

Dornbusch • Fischer • Startz • Atkins • Sparks

A large, jagged iceberg floats in a deep blue ocean under a clear sky. The iceberg's tip is above the water, while the vast majority of its mass is submerged, illustrating the concept of the 'tip of the iceberg' in economics.

# macroeconomics

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# CHAPTER 12

## Monetary Policy and Fiscal Policy in the Very Short Run

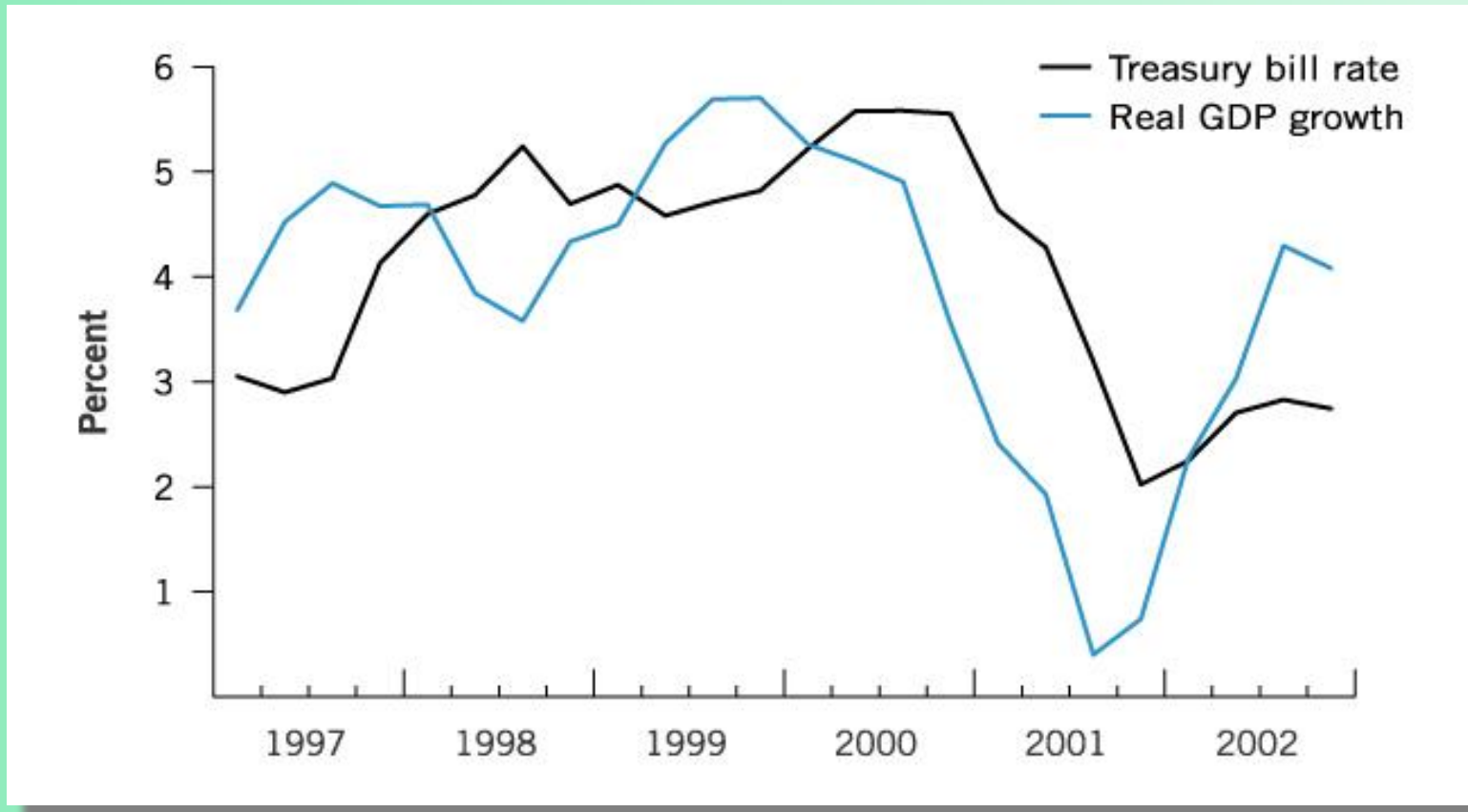
### *Learning objectives*

- Understand that both fiscal and monetary policy can be used to stabilize the economy in the short run.
- Understand that the output effect of expansionary fiscal policy is reduced by crowding out.
- Understand that the slope of the *LM* curve has an important bearing on the effectiveness of fiscal and monetary policy.



