

CFA 一级知识框架图

Economics

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Framework

Study Session 4 Microeconomic and Macroeconomic

R14 Topics in demand and supply analysis

R15 The firm and the market structure

R16 Aggregate output, price, and economic growth

R17 Understand business cycles

Study Session 5 Monetary and Fiscal Policy, International Trade, and Currency Exchange Rates

R18 Monetary and fiscal policy

R19 International trade and capital flow

R20 Currency exchange rate



Reading 14

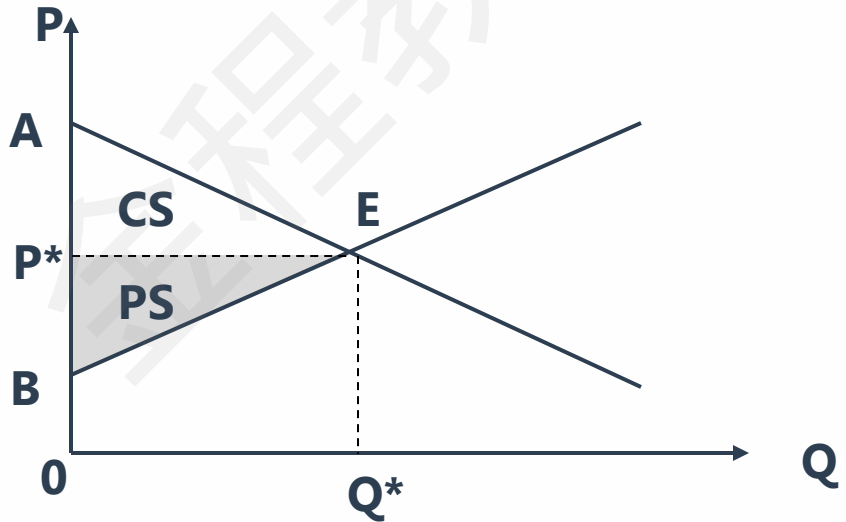
Topics in Demand and Supply Analysis



Demand curve and supply curve

		Demand function	Supply function
计算		$D^d_x = f(P_X, I, P_Y \dots)$	$D^s_x = f(P_X, \text{cost} \dots)$
性质	Movements along	本商品价格 P_X 发生改变	本商品价格 P_X 发生改变
	Shifts	Income & P_Y (其他商品价格) → 使得demand 上升, 曲线向右 shift	Costs 上升 (比如wage) → 使得 supply 减少, 曲线向左 shift

Consumer Surplus

	Consumer surplus	Producer surplus
概念	<ul style="list-style-type: none"> ➤ 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. 	<ul style="list-style-type: none"> ➤ The excess of the market price above the opportunity cost of production.
图示	<ul style="list-style-type: none"> ➤ Total surplus = consumer surplus + producer surplus ➤ 	



Price elasticity of demand

计算	➤ Price elasticity of demand = $\frac{\Delta Q/Q}{\Delta P/P}$
分类	<ul style="list-style-type: none">➤ Highly elastic demand curve较平坦➤ Relatively inelastic demand curve较陡峭➤ Perfectly elastic & perfectly inelastic
性质	<ul style="list-style-type: none">➤ 同一条demand curve(直线), 每一个点的弹性都不同➤ Total revenue is maximized at unit elastic➤ 弹性大, 降价; 弹性小, 提价
影响因素	<ul style="list-style-type: none">➤ Availability of substitutes: 越可得, 弹性越大➤ Relative amount of income spent on the good: 花钱越多, 对价格越敏感➤ Time period since the price change: 长期来看, 弹性更大



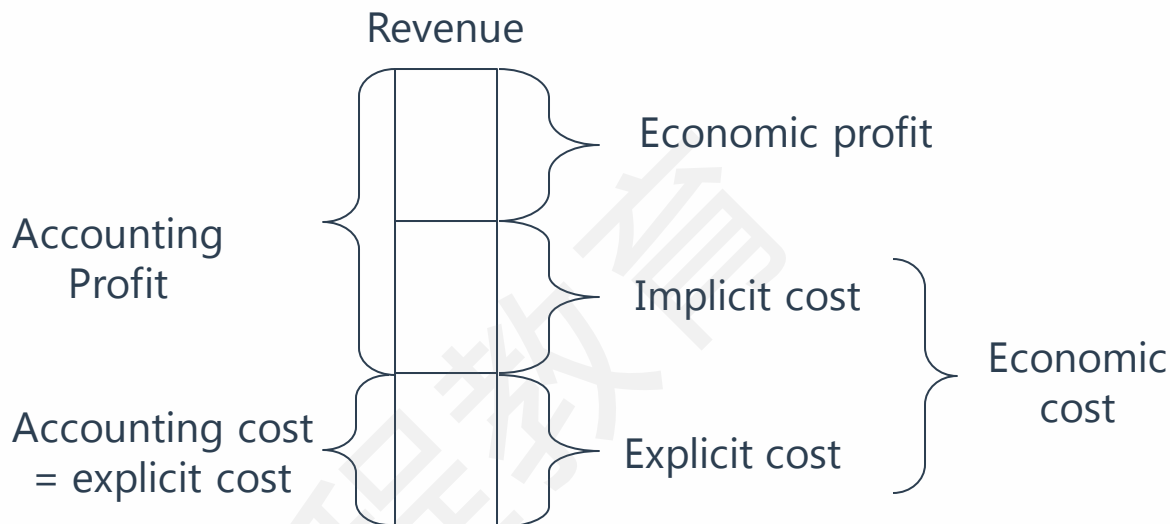
	Cross elasticity	Income elasticity of demand
定义	<p>➤ Cross elasticity of demand =</p> $\frac{\frac{\Delta Q_A/Q_A}{\Delta P_B/P_B}}$	<p>➤ Income elasticity of demand =</p> $\frac{\frac{\Delta Q/Q}{\Delta I/I}}$
分类	<p>➤ Positive → Substitute goods</p> <p>➤ Negative → Complement goods</p>	<p>➤ Normal Goods (> 0)</p> <ul style="list-style-type: none">● Luxuries (>1)● Necessities (between 0~1) <p>➤ Inferior Goods (<0)</p>

