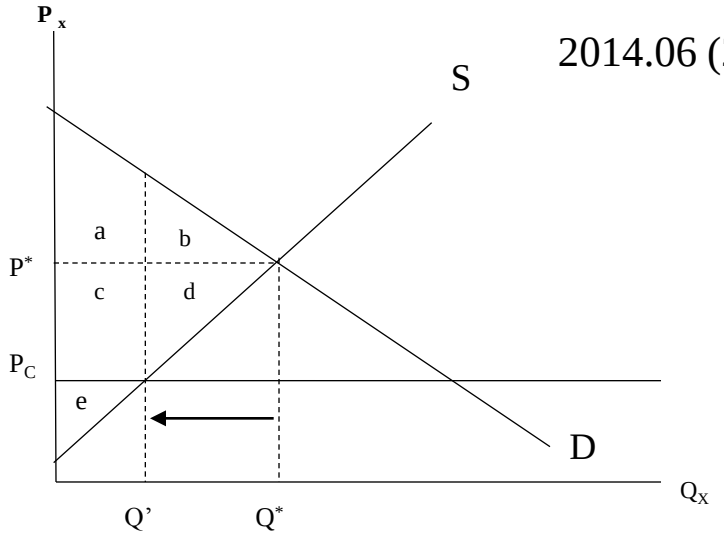
- Price controls: price ceiling (underproduction, e.g. rent control) and price floor (overproduction, e.g. minimum wage)
- Tax: buyers pay a higher price, sellers receive a lower price
- Subsidies: overproduction
- Quotas: underproduction
- Monopoly: underproduction
- External costs: overproduction
- External benefits: underproduction
- Public goods: underproduction
- Common resources: overproduction

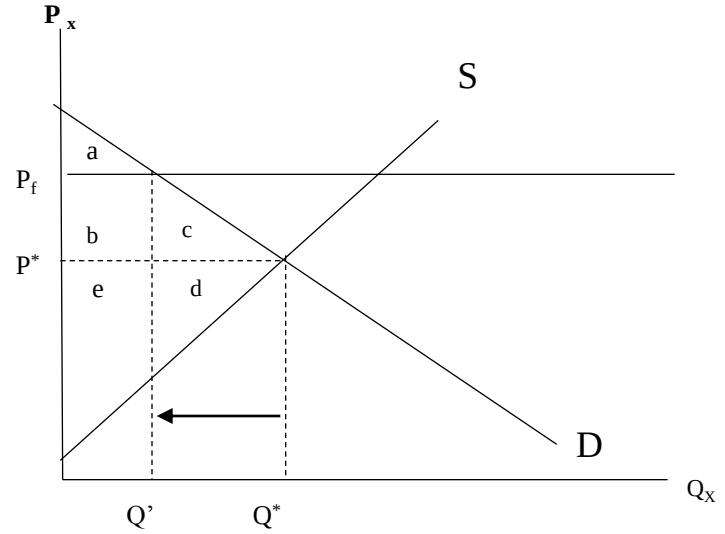
2015.06 (1)

Price Ceiling and Price Floor

- A ***price ceiling*** is an upper limit on the price which a seller can charge. If the ceiling is above the equilibrium price, it will have no effect.
- ***Price floor*** is a minimum price that a buyer can offer a good, service, or resource. If the price floor is below the equilibrium price, it will have no effect on equilibrium price and quantity.
  - The ***minimum wage*** in the United States is an example of a price floor
  - The result is increased unemployment because even when there are workers willing to work at a wage lower than the minimum, firms cannot legally hire them.

2014.06 (2)





Impact of Taxes

- Actual and Statutory Incidence of a Tax
  - ***Statutory incidence*** refers to who is legally responsible for paying the tax.
  - The ***actual incidence*** of a tax refers to who actually bears the cost of the tax through an increase in the price paid (buyers) or decrease in the price received (sellers)
- Tax on producers:
  - Statutory incidence: sellers
  - Actual incidence: sellers and buyers
- Tax on buyers:
  - Statutory incidence: buyers
  - Actual incidence: buyers and sellers

Price Elasticity of Demand

- ***Price elasticity*** is a measure of the responsiveness of the quantity demanded to a change in price.
  - The formula used to calculate the price elasticity of demand is :

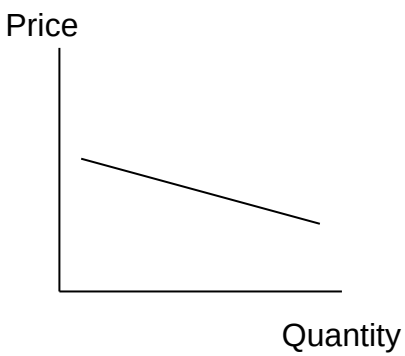
$$\text{price elasticity of demand} = \frac{\text{percent change in quantity demand}}{\text{percent change in price}} = \frac{\Delta Q / Q}{\Delta P / P}$$

where:

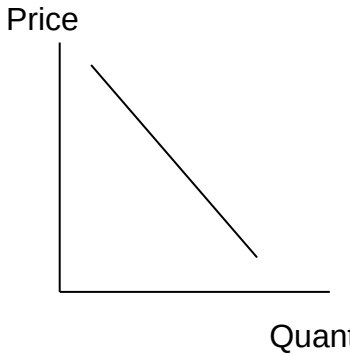
$$\text{percent change} = \frac{\text{change in value}}{\text{average value}} = \frac{\text{ending value} - \text{beginning value}}{\left(\frac{\text{ending value} + \text{beginning value}}{2}\right)}$$

Price Elasticity of Demand

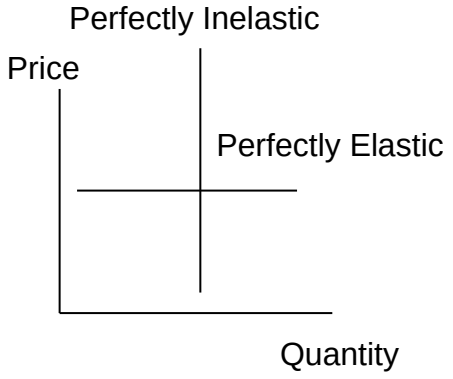
- If a *small* percentage price change results in a *large* percentage change in quantity demanded, the demand for that good is said to be ***highly elastic***. The absolute value of price elasticity is greater than one.
- If a *large* percentage price change results in a *small* percentage change in quantity demanded, demand is ***relatively inelastic***. The absolute value of price elasticity is less than one.
- A ***perfectly elastic*** demand curve is horizontal, and its elasticity is infinite. If the price increases, quantity demanded goes to zero.
- A ***perfectly inelastic*** demand curve is vertical, and elasticity is zero. If the price changes, there will be no change in the quantity demand.



Elastic



Inelastic

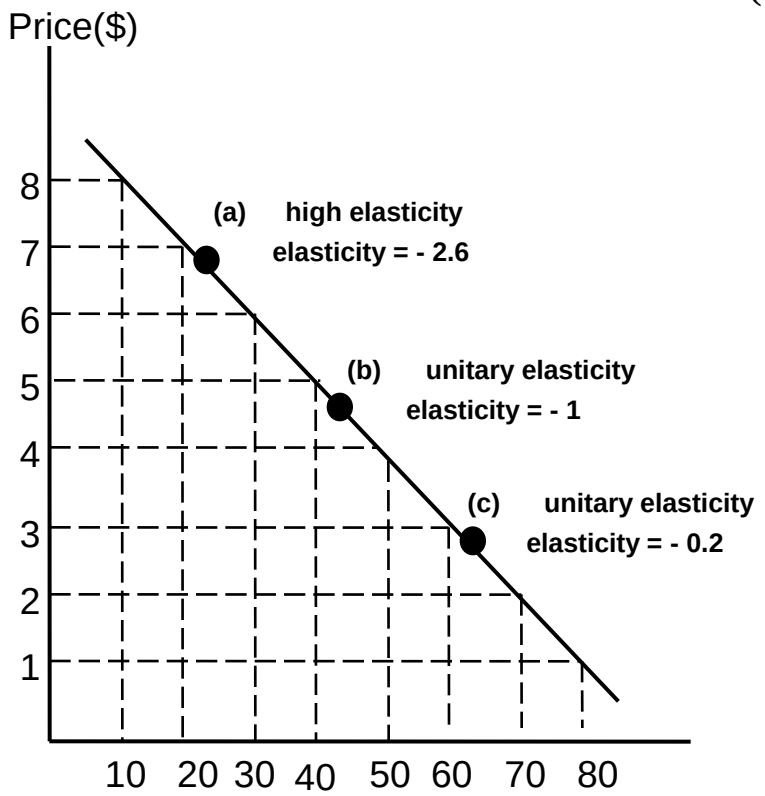


Perfectly Inelastic / Elastic

Price Elasticity of Demand is Different Along a linear Demand Curve

2015.12 (1)
2014.06 (1)

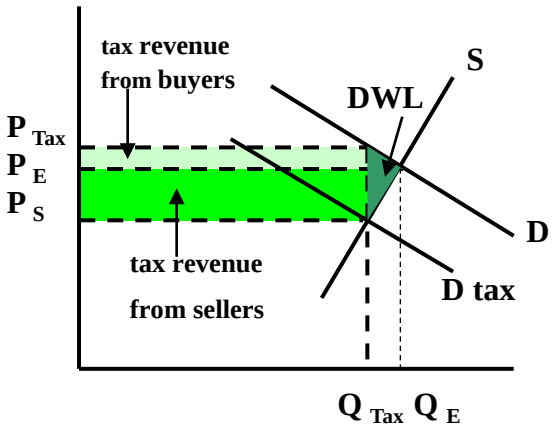
- The relation between price elasticity of demand and total revenue.
  - Total revenue is maximized at the price and quantity where demand is unit elastic (price elasticity = −1) and so decreases with both price increases or price decreases from that level.
  - When price is in the elastic (inelastic) region of the demand curve, a price increase will decrease (increase) total revenue.



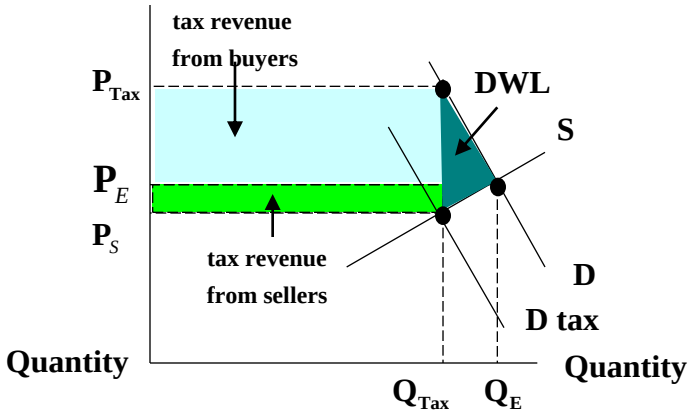
Elasticity of Supply and Demand and Tax Incidence

2015.06 (1)
2014.12 (1)

(a) Inelastic Supply Curve



(b) Inelastic Demand Curve



- If the supply curve is less elastic, sellers will bear a higher tax burden. (Figure a)
- If the demand curve is less elastic, buyers will bear a higher tax burden. (Figure b)

Factors that Influence the Elasticity of Demand

- ***Availability of substitutes***. If good substitutes are available, a price increase in one product will induce consumers to switch to a substitute good.
- ***Relative amount of income spent on the good***. When the portion of consumer budgets spent on a particular good is relatively small, demand for that good will tend to be relatively inelastic.
- ***Time since the price change***. The price elasticity of demand for most products is greater in the long run than in the short run.