# The Very Short Run

Figure 12-1: 90-Day Treasury Bill Rate and Real GDP Growth, Quarterly, 1997-2002

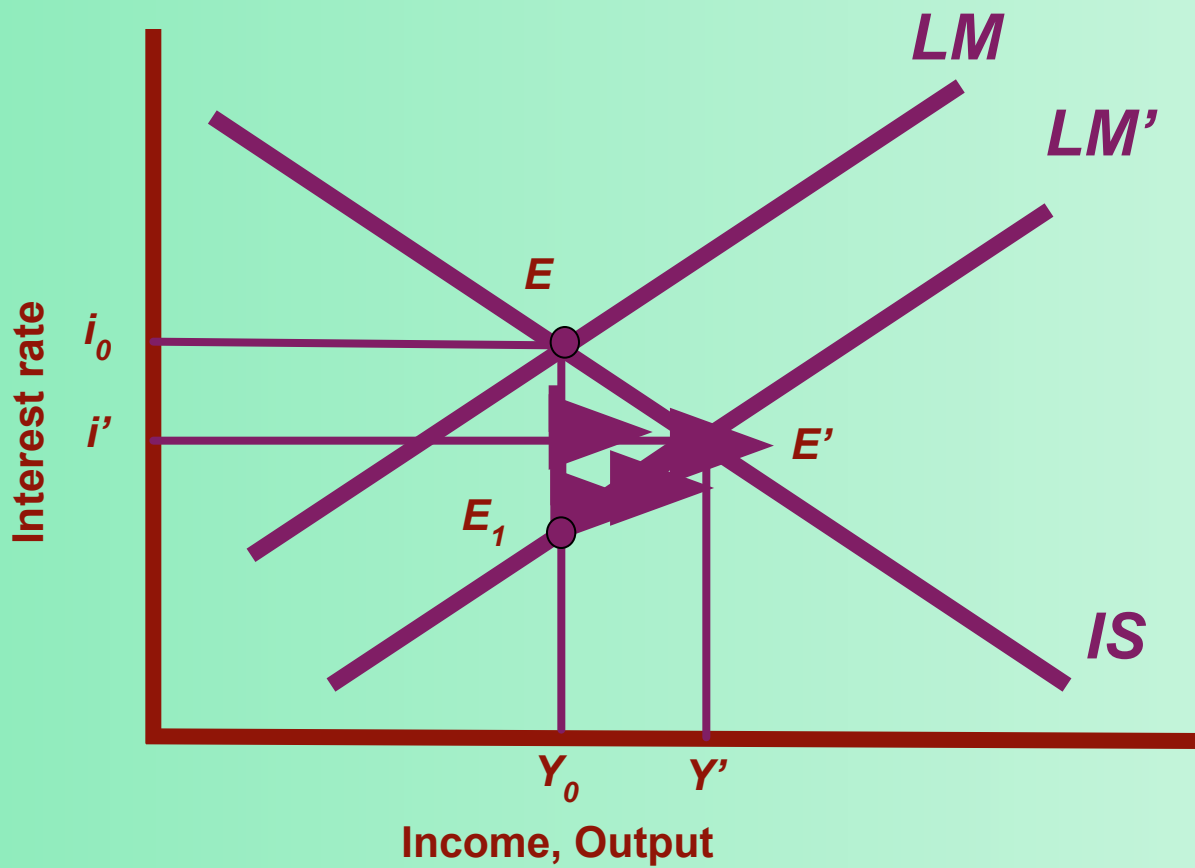


# Monetary Policy

- o **Monetary Policy:** Any decision made by the Bank of Canada concerning the level of the nominal money stock.
- o The adjustment of the economy as a result of this monetary policy change is dependent on two general responses:
  - o It must have the ability to lower interest rates.
  - o Its ability to change real output in the very short run depends on the interest rate response in the *IS* curve.