Substitution and income effect

		Substitution effect	Income effect		Total effect
原理		P_X 下降 → 用X替代Y → Q_X 上升	P_X 下降 → Real income上升 → Q_X		P_X 下降 → 受两种效 应影响 → Q_X
Normal goods		Positive effect	Positive effect		Positive effect: P_X 下降 → Q_X 上升
Inferior goods	一般的		Negative effect	I.E < S.E	
	特殊的 (Giffen)			I.E > S.E	Negative effect: P_X 上升 → Q_X 上升
Giffen & Veblen goods		<ul style="list-style-type: none">➤ 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			

Profit

关系



- Normal profit is the accounting profit that makes economic profit zero.
Accounting profit = economic profit + normal profit
- Accounting profit > Normal profit, Economic profit > 0
- Accounting profit = Normal profit, Economic profit = 0
- Accounting profit < Normal profit, Economic profit < 0



	Product ★	Revenue ★
公式	<ul style="list-style-type: none">➤ $TP=Q$➤ $AP=TP/L$➤ $MP=\Delta TP/ \Delta L$	<ul style="list-style-type: none">➤ $TR=P*Q$➤ $AR=TR/Q$➤ $MR=\Delta TR/ \Delta Q=P*(1-\frac{1}{e_p})$
特点	<ul style="list-style-type: none">➤ Law of diminishing returns (边际产量递减)➤ $MP > AP$, AP 上升 ; $MP < AP$, AP 下降 ; $MP=AP$, AP 最大值.➤ $MP = 0$, TP 最大	<ul style="list-style-type: none">➤ Under perfect competition :<ul style="list-style-type: none">● Horizontal demand curve → $AR = MR$➤ Under imperfect competition :<ul style="list-style-type: none">● AR & MR will decline as Q increase● AR is not equal to MR for any quantities greater than zero● The decrease in MR is more than the decrease in price or AR● Total revenue (TR) is maximized when $MR = 0$



Cost

分类

- Long term: 一切都可变, 没有FC和VC之分
- Short term: some resources are fixed, such as buildings, technology and equipment

公式

- Marginal cost = change in total cost (或 variable cost)/ change in output
- Average cost = total cost / output

特点

- MC declines initially, then increases.
- MC intersects AVC and ATC at their minimum points.
- Minimum point on the ATC curve represents the lowest cost per unit, but it is not necessarily the profit-maximizing point.
- The MC curve above AVC is the firm's short-run supply curve in a perfectly competitive market.



Profit maximization

分类

The difference between total revenue (TR) and total costs (TC) is the greatest;

Marginal revenue (MR) equals marginal cost (MC); ($MR=MC$)

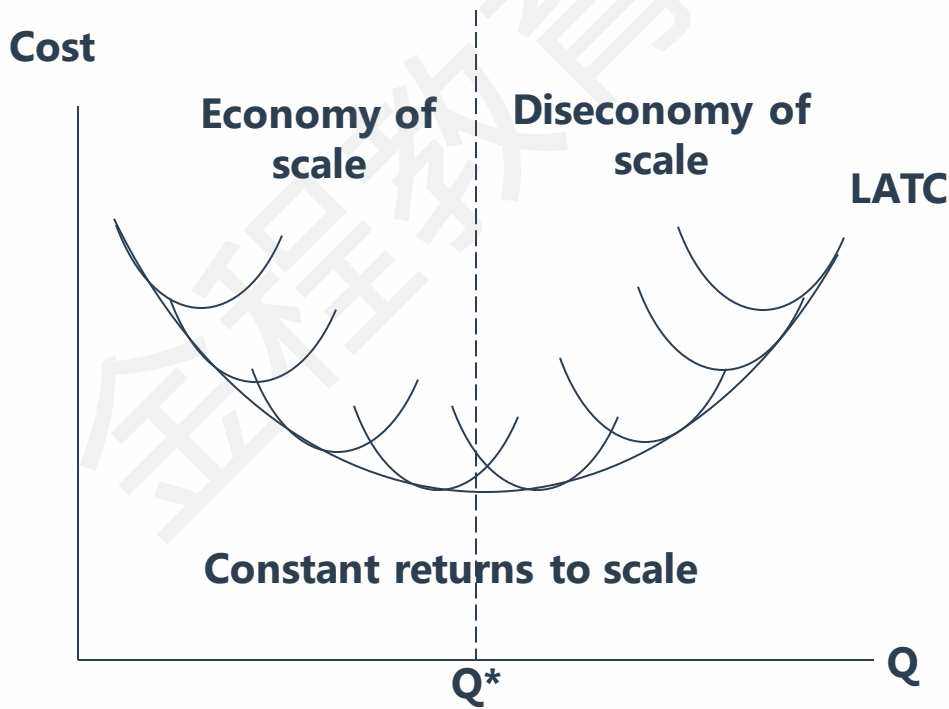
The revenue value of the output from the last unit of input employed equals the cost of employing that input unit.



