西方经济学

Part 4 Business Cycle Theory

Keynesian

Lecture 4A The IS–LM Model

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高等教育出版社
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Supplement Readings

(1) M10, M11; S3.2, S4. [1]

(2) 中国人民银行, FED, FED Balance Sheet Trends.

(3) 其他文献：Barro, Robert J. (1981). Output Effects of Government Purchases. Journal of Political Economy, 89(6), 1086-1121.

(4) 其他文献：Barro, Robert J., and Redlick, Charles J. (2011). Macroeconomic Effects From Government Purchases and Taxes. The Quarterly Journal of Economics, 126(1), 51-102.

(5) 其他文献：Acconcia, Antonio, Giancarlo Corsetti, and Saverio Simonelli. 2014. Mafia and Public Spending: Evidence on the Fiscal Multiplier from a Quasi-Experiment. American Economic Review 104(7): 2185–2209.

(6) 其他文献：王国静, 田国强. 政府支出乘数 [J]. 经济研究, 2014, 49(09): 4-19.

(7) 其他文献：Aggregate Demand I: Building the IS–LM Model

(8) 其他文献：Aggregate Demand II: Applying the IS–LM Model

[1] M 指代马工程教材，S 指代课外阅读材料沈坤荣教程。

学习目标

(1) 掌握封闭经济的凯恩斯主义基本分析框架：Keynesian Cross, IS-LM.

(2) 掌握马工程教材精神。

观察与思考

节俭是美德还是罪恶?

(1) 《墨子·辞过》：“俭节则昌，淫佚则亡。”

(2) 《左传》：“俭，德之共也；侈，恶之大也。”

(3) 李商隐《咏史》：“历览前贤国与家，成由勤俭破由奢。”

(4) 人民网（2020 年 8 月 13 日）：弘扬节俭美德，杜绝粮食浪费。

(5) Bernard de Mandeville (1670–1733)：Private vices, public benefits. (*Fable of the Bees*, 1714)

(6) Adam Smith (1723–1790)：Self-interest, public benefits. (*The Wealth of Nations*, 1776)

观察与思考

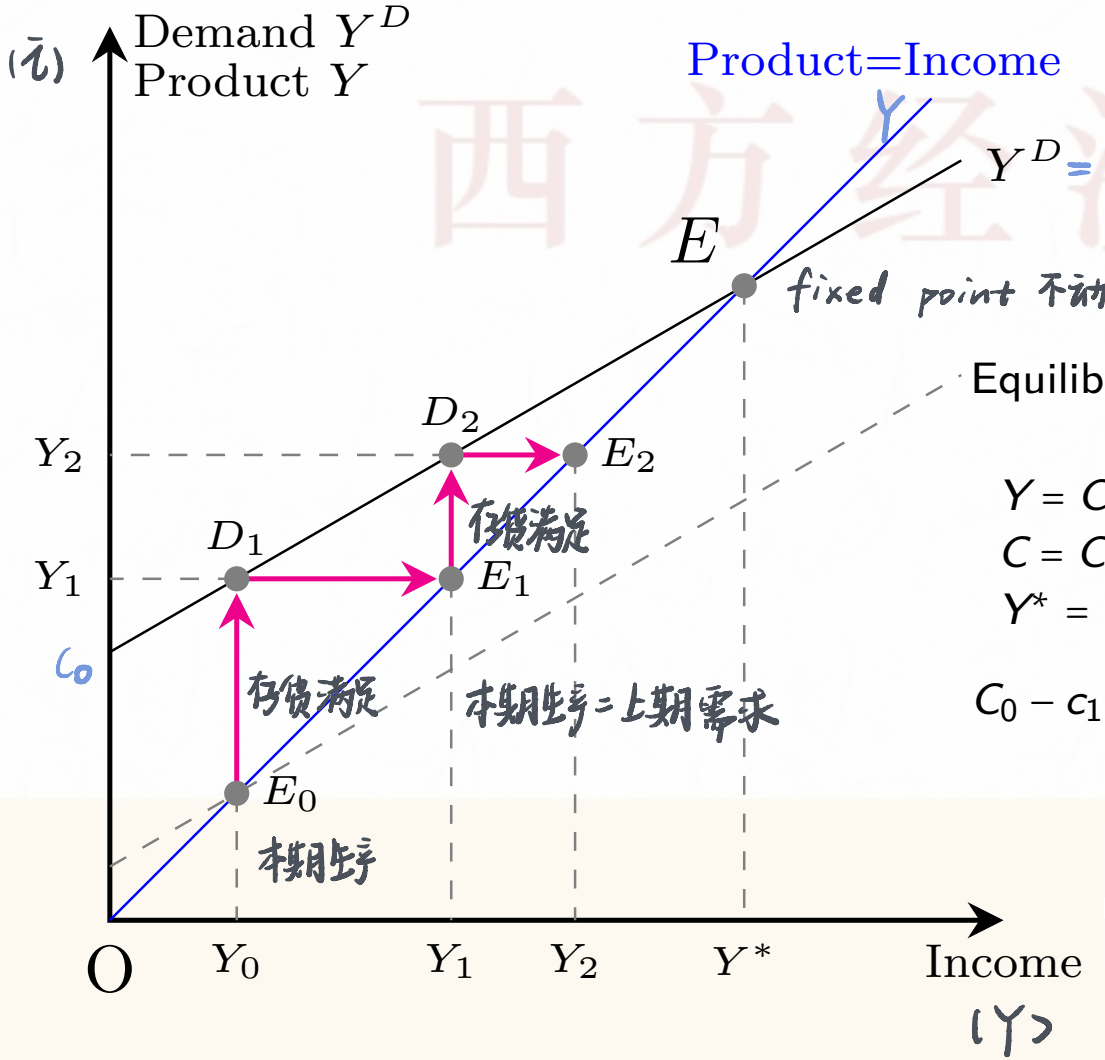
The Theory of Broken Windows 破窗理论

Claude Frederic Bastiat (1850, *That which is seen, and that which is not seen*):

"Have you ever witnessed the anger of the good shopkeeper, John Q. Citizen, when his careless son happened to break a pane of glass? If you have been present at such a scene, you will most assuredly bear witness to the fact, that every one of the spectators, were there even 30 of them, by common consent apparently, offered the unfortunate owner this invariable consolation: 'It is an ill wind that blows nobody good. Everybody must live, and what would become of the glaziers if panes of glass were never broken?' "

Outline

Equilibrium in the Goods Market: The Keynesian Cross



Equilibrium Condition:

$$Y = C(Y-\bar{T}) + I(\bar{r}) + \bar{G}.$$

$$C = C_0 + c_1(Y-\bar{T}),$$

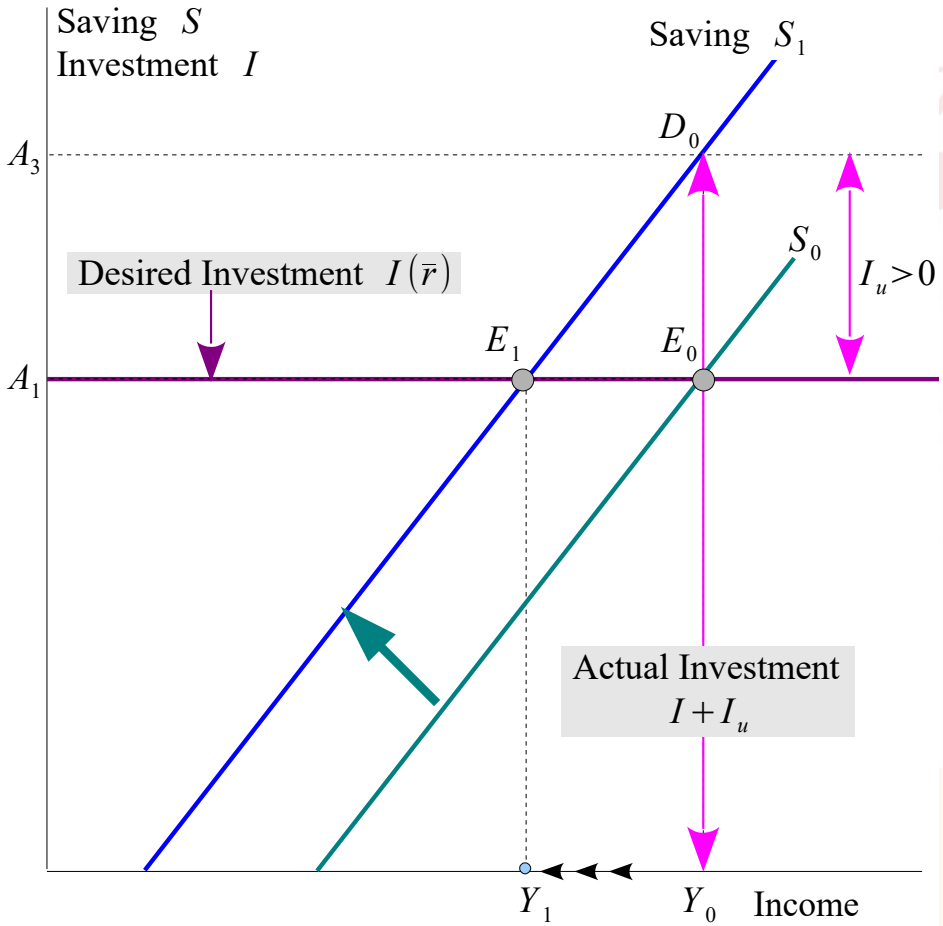
$$Y^* = \frac{1}{1-c_1}(C_0 - c_1\bar{T} + I + \bar{G}).$$

$C_0 - c_1\bar{T} + I + \bar{G}$ is called autonomous spending.

Example 1 (观察与思考)

破窗理论是何逻辑?

Saving-Investment Framework: $S = I$



$Y^D > Y$ 时, $I_u < 0$.

$$Y^D$$

$$Y = [C(Y - \overline{T}) + I(\bar{r}) + \overline{G}] + I_u$$

$$Y - C - \overline{G} = I(\bar{r}) + I_u$$

$$S = I(\bar{r}) + I_u$$

where $I(\bar{r})$ is the desired investment, I_u is the unplanned inventory investment, and $I + I_u$ is the ex post investment. It implies the saving is always equal to the ex post investment (by means of adjustments of inventory investment). In equilibrium, $I_u = 0$ and $S = I(\bar{r})$.

Example 2 (观察与思考)

节俭是美德还是罪恶?

Equilibrium Conditions in the Goods Market

Proposition 1 (Equivalent Equilibrium Conditions in the Goods Market)

(1) *The product is equal to the aggregate demand,* $Y = Y^D$.

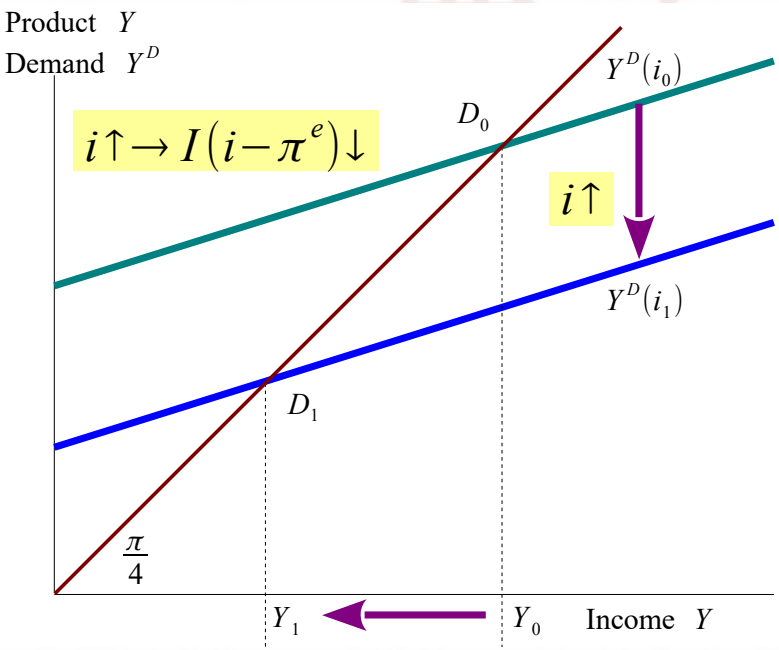
(2) *The* ***unplanned*** *inventory investment is zero,* $I_u = 0$. 计划外存货投资

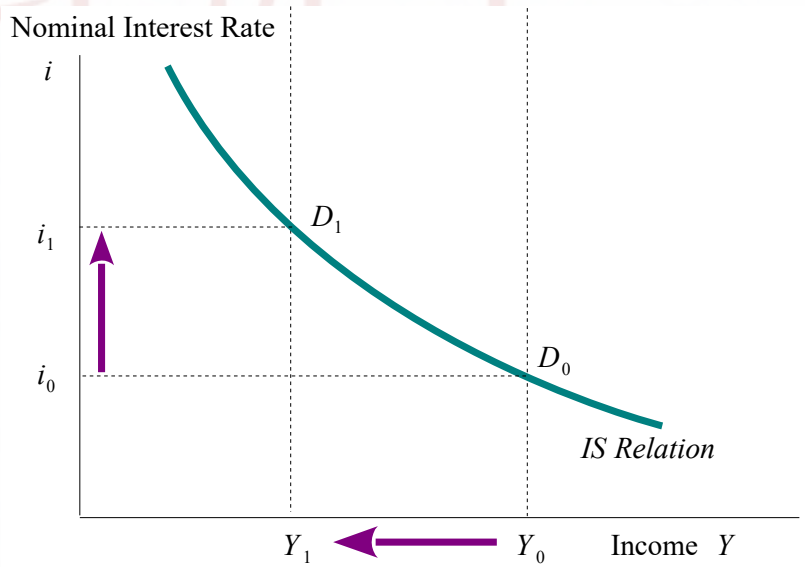
(3) *The saving is equal to the desired investment,* $S = I(\bar{r})$.

From Keynesian Cross to IS Relation

$Y^D = C(Y-T) + I(i-\pi^e) + G$

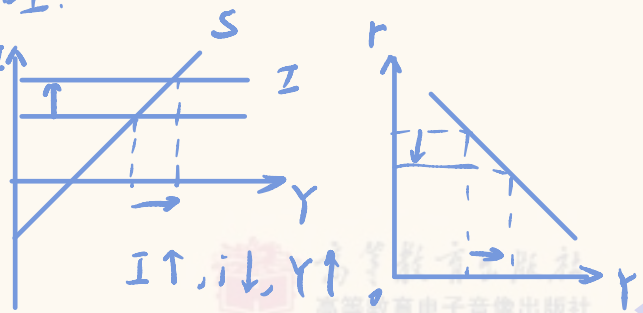
$i\uparrow, I\downarrow$





收入-支出法推导IS曲线，如上.

储蓄-投资法推导IS曲线，S↑



$I\uparrow, i\downarrow, Y\uparrow$

Outline

The Demand for Money

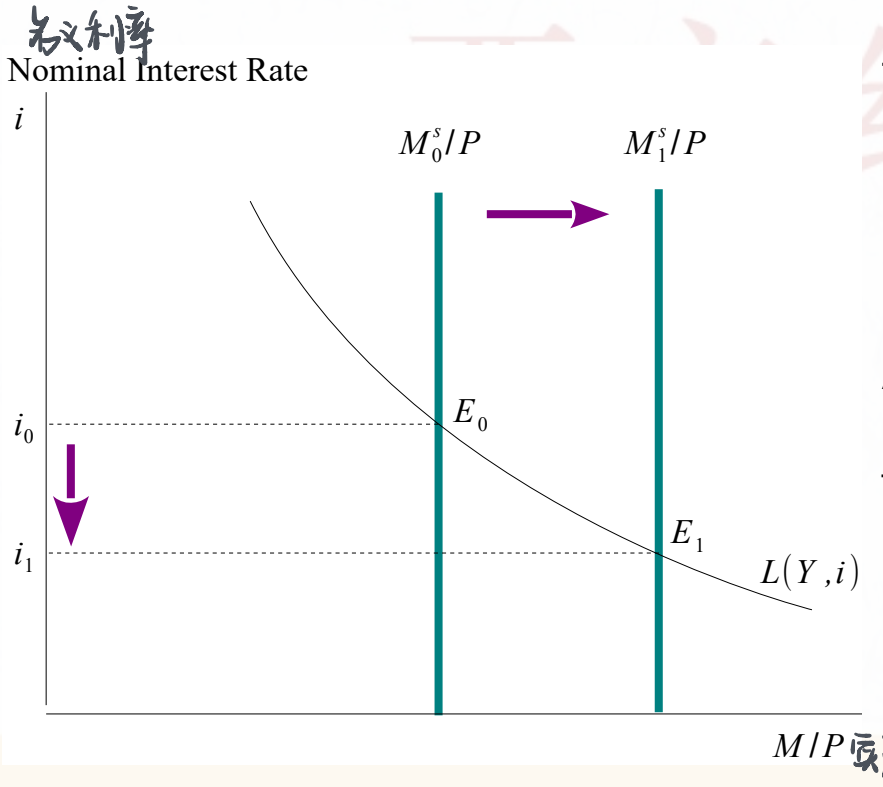
The Theory of Liquidity Preference 流动性偏好

The theories we are about to review correspond to Keynes's famous three motives for holding money:[7]

- The *transactions motive,* which is the demand for money arising from the use of money in making regular payments. 交易动机(Y)
- The *precautionary motive,* which is the demand for money to meet unforeseen contingencies. 预防动机(Y)
- The *speculative motive,* which arises from uncertainties about the money value of other assets that an individual can hold. 投机动机(r)

From Dornbusch et al. (2018, p394)