Cross Elasticity

- **Cross elasticity of demand** measures the change in the demand for a good in response to the change in price of a substitute or complementary good.
  - The formula for calculating cross elasticity of demand is:

$$\text{cross elasticity of demand} = \frac{\text{percent change in quantity demanded}}{\text{percent change in price of substitute or complement}} = \frac{\Delta Q_A / Q_A}{\Delta P_B / P_B}$$

  - Cross elasticity of demand is *positive* for *substitute goods*. (Example: apple and pear)
  - Cross elasticity of demand is *negative* for *complement goods*. (Example: car and gas)

Income Elasticity of Demand

- ***Income elasticity of demand*** measures the sensitivity of the quantity of a good or service demanded to a change in a consumer's income.
  - The formula for income elasticity of demand is:

$$\text{income elasticity of demand} = \frac{\text{percent change in quantity demanded}}{\text{percent change in income}} = \frac{\Delta Q / Q}{\Delta I / I}$$

- **The application of Income elasticity**
  - **Normal Goods**: positive income elasticity, demand rises with income. (> 0)
    - ✓ ***Luxuries***: high positive elasticity, demand rises strongly with income. (>1)
    - ✓ ***Necessity goods***: normal but low elasticity (between 0 ～ 1)
  - ***Inferior Goods***: negative income elasticity, demand falls with income (<0)

Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

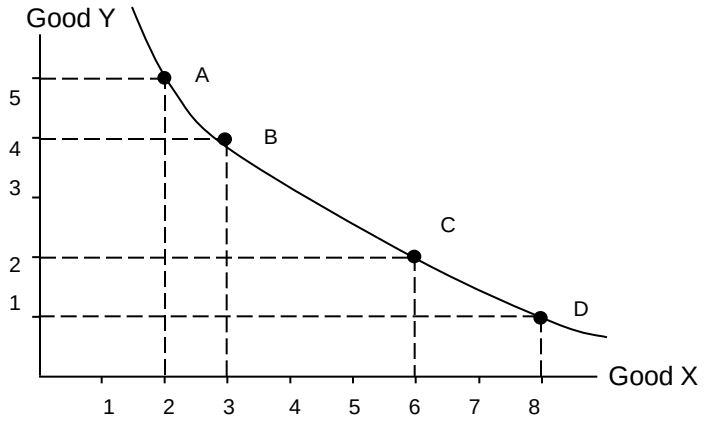
Consumer Choice Theory

Axioms of the theory of consumer choice

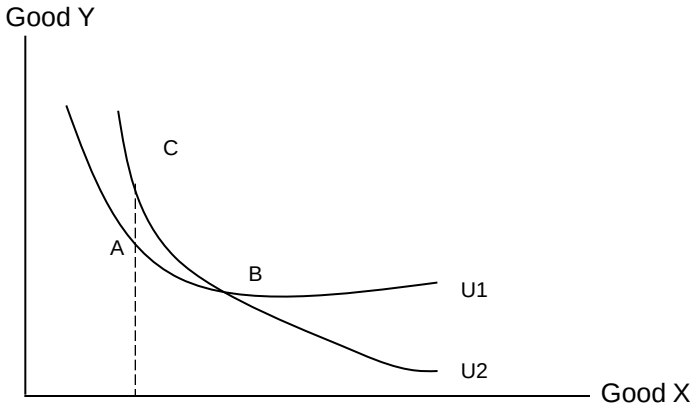
- ***Complete preferences***: A > B or A < B or A = B
- ***Transitive preferences***: A > B and B > C ⟹ A > C
- ***Non-satiation***: "more is better", A+1 > A

Indifference Curve

- ***Indifference curve*** represents all the combinations of two goods such that the consumer is entirely indifferent among them.
- ***Characteristics of indifference curve:***
  - Indifference curves for two goods slope downward
  - Indifference curves cannot cross
  - Indifference curves are convex towards the origin



Indifference curves slope downward



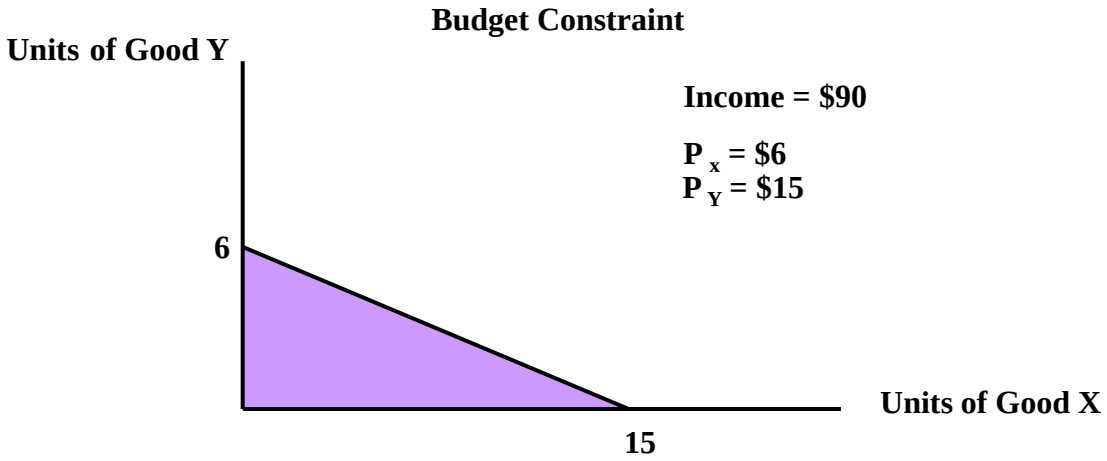
Indifference curves cannot cross

Marginal Rate of Substitution (MRS)

- ***Marginal rate of substitution (MRS)***
  - the rate at which the consumer is willing to give up one goods to obtain another goods, holding utility constant.
  - $MRS_{XY} = -\triangle Y / \triangle X$
    - ✓ Example： $MRS_{XY} = 3$， increase 1 unit of Good X, have to give up 3 units of Good Y, holding utility constant.
- ***the law of diminishing marginal rate of substitution***: as one moves down a (standardly convex) indifference curve, the marginal rate of substitution decreases (as measured by the absolute value of the slope of the indifference curve, which decreases).

Budget Constraints

- ***Budget constraint*** can be constructed based on the consumer's income and the prices of the available goods.
  - The ***budget line*** shows all combinations of Good X and Good Y that will just exhaust the consumer's income.
  - $P_X*Q_X+P_Y*Q_Y \leqq I$
  - Slope of Budget constraint is negative
  - Slope of Budget constraint is the ***price ratio***



Consumer's Equilibrium

Consumer equilibrium

- Utility is maximized, subject to the budget constraint
- Tangency between budget constraint & the highest attainable indifference curve
- At tangent point, MRS_{XY}（边际替代率，消费者意愿）= Price ratio（相对价格，市场意愿）

$$MRS_{XY} = -\frac{\Delta Y}{\Delta X} = \frac{MU_X}{MU_Y} = \frac{P_X}{P_Y}$$

Substitution and Income Effects

2015.12 (1) 2015.06 (1)
2014.12 (1)

- ***Substitution effect***
  - When the price of Good X decreases, the relative price of Good X against other goods will decrease. Consumer equilibrium moves along the indifference curve, which leads to an increase in the demand of Good X.
- ***Income effect***
  - When the price of Good X decreases, consumer's real purchasing power will change. Real income increases, and budget constraint moves, which lead to a change in the demand of Good X.
- Income effect & Substitution effect共同作用决定需求量变化
- When decrease in the price of Good X:
  - The substitution effect is positive, and the income effect is also positive—consumption of Good X will increase.
  - The substitution effect is positive, and the income effect is negative but smaller than the substitution effect—consumption of Good X will increase.
  - The substitution effect is positive, and the income effect is negative and larger than the substitution effect—consumption of Good X will decrease

Normal Goods and Inferior Goods

- ***Normal good*** is one for which the income effect is positive.
- ***Inferior good*** is one for which the income effect is negative.
- ***Giffen goods*** (吉芬商品):
  - Income effect （inferior goods） > Substitution effect
  - demand curve has positive slope
- ***Veblen goods*** (韦伯伦商品, Conspicuous goods):
  - Consumer can not truly value a good until the price is known.
  - Price is used by the consumer to signal the status in the society.
  - High price→ high value → high demand quantity (extremely)
    - ✓ have a positively sloped demand curve (eg: Gucci bag) firstly
    - ✓ But when price increases, the slope may be negative.
- two important distinctions between Giffen goods and Veblen goods.
  - First, Giffen goods are inferior goods (negative income effect), while Veblen goods certainly are not.
  - Second, the existence of Giffen goods is theoretically supported by our rules of consumer choice, while the existence of Veblen goods is not.

Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

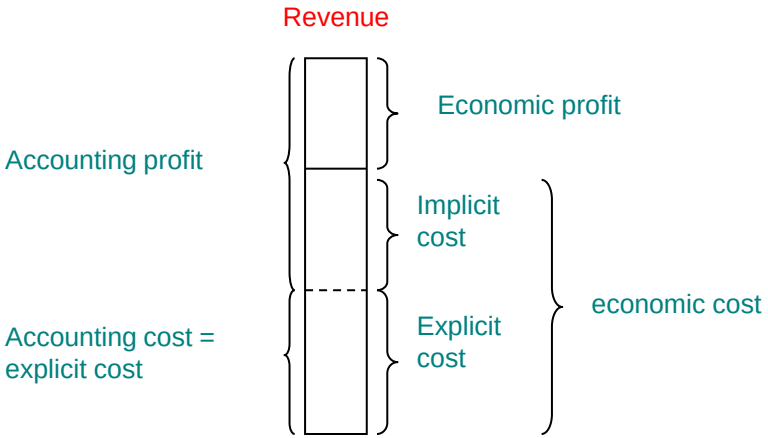
Accounting Profit, Economic Profit and Normal Profit

- ***Accounting profit*** may be referred to as net income, net profit, net earnings, or the "bottom line" (of the firm's income statement).
  - Accounting profit = total revenue – total accounting (explicit) cost
- ***Economic profit*** is also referred to as abnormal profit. It is equal to accounting profit less implicit costs.
  - **Implicit costs** are the opportunity costs of resources supplied to the firm by its owners.
  - For private firms, these costs may include (1) the opportunity cost of owner-supplied capital and (2) the opportunity cost of the time and (3) entrepreneurial ability of the firm's owners.
  - For publicly traded firms, implicit costs are typically only the opportunity cost of equity owners' investment in the firm.
  - Economic profit = accounting profit – implicit opportunity costs
  - Or economic profit = total revenue – total economic costs
- ***Normal profit*** is the accounting profit that makes economic profit zero.
  - Accounting profit = economic profit + normal profit

2015.06 (1)

Relationship of Accounting, Normal, and Economic Profit to Equity Value

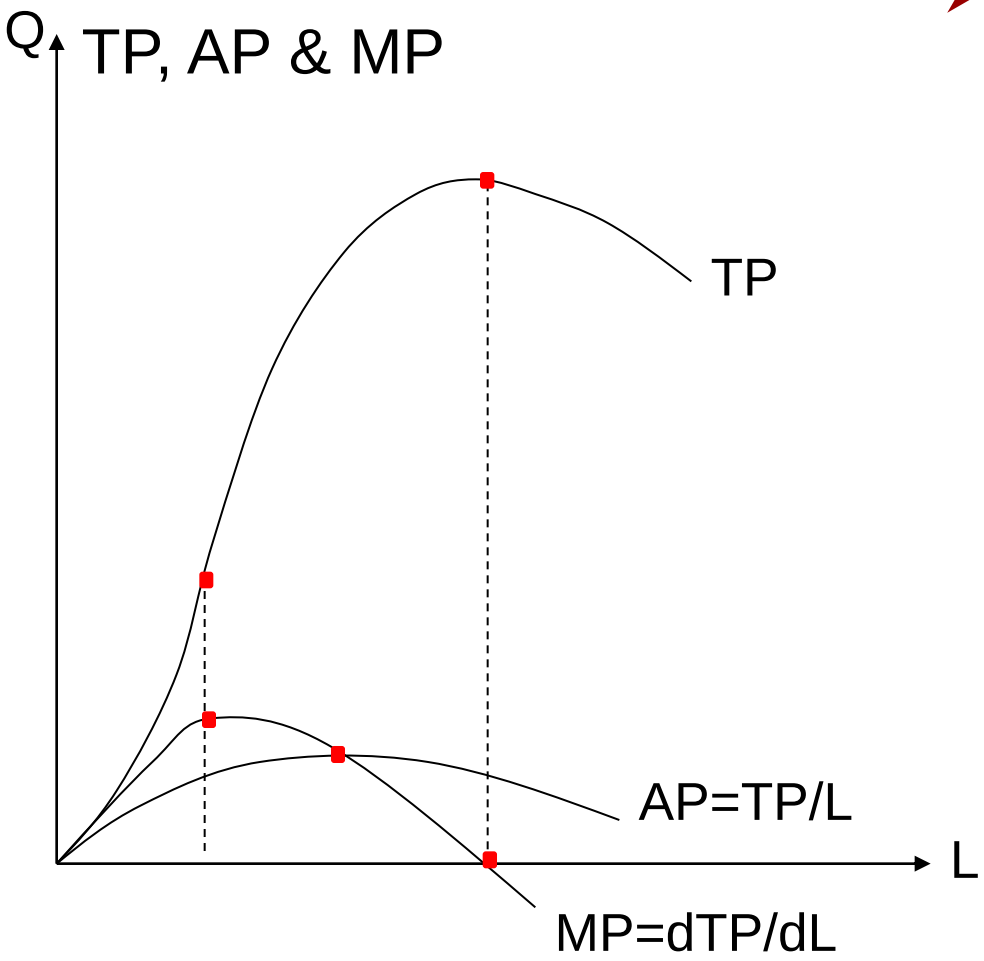
Relationship between Accounting Profit and Normal Profit	Economic Profit	Firm's Market Value of Equity
Accounting profit > Normal profit	Economic profit > 0 and firm is able to protect economic profit over the long run	Positive effect
Accounting profit = Normal profit	Economic profit = 0	No effect
Accounting profit < Normal profit	Economic profit < 0 implies economic loss	Negative effect



Total Revenue, Average Revenue, and Marginal Revenue

- ***Total revenue (TR)*** for any firm that charges a single price to all customers is calculated as price multiplied by quantity sold, or TR=P*Q.
- ***Average revenue (AR)*** is equal to total revenue divided by the quantity sold, AR=TR/Q.
- ***Marginal revenue (MR)*** is the increase in total revenue from selling one more unit of a good or service.
- Under perfect competition
  - The individual firm has virtually no impact on market price, price taker.
  - The individual seller faces a horizontal demand curve over relevant output ranges at the price level established by the market.
- Under imperfect competition
  - Firms face downward-sloping demand curve, price searchers.
  - Total revenue (TR) is maximized when MR=0.