Breakeven point and shutdown point ★★

	Revenue-cost relationship	Short-run relationship	Long-run relationship
决策	TR > TC	Stay in market	Stay in market
	AR > ATC		
	TVC < TR < TC	Stay in market	Exit market
	AVC < AR < ATC		
	TR < TVC	Shut down production	Exit market
	AR < AVC		
关键点	<div>➤ Breakeven point: TR = TC; AR = ATC</div> <div>➤ Shutdown point: TR = TVC; AR = AVC</div> <div>➤ Profit maximization: MR = MC</div>		
注：Total revenue和Total Cost之间的关系，完全和非完全竞争市场均适用； Average revenue和Average cost之间的关系，仅在完全竞争市场适用。			

Economies of scale & diseconomies of scale

	Economies of scale	Diseconomies of scale
定义	downward sloping segment of long-run average total cost curve	upward sloping segment of this long-run average total cost curve
图示	 <p>The graph illustrates the Long-Run Average Total Cost (LATC) curve. The vertical axis is labeled 'Cost' and the horizontal axis is labeled 'Q'. The LATC curve is U-shaped. A vertical dashed line divides the graph into three regions: 'Economy of scale' on the left, 'Constant returns to scale' in the middle, and 'Diseconomy of scale' on the right. The minimum point of the LATC curve is marked on the horizontal axis as Q^*.</p>	



Reading 15

The Firm and The Market Structure



Market structure factors ★ ★

	Perfect competition	Monopolistic competition	Oligopoly	Pure monopoly
Number of firms	Many	Many	More than one, but not many	Single
Degree of difference of products	No difference	Some difference	Little or no difference	Sole product, nearly no substitute
Difficulty to enter or leave	Very easy	Relatively easy	Difficult	No way
Pricing power of firm	None (Price taker)	Some	Some or considerable	Considerable
Examples in our life	Agriculture products	Some retail products	Steel, automobile, oil	Public sectors



Prefect competition ★

分类	Short-run equilibrium	<ul style="list-style-type: none"> ➤ $P = MR = MC$ ➤ 短期有profit，会有新厂商进入：短期有loss，会有原厂商退出
	Long-run equilibrium	<ul style="list-style-type: none"> ➤ 长期均衡：profit = 0 → $P = MR = MC = ATC$ (breakeven point)

Monopolistic competition

特点	<ul style="list-style-type: none"> ➤ Downward-sloping demand curves ➤ The curves are highly elastic 	
分类	Short-run output decision	<ul style="list-style-type: none"> ➤ $MR = MC$ ➤ Price is slightly higher than under perfect competition
	Long-run output decision	No economic profit → $P = ATC$ (因为厂商可以自由进出)
营销★	Innovation and product development; Advertising; Brand names	

Characteristics of oligopoly

特点

- A small number of sellers
- Interdependence among competitors
- Large economies of scale
- Significant barriers to entry
- Either similar or differentiated products

模型

- Kinked demand curve model
- Cournot duopoly model
- Nash equilibrium model (prisoner's dilemma)
- Stackelberg dominant firm model



	Kinked demand curve	Cournot model
描述	<ul style="list-style-type: none">➤ 提价→弹性大；降价→弹性小➤ The factor which determines the market price is not included in the model, and it makes the model incomplete.	<ul style="list-style-type: none">➤ Only two firms exists in the market (e.g. A duopoly).➤ The marginal costs of production is identical and constant.➤ Each firm determines its profit-maximizing production level by assuming that the other firms' output will not change.➤ In equilibrium, neither firm has an incentive to change output, given the other firm's production level. Each firm attempts to maximize its own profits under the assumption that the other firm will continue producing the same level of output in the future.

Nash Equilibrium model ★★

描述

It presents when two or more participants in a non-cooperative game have no incentive to deviate from their respective equilibrium strategies after they have considered and anticipated their opponent's rational choices or strategies.

Collusion

- In some cases, collusion is successful;
 - The number and size distribution of sellers——fewer;
 - The similarity of the products——more similar;
 - Cost structure——more similar;
 - Order size ——smaller , and frequency——more frequent;
 - The strength and severity of retaliation——more severe;
 - The degree of external competition——lower.



Dominant Firm Model

描述

- A single firm that generally have 40% or greater market share
 - Greater capacity;
 - Greater customer loyalty.
- The dominant firm is the price maker.
- The other firms in the market follow the pricing pattern of the dominant firm.

Characteristics of monopoly ★

特点

- There is a single seller of a highly differentiated product.
- The product offered by the seller has no close substitute.
- Entry into the market is very difficult, with high costs and significant barriers to competition.
- The firm has considerable pricing power.
- The product is differentiated through non-price strategies such as advertising.



Price discrimination

描述

It can help monopolist to earn higher profit, and it can be applicable if the products cannot be re-sold among customers

分类

First-degree

Where a monopolist is able to charge each customer the highest price the customer is willing to pay

Second-degree

The monopolist offers a menu of quantity-based pricing options designed to induce customers to self-select based on how highly they value the product

Third-degree

Happens when customers are segregated by demographic or other traits

Government regulation

	Average cost pricing	Marginal cost pricing
描述	It is the more common form of regulation at the point where $ATC = Demand$	It forces the monopolists to reduce its price to marginal price
特点	<ul style="list-style-type: none"> ➤ Increase output of monopolists to the demand, and decrease price. ➤ Ensure the monopolist a normal profit with less social welfare reduced. 	<ul style="list-style-type: none"> ➤ Increase output and reduce price, the pricing method is similar in competitive market. ➤ The monopolist suffer a loss for the price is below ATC. ➤ Government subsidy is needed in order to provide the firm with a normal profit.