Equilibrium in the Financial Market

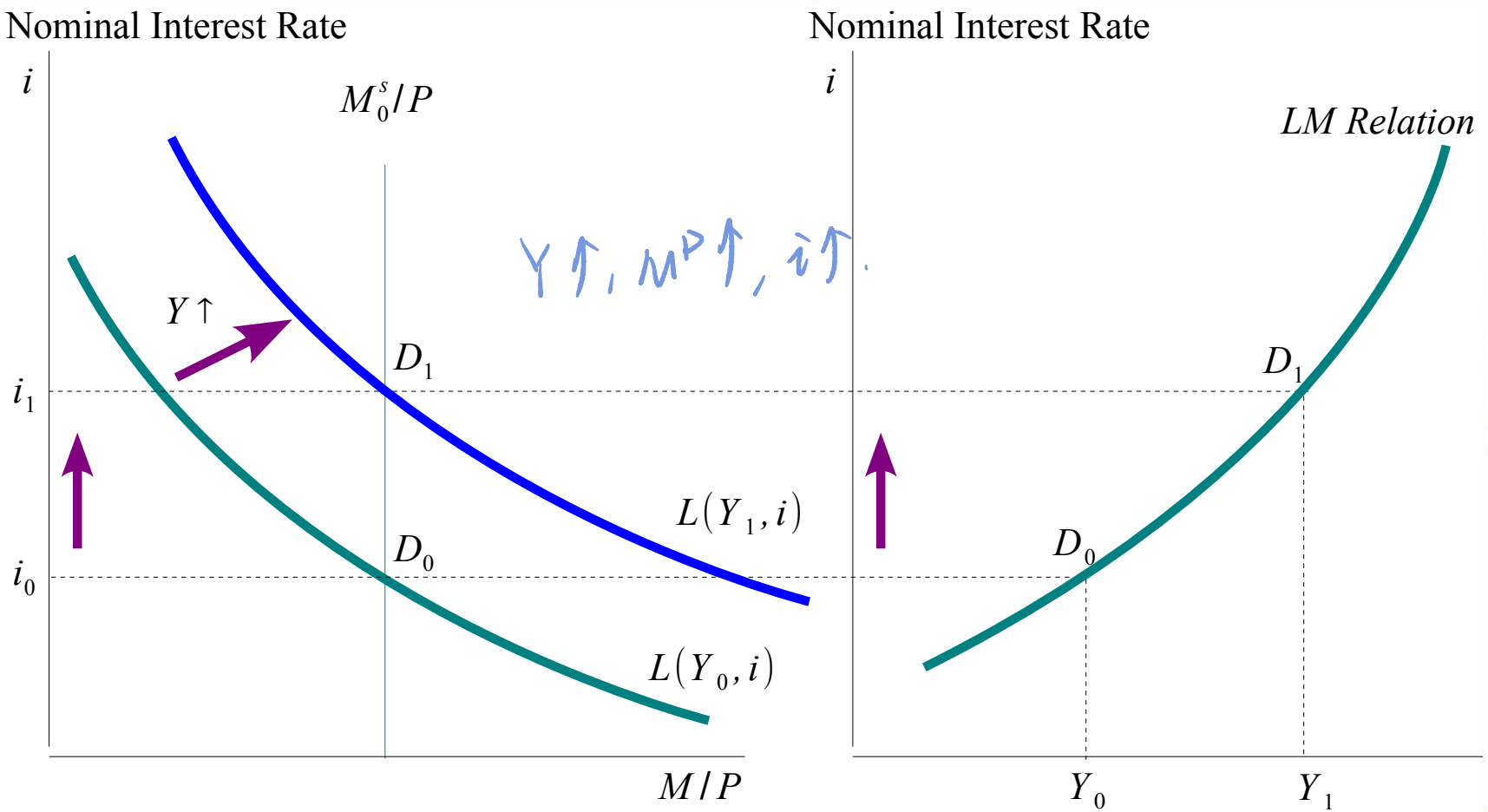


The *theory of liquidity preference* implies the demand for real money balances can be written as

$$\frac{M^d}{P} = L(\underset{+}{Y}, \underset{-}{i}).$$

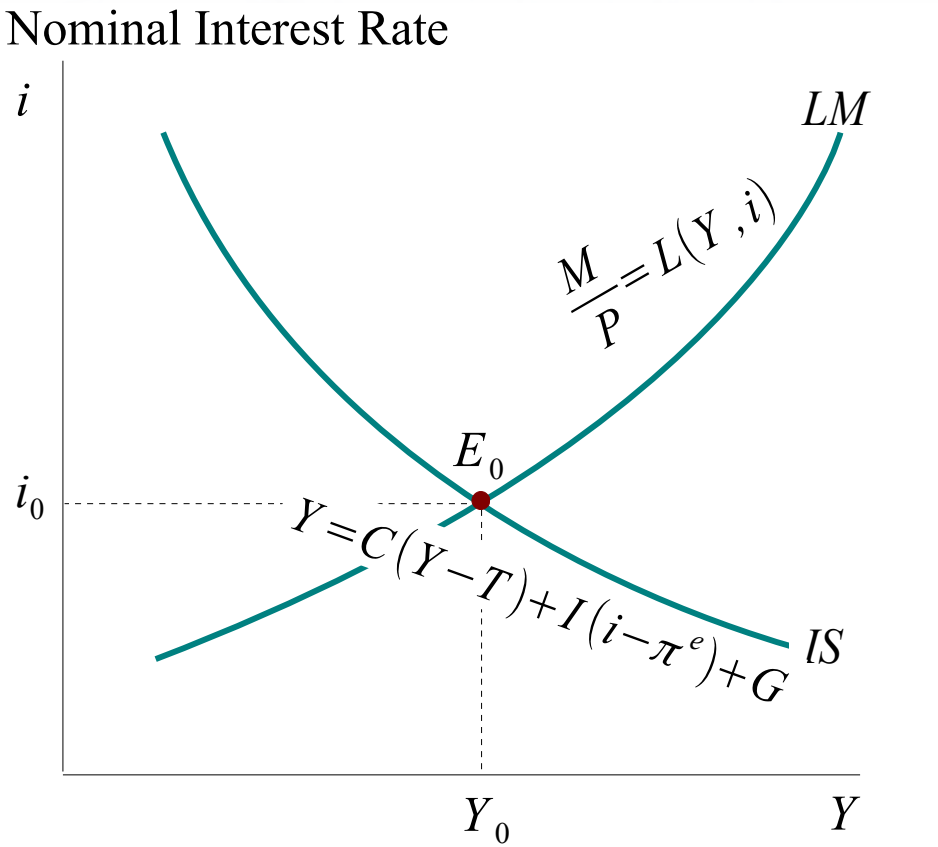
Assumes that (1) P is given; (2) The supply of money, M^S, is exogenously controlled by the central bank.

Derivation of the LM Relation



Outline

The IS-LM Model



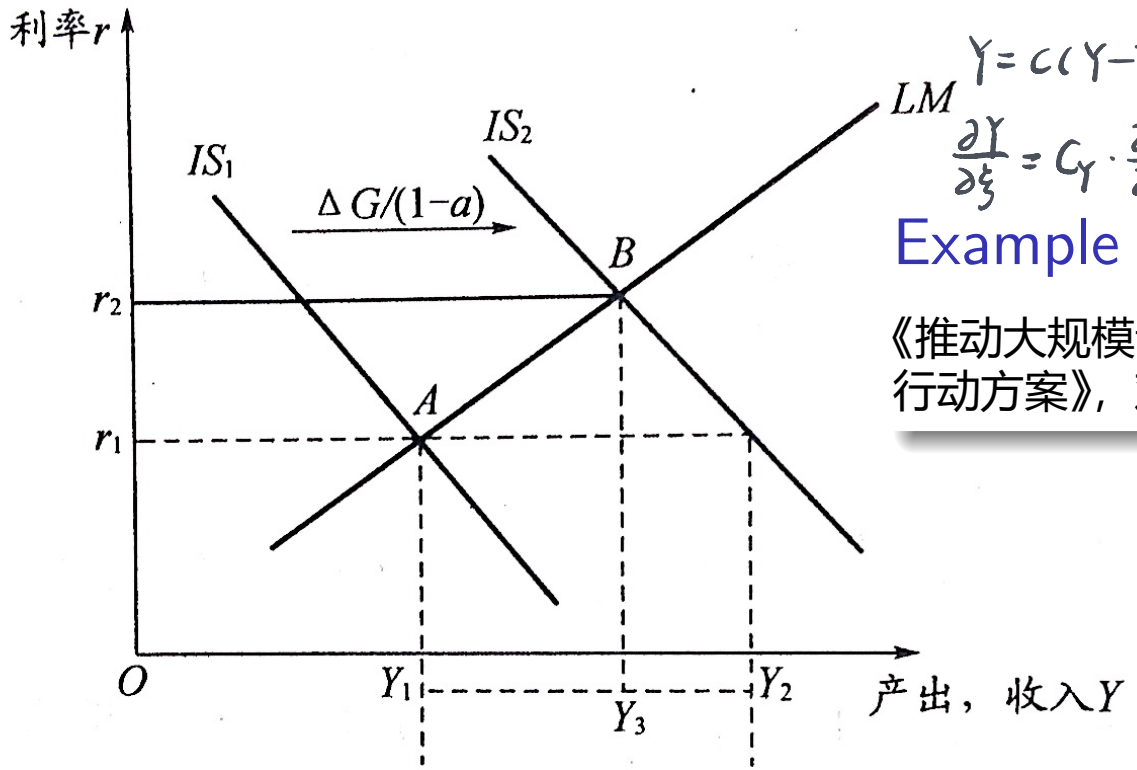
Fiscal Expansion

$$Y = C(Y-T,\xi) + I(\bar{i}-\pi^e) + G$$

$$\frac{\partial Y}{\partial \xi} = C_Y \frac{\partial Y}{\partial \xi} + C_\xi \Rightarrow \frac{\partial Y}{\partial \xi} = \frac{C_\xi}{1-C_Y} > 0$$

$$Y = C(Y-T) + I(i-\pi^e,\xi) + G$$

$$\frac{\partial Y}{\partial \xi} = C_Y \cdot \frac{\partial Y}{\partial \xi} + I_\xi \Rightarrow \frac{\partial Y}{\partial \xi} = \frac{I_\xi}{1-C_Y} > 0.$$



Example 3 (观察与思考)

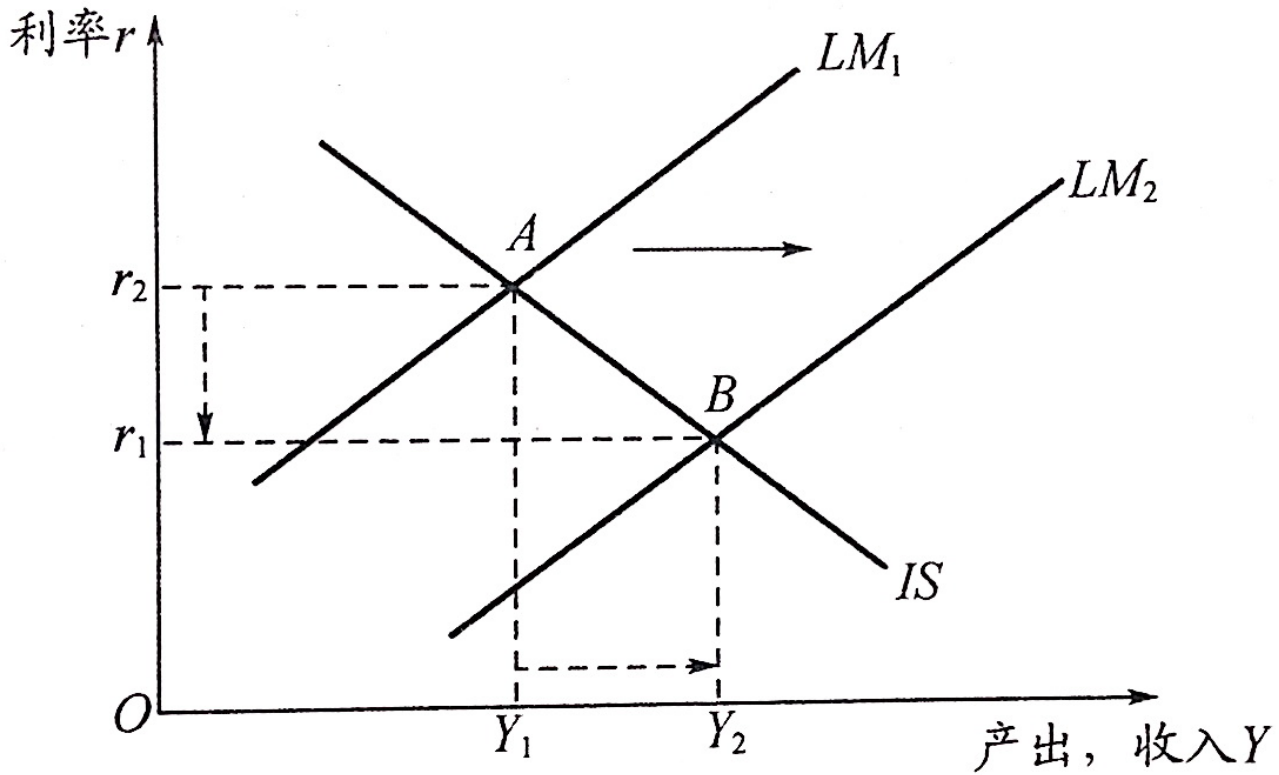
《推动大规模设备更新和消费品以旧换新行动方案》，对经济有何影响？

扩张性财政政策将使 IS 曲线向右平移。结合货币市场的影响，这将使得均衡产出从 Y_1 增加到 Y_3，而均衡利率从 r_1 上升到 r_2。

图 4－15　*IS-LM* 模型中的财政政策效应

Monetary Expansion

$\frac{M}{P} = L(Y, i)$

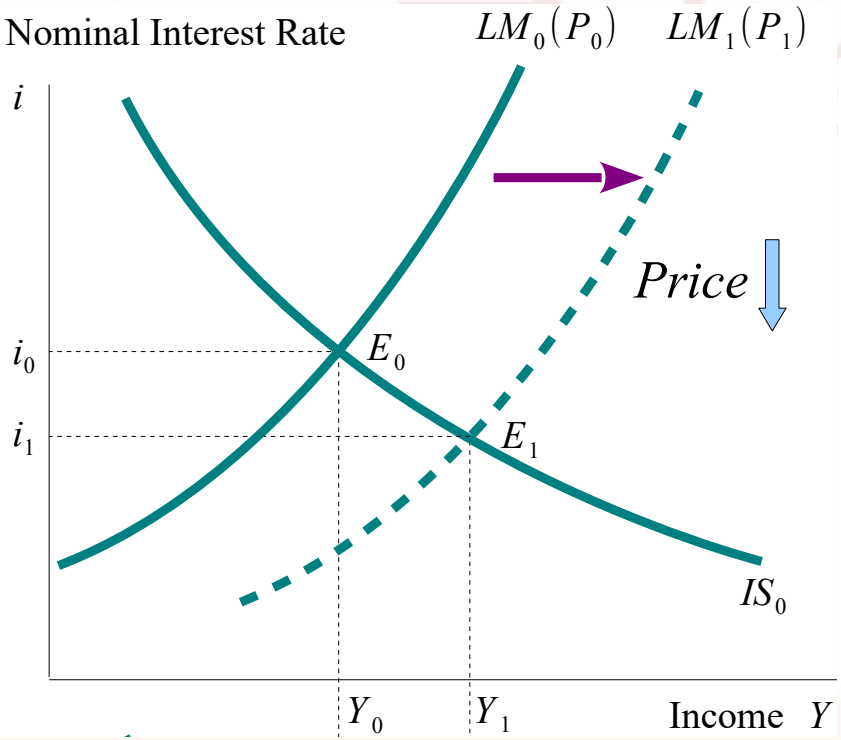


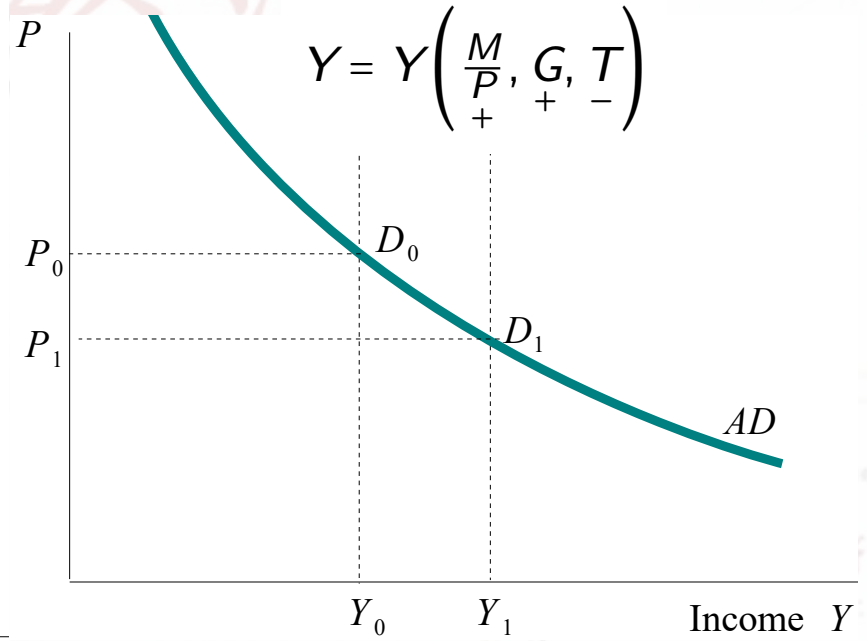
扩张性货币政策使均衡利率下降的同时，刺激了私人投资的增加，从而均衡产出获得增加。

图 4－18　扩张性货币政策的效应

From the IS-LM model to Aggregate Demand Relation

$$Y = C(Y-T) + I(r) + \bar{G}$$





Outline

Empirical Evidences 经验证据

$\frac{\partial Y}{\partial G} < 1$

临时 > 永久

The theoretical analysis focuses on the distinction between temporary and permanent movements in government purchases. Under plausible conditions, the temporary case involves an output response that is positive, less than one-to-one with the change in government purchases, and larger than that generated by an equal-sized, but permanent, shift in purchases. The equilibrium real rate of return rises in the temporary case, but changes little in the permanent one. Defense purchases are divided empirically into "permanent" and "temporary" components by considering the role of (temporary) wars. No temporary shifts in nondefense purchases were isolated. Empirical results verify an expansionary output effect for temporary purchases that exceeds that of permanent purchases. The results for some other expectational hypotheses are found to be generally supportive of the theory.

Barro, Robert J. (1981). Output Effects of Government Purchases. Journal of Political Economy, 89(6), 1086-1121.

政府购买和税收的宏观经济效应

MACROECONOMIC EFFECTS FROM GOVERNMENT PURCHASES AND TAXES*

当期乘数 0.4~0.5

两年乘数 0.6~0.7

永久性 +0.1~0.2 (与上文结论相似)

ROBERT J. BARRO AND CHARLES J. REDLICK

For U.S. annual data that include World War II, the estimated multiplier for temporary defense spending is 0.4–0.5 contemporaneously and 0.6–0.7 over 2 years. If the change in defense spending is "permanent" (gauged by Ramey's defense news variable), the multipliers are higher by 0.1–0.2. Since all estimated multipliers are significantly less than 1, greater spending crowds out other components of GDP, particularly investment. The lack of good instruments prevents estimation of reliable multipliers for nondefense purchases; multipliers in the literature of two or more likely reflect reverse causation from GDP to nondefense purchases. Increases in average marginal income tax rates (measured by a newly constructed time series) have significantly negative effects on GDP. When interpreted as a tax multiplier, the magnitude is around 1.1. The combination of the estimated spending and tax multipliers implies that the balanced-budget multiplier for defense spending is negative. We have some evidence that tax changes affect GDP mainly through substitution effects, rather than wealth effects. *JEL* Codes: E2, E6, H2, H3, H5.

$\frac{\partial Y}{\partial G}$

G↑, I↓

Barro, Robert J., and Redlick, Charles J. (2011). Macroeconomic Effects From Government Purchases and Taxes. The Quarterly Journal of Economics, 126(1), 51-102.