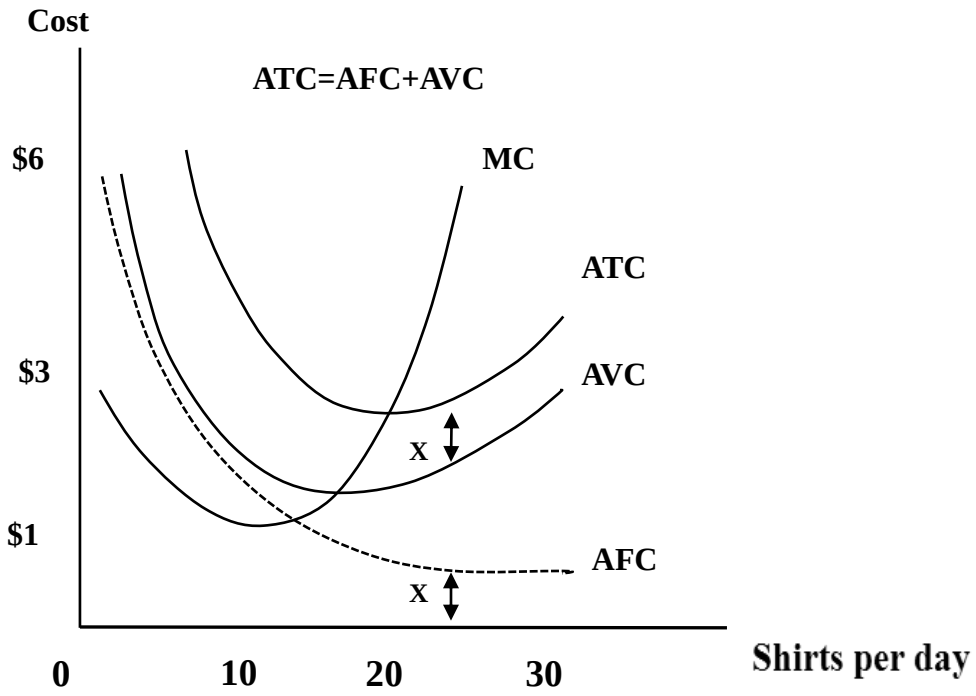
Law of Diminishing Returns



- The **law of diminishing returns** states that as more and more resources (such as labor) are devoted to a production process, they increase output but at an ever decreasing rate.

Total, Average, Marginal, Fixed, and Variable Costs

Average and Marginal Costs



- (1) AFC slopes downward.
- (2) **MC declines initially, then increases.**
- (3) **MC intersects AVC and ATC at their minimum points.**

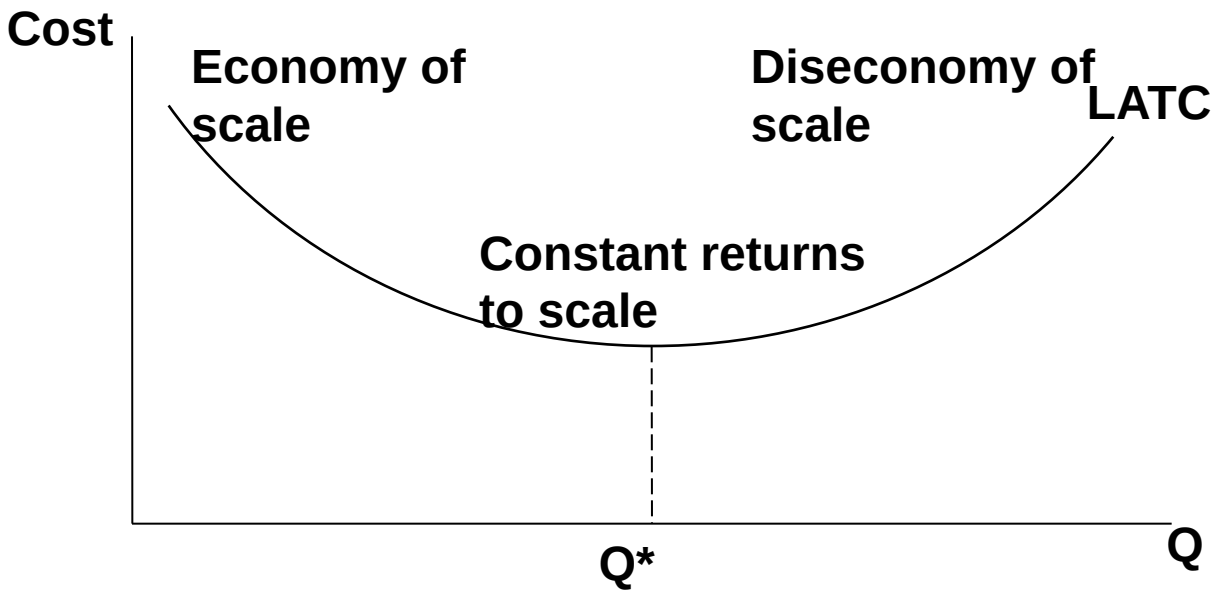
Shutdown and Breakeven under Imperfect Competition

- Profit maximization occurs when
  - The difference between total revenue (TR) and total costs (TC) is the greatest;
  - Marginal revenue (MR) equals marginal cost (MC); **(MR=MC)** 2014.12 (1)
- Shutdown and breakeven point

Revenue-Cost Relationship	Short-Run Decision	Long-Run Decision
TR ≧TC	Stay in market	Stay in market
TR > TVC but TR < TFC + TVC	Stay in market	Exit market
TR < TVC	Shut down production to zero	Exit market

Economies of Scale and Diseconomies of Scale

- The downward sloping segment of the long-run average total cost curve indicates the ***economies of scale***.
- The upward sloping segment of this long-run average total cost curve indicates that ***diseconomies of scale*** are present when average unit costs rise as the scale of the business



Profit-maximizing Utilization of an Input

- For a firm with *N* productive inputs, cost minimization requires

$$\frac{MP_1}{P_1} = \frac{MP_2}{P_2} = \cdots = \frac{MP_N}{P_N}$$

  - 厂商可以通过对要素投入量的不断调整，使得最后一单位的成本支出无论用来购买哪一种生产要素所获得的边际产量都相等，从而实现既定成本条件下的最大产量
  - The condition for cost minimization does not tell us how much of either input to use to maximize profit.

- ***Marginal revenue product (MRP)*** is the monetary value of the marginal product of an input.
- Based on the condition for the profit-maximizing utilization of each factor, $MRP_f = P_f$, for profit maximization, a firm must employ inputs in quantities

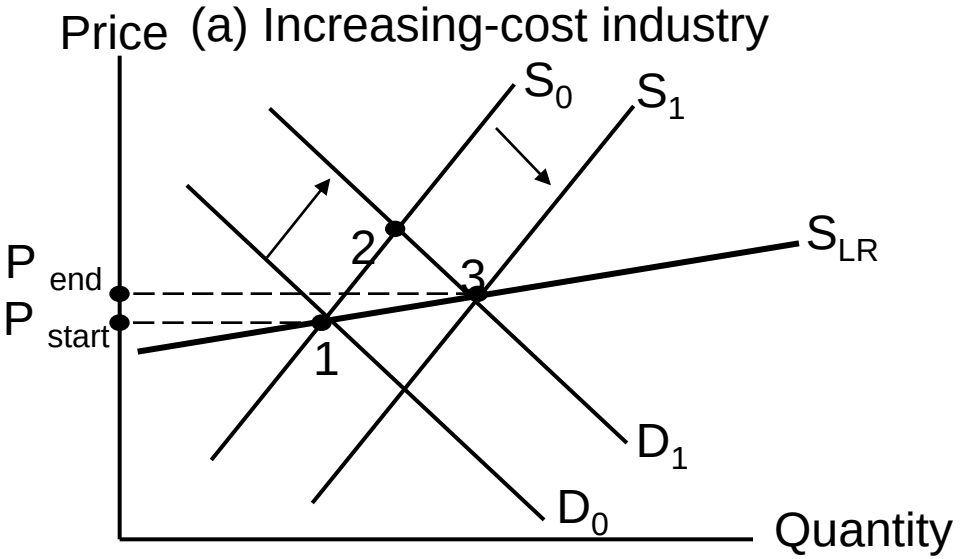
$$MRP = MP \times MR$$

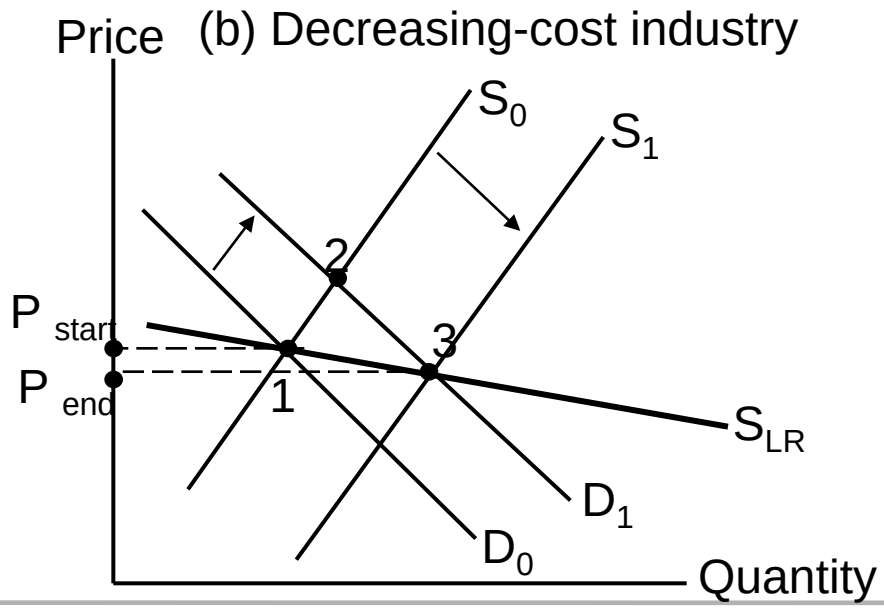
$$\frac{MRP_1}{P_1} = \frac{MRP_2}{P_2} = \cdots \frac{MRP_N}{P_N} = 1$$

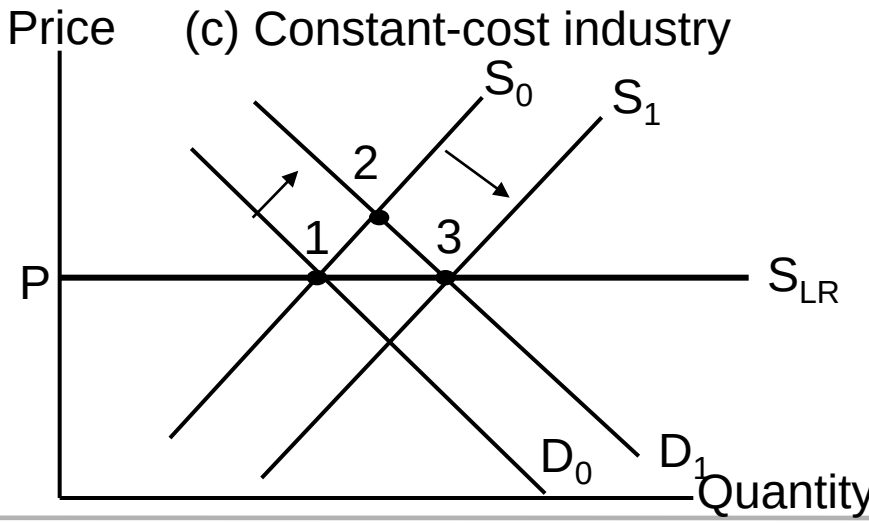
Long-Run Industry Supply Curves

2014.06 (1)