Concentration measures

	N-Firm Concentration Ratio	HHI
描述	Sum of the market share for largest N firms in a market in percentage aspect	Sum the squares of the market shares for each company in an industry
缺点	The ratio is insensitive to the merger of two firms with large market shares	
	Either case do not consider the barrier to entry for the industry	



Reading 16

Aggregate Output, Prices and Economic Growth



Definition of GDP

Definition	The market value of all final goods and services produced within the economy in a given period of time (output definition) or, equivalently
Included	<ul style="list-style-type: none">➤ Newly produced goods and services➤ Final goods and services➤ Owner-occupied housing: value from estimated rents➤ Government services: service provided by police officers, firemen, judges, and other government officials
Excluded	<ul style="list-style-type: none">➤ Activities performed for one's own benefit.<ul style="list-style-type: none">● Babysitting own children● Clearing➤ Underground economic activities. Usually illegal activities or for the purpose of evading taxation. For example<ul style="list-style-type: none">● Undocumented laborers who are paid "off the books" .● The illegal drug trade.➤ Barter transactions, such as neighbors exchanging services with each other.

GDP deflator

公式

$$\text{GDP deflator} = \frac{\text{Nominal GDP}_t}{\text{Real GDP}_t} = \frac{P_t \times Q_t}{P_B \times Q_t}$$

Where,

- P_t = Prices in year t
- Q_t = Quantity produced in year t
- P_B = Prices in the base year
- Q_t = Quantity produced in year t



GDP calculation

分类	Expenditure Approach	<ul style="list-style-type: none">➤ $GDP = C + I + G + (X - M)$<ul style="list-style-type: none">● Consumption: $C = a + b(Y - Tax) \rightarrow b = MPC$● Investment: $r \uparrow \rightarrow \text{Investment} \downarrow$
	Income Approach	<ul style="list-style-type: none">➤ $GDP = \text{national income} + \text{capital consumption allowance} + \text{statistical discrepancy}$➤ National income<ul style="list-style-type: none">= compensation of employees (wages and benefits)+ corporate and government enterprise profits before taxes+ interest income+ unincorporated business net income (business owners' incomes)+ rent+ indirect business taxes less subsidies➤ Personal income = national income – indirect business tax – corporate income tax – undistributed corporate profit + Transfer payment➤ Personal disposable income = personal income – personal taxes➤ $GDP = C + S + T$

IS curve

定义



$$Y = C + I + G + (X - M) = C + S + T$$

$$\Rightarrow \text{IS curve: } S = I + G - T + (X - M)$$

- S是Y的函数，且同向变动

- I是r的函数，且反向变动

\Rightarrow Y和r之间的关系为反向变动

影响因素



Movement along

Changes in r \rightarrow movements along IS curve

Shift

➤ $G \uparrow$, expansionary, shift to rightward

➤ $T \uparrow$, contractionary, shift to leftward

等式

➤ $S = I + (G - T) + (X - M)$

➤ $(G - T) = (S - I) - (X - M)$



LM curve

定义 ★	<p>➤ $(MS/P) = MD = L_1(Y) + L_2(r)$;</p> <ul style="list-style-type: none">● 名义MS是由央行决定的常数，假设P不变;● MD和Y、r有关，且Y变大L_1变大，r变大L_2变小; <p>⇒ Y和r之间的关系 (positive relationship)</p>	
MD ★	<p>➤ $L_1(Y)$ 包括</p> <ul style="list-style-type: none">● Transaction-related (和Y正相关)● Precautionary demand (和Y正相关) <p>➤ $L_2(r)$ 包括</p> <ul style="list-style-type: none">● Speculative demand (和r反相关)	
影响因素 ★★	Movements along	Changes in r → movements along LM curve
	Shift	<p>➤ $M \uparrow$ or $P \downarrow$, $M/P \uparrow$, expansionary, rightward</p> <p>➤ $M \downarrow$ or $P \uparrow$, $M/P \downarrow$, contractionary, leftward</p>



Aggregate demand curve

定义	IS & LM 交点 → equilibrium levels of prices and real income (real GDP)
形状	<ul style="list-style-type: none">➤ Inverse relationship between P and Y is presented on AD curve<ul style="list-style-type: none">● Price level (P) ↓ → real money supply (M_s/P) ↑● To increase real money demand to the new level of real money supply, Real income (Y) ↑ → interest rate (r) ↓. Vise versa.
影响因素 ★★	<ul style="list-style-type: none">➤ $GDP = C + I + G + NX$ → 使后面这四项增加的: AD curve 向右 shift<ul style="list-style-type: none">● Increase in consumer's wealth (C increase): 国民财富增加● Consumer expectations of future income (C increases)● Business expectations (I increases)● High capacity utilization (I increases)● Expansionary monetary policy (C and I increase)● Expansionary fiscal policy (C increase for tax cut, G increase for spending increase)● Exchange rates (本币贬值, NX increase)● Global economic growth (NX increase)
Adjustment of AD&AS	<ul style="list-style-type: none">➤ Recessionary Gap: AD 向左 shift➤ Inflationary Gap: AD 向右 shift➤ Stagflation: high unemployment and increasing inflation, AS 向左 shift