Mafia and Public Spending: Evidence on the Fiscal Multiplier from a Quasi-Experiment†

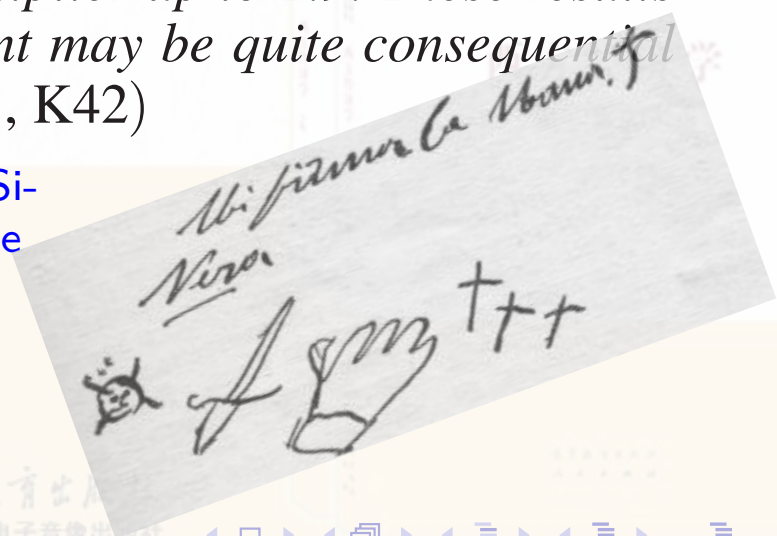
黑手党与公共支出：检验中财政乘数的证据

By Antonio Acconcia, Giancarlo Corsetti, and Saverio Simonelli*

省级政府支出削减的财政乘数

A law issued to combat political corruption and Mafia infiltration of city councils in Italy has resulted in episodes of large, unanticipated, temporary contractions in local public spending. Using these episodes as instruments, we estimate the output multiplier of spending cuts at provincial level—controlling for national monetary and fiscal policy, and holding the tax burden of local residents constant—to be 1.5. Assuming that lagged spending is exogenous to current output brings the estimate of the overall multiplier up to 1.9. These results suggest that local spending adjustment may be quite consequential for local activity. (*JEL* D72, E62, H71, K42)

Acconcia, Antonio, Giancarlo Corsetti, and Saverio Simonelli. 2014. Mafia and Public Spending: Evidence on the Fiscal Multiplier from a Quasi-Experiment. American Economic Review 104(7): 2185–2209.



经济研究 2014 年第 9 期

政府支出乘数*

王国静　田国强

与美国的不同：政府投资

内容提要：本文考察了动态随机一般均衡(DSGE)框架下估计政府支出乘数时所不能忽视的三个重要特征。这三个特征分别为：政府消费和私人消费之间的埃奇沃斯互补性、政府投资的外部性和财政政策规则的内生性。本文首先利用一个简单的理论模型说明政府消费乘数和政府投资乘数的不同，并指出忽略财政政策规则中的内生性会对支出乘数的估计造成严重的偏误。然后在简单模型的基础上构建一个引入以上三个特征的大型 DSGE 模型，并利用贝叶斯方法对模型的结构参数进行估计。对不同设定的模型进行比较发现，包含以上三种特征的模型能最好地拟合中国经济。估计得到的长期政府消费乘数和政府投资乘数分别为 0.7904 和 6.1130。脉冲反应分析表明政府消费冲击和政府投资冲击对经济的影响有着很大的不同。

关键词：政府支出乘数　政府消费　政府支出　DSGE 建模

Outline

Appendix: The Baumol(1952)–Tobin(1956) Model

The Transactions Motive

$L(Y, i)$
$+ \quad -$

Proposition 2 (Square Root Law)

Suppose that

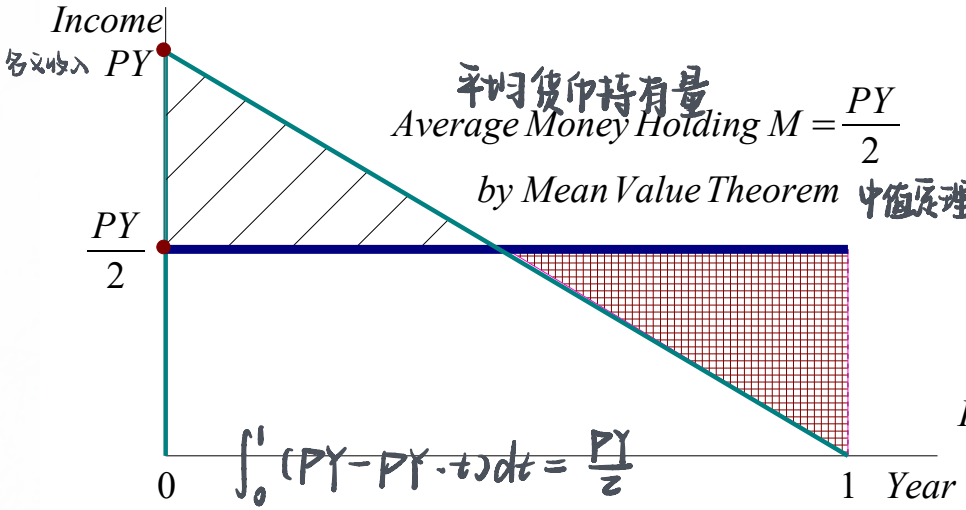
i. *the price level, P, is constant;*
ii. *an individual plan to spend PY dollars gradually over the course of a year. Y denotes the real income;*
iii. *the individual makes N trips to the bank over the course of the year. On each trip, he withdraws PY/N dollars which will be spent gradually over the following $1/N$th of the year;*
iv. *the real cost of going to the bank is a fixed amount, F. The nominal cost of one trip is thus equal to PF.*
v. *the nominal interest rate offered by the bank is i.*

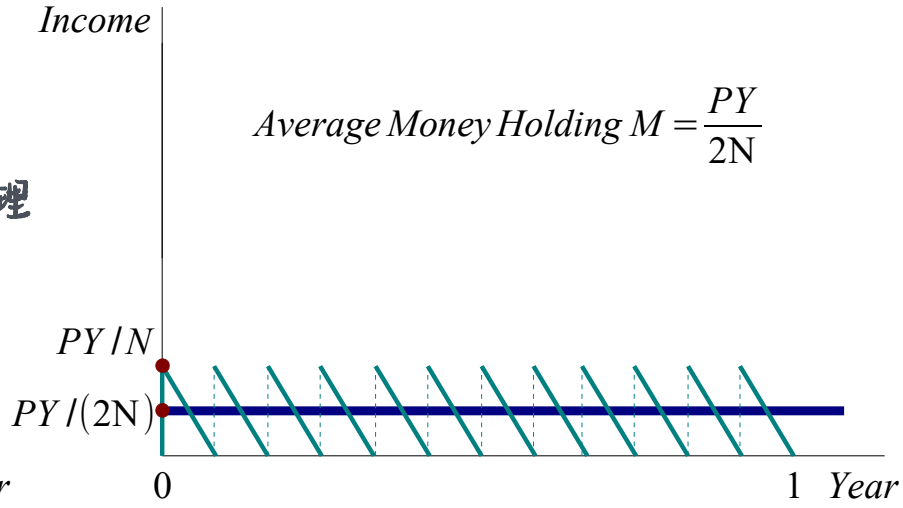
Then the optimal value of N is $N^* = \sqrt{\frac{i \cdot Y}{2F}}$. The optimal average demand for money is $M^d = P\sqrt{\frac{F \cdot Y}{2\,i}}$.

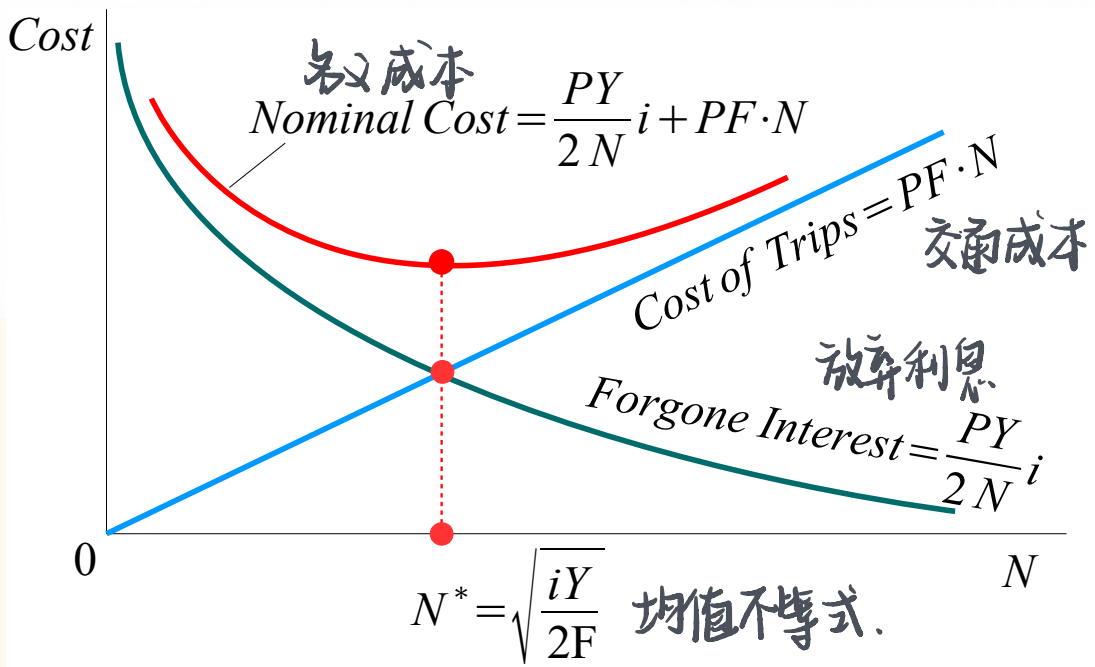
Generally, the demand for real money balances can be written as $M^d/P = L(Y, i)$.

Appendix: The Baumol(1952)–Tobin(1956) Model

The Nominal Cost of Money Holding







放弃的利息

Forgone Interest

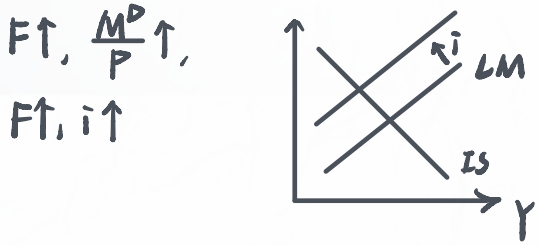
$$= \int_0^1 (PY - PY \cdot t) i \, dt$$

$$= \frac{PY}{2} \cdot i$$

$\frac{PY}{2N^*} = \frac{PY}{2}\sqrt{\frac{2F}{iY}} = P\sqrt{\frac{YF}{2i}}$

货币需求 $\frac{M^D}{P} = \sqrt{\frac{YF}{2i}}$ F: 取钱成本

Outline



疑难重点

(1) 从商品市场均衡框架和投资储蓄框架掌握 Keynesian cross.
(2) 如何从 Keynesian cross 推出 IS relation?
(3) 持有货币的三种动机是什么?
(4) 如何从金融市场均衡推出 LM relation?
(5) 掌握 IS-LM 模型, 并在此框架内分析政策的效应。
(6) 什么是流动性陷阱?
(7) 如何从 IS-LM 框架推出 AD relation?
(8) 微积分技能：推导 Keynesian cross、IS-LM 等模型中政策效应的偏导数。

马工程教材疑难重点

1（E2, p.66）

根据马工程教材观点，应当如何评析西方经济学的均衡国民收入决定原理?

2（E2, p.71）

根据马工程教材观点，应当如何评析西方经济学的投资需求决定理论?

3（E2, p.101）

根据马工程教材观点，应当如何评析西方经济学的 IS–LM 模型?

西方经济学

Part 4 Business Cycle Theory

Lecture 4B The AS–AD Model

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高等教育出版社
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Supplement Readings

(1) M12, M13.3; S5, 6.3. [1]

(2) 其他文献：Introduction to Economic Fluctuations

(3) 其他文献：Aggregate Supply and the Short-Run Tradeoff Between Inflation and Unemployment

[1] M 指代马工程教材，S 指代课外阅读材料沈坤荣教程。

学习目标

(1) 掌握 AS 曲线的理论。
(2) 掌握凯恩斯主义分析框架：AS-AD。
(3) 掌握马工程教材精神。

观察与思考 I

扩大内需之谜

(1) 《中国青年报》（2006 年 03 月 20 日）：1998 年 8 月 2 日，朱镕基第一次明确提出“扩大内需”的构想。国务院随后增发 1000 亿元财政债券，重点用于增加基础设施建设投资。同时采取了降低存贷款利率、提高出口退税率等在内的一系列宏观调控政策。与普通民众生活休戚相关的教育、医疗和住房三项，也从 1998 年开始了全面的市场化改革，和之后开始的黄金周等措施一起，发挥消费需求对经济增长的拉动作用。而从 1999 年开始的声势浩大的高校扩招，则与 1998 年年底呈交给国务院领导的一封信紧密相关。这封由经济学者汤敏和他的夫人左小蕾共同撰写的信建议，在 3 年至 4 年内使中国高校的招生量扩大一倍。他们估算，扩大高校招生每年可增加 1000 亿元左右的消费需求，同时可使每年一至两百万新增的劳动力延迟进入市场，缓解当前的就业压力。这封信得到了高层领导的重视，并很快有了回应。次年，有关部门拟定计划，招生人数比前一年增加 20% 多，几个月后又增至 47%。

观察与思考 II

扩大内需之谜

(2) 温家宝《政府工作报告》（2013 年 3 月 5 日）：要坚定不移地把扩大内需作为经济发展的长期战略方针，充分发挥消费的基础作用和投资的关键作用。扩大内需的难点和重点在消费，潜力也在消费。扩大居民消费要在提高消费能力、稳定消费预期、增强消费意愿、改善消费环境上下功夫，不断提高消费对经济增长的拉动力。现阶段，投资在促进经济增长中的作用不可低估。关键在于选准方向、优化结构、提高投资的质量和效益。政府投资对社会投资具有十分重要的导向作用，但占全社会投资的比重越来越小，必须进一步放宽民间投资市场准入，激发民间投资活力。

观察与思考 III

扩大内需之谜

(3) 智库专家（2023 年 2 月 22 日）：2023 年，中国经济仍然面对需求收缩、供给冲击、预期转弱三重压力。可以说，我国经济问题有不少是老问题，但又以更加困难的方式表现出来。…… 一个经济体的增长，从根本上看取决于需求的扩大。只要需求扩大，并伴随相应的供给扩大，经济就会持续增长。面对需求收缩压力，当下最为重要的是扩大内需。扩大内需，已经不仅仅是一般的经济政策层面的事，而是上升到经济战略层面。经济政策层面的扩大内需，是应对短期内宏观经济波动所采取的政策措施。对于中国来说，扩大内需已经是战略层面的事。之所以需要将扩大内需提升为战略，是中国经济可持续发展之需。我国作为大国经济体，发展到今天，已经不能再靠外需来拉动。

(4) 李克强《政府工作报告》（2023 年 3 月 5 日）：五年来，我们扩大国内有效需求，推进区域协调发展和新型城镇化。围绕构建新发展格局，立足超大规模市场优势，坚持实施扩大内需战略，培育更多经济增长动力源。着力扩大消费和有效投资。面对需求不足甚至出现收缩，推动消费尽快恢复。……鼓励社会资本参与建设运营，调动民间投资积极性。

观察与思考 IV

扩大内需之谜

(5) 国家统计局答记者问（2024 年 1 月 17 日）：2023 年构建新发展格局取得了新进展……国内大循环的主体作用在增强。立足扩大内需这个战略基点，释放强大内需市场潜力，国内循环对经济发展的带动作用在明显增强。2023 年，我国社会消费品零售总额达到了 47.1 万亿元，固定资产投资规模 50.3 万亿元，内需对经济增长的贡献率达到了 111.4%，比上年提高 25.3 个百分点。

(6) 李强《政府工作报告》（2024 年 3 月 6 日第 5 版）：着力扩大国内需求，推动经济实现良性循环。把实施扩大内需战略同深化供给侧结构性改革有机结合起来，更好统筹消费和投资，增强对经济增长的拉动作用。

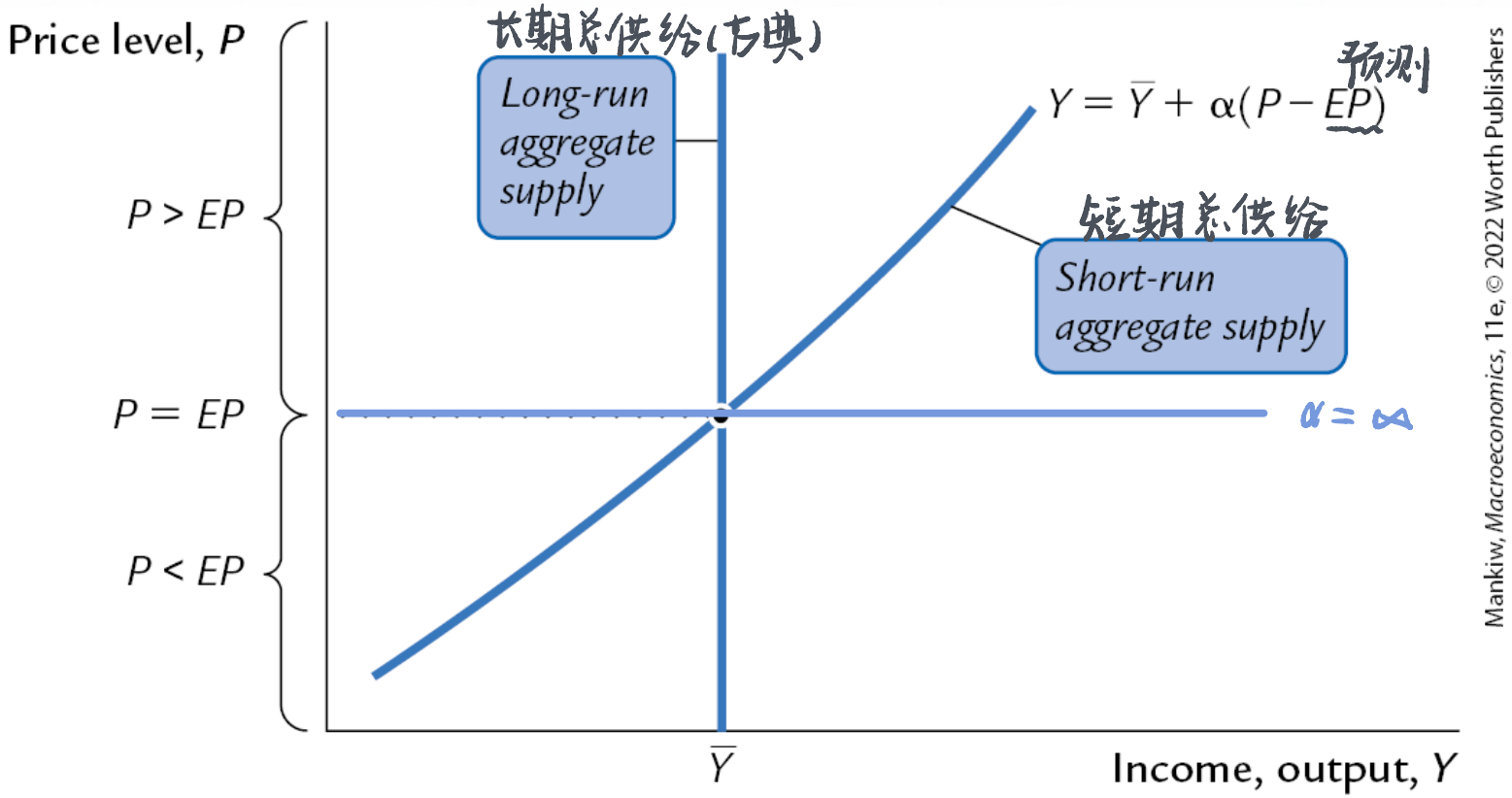
促进消费稳定增长。……鼓励和推动消费品以旧换新，提振智能网联新能源汽车、电子产品等大宗消费。

积极扩大有效投资。……推动各类生产设备、服务设备更新和技术改造，加快实施“十四五”规划重大工程项目。今年中央预算内投资拟安排 7000 亿元。……着力稳定和扩大民间投资，落实和完善支持政策，实施政府和社会资本合作新机制，鼓励民间资本参与重大项目建设。进一步拆除各种藩篱，在更多领域让民间投资进得来、能发展、有作为。

Outline

Theories of Aggregate Supply

The Aggregate Supply Curve



$$Y_t = \bar{Y} + \alpha \cdot (P_t - \mathbb{E}_{t-1}[P_t]), \quad \alpha \in [0, +\infty]$$

$$\Rightarrow P_t = \mathbb{E}_{t-1}[P_t] + \frac{1}{\alpha}(Y_t - \bar{Y})$$

The Sticky-Price Model (Rotemberg, 1982)

When there are changes in demand due to changes in income, a fraction $s \in [0,1]$ of firms charge sticky prices (P_{Sticky}) set in advance while a fraction $1-s$ of firms charge flexible prices ($P_{Flexible}$). The general price level is $P = sP_{Sticky} + (1-s)P_{Flexible}$. The price decision rules are

$$P_{Flexible} = P + a(Y - \overline{Y}), \quad a > 0;$$
$$P_{Sticky} = P^e + a(Y^e - \overline{Y}).$$

We assume that firms charging P_{Sticky} expect that the aggregate income, Y, will be equal to the natural level of output, $\overline{Y}$. Then the AS function can be written as

$$Y = \overline{Y} + \alpha(P - P^e)$$

where $\alpha = \frac{s}{(1-s)a} \geq 0$.