# Monetary Policy

Figure 12-2: Monetary Policy



The increase in the real money stock shifts the LM curve to the right. The lower interest rate brings excess demand for goods, so interest output starts to increase until it has not changed.

# Monetary Policy

- o **Liquidity trap:** A situation that arises when the *LM* curve is horizontal because the interest elasticity of demand is infinite.
  - o *The Economist:* Is Japan in a Liquidity Trap?
  - o Modern version of the **liquidity trap:** When interest rates are so low that a central bank has no scope to lower them further.

## **Policy in Action**

**The liquidity trap on Canada and the United States.**

**September 11th**

**Lower interest rates initiated by the Bank of Canada and the US Federal Reserve Board.**

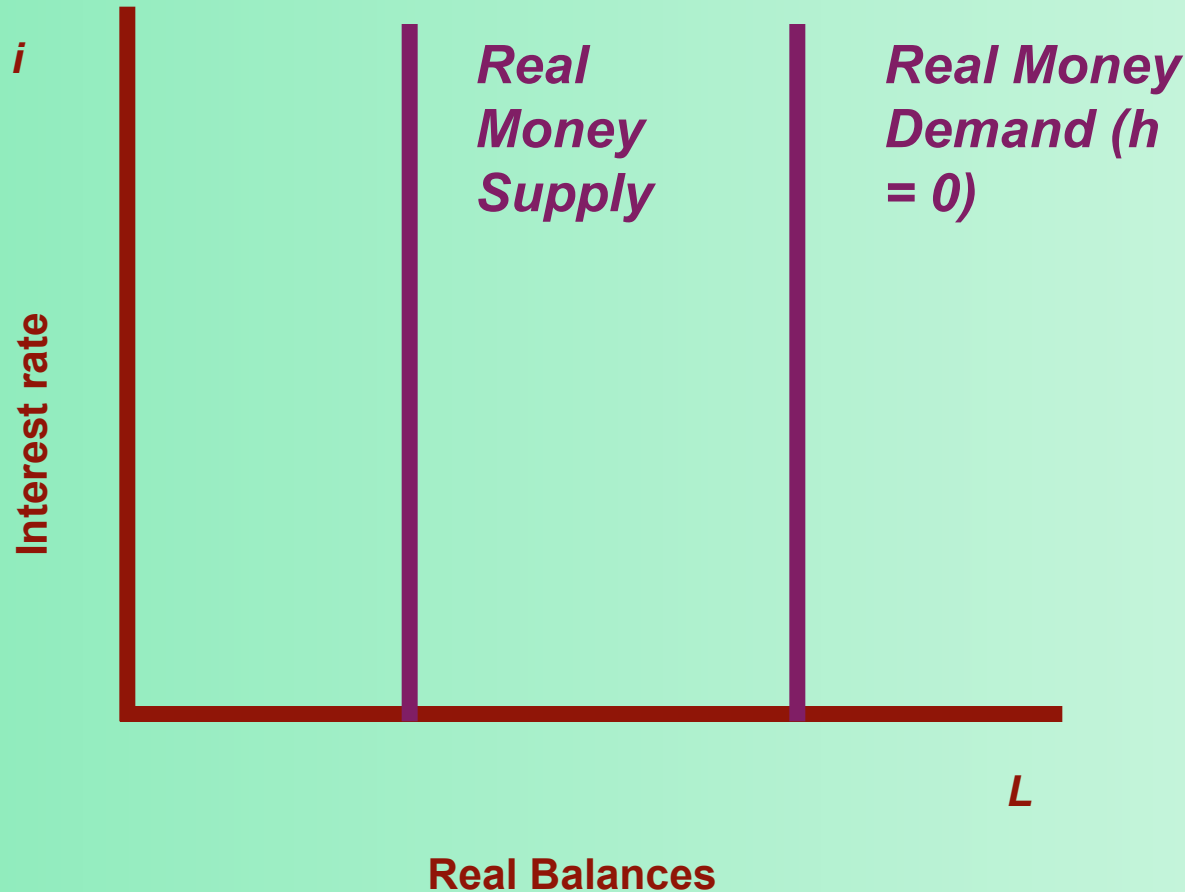
**40-year low.**

**Output growth remained sluggish US economy.**

**Output growth rebounded in Canada.**

# The Goods Market and the IS Curve

Figure 12-3: The Money Market when  $h = 0$



Since the money supply When the interest elasticity of money demand ( $h$ ) is zero, the money demand curve is vertical. both curves are superimposed.



# Δ classical *IS-LM* model

BOX

12-1



# Fiscal Policy and Crowding Out

- o A repeat of the *IS* curve from Chapter 11:

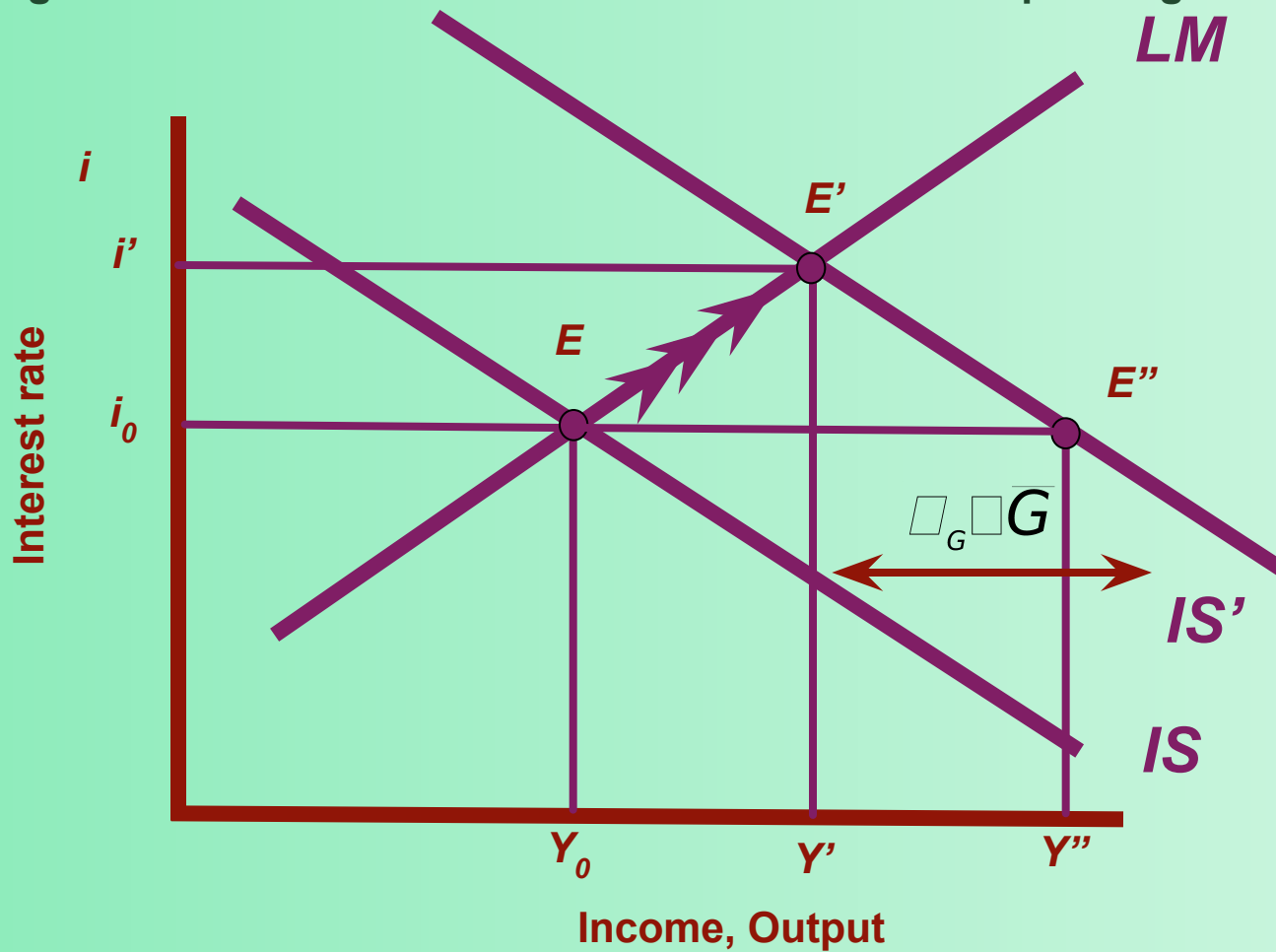
$$Y = \bar{G} + \bar{A} + bi = \frac{1}{1 - c + t} \bar{G} \quad (1)$$