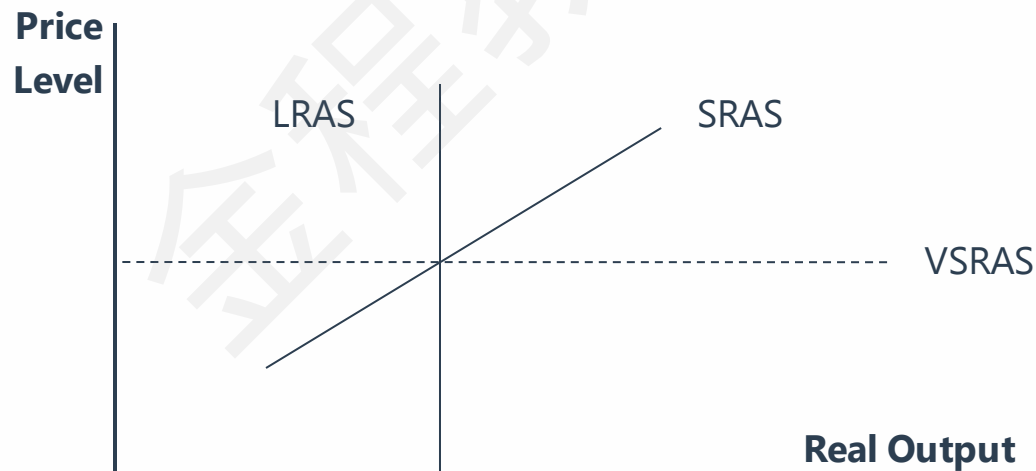
Aggregate supply curve

分类



- The VSRAS curve is perfectly elastic: Real output will not affect price level.
- The SRAS curve is upward sloping: Stickiness of wages $\rightarrow P \uparrow$, constant nominal wage \rightarrow real wage $\downarrow \rightarrow$ cost $\downarrow \rightarrow$ employ more workers $\rightarrow Y \uparrow$. Vice Versa.
- The LRAS curve is perfectly inelastic: Prices adjust proportionally with the price of input. Price level will not affect real output.

图示

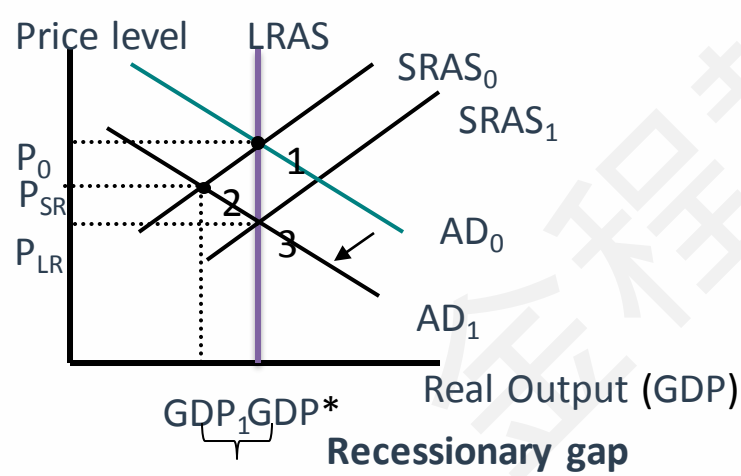
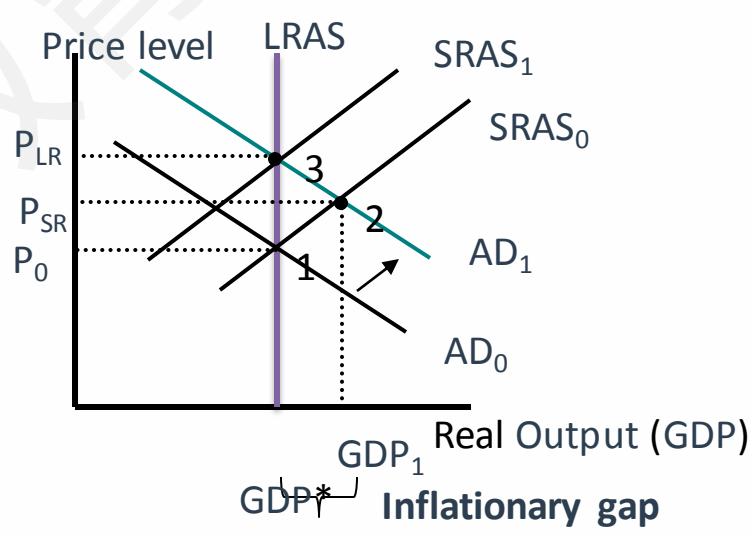