$P = sP_{sticky} + (1-s)P_{flexible}$

$= sP^e + (1-s)P_{flexible}$

$sP - sP^e = (1-s)a(Y - \overline{Y})$

$Y = \overline{Y} + \frac{s}{(1-s)\alpha}(P - P^e)$

The Imperfect-Information Model (Lucas, 1973)

There are n identical suppliers in an economy. Each supplier i can only observe one's own **flexible** price P_i. Due to imperfect information, each supplier cannot observe the general price level which is defined as $P = (\sum_{i=1}^{n} P_i)/n$ for simplicity. P^e is the expected general price level formed by supplier i based on all historical information. When supplier i observes his own price P_i, the expected general price level is revised to be $P^e|_{P_i}$. The update rule is

$$P^e|_{P_i} = P^e + b(P_i - P^e), \quad b \in [0,1].$$

Let $\overline{Y}_i$ be the output corresponding to $b = 1$ under perfect information. The production decision rule is

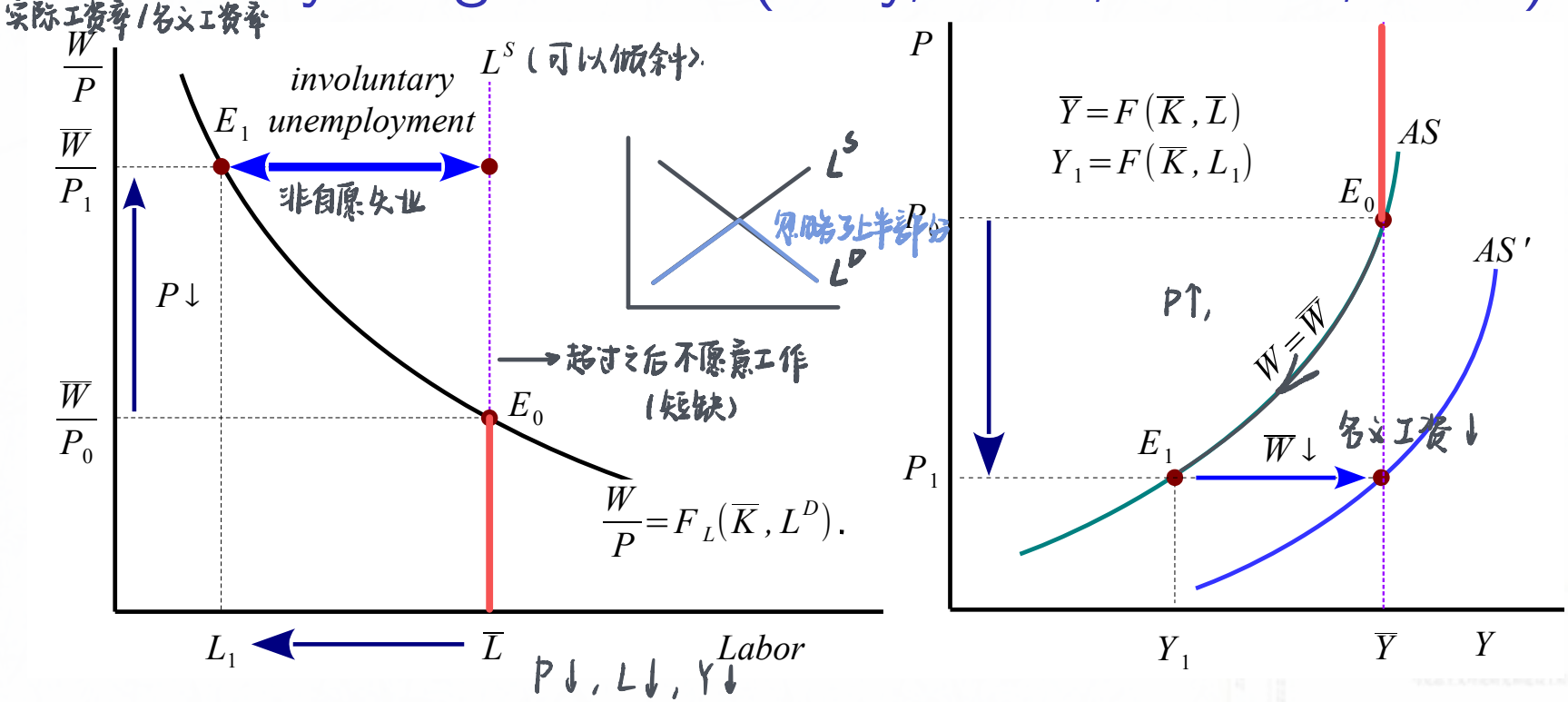
$$Y_i = \overline{Y}_i + a(P_i - P^e|_{P_i}), \quad a > 0.$$

Let $Y = \sum_{i=1}^{n} Y_i$ and $\overline{Y} = \sum_{i=1}^{n} \overline{Y}_i$. We obtain

$$Y = \overline{Y} + \alpha(P - P^e)$$

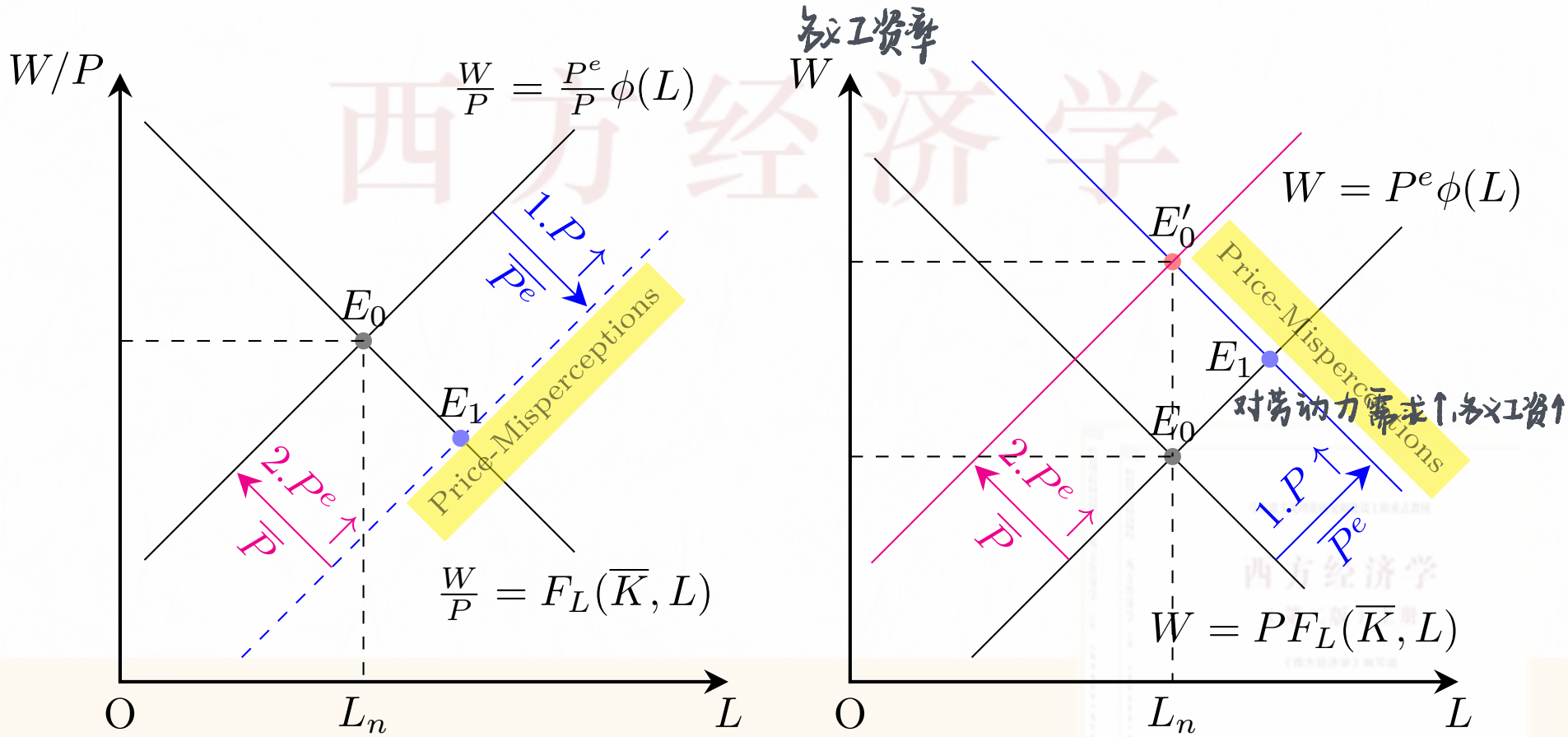
where $\alpha = a(1-b)n \geq 0$. This version of AS curve is called the *Lucas supply curve*.

The Sticky-Wage Model (Gray, 1976; Fischer, 1977)



Keynes (1936) assumes that the nominal wage rate W is sticky while the price level P is flexible. Workers' objective is to obtain the market-clearing level of the real wage rate $\left(\frac{W}{P}\right)^*$. Given the expectation $P^e = P_0$, workers sign a contract with a nominal wage rate $\overline{W} = \left(\frac{W}{P}\right)^* P_0$. If P_0 falls unexpectedly to P_1, then the labor employed falls from $\overline{L}$ to L_1 and hence the output level falls from $\overline{Y}$ to Y_1. However, AS does not shift even if P^e is updated because P^e is used by workers only to sign a contract. It is the change in $\overline{W}$ that shifts AS. Why is W sticky? (沈坤荣, p.142)

The Workers' Price-Misperceptions Model (Friedman, 1968) 工人价格错觉模型



The output is affected only by unperceived inflation measured by $P - P^e$ or $\ln(P/P^e)$.

Outline

Alternative AS Shapes

马工程观点 (M, 2019, p.121)

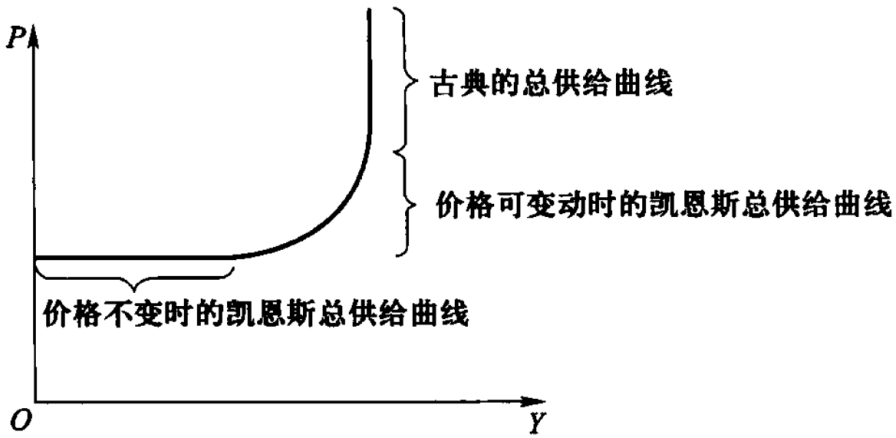


图 12-13　各种总供给曲线的综合

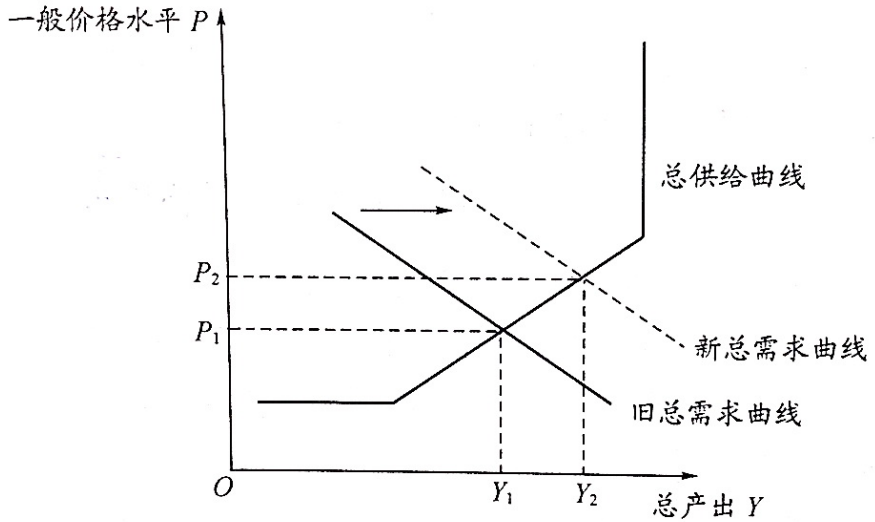


图 2-7　总需求—总供给框架

Alternative AS Shapes

Colander,1998, Macroeconomics, 3rd ed.

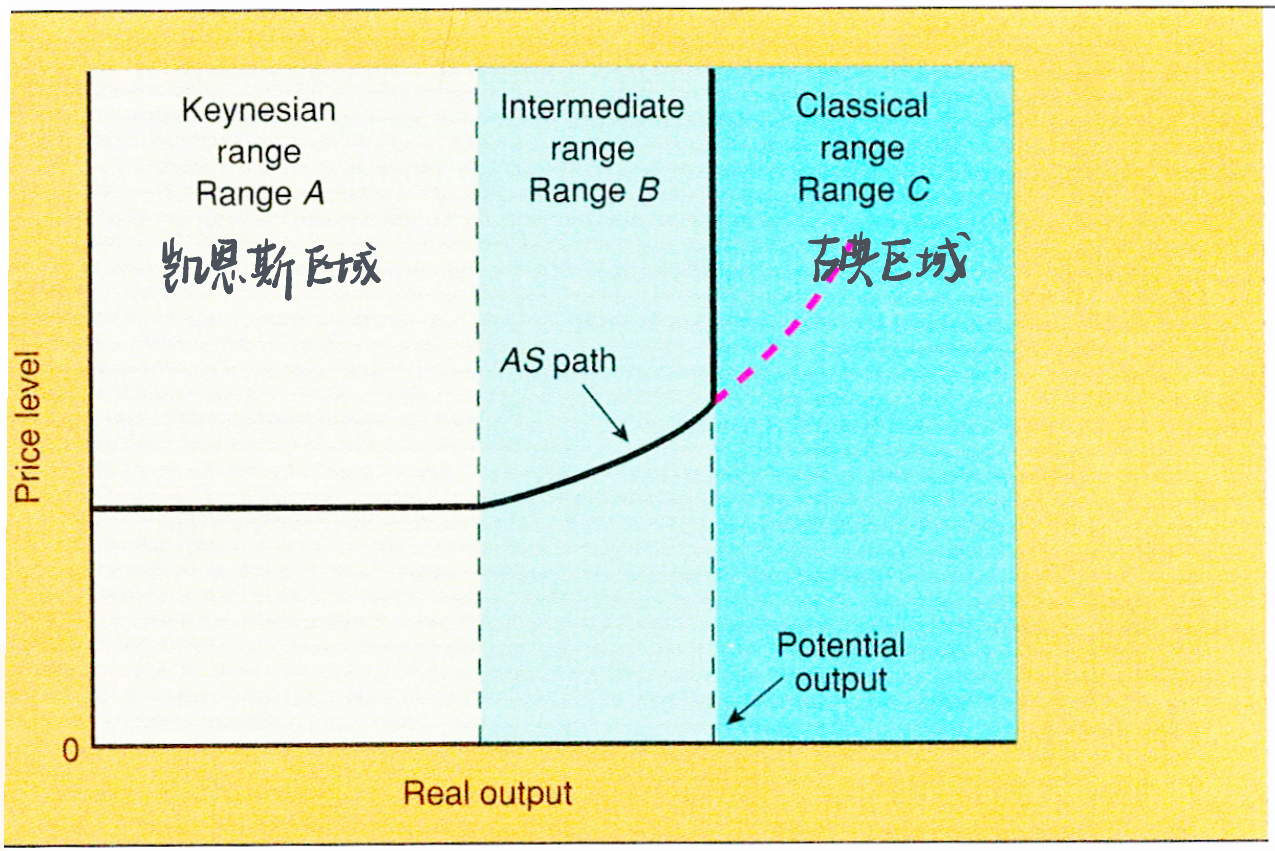
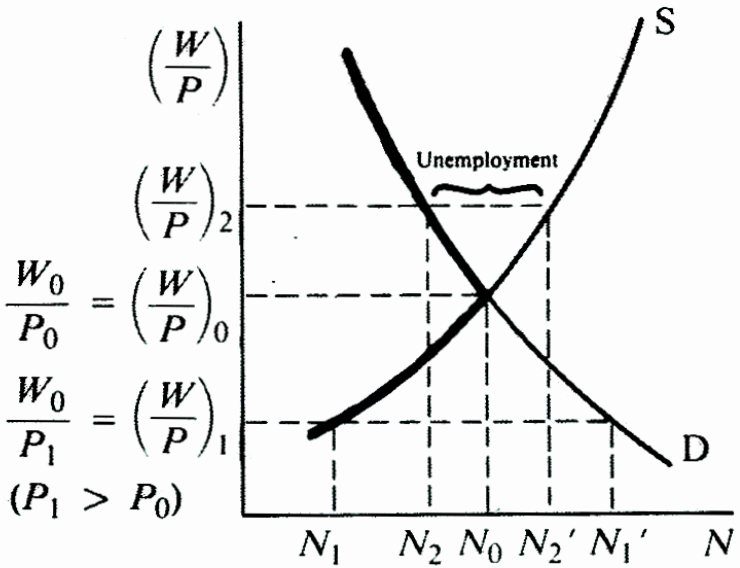


EXHIBIT 6 The Ranges of the Aggregate Supply Path

Most economists believe the economy has three ranges of price-level flexibility. Range *A*, the fixed-price range, is often called the Keynesian range, since in the range, only the income adjustment mechanism is operative. Range *C* (the range above potential output) is often called the Classical range, since in the long run any expansion beyond this point will only lead to accelerating inflation.

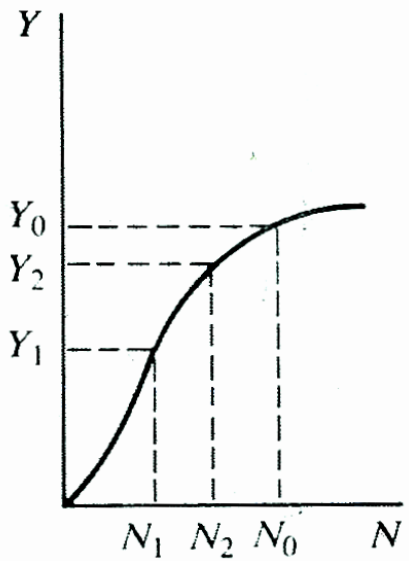
Alternative AS Shapes

Colander,1986, Macroeconomics, 1st ed.