# Fiscal Policy and Crowding Out

- o **Crowding Out:** Occurs when expansionary fiscal policy causes interest rates to rise, thereby reducing private spending, particularly investment.
  - o Income increases more and interest rates increase less, the flatter the *LM* schedule.
  - o Income increases less and interest rates increase less, the flatter the *LM* schedule.
  - o Income and interest rates increase more the larger the multiplier, and thus the horizontal shift in the *IS* schedule.

# Fiscal Policy and Crowding Out

Figure 12-4: Effects of an Increase in Government Spending



The new equilibrium is at point  $E'$ : The goods market and money markets both clear; planned spending is equal to income; and the quantity of real balances demanded is equal to the real money stock. Here the interest rate rises.

# Fiscal Policy and Crowding Out

## o Is Crowding Out Important?

- 1) In fully employed economies, crowding out occurs through a different mechanism. An increase in demand will lead to an increase in the price level. The increase in price reduces real balances. The *LM* curve moves to the left, raising interest rates until the increase in aggregate demand is fully crowded out.
- 2) In an economy with unemployed resources, there will not be full crowding out because the *LM* curve is not, in fact, vertical.

# Fiscal Policy and Crowding Out

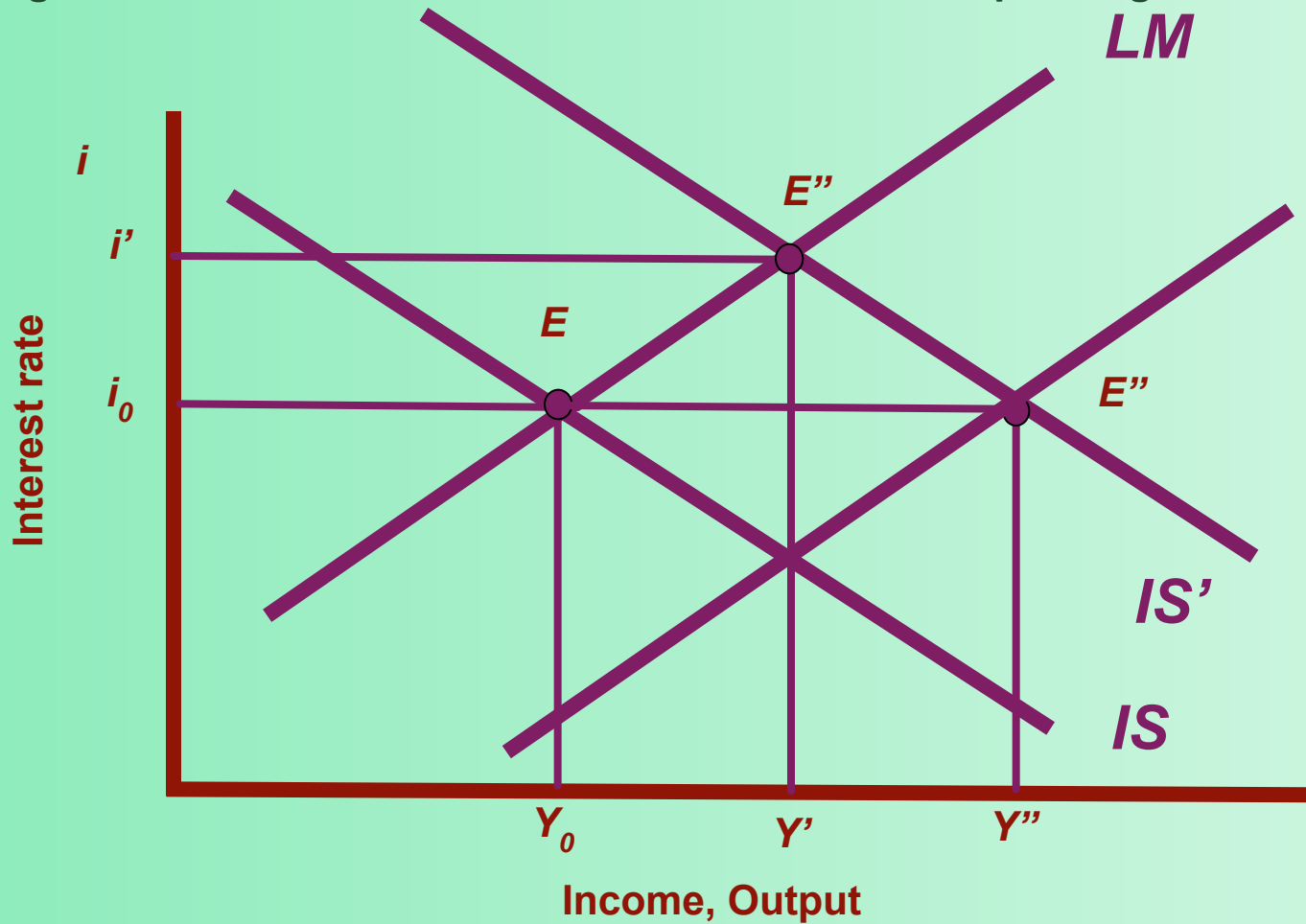
## o **Is Crowding Out Important (Cont'd) ?**

3) With unemployment, interest rates need not rise at all when government spending rises, and there need not be any crowding out. This is because the monetary authorities can *accommodate* the fiscal expansion.

o **Monetary accommodation:** The central bank prints money to buy the bonds with which the government pays for its deficit.

# Fiscal Policy and Crowding Out

Figure 12-4: Effects of an Increase in Government Spending



*LM'*

*Fiscal*  
*The Bank of*  
*Canada*  
*increases the*  
*money supply.*  
*Both the IS and*  
*LM curves have*  
*shifted to the*  
*right... interest*  
*rates do not*  
*rise... there is*  
*NO crowding*  
*out.*

# The Policy Mix

BOX

12-2

## THE RECESSION OF THE EARLY 1990s

	(PERCENT)				
	1988	1989	1990	1991	1992
Nominal interest rate	9.4	12.0	12.8	8.8	6.5
Real interest rate	5.4	7.0	8.1	3.2	5.0
Full-employment deficit	4.0	3.9	3.9	3.6	3.0
Unemployment rate	7.7	7.5	8.1	10.4	11.3
GDP growth	4.9	2.4	-0.2	-1.9	0.76
Inflation	4.0	5.0	4.7	5.6	1.5



# Monetary Policy and the Interest Rate Rule

- o **Money Supply Rule:** A policy stance where the central bank holds the level (or growth rate) of the money supply constant.