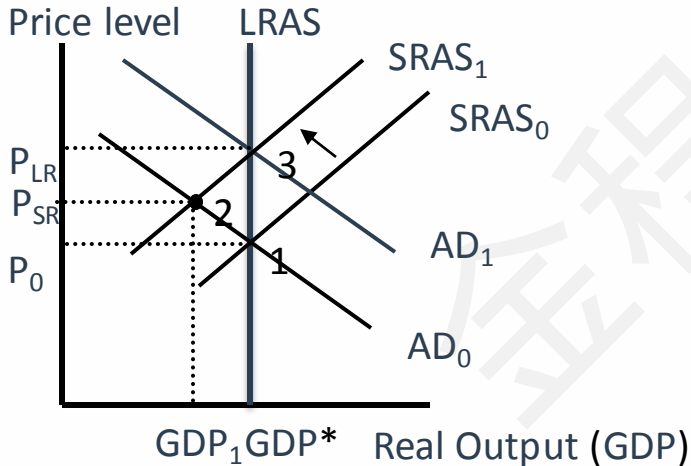
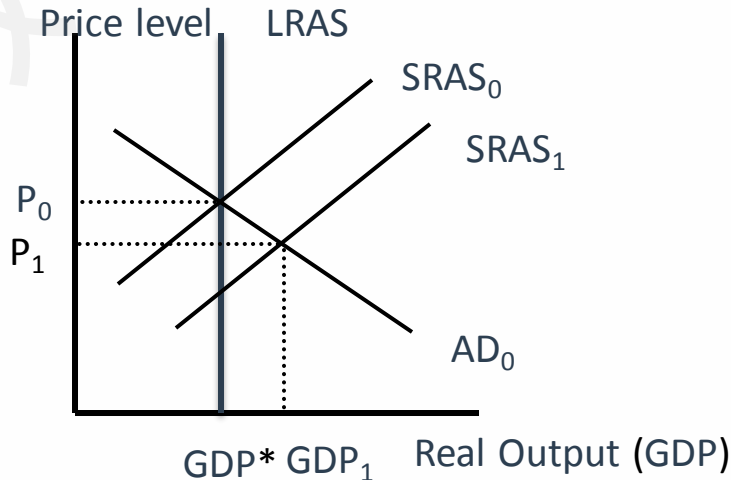
Impact of Factors Shifting AS

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

Effect of combination of AS and AD

条件	Decrease in aggregate demand	Increase in aggregate demand
影响	<ul style="list-style-type: none"> ➤ 总需求下降——更低产量、更低价格 ➤ 工资下降、成本下降——供给增加 	<ul style="list-style-type: none"> ➤ 总需求上升——更高产量、更高价格 ➤ 加工资、成本上升——供给下降
调整		

Effect of combination of AS and AD

条件	Declining economic output and higher prices (Stagflation)	Decrease in input prices
影响	<ul style="list-style-type: none"> ➤ 原材料能源价格上升——供给减少 ➤ Lower GDP, higher price 	<ul style="list-style-type: none"> ➤ 原材料能源价格下降——供给增加 ➤ Higher GDP, lower price
调整		

Economic growth

公式

- **Growth in potential GDP** = growth in technology + W_L (growth in labor) + W_C (growth in capital)
 - W_L and W_C are labor's percentage share of national income and capital's percentage share of national income.
 - 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 in per-capita potential GDP** = growth in technology + W_C (growth in the capital-to-labor ratio)



Reading 17

Understanding Business Cycles



Business cycle and four phases

分类	Trough	<ul style="list-style-type: none">➤ GDP growth rate 从负到正➤ High unemployment rate, increasing use of overtime and temporary workers.➤ Spending 增加➤ Moderate or decreasing inflation rate
	Expansion	<ul style="list-style-type: none">➤ GDP growth rate increase➤ Unemployment rate 快速下降➤ Investment increases➤ Inflation rate may increase➤ Imports increase
	Peak	<ul style="list-style-type: none">➤ GDP growth rate degrease➤ Unemployment rate decreases but hiring slows➤ 消费投资增长放缓➤ Inflation rate increases
	Contraction/ recession	<ul style="list-style-type: none">➤ GDP growth rate is negative➤ Hours worked decrease, unemployment rate increase➤ 消费投资下降➤ Imports decrease



Theories of the business cycle

	经济周期的原因	对政府政策的主张
Neoclassical school	<ul style="list-style-type: none">➤ Changes in technology	<ul style="list-style-type: none">➤ Economy has a strong tendency toward full-employment equilibrium➤ 政府不要干预经济
Keynesian school	<ul style="list-style-type: none">➤ Shifts in aggregate demand due to changes in expectations➤ Wages are "downward sticky"	<ul style="list-style-type: none">➤ Directly increase aggregate demand through monetary policy or through➤ Fiscal policy
New Keynesian	<ul style="list-style-type: none">➤ 其他价格也有"downward sticky"	<ul style="list-style-type: none">➤ 同"downward sticky"
Monetarist school	<ul style="list-style-type: none">➤ By inappropriate decreases in the money supply➤ Quantity theory of money: $MV = PY$➤ Money neutrality	<ul style="list-style-type: none">➤ Policy of steady and predictable increases in the money supply
Austrian school	<ul style="list-style-type: none">➤ Government intervention	<ul style="list-style-type: none">➤ 政府不要干预经济
New Classical school Real business cycle theory (RBC)	<ul style="list-style-type: none">➤ Change in technology and external shocks, as opposed to monetary variables	<ul style="list-style-type: none">➤ Policymakers should not try to counteract business cycles

Unemployment

<p>计算</p>	<p>Unemployment = $\frac{\text{number of unemployment}}{\text{labor force}} \times 100$</p> <p>Labor force participation rate = $\frac{\text{labor force}}{\text{Working-age population}} \times 100$</p>
<p>名词</p>	<ul style="list-style-type: none"> ➤ Labor force ➤ Unemployment <ul style="list-style-type: none"> ● Frictionally unemployed ● Structural unemployed ● Cyclical unemployed ➤ Underemployment



Inflation

分类	Laspeyres index		Paasche index	Fisher index
计算	用基期的消费篮子		用现在的消费篮子	Laspeyres index & Paasche index 几何平均
缺点	<div>➤ New goods</div> <div>➤ Quality changes</div> <div>➤ Substitution → biased upward</div>		Substitution → biased upward	
名词	Hyperinflation / Deflation / Disinflation			
原因	Cost-push inflation	<div>➤ An increase in money wage rates</div> <div>➤ An increase in the money prices of raw materials</div>		
	Demand-pull inflation	<div>➤ Increase in the quantity of money</div> <div>➤ Increase in government purchased</div> <div>➤ Increase in exports</div>		
NAIRU 特点	<div>➤ NAIRU （非加速通胀下的失业率）</div> <div>● Unemployment at which inflationary pressures are stable</div> <div>● Vary from one economy to another and over time a single economy</div>			