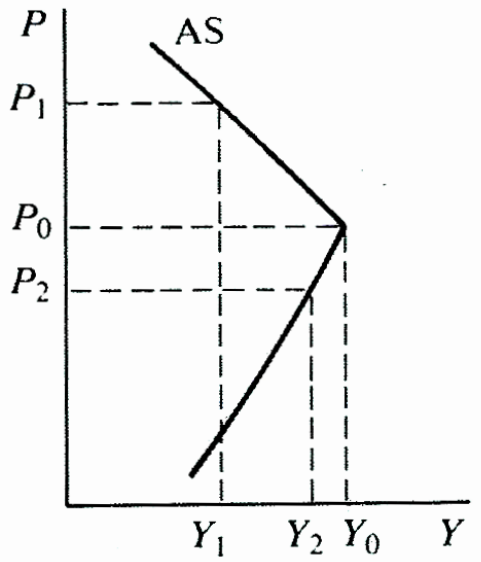
The Supply and Demand for Labor

(a)



The Production Function

(b)



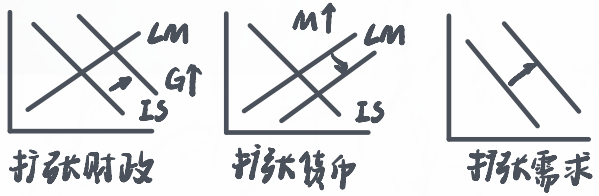
The Keynesian Aggregate Supply Curve

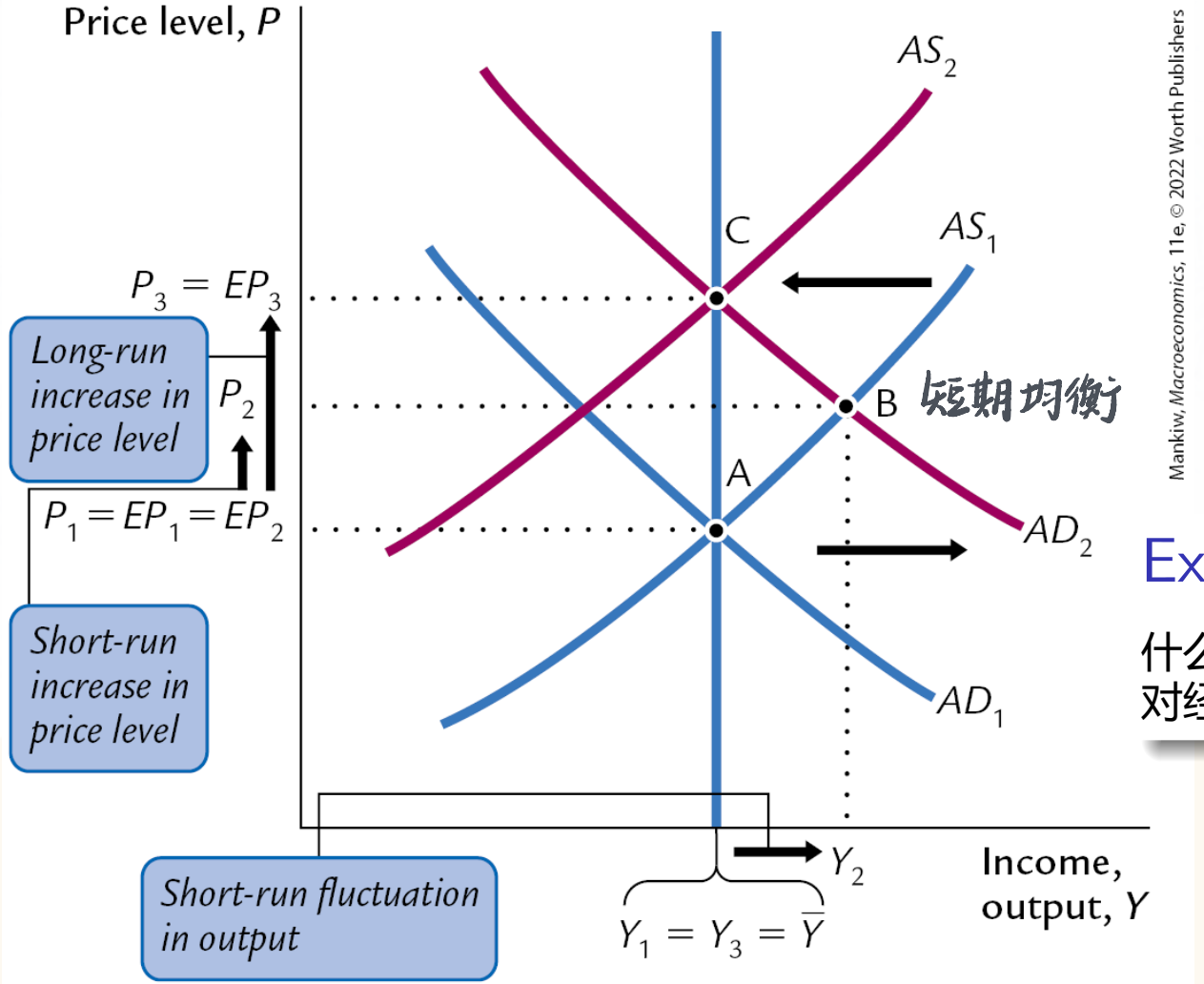
(c)

Outline

AS-AD: The Standard Model

Equilibrium in the Short Run and the Long Run





Mankiw, *Macroeconomics*, 11e, © 2022 Worth Publishers

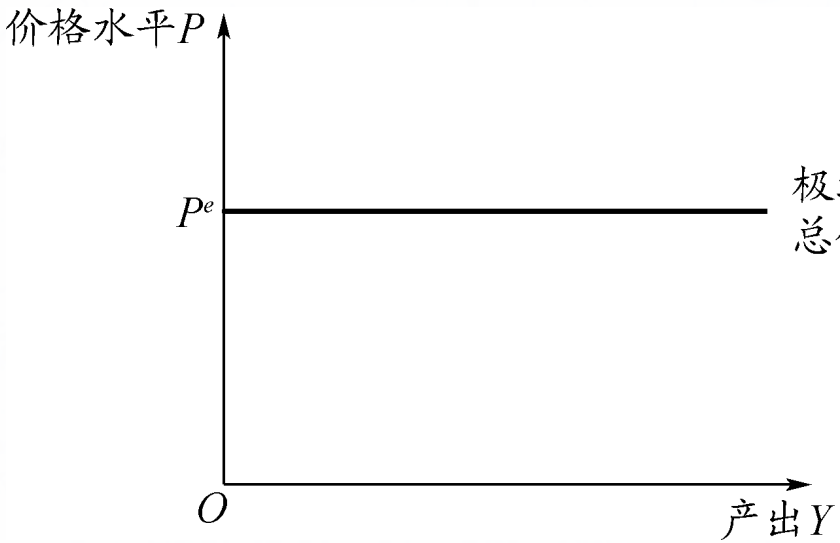
C→A而非C→B→A：宏观经济政策的有效性

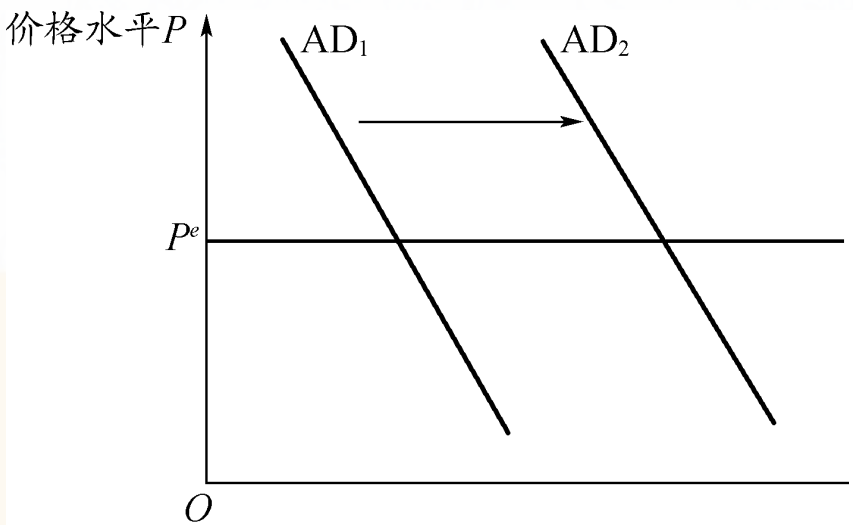
Example 1 (观察与思考)

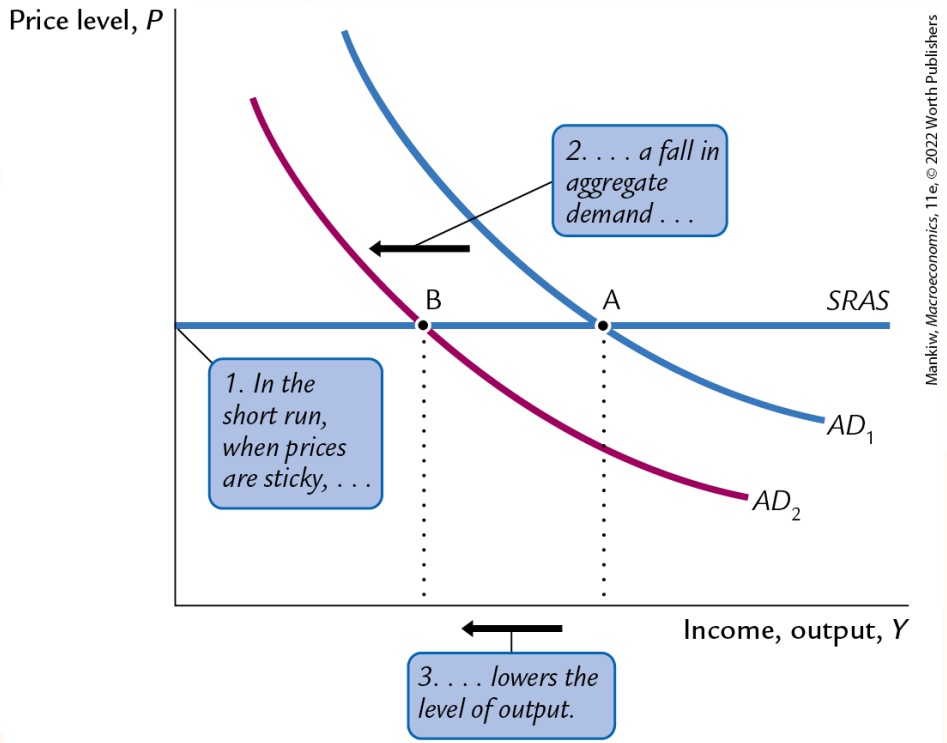
什么是“扩大内需之谜”？扩大内需对经济有何影响？

AS-AD: The Basic Model

Extreme Keynesian AS

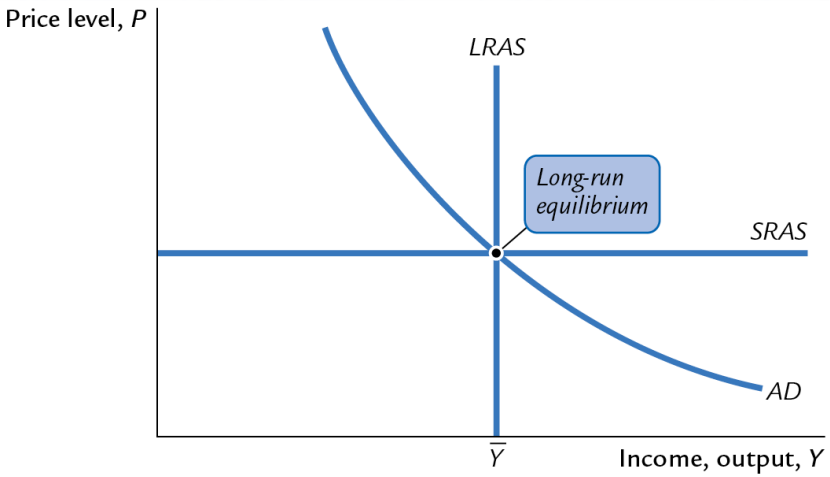


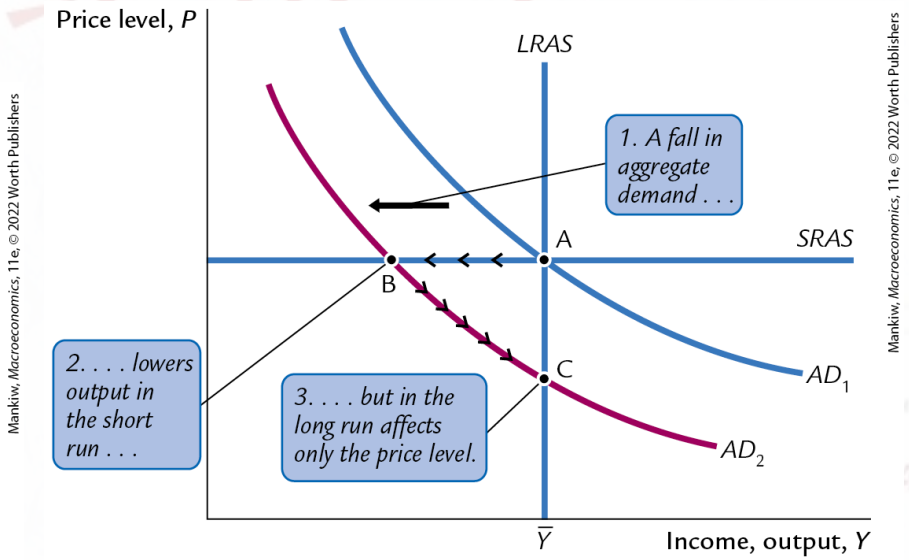




AS-AD: The Basic Model

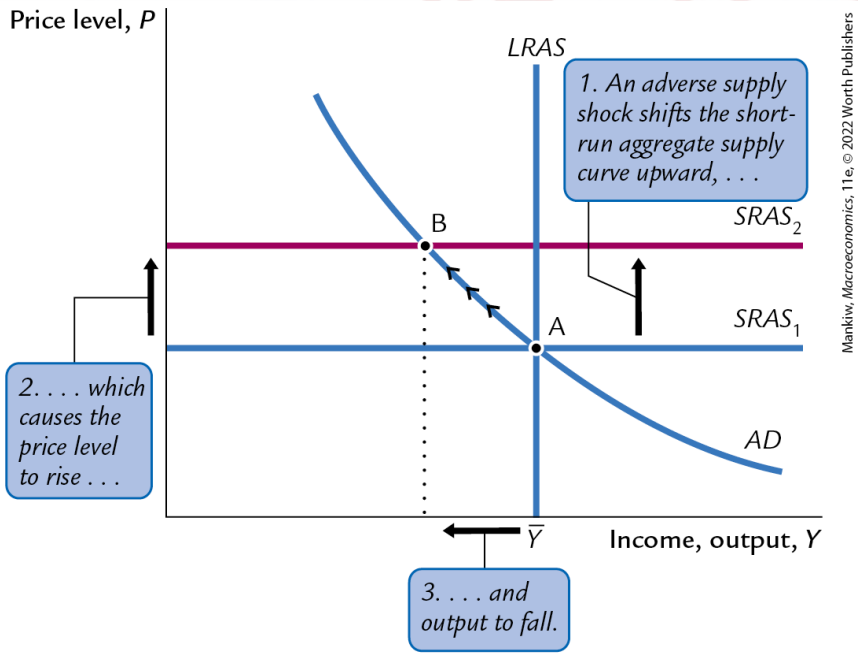
From the Short Run to the Long Run

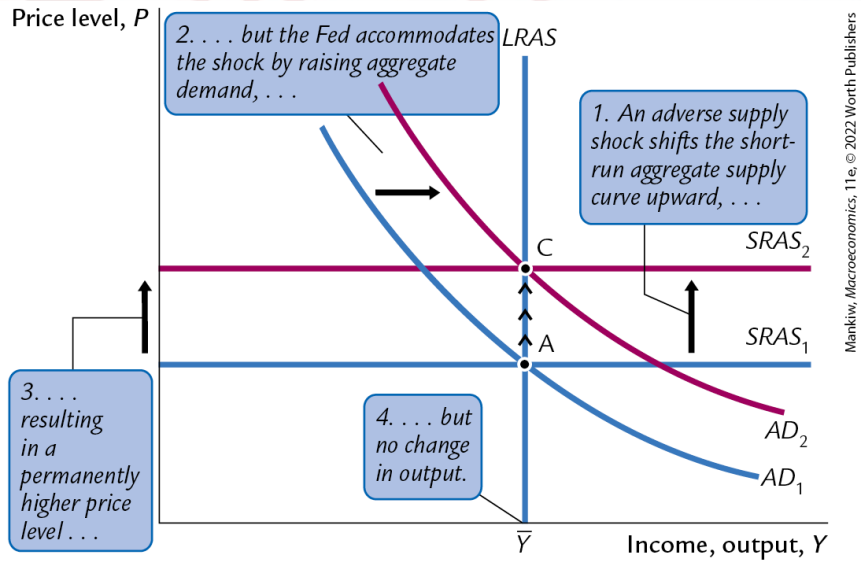




AS-AD: The Basic Model

The Effects of Adverse Supply Shock





Outline

Okun's Law in the United States

$Y_t = Y_{t-1} e^g$ 取对数

$g_{Y,t} = \ln Y_t - \ln Y_{t-1}$

$g_{Y,t} - g_{\overline{Y}} = \ln Y_t - \ln Y_{t-1} - (\ln \overline{Y}_t - \ln \overline{Y}_{t-1})$

$= (\ln Y_t - \ln \overline{Y}_t) - (\ln Y_{t-1} - \ln \overline{Y}_{t-1})$

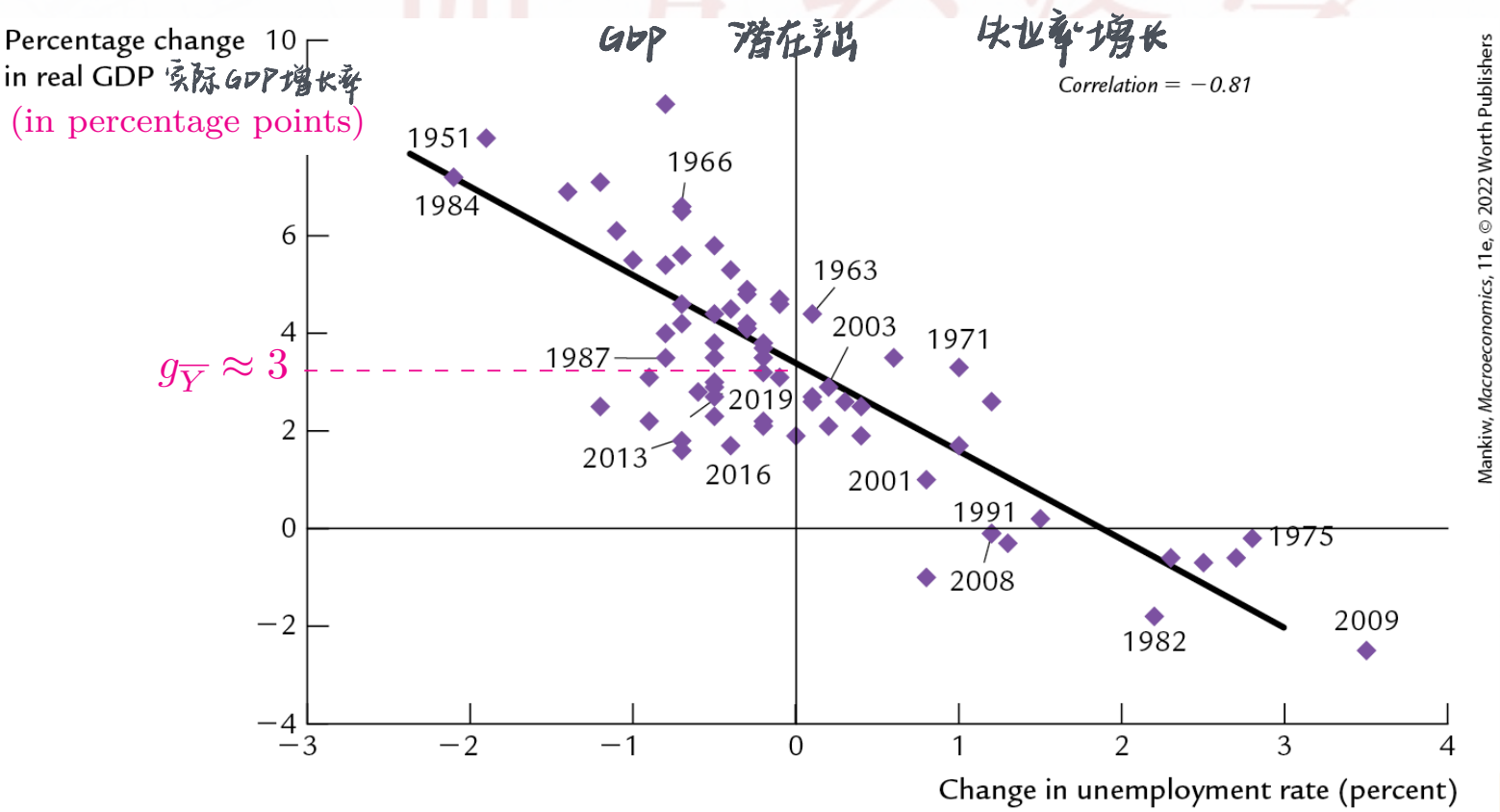
$= -2(u_t - u_n) + 2(u_{t-1} - u_n)$

$= -2(u_t - u_{t-1})$

u_n: 自然失业率

Okun's Law: $\ln(Y_t) - \ln(\overline{Y}) = -2(u_t - u_n)$.