- Increasing-cost industry：
  - ✓行业产量↑成本↑
  - ✓产品价格与供给量成同方向变动
- Decreasing-cost industry：
  - ✓行业产量↑成本↓
  - ✓产品价格与供给量成反方向变动
- Constant-cost industry：
  - ✓行业产量↑成本→
  - ✓以不变的均衡价格提供产量







Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

Market Structure

Type	Number of firms	Degree of difference of products	Degree of price control	Difficulty to enter or leave	The example in our life
Perfect competition	many	No difference	No price control	Very easy	Some agricultural products
Monopolistic competition	many	Some difference	Some tiny price control	Relatively easy	Some retail products
Oligopoly	More than one, but not many	Little or no difference	Some control to some extent	difficult	Steel, automobile, oil
Pure monopoly	single	Sole product, nearly no substitute	perfectly control	No way	Public sectors

Monopolistic Competition

Monopolistic Competition

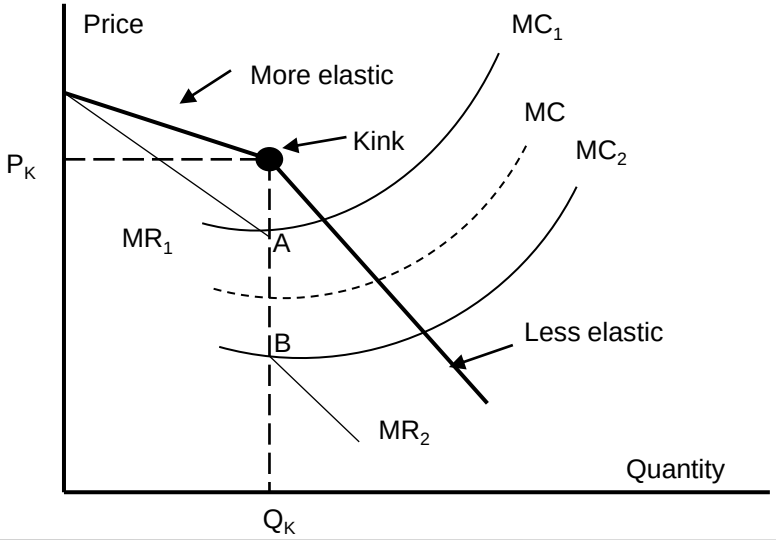
- Firms in monopolistic competition face downward-sloping demand curves and the curves are highly elastic because competing products are perceived by consumers as close substitutes

➢ **Product development and marketing**

- ***Innovation and product development***
- ***Advertising***
- ***Brand names***

Oligopoly: Kinked Demand Curve Model

- **The kinked demand curve model of oligopoly** is based on the assumption that each firm believes that if it raises its price, others will not follow, but if it cuts its price, other firms will cut theirs.
  - Between range A and B, the optimum Q is constant, can't determine price
  - Q_k is the profit-maximizing level of output and the price at which the kink is located is the firm's profit maximizing price.
  - Shortcoming: it is incomplete because what determines the market price (where the kink is located) is outside the scope of the model.



Nash Equilibrium Model (Prisoner's Dilemma)

- ***Nash equilibrium*** is reached when the choices of all firms are such that there is no other choice that makes any firm better off (increases profits or decrease loss)
- ***Prisoners' Dilemma*** is a game that illustrates that the best course of action for an oligopoly firm, when engaging in collusion with another oligopoly firm, is to cheat.

	Prisoner B is silent	Prisoner B confesses
Prisoner A is silent	A gets 6 months B gets 6 months	A gets 10 years B goes free
Prisoner A confesses	A goes free B gets 10 years	A gets 2 years B gets 2 years

- Best overall outcome is for both to remain silent and get sentences of six months. But it is not equilibrium.
- **The Nash equilibrium is for both prisoners to confess**, and for each to get a sentence of two years.
- Confess/confess is the Nash equilibrium since neither prisoner can unilaterally reduce his sentence by changing to silence.

Dominant Firm Model

- **Dominant firm model**
  - a single firm has a significantly large market share
    - ✓ greater scale
    - ✓ lower cost structure
  - market price is essentially determined by the dominant firm
  - the other competitive firms take this market price as given.

Monopoly

- A monopolist faces a **downward sloping demand curve**. Just as price searchers with low entry barriers will expand output until marginal revenue equals marginal cost, so do monopolists. This will maximize profit. Positive economic profits can exist in the long run due to the high entry barriers.
- The monopolists want to **maximize profits, not price**, So they will not charge the highest possible price.
- The relationship between MR and price elasticity, Ep, is: MR=P[1-1/Ep]

2015.12 (1) 2015.06 (1)

Price Discrimination

- ***Price discrimination*** is the practice of charging different consumers different prices for the same product or service.
  - ***first-degree price discrimination***, where a monopolist is able to charge each customer the highest price the customer is willing to pay.
    - ✓ In practice, the monopolist is able to measure how often the product is used and charges the customer the highest price the consumer is willing to pay for that unit of good.
    - ✓ Another possibility is that public price disclosure is non-existent, so that no customer knows what the other customers are paying.
    - ✓ not every consumer is worse off in this case, because some consumers may be charged a price that is below that of perfect competition, as long as the marginal revenue exceeds the marginal cost.
  - ***In second-degree price discrimination***, the monopolist uses the quantity purchased to establish whether the consumer values the product highly (and therefore is willing to pay a higher per unit price to purchase a large amount of it) or not very highly (and therefore is willing to pay only a low price and buy only a small amount).
    - ✓ the producer would sell small quantities at the marginal price but large quantities at a higher per unit price.
  - ***Third-degree price discrimination*** happens when customers are segregated by demographic or other traits.
- **Price discrimination reduces this inefficiency** by increasing output toward the quantity where marginal benefit equals marginal cost, and the deadweight loss is smaller.

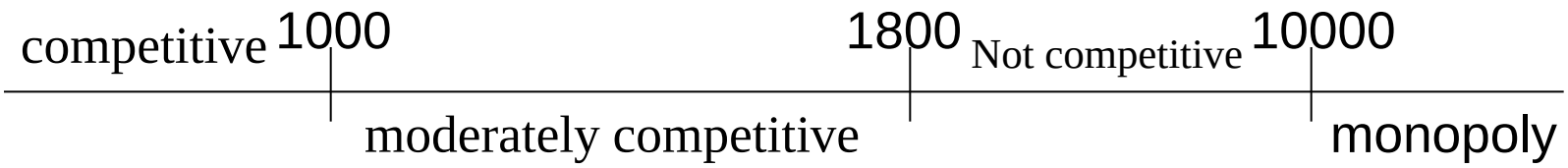
Government Regulation

- Regulators often attempt to increase competition and efficiency through efforts to reduce artificial barriers to trade, such as licensing requirement, quotas, and tariffs.
- **Government regulation**
  - ***Average cost pricing*** is the **more common form of regulation** at the point where ATC=D. This will:
    - ✓ Increase output and decrease price.
    - ✓ Increase social welfare (allocative efficiency).
    - ✓ Ensure the monopolist a normal profit (but no economic profit) since price=ATC.
  - ***Marginal cost pricing*** which is also referred to us efficient regulation, forces the monopolist to reduce price to the point where MC=D. this will:
    - ✓ Increase output and reduce price.
    - ✓ Causes the monopolist to incur a loss since price is below ATC.
    - ✓ Such a solution requires a government subsidy in order to provide
    - ✓ the firm with a normal profit.
  - Another way of "regulating" a monopoly is for the government to ***sell the monopoly right to the highest bidder***.

Concentration Measures

2015.12 (1) 2015.06 (1)
2014.12 (1)

- **Concentration measures**
  - ***The N-Firm Concentration Ratio*:** the sum or the percentage market shares of the largest N firms in a market.
    - ✓ advantage: simple to compute
    - ✓ disadvantage: does not directly quantify market power
    - ✓ limitation: it may be relatively insensitive to mergers of two firms with large market shares.
  - ***The Herfindahl-Hirschman Index (HHI):*** the sum of the squares of the market shares of the largest firms in the market.
    - ✓ limitation: both of our simple concentration measures is that barriers to entry are not considered in either case. Even a firm with high market share may not have much pricing power if barriers to entry are low and there is potential competition.



Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

GDP & GDP Deflator

- ***Gross domestic product (GDP)*** is the total **market value** of the **final goods and services produced in a country** within **a certain time period**.
- **GNP (Gross National Product)** measures the market value of all final goods and services produced by factors of production supplied by residents of a country, regardless of whether such production takes place within the country or outside of the country. 2014.12 (1)
- ***Implicit price deflator for GDP(GDP deflator)*** is a price index that can be used to convert nominal GDP into real GDP, taking out the effects of changes in the overall price level.
- $$\text{GDP deflator for year } t = \frac{\sum_{i=1}^{N} P_{i,t} Q_{i,t}}{\sum_{i=1}^{N} P_{i,t-5} Q_{i,t}} \times 100$$ 2015.12 (1) 2014.12 (1)

$$= \frac{\text{nominal GDP in year t}}{\text{value of year t output at year } t-5 \text{ prices}} \times 100$$

GDP Calculation

- Under **the income approach**, we have the following equation for GDP:
  GDP = national income + capital consumption allowance
  + statistical discrepancy
  - A **capital consumption allowance (CCA)** measures the depreciation (i.e., wear) of physical capital from the production of goods and services over a period. **CCA** can be thought of as the amount that would have to be reinvested to maintain the productivity of physical capital from one period to the next.
  - The ***statistical discrepancy*** is an adjustment for the difference between GDP measured under the income approach and the expenditure approach because they use different data.

2015.06 (1)

National Income, Personal Income, and Personal Disposable Income

- ***National income*** **is the sum of the income received by all factors of production that go into the creation of final output.**
  - **national income = compensation of employees (wages and benefits) 工人**
    + corporate and government enterprise profits before taxes 企业，税前
    + interest income 资本
    + unincorporated business net income (business owners‘ incomes) 企业家
    + rent 租金
    + indirect business taxes less subsidies* 间接税

  indirect taxes and subsidies that are included in final prices, 产品中的税主要包括sales taxes, fuel taxes, and import duties;要素生产中的税主要包括property taxes and payroll taxes.

- ***Personal income*** **= national income - indirect business tax - corporate income tax - undistributed corporate profit + Transfer payment**
- ***Personal disposable income*** **= personal income - personal taxes**

2015.12 (1)

GDP Calculation

- Using the **expenditure approach**, the major components of real GDP are consumption, investment, government spending, and **net exports** (exports minus imports). These components are summarized in the equation:

$$GDP = C + I + G + (X - M)$$

- **Each of the components of GDP**:
  - ***Consumption*** is a function of disposable income. An increase in personal income or a decrease in taxes will increase both consumption and saving. Additional disposable income will be consumed or saved. The proportion of additional income spent on consumption is called the **marginal propensity to consume (MPC)**, and the proportion saved is the **marginal propensity to save (MPS). MPC + MPS =1**
  - ***Investment*** is a function of expected profitability and the **cost of financing**. Expected profitability depends on the overall level of economic output. Financing costs are reflected in real interest rates, which are approximated by nominal interest rates minus the expected inflation rate.
  - ***Government purchases*** may be viewed as independent of economic activity to a degree, but tax revenue to the government, and therefore the fiscal balance, is clearly a function of economic output.
  - ***Net exports*** are a function of domestic disposable incomes (which affect imports), foreign disposable incomes (which affect exports), and relative prices of goods in foreign and domestic markets.