Economic Indicators ★

分类	Leading
	<ul style="list-style-type: none">➤ Average weekly hours, manufacturing➤ Average weekly initial claims for unemployment insurance➤ Manufactures' new orders for consumer goods and materials➤ Institute for supply management new orders index➤ Manufactures' new orders for non-defense capital goods➤ Building permits for new private housing units➤ S & P 50 Stock Index (stock price , 500 common stocks)➤ Leading credit index (M2)➤ Interest rate spread between 10-year treasury yields and overnight borrowing rates.➤ Index of Consumer Expectations, University of Michigan



Economic Indicators ★

分类	Coincident	<ul style="list-style-type: none">➤ Employees on non-agricultural payrolls➤ Aggregate real personal income (less transfer payments)➤ Industrial Production Index➤ Manufacturing and trade sales
	Lagging	<ul style="list-style-type: none">➤ Average Duration of Unemployment➤ Inventory-sales ratio➤ Change in unit labor costs➤ Average bank prime lending rate➤ Commercial and industrial loans outstanding➤ Ratio of consumer installment debt to income➤ Change in consumer price index for services



Reading 18

Monetary and Fiscal Policy

Introduction to monetary and fiscal policy

Fiscal policy

- Government's use of spending and taxation to influence economic activity.
 - The budget is said to be balanced when tax revenues equal government expenditures.
 - A budget surplus occurs when government tax revenues exceed expenditures.
 - A budget deficit occurs when government expenditures exceed tax revenues.

Monetary policy

- Central bank's actions that affect the quantity of money and credit in an economy in order to influence economic activity.
 - Monetary policy is said to be expansionary (or accommodative or easy) when the central bank increases the quantity of money and credit in an economy.
 - When the central bank is reducing the quantity of money and credit in an economy, the monetary policy is said to be contractionary (or restrictive or tight).

- Both monetary and fiscal policies are used by policymakers with the goals of maintaining stable prices and producing positive economic growth. Fiscal policy can also be used as a tool for redistribution of income and wealth.



Money creation process ★★

描述

How Do the Banks Create Money ?

$$\text{Money created} = \frac{\text{new deposit}}{\text{reserve requirement}}$$

$$\text{Money multiplier} = \frac{1}{\text{reserve requirement}}$$

Fisher effect ★★

描述

- $R_{\text{NOM}} = R_{\text{Real}} + E[I]$
- Real rates are relatively stable, and changes in interest rates are driven by changes in expected inflation. This is consistent with money neutrality.

Objectives of central banks

分类

- Control inflation so as to promote price stability
- Stability in exchange rates with foreign currencies
- Full employment
- Sustainable positive economic growth
- Moderate long-term interest rates



Tools of the central bank

分类

Policy rate : lower rate → Expansionary
Reserve requirement : higher Reserve requirement → Contractionary
Open market operations: Central bank buy securities → Expansionary

Neutral interest rate

判断



- Neutral interest rate = real trend rate of growth + inflation target
 - Policy rate > Neutral rate : contractionary
 - Policy rate < Neutral rate : expansionary

Limitations of monetary policy

分类

- Long-term rates may not rise and fall with short-term rates because of the effect of monetary policy changes on expected inflation.
- Liquidity trap : increasing growth of the money supply will not decrease short-term rates
 - Deflation is more difficult for central banks to reverse
 - 此时，可以选择 quantitative easing



Tools of fiscal policy

工具	<ul style="list-style-type: none">➤ Spending Tools: Transfer payment、Current spending、Capital spending➤ Revenue Tools: Direct taxes、Indirect taxes<ul style="list-style-type: none">● Indirect taxes: Quick implementation、lower additional costs
判断	<ul style="list-style-type: none">➤ Discretionary fiscal policy:<ul style="list-style-type: none">● Recessions → Expansionary● Inflationary economic booms → Contractionary
限制 ★★	<ul style="list-style-type: none">➤ Ricardian Equivalence: Increases in the current deficit mean greater taxes in the future➤ Debt ratio: Aggregate debt to GDP 较高, 长期财政赤字➤ Crowding-out effect: Expansionary fiscal policy may crowd out private investment➤ Time lag: Recognition lag、Law-marking lag、Impact lag

Fiscal multiplier

$$\text{Fiscal multiplier} = \frac{1}{1 - MPC(1 - t)} = \frac{1}{1 - b(1 - t)}$$

描述

- MPC: Marginal propensity of consumption (b)
- The fiscal multiplier is
 - negatively related to the tax rate.
 - positively related to the MPC.

The size of a national debt relative to GDP

分类	Ricardian Equivalence	<ul style="list-style-type: none"> ➤ Increases in the current deficit mean greater taxes in the future. ➤ 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.
	Debt ratio: Aggregate debt to GDP	<ul style="list-style-type: none"> ➤ If the real interest rate on the government's debt is higher than the real growth rate of the economy, then the debt ratio will increase over time (keeping tax rates constant). ➤ If the real interest rate on government's debt is lower than real growth in GDP, the debt ratio will decrease (i.e., improve) over time.