In the growth rate form: $g_{Y,t} - g_{\overline{Y}} = -2(u_t - u_{t-1})$.



$Y_t = \bar{Y} + \alpha(P_t - P_t^e)$ 在 $(\bar{Y}, P_t^e)$ 点

$y_t = \ln Y_t - \ln \bar{Y}$ $p_t = \ln P_t - \ln P_t^e$. 对数偏离

$= \ln \frac{Y_t}{\bar{Y}}$

$e^{y_t} = \frac{Y_t}{\bar{Y}}$, 同理 $e^{p_t} = \frac{P_t}{P_t^e}$.

$\bar{Y} e^{y_t} = \bar{Y} + \alpha P_t^e (e^{p_t} - 1)$

$e^{y_t} = 1 + e^{y_t}\Big|_{y_t=0}(y_t - 0) + o(e^{y_t})$

$\bar{Y}(1 + y_t) = \bar{Y} + \alpha P_t^e (1 + p_t - 1)$

$y_t = \frac{\alpha P_t^e}{\bar{Y}} p_t = \tilde{\alpha} p_t$

$\ln Y_t - \ln \bar{Y} = \tilde{\alpha}(\ln P_t - \ln P_t^e)$

The Phillips Curve

$$
\begin{aligned}
& Y_t = \overline{Y} + \alpha \cdot (P_t - P_t^e) \\
\Rightarrow & \ln P_t = \ln P_t^e + \frac{1}{\alpha}(\ln Y_t - \ln \overline{Y}) \\
\Rightarrow & \ln P_t - \ln P_{t-1} = \ln P_t^e - \ln P_{t-1} + \frac{1}{\alpha}(\ln Y_t - \ln \overline{Y}) \\
\Rightarrow & \pi_t = \pi_t^e + \frac{1}{\alpha}(\ln Y_t - \ln \overline{Y}).
\end{aligned}
$$

By Okun's law, $\ln Y_t - \ln \overline{Y} = -\alpha\beta(u_t - u_n)$. Substituting for $\ln Y_t - \ln \overline{Y}$ gives

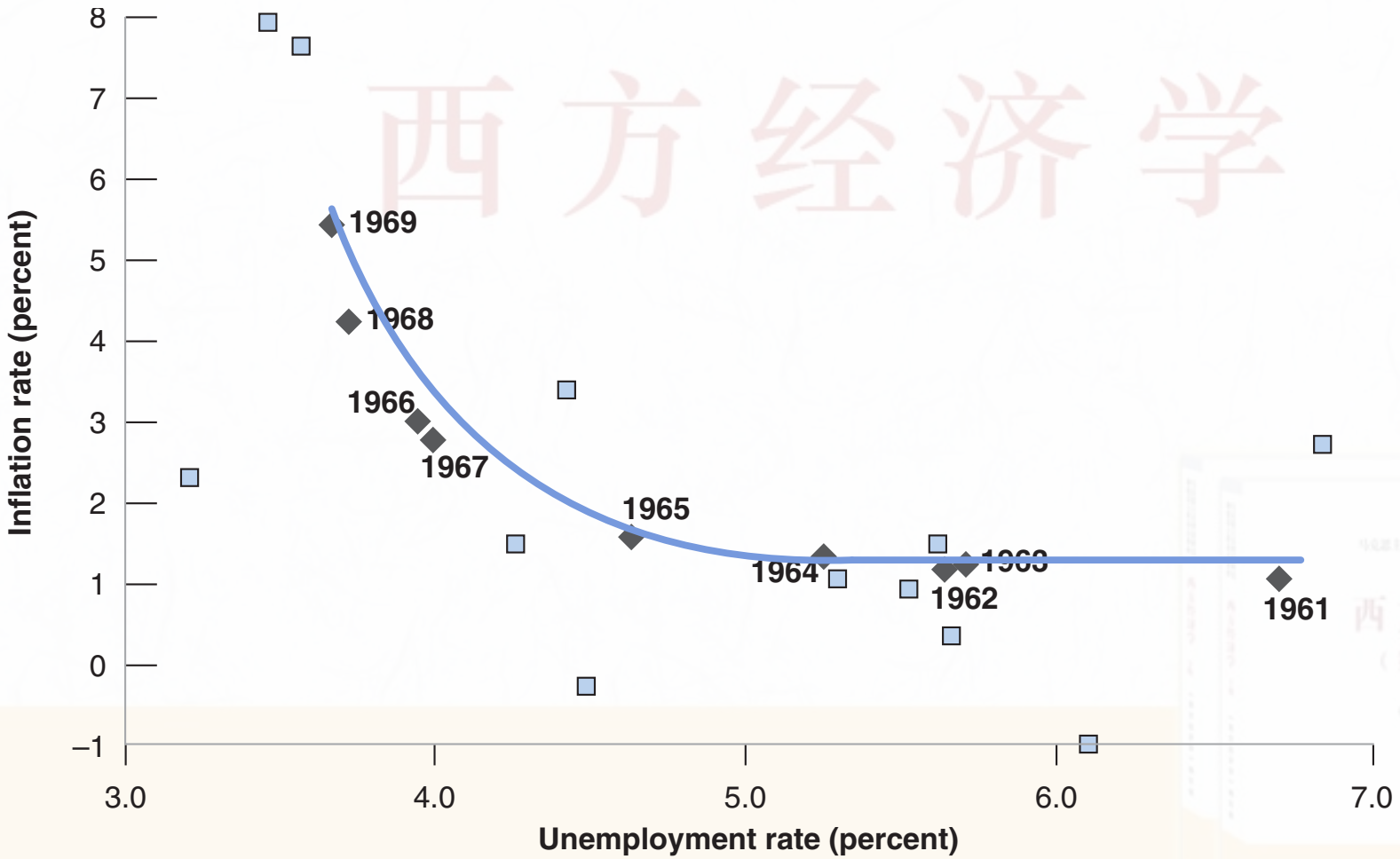
$$\pi_t = \pi_t^e - \beta(u_t - u_n),$$

预期扩张

which is called the **expectations-augmented Phillips curve**. If the supply shock v_t is considered, the Phillips curve becomes

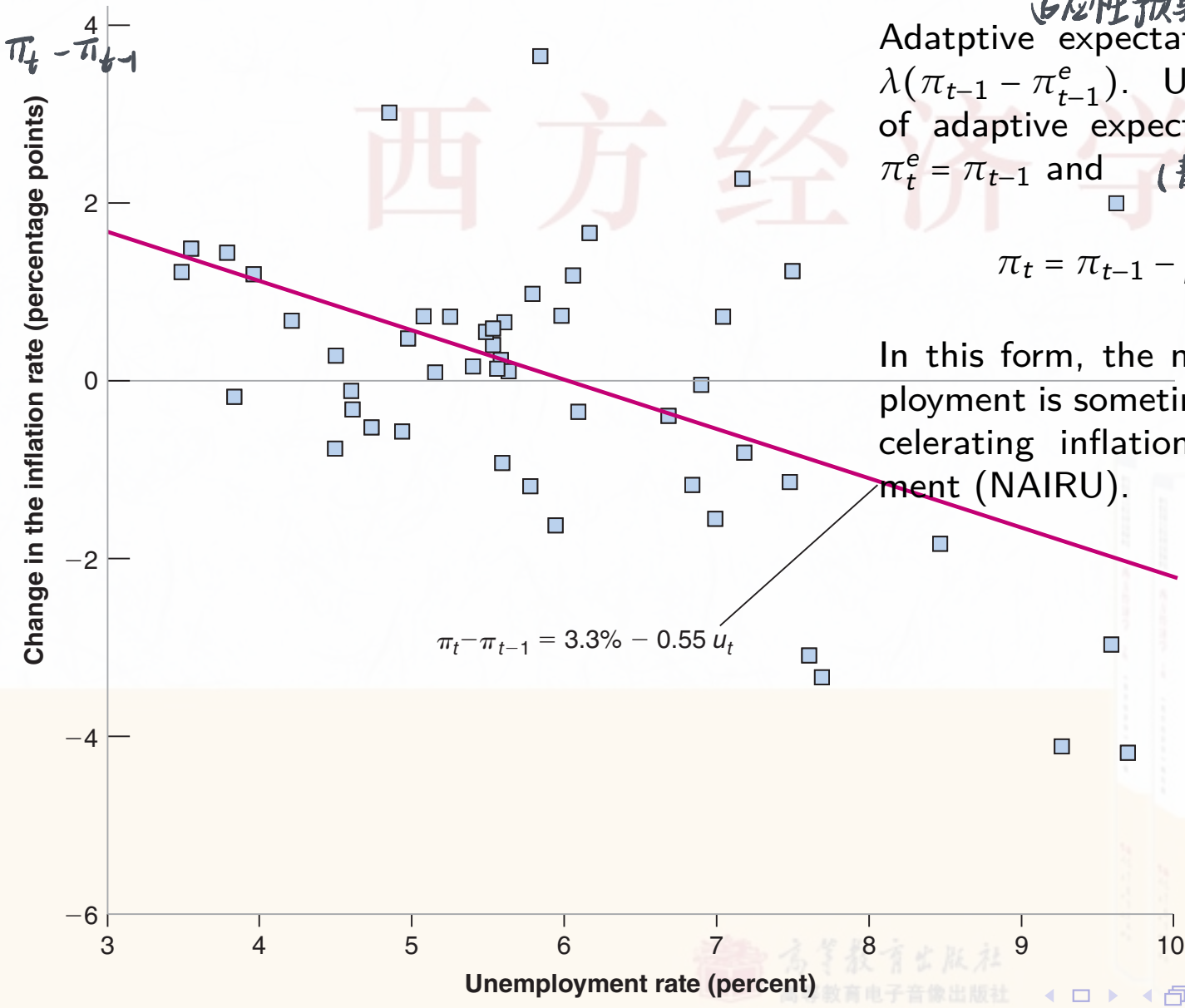
$$\pi_t = \pi_t^e - \beta(u_t - u_n) + v_t,$$

Evidences: Phillips Curve in the U.S., 1948–1969



Evidences: Phillips Curve Disappeared in the U.S., 1970–2010

Evidences: Expectations-Augmented Phillips Curve in the United States, 1970–2010

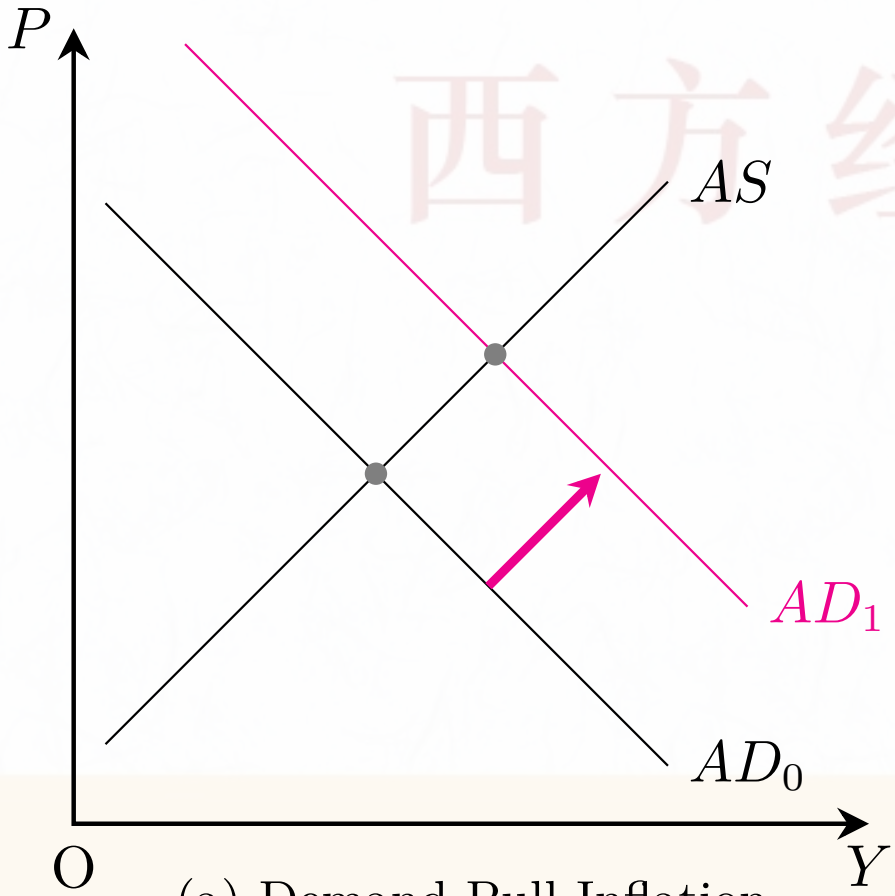


Adatptive expectations: $\pi_t^e = \pi_{t-1}^e + \lambda(\pi_{t-1} - \pi_{t-1}^e)$. Under the assumption of adaptive expectations with $\lambda = 1$, $\pi_t^e = \pi_{t-1}$ and

$$\pi_t = \pi_{t-1} - \beta(u_t - u_n) + v.$$

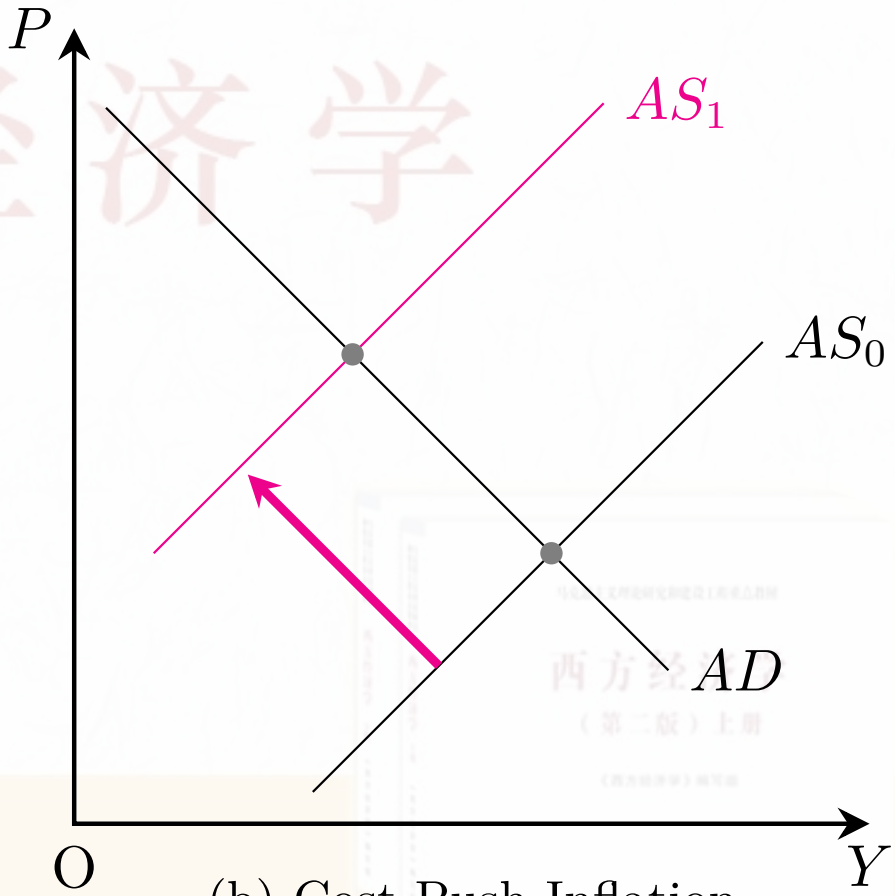
In this form, the natural rate of unemployment is sometimes called the nonaccelerating inflation rate of unemployment (NAIRU).

Two Causes of Inflation



(a) Demand-Pull Inflation

需求拉动



(b) Cost-Push Inflation

供给推动

Outline

疑难重点

(1) 掌握 AS 理论：The sticky-price model, the imperfect-information model, the sticky-wage model, and workers' price-misperceptions model.

(2) 掌握 AS-AD 模型，并分析政策效应。

(3) 什么是 Okun's law?

(4) 什么是 expectations-augmented Phillips curve?

(5) 什么是需求拉动型通胀？什么是成本推动型通胀?

(6) 微积分技能：推导 AS-AD 模型中政策效应的偏导数。

马工程教材疑难重点

1 (E2, p.131)

根据马工程教材观点，应当如何评析西方经济学的 AS–AD 模型?

2 (E2, p.177)

根据马工程教材观点，应当如何评析西方经济学的菲利普斯曲线理论?

3 (E2, p.177)

根据马工程教材观点，应当如何评析西方经济学的经济周期理论?

西方经济学

Part 4 Business Cycle Theory

Lecture 4C The Open IS–LM Model

Jian LI

Department of International Economics and Trade
Nanjing University

高等教育出版社
高等教育电子音像出版社

Supplement Readings

(1) M14; S11.3. [1]

(2) 中国人民银行, FED, FED Balance Sheet Trends.