IS Curves

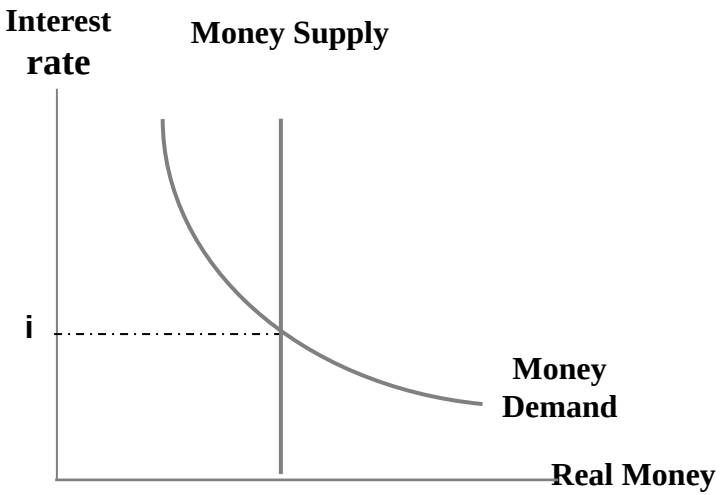
- **The IS Curve**
- **Y = C+I+G+(X-M)**
  - **C和Y有关，I和i（利率）有关，其他都看成常数，以上方程可以写成i和Y的函数，这就是IS曲线；**
  - **IS曲线的shift：**
    - ✓ **G**
    - ✓ **X－M**

Money Demand

- ***The Demand for money*** is largely determined by interest rates and it is also influenced by income level and price level
- Three reasons for holding money:
  - ***Transaction demand*:** Money held to meet the need for undertaking transactions. As the level of real GDP increases, the size and number of transactions will increase, and the demand for money to carry out transactions increases
  - ***Precautionary demand:*** Money held for unforeseen future needs. In the aggregate, the total amount of precautionary demand for money increases with the size of the economy
  - ***Speculative demand:*** Money that is available to take advantage of investment opportunities that arise in the future. It is inversely related to returns available in the market.

Money Supply

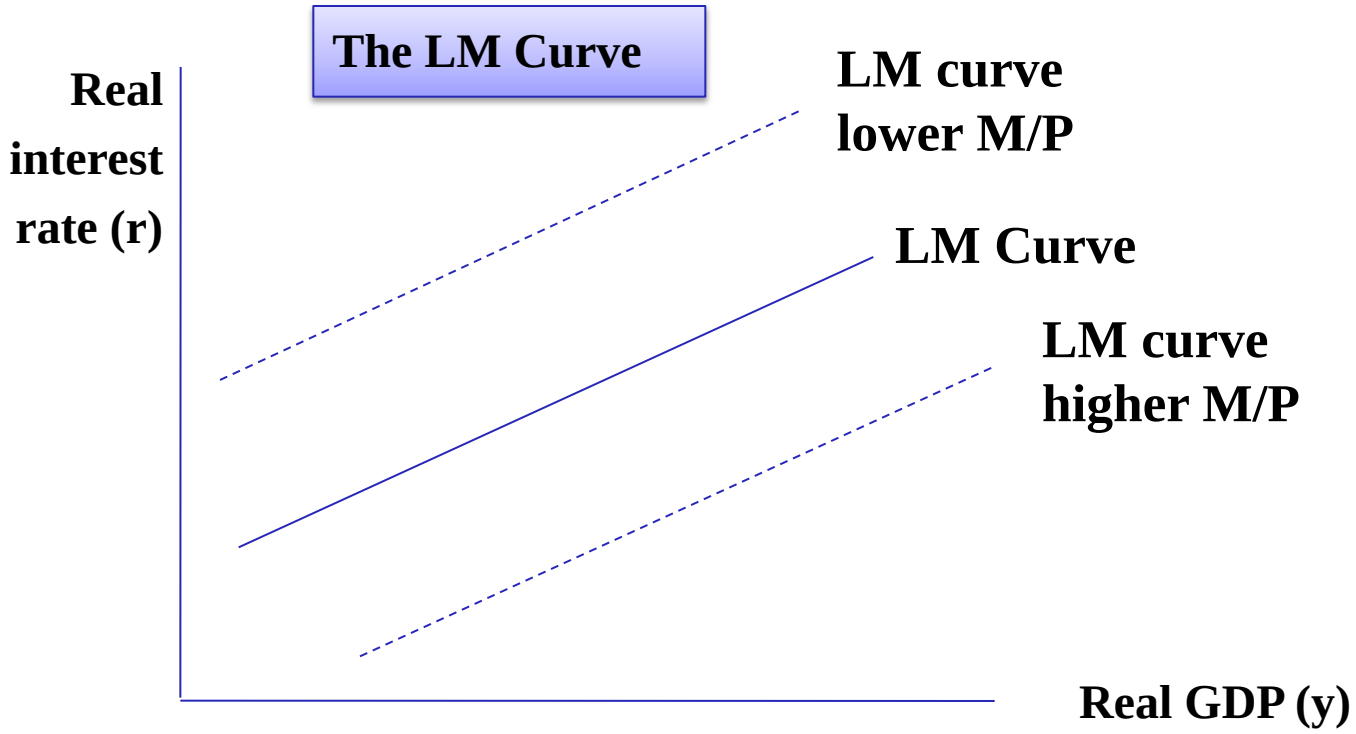
- The ***supply of money*** is determined by the central bank and is not affected by changes in interest rates. Thus the supply of money curve is vertical
- **At lower interest rates, firms and households choose to hold more money. At higher interest rates, the opportunity cost of holding money increases, and firms and households will desire to hold less money and more interest-bearing financial assets.**



- Notice that as the Fed increases the money supply, the interest rate falls, which reduces the opportunity cost of holding money.

LM Curves

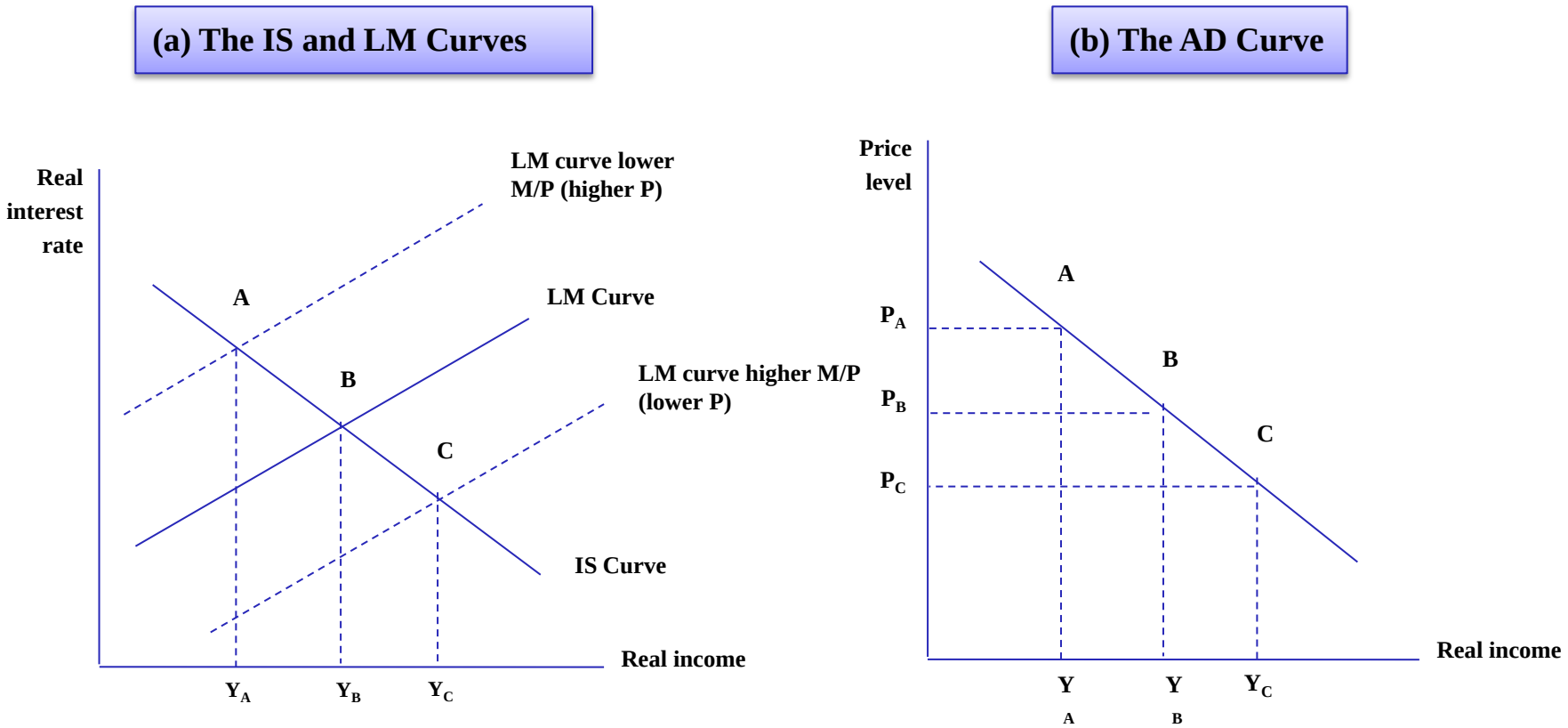
The LM Curve



In equilibrium, there is a *positive relationship between real income and the real interest rate* for a given level of the real money supply.

Aggregate Demand Curve

Deriving the Aggregate Demand Curve



Shifts in the Aggregate Demand Curve

Impact of Factors Shifting Aggregate Demand		
An Increase in the Following Factors	**Shifts the AD Curve**	**Reason**
Stock prices	Rightward: Increase in AD	Higher consumption
Housing prices	Rightward: Increase in AD	Higher consumption
Consumer confidence	Rightward: Increase in AD	Higher consumption
Business confidence	Rightward: Increase in AD	Higher investment
Capacity utilization	Rightward: Increase in AD	Higher investment
Government spending	Rightward: Increase in AD	Government spending a component of AD
Taxes	Leftward: Decrease in AD	Lower consumption and investment
Bank reserves	Rightward: Increase in AD	Lower interest rate, higher investment and possibly higher consumption
Exchange rate (foreign currency per unit domestic currency)	Leftward: Decrease in AD	Lower exports and higher imports
Global growth	Rightward: Increase in AD	Higher exports

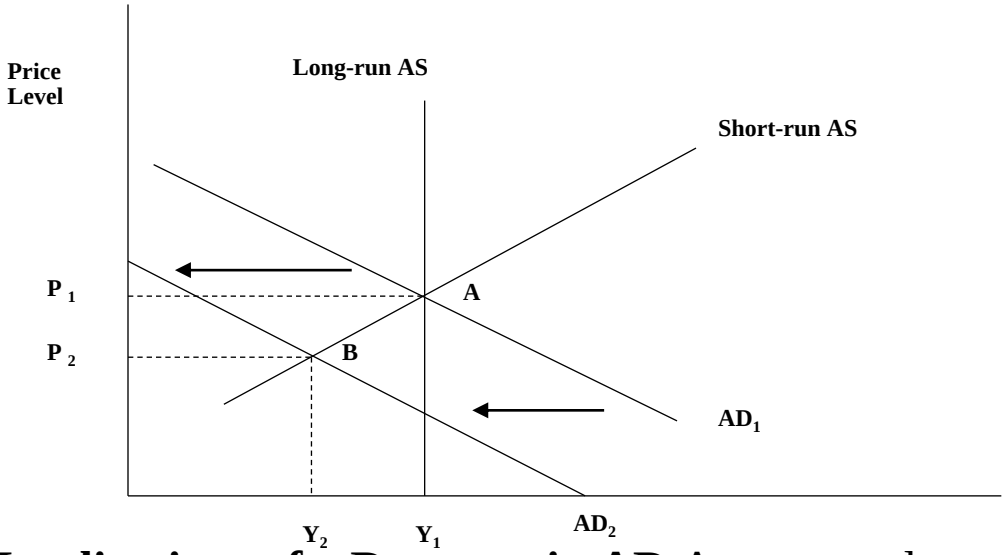
Aggregate Supply Curve

- ***Aggregate Supply Curve***
  - The **aggregate supply** (AS) curve describes the relationship between the price level and the quantity of real GDP supplied, when all other factors are kept constant. That is, it represents the amount of output that firms will produce at different price levels.
  - We need to consider three aggregate supply curves with different time frames: the very short-run aggregate supply (VSRAS) curve, the short-run aggregate supply (SRAS) curve, and the long-run aggregate supply (LRAS) curve.
    - ✓ The ***VSRAS curve*** is perfectly elastic.
    - ✓ The ***LRAS curve*** is perfectly inelastic. In the long run, wages and other input prices change proportionally to the price level, so the price level has no long-run effect on aggregate supply. We refer to this level of output as ***potential GDP*** or ***full-employment GDP***. 2015.12 (1) 2014.06 (1)
    - ✓ The ***SRAS curve*** is upward sloping.