Interaction of monetary and fiscal policy

Monetary policy	Fiscal policy	Interest rate	Output	Private spending	Public spending
Tight	Tight	Higher	Lower	Lower	Lower
Easy	Easy	Lower	Higher	Higher	Higher
Tight	Easy	Higher	Higher	Lower	Higher
Easy	Tight	Lower	Varies	Higher	Lower



Reading 19

International Trade and Capital Flows



Comparative advantage and absolute advantage ★ ★

产生原因				Opportunity costs differ
如何判断		A	B	A: $1L = 10W = 5C \rightarrow 1W$ 的机会成本是1/2个C
	Wheat	10	9	B: $1L = 9W = 3C \rightarrow 1W$ 的机会成本是1/3个C
	Computer	5	3	B生产Wheat的机会成本更小, 所以B生产wheat, A生产computer, 然后进行贸易

Recardian and Heckscher-Ohlin models of trade

分类	Ricardian Model	➤ Differences in labor productivity (reflecting underlying differences in technology) are the source of comparative advantage.
	Heckscher-Ohlin Model	<ul style="list-style-type: none"> ➤ Capital and labor are variable factors of production. ➤ The price of the relatively less scare (more available) factor of production in each country will increase.



Types of trade and capital restrictions

	Tariff	Import Quota	Export Subsidy	VER
Impact on	Importing country	Importing country	Importing country	Importing country
Price	Increases	Increases	Increases	Increases
Domestic consumption	Decreases	Decreases	Decreases	Decreases
Domestic production	Increases	Increases	Increases	Increases
Trade	Import decrease	Import decrease	Import increase	Import decrease
Government revenue	Increase	Mixed (quota 基于是谁定的)	Falls (government spending rises)	No change (rent to foreigners)
National welfare	Decreases in Small country	Decreases in Small country	Increases (a large decline in large country)	Decreases
	Increases in large country	Increases in large country		

The balance of payments accounts(BOP)

不同 账户	Current account	<ul style="list-style-type: none"> ➤ Merchandise and services ➤ Income receipts ➤ Unilateral transfers (计算current account 数额)
	Capital account	Non-produced, non-financial assets 的transfer, sales, purchase
	Financial account	Investment flows

注意：有资金流入是 “+” ， 资金流出是 “-”

IMF, World Bank and WTO

IMF	<ul style="list-style-type: none"> ➤ Supports exchange rate stability and an open system of international payments ➤ Lends foreign exchange to members when needed
World Bank	Help developing countries fight poverty and enhance environmentally sound economic growth
WTO	Global rules of trade between nations

Trading blocs, common markets and economic unions

关系

Free trade areas: 两国之间没有任何贸易限制

+common set of trade restrictions with non-members → **Customs union**

+labor and capital goods 可以自由流动 → **Common market**

+common institutions and economic policy → **Economic union**

+adopt a single currency → **Monetary union**



Reading 20

Currency Exchange Rate



Nominal and real exchange rates

关系

Real exchange rate: $FX \text{ real}(\text{USD} / \text{EUR}) = \frac{FX \text{ nominal}(\text{USD})/CPI(\text{USD})}{1(\text{EUR})/CPI(\text{EUR})}$

Concepts of the foreign exchange market

Spot rates

exchange rates for immediate delivery of the currency

Forward rates

exchange rates for currency transactions that will occur in the future.

Direct quote

value of one unit of a foreign currency in units of the home currency. (D/F)

Indirect quote

the amount of a foreign currency for one unit of the home currency. (F/D)

Base currency

the currency in which the quote represents one unit.

Price currency

the currency for which the quote represents a number of units.

Cross-rates ★★

描述

0.60 USD/AUD , 10.70 MAN/USD → 乘法(消除USD): $0.60 \times 10.70 = 6.42 \text{ MXN/AUD}$

Forward discount and premium

描述

Forward discount or premium: $F - S$

Interest Rate Parity (IRP)

计算	$\frac{F}{S} = \frac{1+r_X}{1+r_Y} \quad \frac{F-S}{S} = \frac{1+r_X}{1+r_Y} - 1 = \frac{r_X-r_Y}{1+r_Y} \approx r_X - r_Y$
套利	<p>If $\frac{F}{S} > \frac{1+r_X}{1+r_Y}$, $\frac{F}{S} \times (1+r_Y) > 1+r_X$ → borrow X currency, the profit will be $\frac{F}{S} \times (1+r_Y) - (1+r_X)$</p> <p>If $\frac{F}{S} < \frac{1+r_X}{1+r_Y}$, $\frac{F}{S} \times (1+r_X) > 1+r_Y$ → borrow Y currency, the profit will be $\frac{F}{S} \times (1+r_X) - (1+r_Y)$</p>

Exchange Rate Regimes

分类	<ul style="list-style-type: none"> ➤ Countries That Do Not Their Own Currency ➤ Countries That Have Their Own Currency <ul style="list-style-type: none"> ● A currency board arrangement ● Conventional fixed peg arrangement ● Target zone ● Crawling peg ● Management of exchange rates within crawling bands ● Managed floating exchange rates ● Independently floating
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Elasticity Approach and J-curve

Elasticity Approach	<ul style="list-style-type: none"> ➤ Import or export demand is elastic → 贬值可以改善trade deficit ➤ 弹性大的商品： primarily luxury goods, goods with close substitutes, and goods that represent a large proportion of overall spending
J-Curve	时滞作用： currency depreciation may worsen a trade deficit in the short run

Absorption approach

描述	<p>$BT = Y - E; E = C + I + G$</p> <ul style="list-style-type: none"> ➤ Less than full employment: Depreciation → trade balance improved ➤ Full employment: Depreciation → returning the economy to its previous state and balance of trade
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