(3) 其他文献：The Open Economy Revisited: The Mundell–Fleming Model and the Exchange-Rate Regime

[1] M 指代马工程教材，S 指代课外阅读材料沈坤荣教程。

学习目标

(1) 掌握开放经济的凯恩斯主义基本分析框架。
(2) 掌握马工程教材精神。

观察与思考

央行 3 号令剑指何处?

Capital Control in China

资本流动莫名躺枪 央行3号令剑指何处

2017年01月04日 12:29:26　　来源：华尔街见闻

2016年最后一天，关于“央妈再放大招，取现和境外汇款额度大幅下调”的文章作为爆炸性头条霸屏了大多数财经人士的手机，并呈恐慌性扩散。该消息源于央行和外汇局的两个动作，一是央行发布《金融机构大额交易和可疑交易报告管理办法》（修订版）（中国人民银行令〔2016〕第3号，简称“3号令”），二是外汇局对个人外汇信息申报管理进行改进。上述文章认为，央行和外汇局的行动表明，央行已经选择了货币政策独立和币值稳定，放弃了资本流动，资本自由流动的黄金时代已经结束。笔者以为，完全驴唇不对马嘴。

我国资本流动从来就没有自由过

Outline

Case: Small Home vs. Large Foreign I

Assumption 1 (Perfect Capital Mobility [PCM])

Residents of a country have full access to world financial markets.

Assumption 2 (Static Expectations of e) e的静态预期

$e^e_{t+1} = e_t$.

Assumption 3 (Rigid Prices) 价格刚性

P and P^* are rigid.

Robert A. Mundell (1963) and J. Marcus Fleming (1962) assume a small open economy (Home), and assumptions 1–3. Without loss of generality, let

$G^I = 0, NFP = 0, TR = 0, INT^G = 0.$

政府投资 转移支付

$CA = NX + NFP = NX$

Case: Small Home vs. Large Foreign II

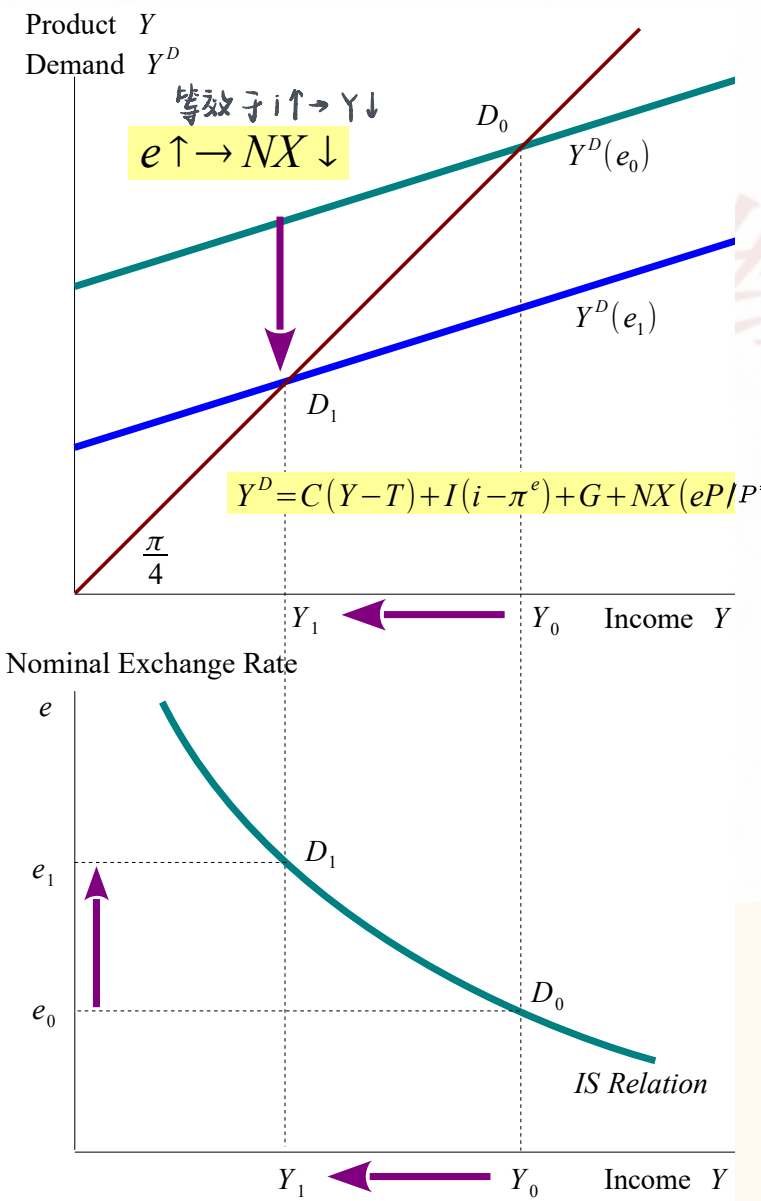
The IS–LM model for an open economy (called the MF model) can be written as[2]

$$\begin{cases} Y = C(\underset{+}{Y} - T) + I(\underset{-}{i} - \pi^e) + G + NX\left(\frac{eP}{\underset{-}{P^*}}\right), & \text{商品市场} \\ M/P = L(\underset{+}{Y}, \underset{-}{i}), & \text{货币市场} \\ i = i^*. & \text{PCM假设} \end{cases}$$

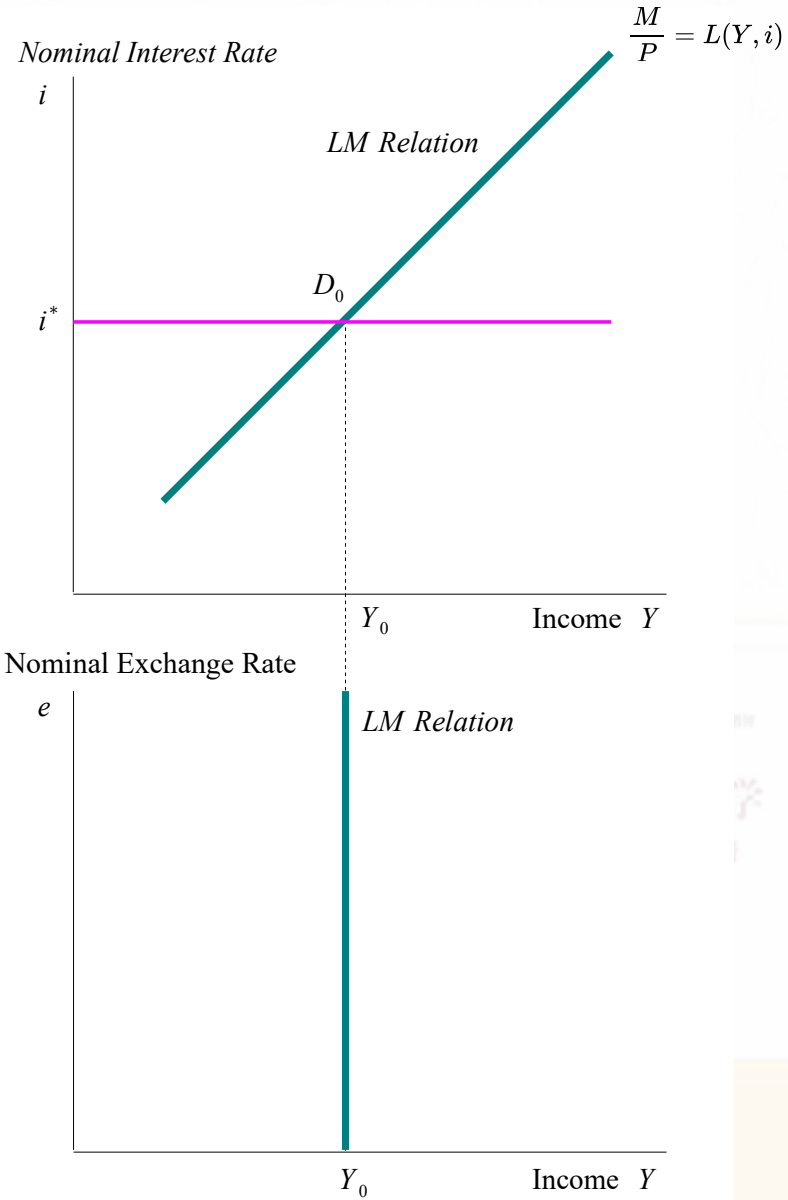
Y, i, e

[2] In the textbook by 沈坤荣 (p.324), the IS relation is more complicated in that NX depends not only on the real exchange rate ϵ, but also on domestic and foreign disposable income.

Derivation of *IS* and *LM* Curves in the MF Model



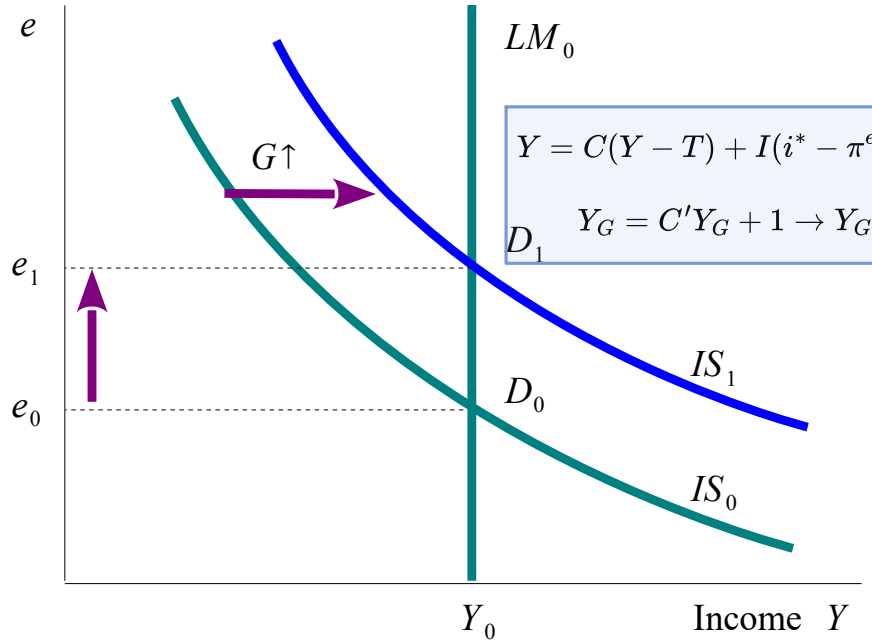
(a) The *IS* Relation



(b) The *LM* Relation

The MF Model under Flexible Exchange Rates 浮动汇率

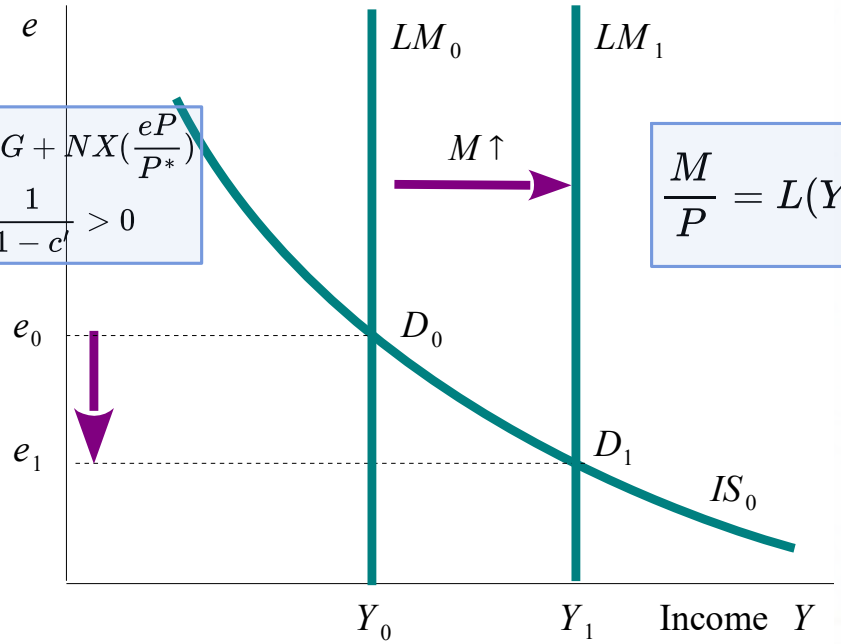
Nominal Exchange Rate



$$Y = C(Y-T) + I(i^* - \pi^e) + G + NX(\frac{eP}{P^*})$$

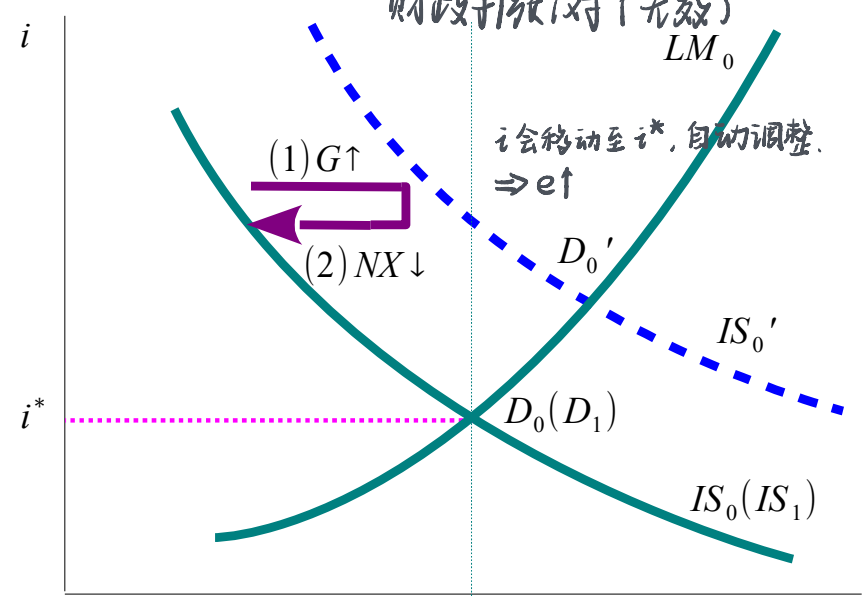
$$Y_G = C'Y_G + 1 \rightarrow Y_G = \frac{1}{1-c'} > 0$$