Shifts in the Aggregate Supply Curve

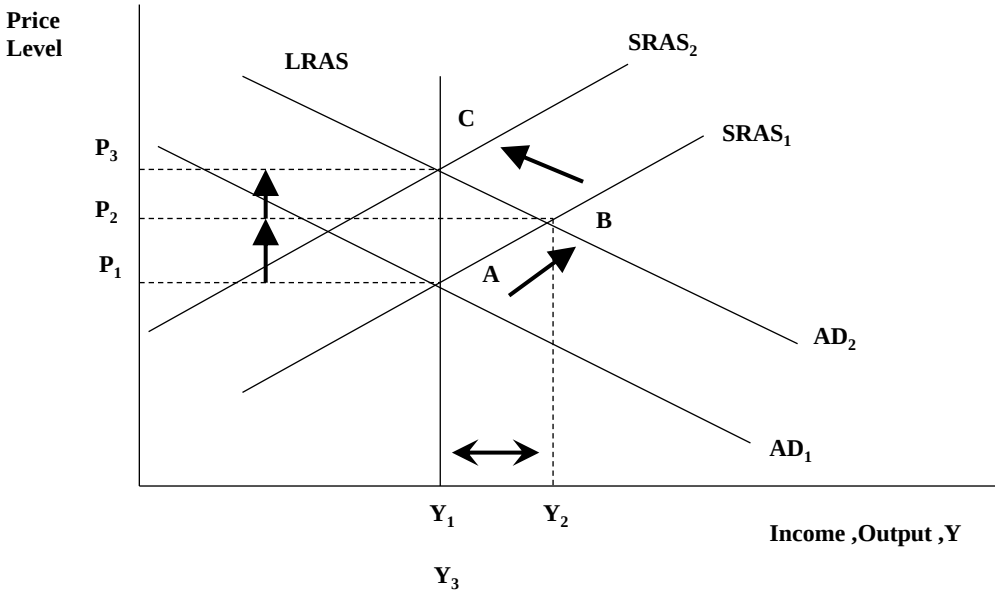
Impact of Factors Shifting Aggregate Supply			
An Increase in	**Shifts SRAS**	**Shifts LRAS**	**Reason**
Supply of labor	Rightward	Rightward	Increases resource base
Supply of natural resources	Rightward	Rightward	Increases resource base
Supply of human capital	Rightward	Rightward	Increases resource base
Supply of physical capital	Rightward	Rightward	Increases resource base
Productivity and technology	Rightward	Rightward	Improves efficiency of inputs
Nominal wages	Leftward	No impact	Increases labor cost
Input prices (e.g., energy)	Leftward	No impact	Increases cost of production
Expectation of future prices	Rightward	No impact	Anticipation of higher costs and/or perception of improved pricing power
Business taxes	Leftward	No impact	Increases cost of production
Subsidy	Rightward	No impact	Lowers cost of production
Exchange rate	Rightward	No impact	Lowers cost of production

Recessionary Gap



- **Investment Implications of a Decrease in AD** Aggregate demand and aggregate supply are theoretical measures that are very hard to measure directly. Most governments, however, publish statistics that provide an indication of the direction that aggregate demand and supply are moving over time.
- For example, statistics on consumer sentiment, factory orders for durable and nondurable goods, the value of unfilled orders, the number of new housing starts, the number of hours worked, and changes in inventories provide an indication of the direction of aggregate demand. If these statistics suggest that a recession is caused by a decline in AD, the following conditions are likely to occur:
  - Corporate profits will decline.
  - Commodity prices will decline.
  - Interest rates will decline.
  - Demand for credit will decline.

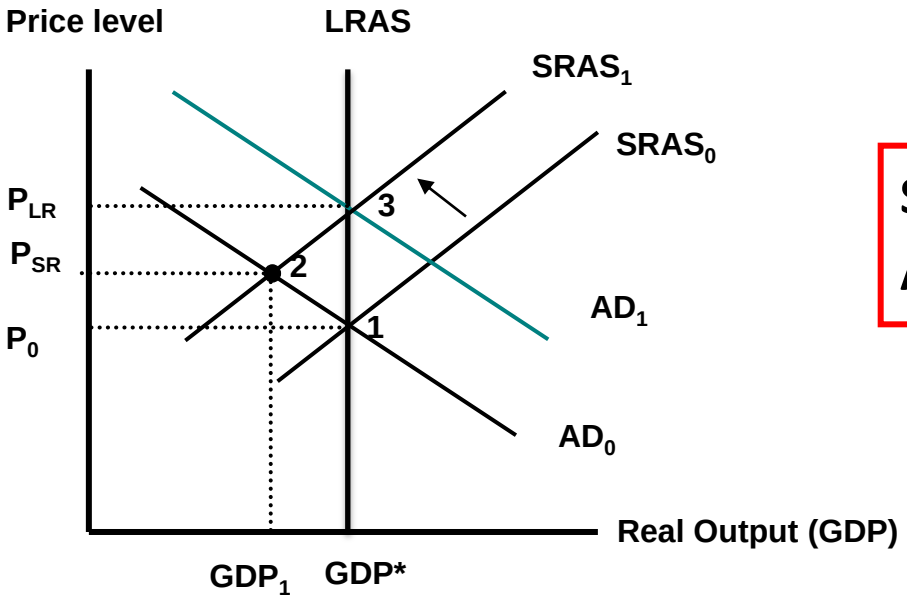
Inflationary Gap



- **Investment Implications of an Increase in AD** resulting in an inflationary gap If economic statistics (consumer sentiment, factory orders for durable and nondurable goods, etc.) suggest that there is an expansion caused by an increase in AD, the following conditions are likely to occur:
  - Corporate profits will rise.
  - Commodity prices will increase.
  - Interest rates will rise.
  - Inflationary pressures will build.

Stagflation

- ***Stagflation*** refers to an environment of both high unemployment and increasing inflation. Stagflation is generally associated with a sharp decrease in aggregate supply.
  - Stagflation is difficult for government policymakers to address because policy changes to reduce inflation tend to make unemployment worse, while policy changes to fight recession tend to make inflation worse.
  - If the government does not intervene, declines in wages and other input prices should return SRAS and real GDP to long-run equilibrium. However, this may be a slow process that makes it politically risky for the government to take no immediate action.



$SRAS_0 \rightarrow SRAS_1$

$AD_0 \rightarrow AD_1$

Sources of Economic Growth

- Economic growth can best be explained by examining five important sources of economic growth:
  - ***Labor supply***
  - ***Human capital***
  - ***Physical capital stock***
  - ***Technology***
  - ***Natural resources***

Production Function

- A ***production function*** describes the relationship between output and labor, the capital stock, and productivity.
  - Economic output can be thought of as a function of the amounts of labor and capital that are available and their productivity, which depends on the level of technology available. That is:

$$\mathbf{Y = A \times} f\mathbf{(L, K)}$$

where:

Y = aggregate economic output ;

L = size of labor force;

K = amount of capital available ;

A = total factor productivity

  - ***Total factor productivity*** is a multiplier that quantifies the amount of output growth that cannot be explained by the increases in labor and capital.

Growth and Growth of Total Factor Productivity

- A well-known model of the contributions of technology, labor, and capital to economic growth is:

  growth in potential GDP =

  growth in technology + W_L(growth in labor) + W_C (growth in capital)

  where W_L and W_c are labor's percentage share of national income and capital's percentage share of national income.

- Growth in total factor productivity is driven by improvements in technology. Sometimes, the relationship between potential GDP, technology improvements, and capital growth is written on a per-capita basis as:

  growth in per-capita potential GDP =

  growth in technology + W_C (growth in the capital-to-labor ratio)

Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

Characteristics of Different Business Cycle Phase

	Early Expansion (Recovery)	Late Expansion	Peak	Contraction (Recession)
Economic Activity	▸Gross domestic (GDP), Industrial production, and other measures of economic activity turn from decline to expansion.	▸Activity measures show an accelerating rate of growth.	▸Activity measures show decelerating rate of growth.	▸Activity measures show outright declines.
Employment	▸Layoff slow (and net Employment turns positive), but new hiring does not yet occur and the unemployment rate remains high. At first, business turns to overtime and temporary employees to meet rising product demands.	▸Business begins full time Rehiring as Overtime hours rise. The unemployment rate falls to low levels.	▸Business slows its rate of hiring; however, the unemployment rate continues to Fall	▸Business first cuts hours and freezes hiring, followed by outright layoffs. The unemployment rate rises.
Consumer and Business Spending	▸Upturn often most Pronounced in housing, durable consumer items, and orders for light producer equipment.	▸Upturn becomes more broad-based. Business begins to order heavy equipment and engage in construction.	▸Capital spending expands rapidly, but the growth rate of spending starts to slow down.	▸Cutbacks appears most in industrial production, housing, consumer durable items and orders for new business equipment, followed, with a lag, by cutbacks in other forms of capital spending.
Inflation	▸Inflation remains moderate and may continue to fall	▸Inflation picks up modestly.	▸Inflation further accelerates	▸Inflation decelerates but with a lag.

Theories of the Business Cycle

- ***Neoclassical school***
  - Believe shifts in both aggregate demand and aggregate supply are primarily driven by changes in **technology** over time.
  - 技术的改变引起经济周期，主张政府不要干预经济
- ***Keynesian school***
  - Believe that **shifts in *aggregate demand* due to changes in expectations** were the primary cause of business cycles.
  - Argue that wages are "**downward sticky**", reducing the ability of a decrease in money wages to increase short-run aggregate supply and move the economy from recession (or depression) back toward full employment.
  - The policy prescription of Keynesian economists is to **directly increase aggregate demand through monetary policy or through fiscal policy**.

    总需求的改变导致了企业家预期的改变，从而引起了经济周期

    主张：政府直接干预经济

Theories of the Business Cycle

- ***Monetarist school***
  - The quantity theory of money: MV=PY 2014.06 (1)
  - Believe the variations in aggregate demand that cause business cycles are due to variations in the rate of growth of the money supply, likely from inappropriate decisions by the monetary authorities.
  - Suggest that to keep aggregate demand stable and growing, the central bank should follow a policy of steady and predictable increases in the money supply.

    由于央行无规律的货币供给导致了经济周期，主张央行不要乱发货币
- ***Austrian school***

  政府参与引起经济周期，主张政府不要干预经济
- ***New Classical school*** introduced ***real business cycle theory (RBC).***

  实际经济变量（外部冲击&技术）影响了经济周期，主张政府不要干预

Key Terms in the Labor Market

2015.06 (2) 2014.06 (1)

- ***Employed***: number of people with a job.
  - This figure normally does not include people working in the informal sector (e.g., unlicensed cab drivers, illegal workers, etc.)
- ***Labor force***: number of people who either have a job or are actively looking for a job.
  - This number ***excludes*** retirees, children, stay-at-home parents, fulltime students, and other categories of people who are neither employed nor actively seeking employment.
- ***Participation ratio*** (also referred to as the activity ratio or labor force participation rate) is the percentage of the working-age population who are either employed or actively seeking employment

$$\text{labor force participation rate} = \frac{\text{labor force}}{\text{Working}-\text{age population}} \times 100$$

- ***Unemployment rate*** is the percentage of people in the labor force who are unemployed.

$$\text{unemployment rate} = \frac{\text{number of unemployed}}{\text{labor force}} \times 100$$

Inflation, Deflation and Disinflation

- ***Inflation*** is a persistent increase in the price level over time.
  - If inflation is present, the prices of almost all goods and services are increasing.
  - ***Inflation rate*** is the percentage increase in the price level, typically compared to the prior year.
  - ***Hyperinflation***: an extremely fast increase in aggregate price level, which corresponds to an extremely high inflation rate.
- ***Deflation***: a sustained decrease in aggregate price level, which corresponds to a negative inflation rate.
- ***Disinflation:*** a decline in the inflation rate.
  - Disinflation is very different from deflation because even after a period of disinflation, the inflation rate remains positive and the aggregate price level keeps rising (although at a slower speed).

Inflation Measurements

- **CPI** is the best known indicator of U.S. inflation. The CPI measures the average price for a defined "basket" of goods and services that represents the purchasing patterns of a typical ***urban household***.
- ***Price index for personal consumption expenditures***
- ***GDP deflator***
- ***Producer price index (PPI): reflect future PPI***
  - Reflect the price changes experienced by domestic producers in a country.
  - Include: fuels, farm products (such as grains and meat), machinery and equipment, chemical products (such as drugs and paints), transportation equipment, metals, pulp and paper, and so on.
- ***Wholesale price index (WPI)***
  - In some countries, the PPI is called the WPI.
- For both consumer and producer prices, analysts and policymaker often distinguish between headline inflation and core inflation.
  - ***Headline inflation*** refers to price indexes for all goods.
  - ***Core inflation*** refers to price indexes that exclude food and energy. Thus, core inflation can sometimes be a more useful measure of the underlying trend in prices. 2015.12 (1)

Inflation Measurement - CPI

Item	Quantity in base period	Price in base period	Quantity in current period	Current price
Cheeseburgers	200	2.50	205	3.00
Movie tickets	50	7.00	45	10.00
Gasoline (in gallons)	300	1.50	295	3.00
Digital watches	100	12.00	105	9.00

Reference base period:			Current period:		
Cheeseburgers	205 × 2.50 =	512.50	Cheeseburgers	205 × 3.00 =	615.00
Movie tickets	45 × 7.00 =	315.00	Movie tickets	45 × 10.00 =	450.00
Gasoline	295 × 1.50 =	442.50	Gasoline	295 × 3.00 =	885.00
Watches	105 × 12.00 =	1,260.00	Watches	105 × 9.00 =	945.00
Cost of basket		2,530.00	Cost of basket		2,895.00

$$\text{Paasche index} = \frac{2,895}{2,530} \times 100 = 114.43$$

Laspeyres Index

- **Laspeyres index:** uses a constant basket of goods and services. Most countries calculate consumer price inflation this way.
- Three factors cause a Laspeyres index of consumer prices to be biased upward as a measure of the cost of living:
  - ***New goods.*** Older products are often replaced by newer, but initially more expensive, products. New goods are periodically added to the market basket, and the older goods they replace are reduced in weight in the index. This biases the index upward.
  - ***Quality changes.*** If the price of a product increases because the product has improved, the price increase is not due to inflation but still increases the price index.
  - ***Substitution.*** Even in an inflation-free economy, prices of goods relative to each other change all the time. When two goods are substitutes for each other, consumers increase their purchases of the relatively cheaper good and buy less of the relatively more expensive good. Over time, such changes can make a Laspeyres index's fixed basket of goods a less accurate measure of typical household spending.

Hedenic Pricing, Fisher Index, and Paasche Index

- Solution for Laspeyres index biases:
  - Many countries adjust for the quality of the products in a basket, a practice called ***hedonic pricing***.
  - New products can be introduced into the basket over time.
  - The substitution bias can be somewhat resolved by using chained price index formula.
    - ✓ One such example is the ***Fisher index***, which is the geometric mean of the Laspeyres index and the Paasche index.
  - ***Paasche index*** is an index formula using the current composition of the basket.

Inflation

- An inflation that results from an initial increase in costs is called **cost-push inflation**. The two main sources of increases in costs are
  - An increase in money wage rates
  - An increase in the money prices of raw materials
- **Demand-pull inflation:** an inflation that results from an initial increase in aggregate demand
  - Factors:
    - ✓ Increase in the quantity of money
    - ✓ Increase in government purchases
    - ✓ Increase in exports

Economic Indicators

Leading	Reason
Average weekly hours, manufacturing	Because businesses will cut overtime before laying off workers in a downturn and increase it before rehiring in a cyclical upturn, these measures move up and down before the general economy.
Average weekly initial claims for unemployment insurance	This measure offers a very sensitive test of initial layoffs and rehiring.
Interest rate spread between 10-year treasury yields and overnight borrowing rates (federal funds rate)	Because long-term yields express market expectations about the direction of short-term interest rates, and rates ultimately follow the economic cycle up and down, a wider spread, by anticipating short rate increases, also anticipates an economic upswing. Conversely, a narrower spread, by anticipating short rate decreases, also anticipates an economic downturn.
Lagging	**Reason**
Inventory—sales ratio	Because inventories accumulate as sales initially decline and then, once a business adjusts its ordering, become depleted as sales pick up, this ratio tends to lag the cycle.

Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

How Money is Created

How Do the Banks Create Money ?

	reserve	loan
Bank1		100
Bank2	10	90
Bank3	9	81
…	…	…

Ms=100/(1-0.9)=1000

$$\text{money created} = \text{new deposit} \Big/ \text{reserve requirement} = \frac{100}{0.1} = 1000$$

$$\text{money multiplier} = \frac{1}{\text{reserve requirement}} = \frac{1}{0.1} = 10$$

Fisher Effect

- The ***Fisher effect*** states that the nominal interest rate is simply the sum of the real interest rate and expected inflation.
  - $R_{Nom} = R_{Real} + E[I]$

    R_{Nom} = nominal interest rate

    R_{Real} = real interest rate

    E[I] = expected inflation
  - The idea behind the Fisher effect is that real rates are relatively stable, and changes in interest rates are driven by changes in expected inflation. This is consistent with money neutrality.

Tools of the Central Bank

- ***Policy rate***
  - In the United Stated, banks can borrow funds from the Fed. The rate at which banks can borrow reserves from the Fed is termed the discount rate. For the European Central Bank (ECB), it is called the refinancing rate.
  - One way to lend money to banks is through a repurchase agreement. The Bank of England uses this method, and police rate is called the two-week repo (repurchase) rate.
  - In the United States, the federal funds rate is the rate that banks charge each other on overnight loans of reserves.
  - A lower rate reduces banks' cost of funds encourage lending, and tends to decrease interest rates.
  - A higher policy rate increases banks' cost of funds discourage lending, and tends to increase interest rates.

美联储：联邦基金利率，商行和商行之间的隔夜拆借利率

欧洲：再贴现率，商行跟央行融资的利率

Policy rate ↓ → 融资成本低，释放流动性 （扩张的货币政策）

Policy rate ↑ → 融资成本高，收紧流动性 （紧缩的货币政策）

Tools of the Central Bank

- ***Reserve requirements***
  - Reserve requirement ↑ - available funds for lending ↓ - money supply ↓ - interest rate↑
  - This tool only works well to increase the money supply if banks are willing to lend and customers are willing to borrow.

    存款准备金 ↑ → 紧缩的货币政策

    存款准备金 ↓ → 扩张的货币政策
- ***Open market operations*** 2014.12 (1)
  - Central bank buy securities – funds available funds for lending ↑ - money supply ↑ - interest rate ↓
  - This tool is the Fed's most commonly used tool and is important in achieving the federal funds target rate (policy rate).

    央行买债券 → 扩张的货币政策

    央行卖债券 → 紧缩的货币政策

Neutral interest rate

- An economy's long-term sustainable real growth rate is called the ***real trend rate*** or, the ***trend rate***.
- The ***neutral interest rate*** of an economy is the growth rate of the money supply that neither increases nor decreases the economic growth rate:

  Neutral interest rate = real trend rate of economic growth + inflation target

  - Policy rate> Neutral rate: contractionary
  - Policy rate< Neutral rate: expansionary

Limitation of Monetary Policy

- The transmission mechanism for monetary policy does not always produce the intended results.
  - Long-term rates may not rise and fall with short-term rates because of the effect of monetary policy changes on expected inflation.
- Another situation in which the transmission mechanism may not perform as expected is if demand for money becomes very elastic and individuals willingly hold more money even without a decrease in short-term rates. Such a situation is called a ***liquidity trap***. 2014.06 (1)

Fiscal Policy Tools

- ***Spending Tools***
  - ***Transfer payments***: Redistribute wealth, taxing some and making payments to others, transfer payments are not included in GDP computations. (e.g: social security and unemployment insurance benefits)
  - ***Current spending***: refers to government purchases of goods and services on an ongoing and routine basis.
  - ***Capital spending***: refers to government spending on infrastructure such as roads, schools, bridges, and hospitals. Capital spending is expected to boost future productivity of the economy
- ***Revenue Tools***
  - ***Direct taxes*** are levied on income or wealth. These include income taxes, taxes on income for national insurance, wealth taxes, estate taxes, corporate taxes, capital gains taxes, and Social Security taxes. Some progressive taxes (such as income and wealth taxes) generate revenue for wealth and income redistributing.
  - ***Indirect taxes*** are levied on goods and services. These include sales taxes, value-added taxes (VATs), and excise taxes. Indirect taxes can be used to reduce consumption of some goods and services (e.g., alcohol, tobacco, gambling). 影响更快

Limitations of Fiscal Policy

- ***Limitations*** of Discretionary Fiscal Policy:
  - The lag can be divided into three types:
    - ***Recognition lag*** : Discretionary fiscal policy decisions are made by a political process. The state of the economy is complex, and it may take policymakers time to recognize the nature and extent of the economic problems.
    - ***Law-making lag:*** The time governments take to discuss, vote on, and enact fiscal policy changes.
    - ***Impact lag:*** The time between the enactment of fiscal policy changes and when the impact of the changes on the economy actually takes place. It takes time for corporations and individuals to act on the fiscal policy changes, and fiscal multiplier effects occur only over time as well.
  - ***Crowding-out effect:*** Expansionary fiscal policy may crowd out private investment, reducing the impact on aggregate demand.

2015.06 (1)

Limitations of Fiscal Policy - Ricardian Equivalence

- ***Ricardian Equivalence:*** Increases in the current deficit mean greater taxes in the future.
  - To maintain their preferred pattern of consumption over time, taxpayers may increase current savings (reduce current consumption) in order to offset the expected cost of higher future taxes.
  - If taxpayers reduce current consumption and increase current saving by just enough to repay the principal and interest on the debt the government issued to fund the increased deficit, there is no effect on aggregate demand.
- If taxpayers underestimate their future liability for servicing and repaying the debt, so that aggregate demand is increased by equal spending and tax increases, Ricardian equivalence does not hold.

Fiscal Multiplier

- ***Fiscal multiplier***
  - Fiscal multiplier = $\frac{1}{1-\text{MPC}(1\text{-}t)} = \frac{1}{1-b\times(1\text{-}t)}$
  - MPC: Marginal propensity of consumption (b)
  - The fiscal multiplier is inversely related to the tax rate (higher tax rate decreases the multiplier) and directly related to the marginal propensity to consume (higher MPC increases the multiplier).

Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

Absolute and Comparative Advantage

2015.12 (1) 2015.06 (1)
2014.12 (1) 2014.06 (1)

- If two countries have different opportunity cost of producing **The law of comparative advantage** holds that trading partners can be made better off if they **specialize in the production of goods for which they are the low-opportunity cost** producer and trade for those goods for which they are the high-opportunity cost producer.
- When each country specializes in the good for which they have a comparative advantage and trades each other, there are clear gains existed.

Country / Product	A	B
X	10	9
Y	5	3

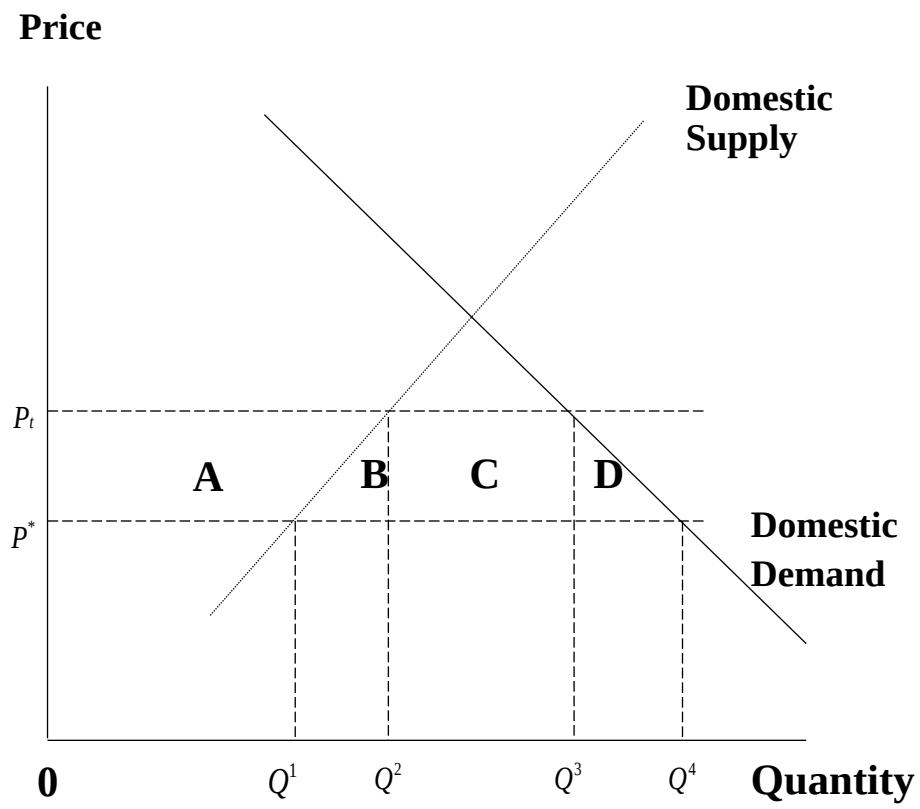
Ricardian Model and Heckscher-Ohlin Model

- In the ***Ricardian model***, labor is the only (variable) factor of production. Differences in labor productivity, reflecting underlying differences in technology, are the source of comparative advantage and hence the key driver of trade in this model.
- In the ***Heckscher—Ohlin Model*** (also known as the factor-proportions theory), both capital and labor are variable factors of production.
  - Differences in the relative endowment of these factors are the source of a country's comparative advantage.
  - A country has a comparative advantage in goods whose production is intensive in the factor with which it is relatively abundantly endowed, and would tend to specialize in and export that good.
    - ✓ Capital is relatively more (less) abundant in a country if the ratio of its endowment of capital to labor is greater (less) than that of its trading partner.
    - ✓ For this country, labor is relatively abundant would export relatively labor-intensive goods and import relatively capital-intensive goods.
  - It allows for the possibility of income redistribution through trade.
    - ✓ The price of the relatively less scare (more available) factor of production in each country will increase.
    - ✓ The good that a country imports will fall in price (that is why they import it), and the good that a country exports will rise in price.