Nominal Exchange Rate

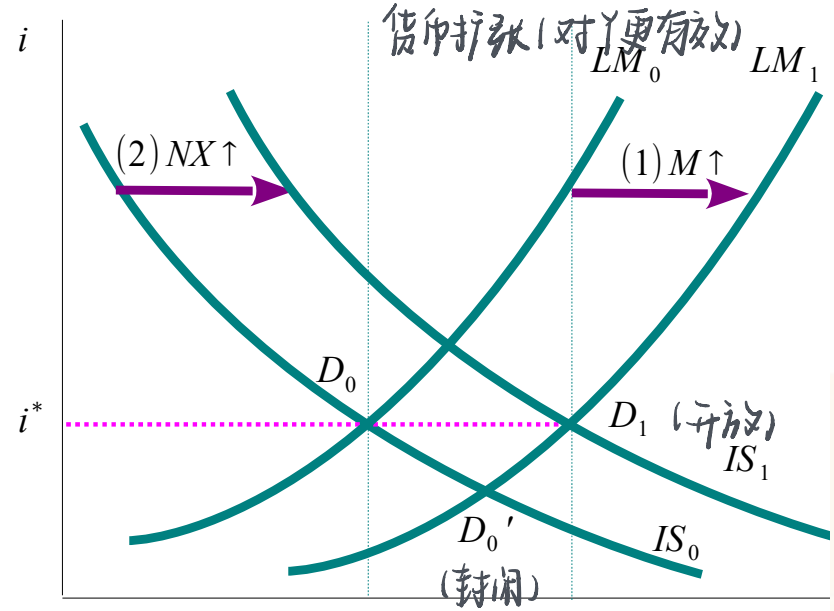


$$\frac{M}{P} = L(Y, i^*)$$

Nominal Interest Rate

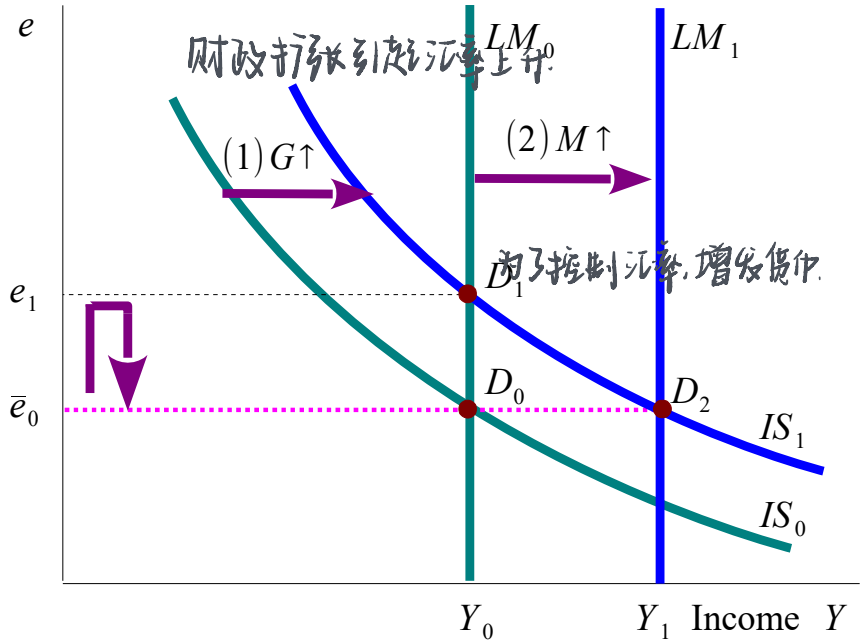


Nominal Interest Rate

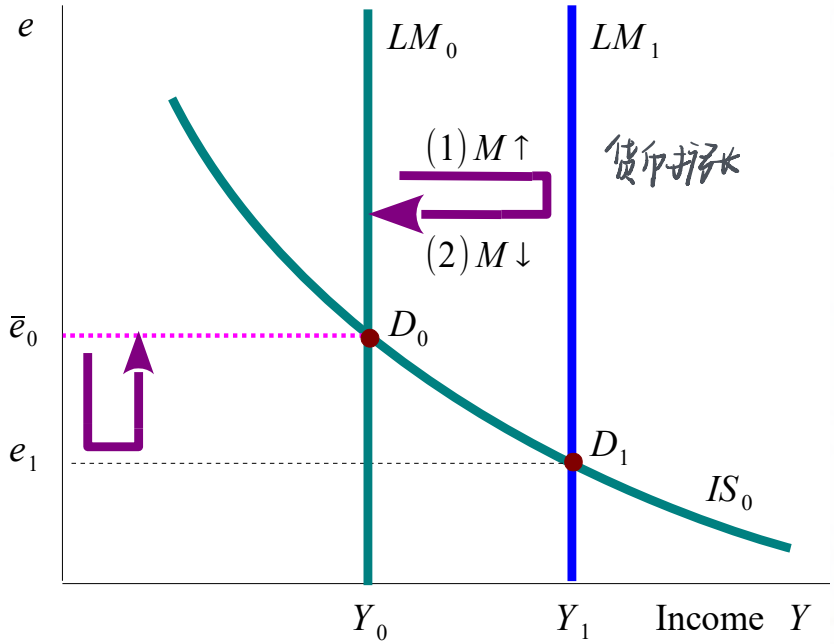


The MF Model under Fixed Exchange Rates 固定汇率

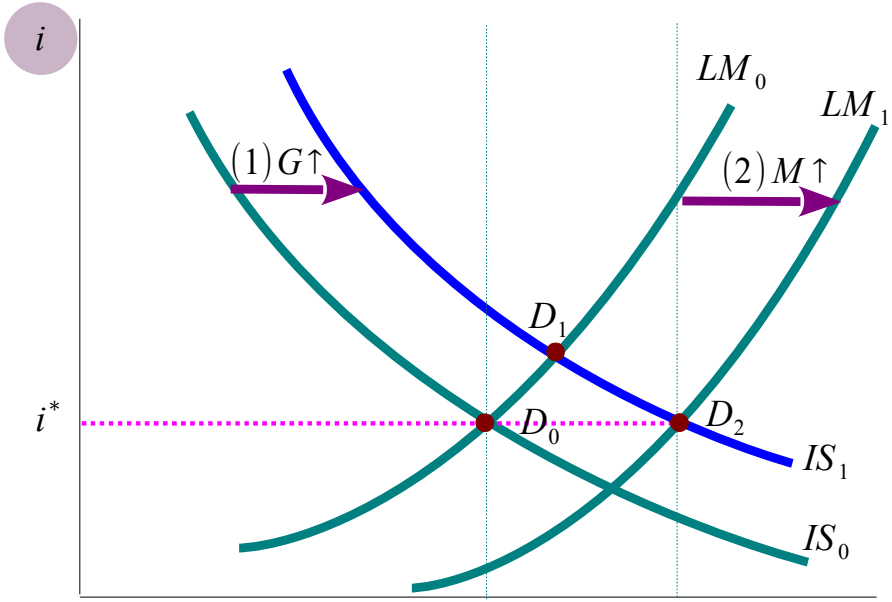
Nominal Exchange Rate



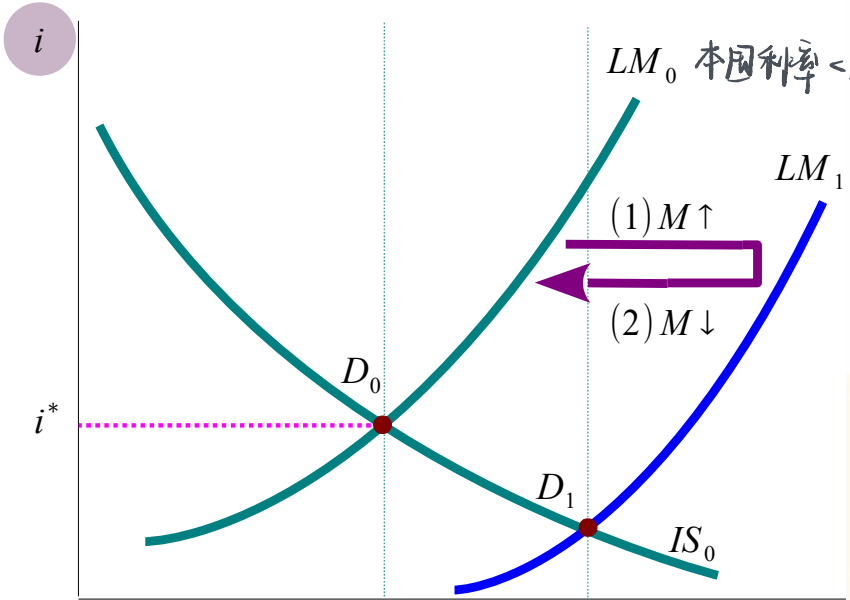
Nominal Exchange Rate



Nominal Interest Rate



Nominal Interest Rate



The Mundell–Fleming Trilemma

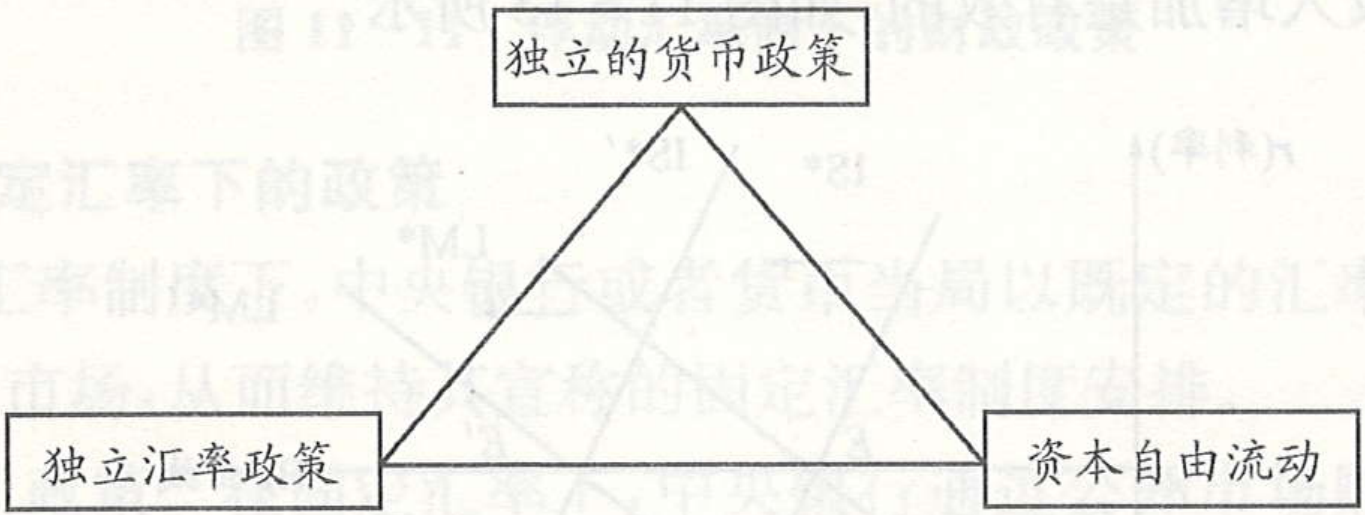


图 11－14　蒙代尔—弗莱明三元悖论

"The impossible trinity" in international finance, a term coined by Cooper (1968), says that it is not possible for a country to maintain three objectives: a pegged exchange rate, free capital mobility across nations, and an independent monetary policy. It is also called the Mundell–Fleming trilemma.

Example 1 (观察与思考)

央行 3 号令剑指何处?

Outline

Case: Large Home vs. Large Foreign

$$\text{Large Home's } IS: \quad Y = C(Y-T) + I(i-\pi^e) + G + NX\left(\frac{eP}{P^*}\right);$$

$$\text{Large Home's } LM: \quad \frac{M}{P} = L(Y,i);$$

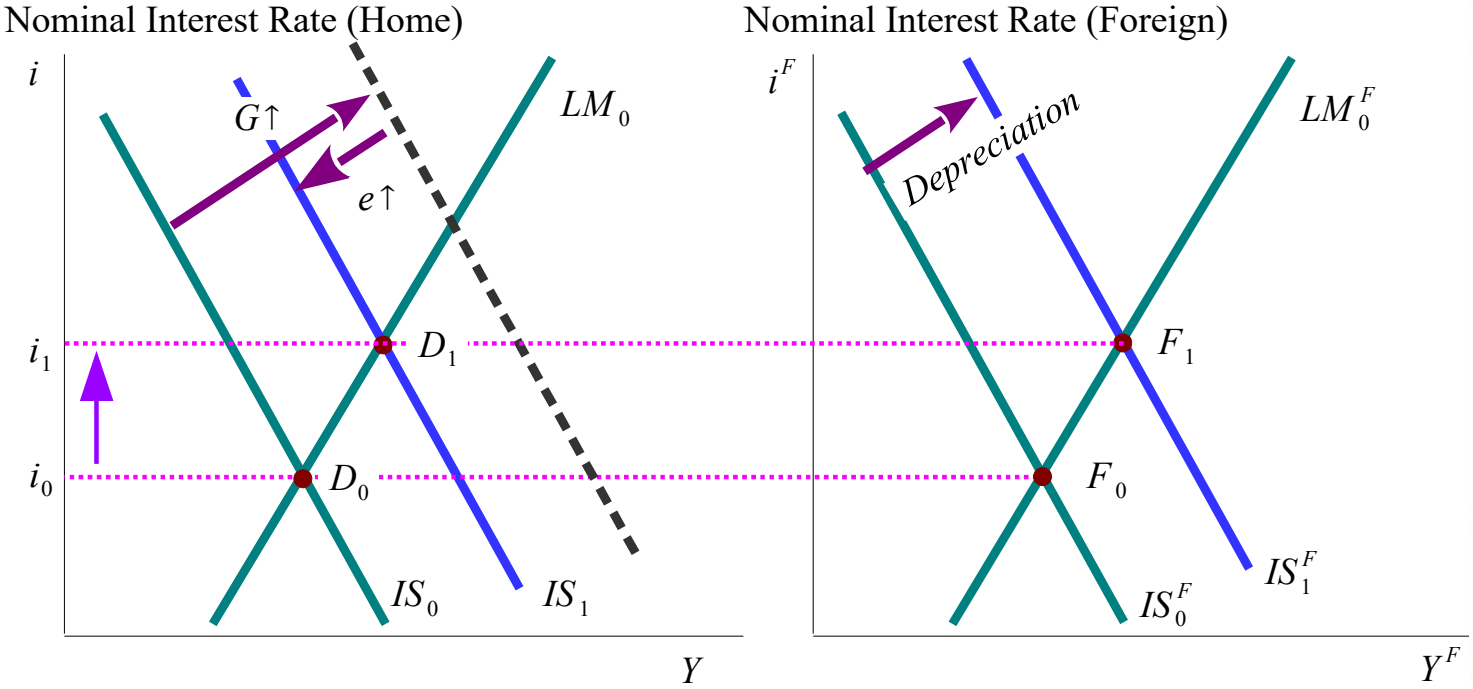
$$\text{Large Foreign's } IS^*: \quad Y^* = C^*(Y^*-T^*) + I^*(i^*-\pi^{e*}) + G^* + NX^*\left(\frac{P^*}{eP}\right);$$

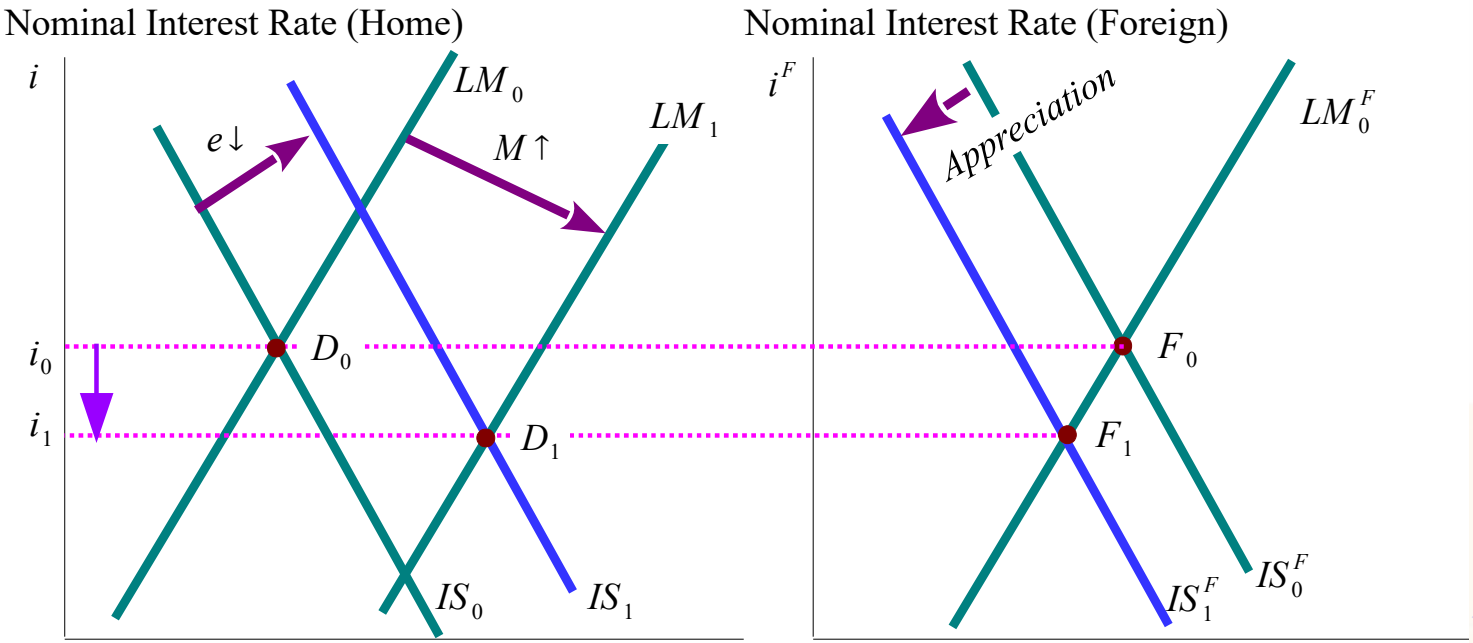
$$\text{Large Foreign's } LM^*: \quad \frac{M^*}{P^*} = L^*(Y^*,i^*);$$

$$\text{Perfect Capital Mobility}: \quad i = i^*;$$

$$\text{The World is closed}: \quad NX\left(\frac{eP}{P^*}\right) + NX^*\left(\frac{P^*}{eP}\right) = 0.$$

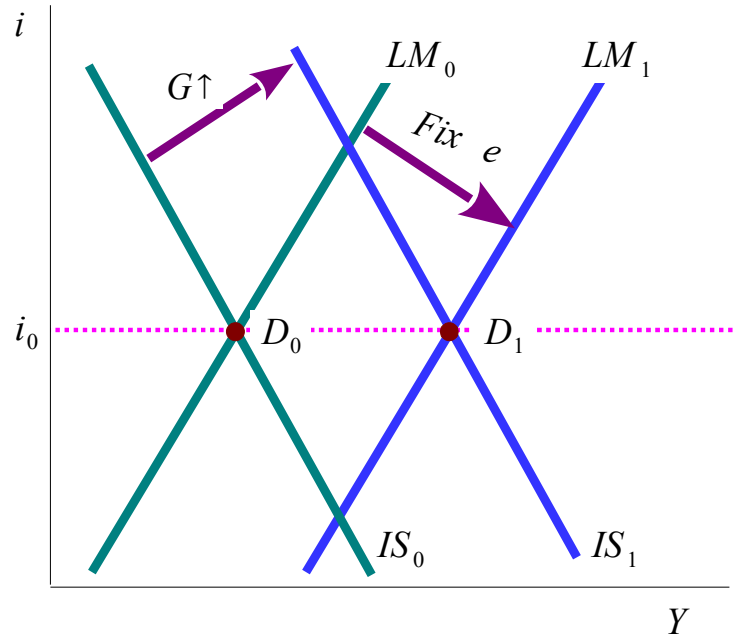
Case: Large Home (Flexible e) vs. Large Foreign (Flexible e^F)



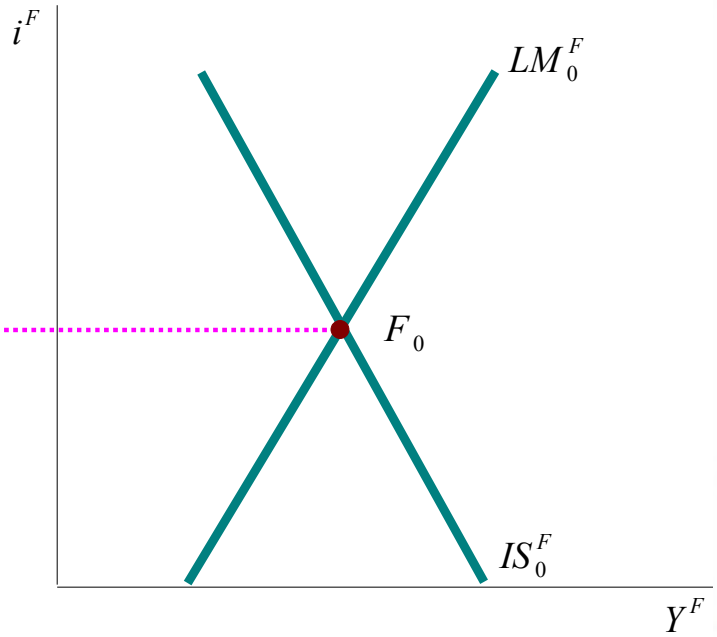


Case: Large Home (Pegged e) vs. Large Foreign (Flexible e^F)

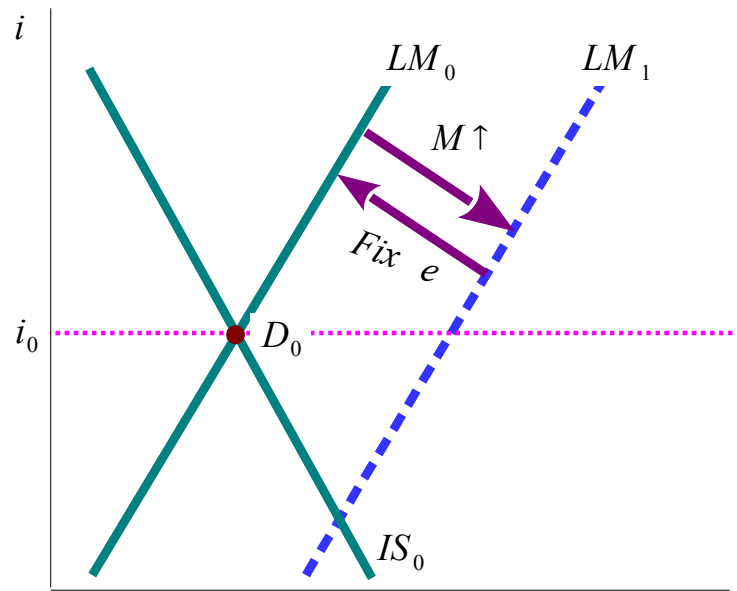
Nominal Interest Rate (Home)



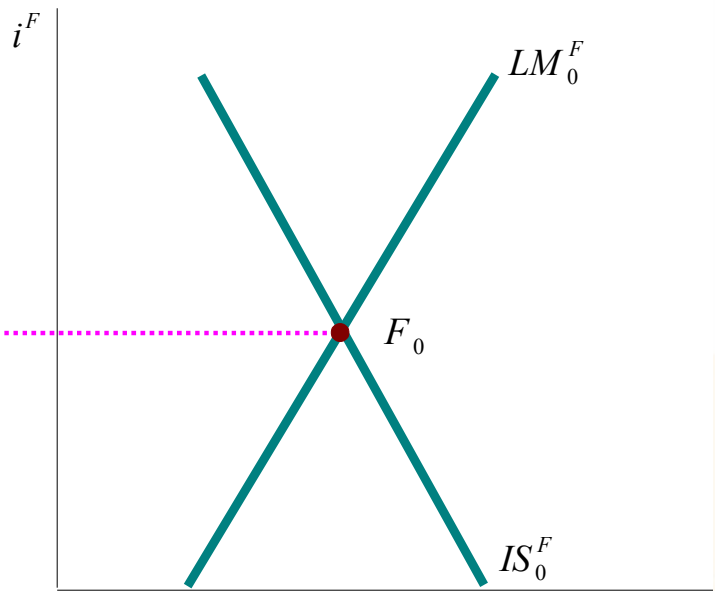
Nominal Interest Rate (Foreign)



Nominal Interest Rate (Home)



Nominal Interest Rate (Foreign)



Outline

疑难重点

(1) 掌握开放经济凯恩斯模型，并能分析政策效应。

(2) 理解 Mundell-Fleming Trilemma.

(3) 微积分技能：推导模型中政策效应的偏导数。

马工程教材疑难重点

1（E2, p.202）

根据马工程教材观点，应当如何评析西方经济学的蒙代尔–弗莱明模型？