Types of Trade Restrictions

- Types of trade restrictions include:
  - ***Tariffs:*** taxes on imported good collected by the government.
  - ***Quotas:*** limits on the amount of imports allowed over some period.
  - ***Export subsidies:*** government payments to firms that exports goods.
  - ***Minimum domestic content:*** requirement that some percentage of product content must be from the domestic country.
  - ***Voluntary export restraint:*** a country voluntarily restricts the amount of a good that can be exported, often in the hope of avoiding tariffs or quotas imposed by their trading partner.

Welfare Effects of an Import Tariff or Quota



	Importing Country
Consumer surplus	-(A+B+C+D)
Producer surplus	+A
Tariff revenue or Quota rents	+C
National welfare	-B-D

BOP Components

- ***Current account*** measures the flows of goods and services.
  - ***Merchandise and services***
    - ✓ Merchandise consists of all raw materials and manufactured goods bought, sold, or given away.
    - ✓ Services include tourism, transportation, and business and engineering services, as well as fees from patents and copyrights on new technology, software, books, and movies.
  - ***Income receipts*** include foreign income from dividend on stock holdings and interest on debt securities
  - ***Unilateral transfers*** are one-way transfers of assets, such as money received from those working abroad and direct foreign aid.

International organization

- International organization
  - International Monetary Fund (IMF)
  - World Bank
  - World Trade Organization (WTO)

Framework of Economics

- SS 4 Microeconomic Analysis
  - R13 demand and supply: introduction
  - R14 demand and supply: consumer demand introduction
  - R15 demand and supply: the firm
  - R16 the firm and the market structure
- SS 5 Macroeconomic Analysis
  - R17 aggregate output, price, and economic growth
  - R18 understand business cycles
  - R19 monetary and fiscal Policy
- SS 6 Economics in a Global Context
  - R20 international trade and capital flow
  - R21 currency exchange rate

Nominal and Real Exchange Rate

- ***Exchange rate*** is simply the price or cost of units of one currency in terms of another.
- ***Nominal exchange rate***: the price that we observe in the marketplace for foreign exchange.
- ***Real exchange rate***: the focus shifts from the quotations in the foreign exchange market to what the currencies actually purchase in terms of real goods and services.
  - FX real(d/f) = FX nominal (d/f) *CPIf/CPId
  - Changes in real exchange rates can be used *when analyzing economic changes over time*.
    - ✓ When the real exchange rate (d/f) increases, exports of goods and services have gotten relatively less expensive to foreigners, and imports of goods and services from the foreign country have gotten relatively more expensive over time
- **Example:** At a base period, the CPIs of the U.S. and U.K. are both 100, and the exchange rate is $1.70 per euro. Three years later, the exchange rate is $1.60 per euro, and the CPI has risen to 110 in the U.S. and 112 in the U.K.. What is the real exchange rate?
- **Solution:** The real exchange rate is $1.60 per euro * 112/110 = $1.629 per euro.

Cross Rate

- ***Cross rate*** is the exchange rate between two currencies implied by their exchange rates with a common third country.
- **Example:**
  - USD/AUD = 0.60, MXN/USD = 10.70
    - ✓ MXN/AUD = USD/AUD * MXN/USD = 0.60 * 10.70 = 6.42
  - CHF/USD = 1.7799, NZD/USD = 2.2529
    - ✓ CHF/NZD = (CHF/USD) / (NZD/USD) = 1.7799 / 2.2529 = 0.7900

Forward Discount or Premium

- ***Forward discount or premium***
  - With the convention of giving the value of the quoted currency (the first currency) in terms of units of the second currency, there is a premium on the quoted currency when the forward exchange rate is higher than the spot rate and a discount otherwise.
- **Example:**
  - The AUD/EUR spot exchange rate is 0.7313 with the 1-year forward rate quoted at +3.5 points.
    - ✓ What is the 1-year forward AUD/EUR exchange rate?
    - ✓ Is the euro trading at a forward discount or forward premium relative to the Australian dollar?
  - Solution:
    - ✓ The forward exchange rate is 0.7313 + 0.00035 = 0.73165.
    - ✓ Because the price of euros in AUD is higher one year out, the euro is trading at a forward premium (and the AUD a forward discount).

Interest Rate Parity (IRP)

2015.06 (1) 2014.12 (2)

- ***Interest rate parity (IRP)*** holds when any forward premium or discount just offsets differences in interest rates so that an investor will earn the same return investing in either currency. Approximated by equating the difference between the domestic interest rate and the foreign interest rate to the forward premium or discount.
- Interest rate parity relationship:
  - F (forward), S (spot) X/Y, r_X and r_Y is the nominal risk-free rate in X and Y
  - $$\frac{F}{S} = \frac{1+r_X}{1+r_Y}$$
  - $$\frac{F-S}{S} = \frac{1+r_X}{1+r_Y} - 1 = \frac{r_X - r_Y}{1+r_Y} \approx r_X - r_Y$$
- The forward rate will be higher than (be at a premium to) the spot rate if the nominal risk-free rate in X is higher than that in Y.
- More generally, and regardless of the quoting convention, the currency with the higher (lower) interest rate will always trade at a discount (premium) the forward market.

Exchange Rate Regimes

- ***Countries That Do Not Have Their Own Currency:***
  - A country can use the currency of another country **(formal dollarization)** not create money/currency.
  - A country can be a member of a **monetary union** in which several countries use a common currency (eg:Euro)
- ***Countries That Have Their Own Currency：***
  - ***A currency board arrangement*** is an explicit commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate (notable example of such an arrangement is Hong Kong, central bank is not the last resort）
  - ***conventional fixed peg arrangement*** a country pegs its currency within margins of ±1 percent versus another currency or a basket that includes the currencies of its major trading or financial partners
    - ✓ ***direct intervention***： The monetary authority can maintain exchange rates within the band by purchasing or selling foreign currencies in the foreign exchange market
    - ✓ ***indirect intervention*** : including changes in interest rate policy, regulation of foreign exchange transactions, and convincing people to constrain foreign exchange activity

Exchange Rate Regimes

- ***Countries That Have Their Own Currency：***
  - ***Target zone*** : the permitted fluctuations in currency value relative to another currency or basket of currencies are wider (e.g., +/-2 %)
  - ***Crawling peg***: the exchange rate is adjusted periodically, typically to adjust for higher inflation
    - ✓ ***passive crawling peg*** : a series of exchange rate adjustments over time is announced and implemented
    - ✓ ***active crawling peg***: can influence inflation expectations, adding some predictability to domestic inflation
  - ***Management of exchange rates within crawling bands***: the width of the bands that identify permissible exchange rates is increased over time
  - ***Managed floating exchange rates***: the monetary authority attempts to influence the exchange rate in response to specific indicators such as the balance of payments, inflation rates, or employment without any specific target exchange rate or predetermined exchange rate path
  - ***Independently floating***: the exchange rate is market-determined, and foreign exchange market intervention is used only to slow the rate of change and reduce short-term fluctuations, not to keep exchange rates at a certain target level

Elasticity Approach

- Two approaches to exam how changes in exchange rates affect the balance of trade:
  - Elasticity approach
  - Absorption approach
- Elasticity approach

$$\omega_M = \frac{\text{Imports}}{\text{imports} + \text{exports}} \qquad \omega_X = \frac{\text{exports}}{\text{imports} + \text{exports}}$$

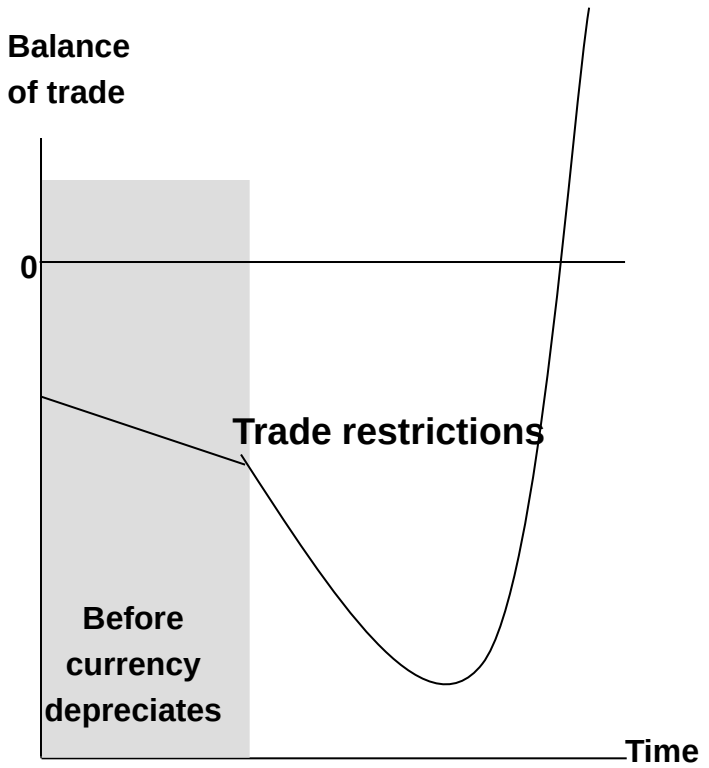
ε_M : elasticities (as positive numbers) of demand for imports

ε_X : elasticities (as positive numbers) of demand for emports

- Given Marshall-Lerner condition: $\omega_X \varepsilon_X + \omega_M (\varepsilon_M - 1) > 0$
- When import expenditures=export revenues, $\omega_X = \omega_M \longrightarrow \varepsilon_X + \varepsilon_M > 1$
  - $\varepsilon x > -(W_M/W_x)(\varepsilon_M - 1)$
  - $\varepsilon_M > 1 - (W_x/W_M)\,\varepsilon x$

J-Curve

- *The J-Curve*
  - import and export contracts delivery and payment in the future , import and export quantities may be relatively insensitive to currency depreciation in the short run means currency depreciation may worsen a trade deficit in the short run.
  - given the existence of such contracts and the resulting insensitivity of both import and export quantities to currency depreciation, import expenditures may rise in the short run as export prices rise, and export revenues may fall as export prices (in the domestic currency) fall, even when the Marshall-Lerner condition is met.
  - This short-term increase in the deficit followed by a decrease when the Marshall-Lerner condition is met.



Absorption Approach

- ***Absorption approach***
  - BT = Y - E
    - ✓ Y = domestic production of goods and services or national income
    - ✓ E = domestic absorption of goods and services, which is total expenditure
    - ✓ BT = balance of trade
  - The economy is operating at less than full employment:
    - ✓ Depreciation → price of domestic goods and assets ↓ → expenditures and income ↑ → saving ↑ → trade balance improved
  - The economy is operating at full employment:
    - ✓ Depreciation → value of domestic assets ↓ → savers' real wealth ↓ → saving ↑ → wealth ↑ → positive impact on saving ↓ → returning the economy to its previous state and balance of trade

It's not the end but just the beginning.

Your life can be enhanced, and your happiness enriched, when you choose to change your perspective. Don't leave your future to chance, or wait for things to get better mysteriously on their own. You must go in the direction of your hopes and aspirations. Begin to build your confidence, and work through problems rather than avoid them. Remember that power is not necessarily control over situations, but the ability to deal with whatever comes your way.

一旦变换看问题的角度，你的生活会豁然开朗，幸福快乐会接踵而来。别交出掌握命运的主动权，也别指望局面会不可思议的好转。你必须与内心希望与热情步调一致。建立自信，敢于与困难短兵相接，而非绕道而行。记住，力量不是驾驭局势的法宝，无坚不摧的能力才是最重要的。