$$M^S = \bar{M} \quad (2)$$

- o When the money supply has an endogenous component :

$$M^S = \bar{M} = \bar{i}; \quad (3)$$

# Monetary Policy and the Interest Rate Rule

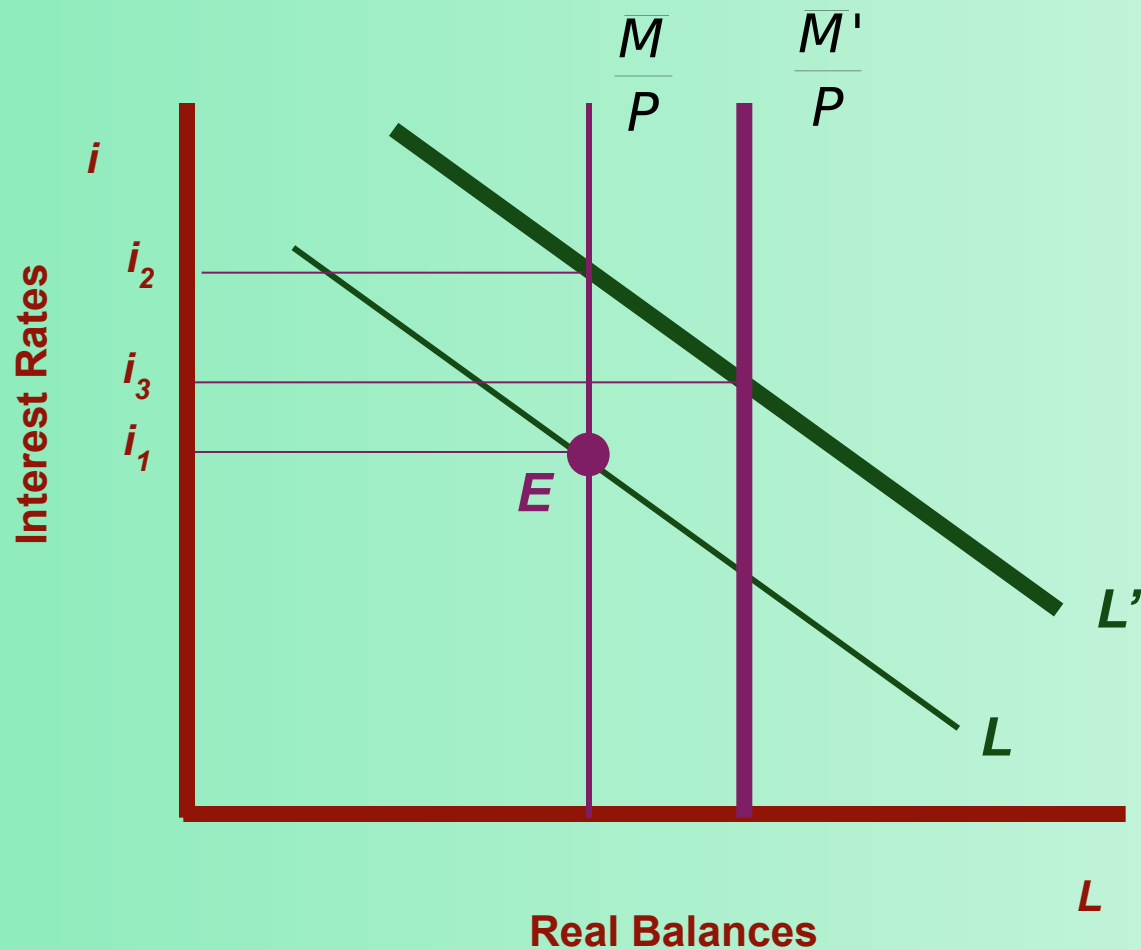
- o **Interest Elasticity of the Money Supply ( $\gamma$ ):** A parameter that measures how much the central bank changes the money supply in response to an interest rate change.

$$i \square \frac{1}{\gamma} \square M^s \square M \square \quad (4)$$

- o **Interest rate rule:** Monetary policy is conducted according to an interest rate rule whenever the money supply is changed in response to a change in the demand for money in order to keep interest rates constant.

# Monetary Policy and the Interest Rate Rule

Figure 12-6: Changing the Money Supply when the Demand for Money Shifts

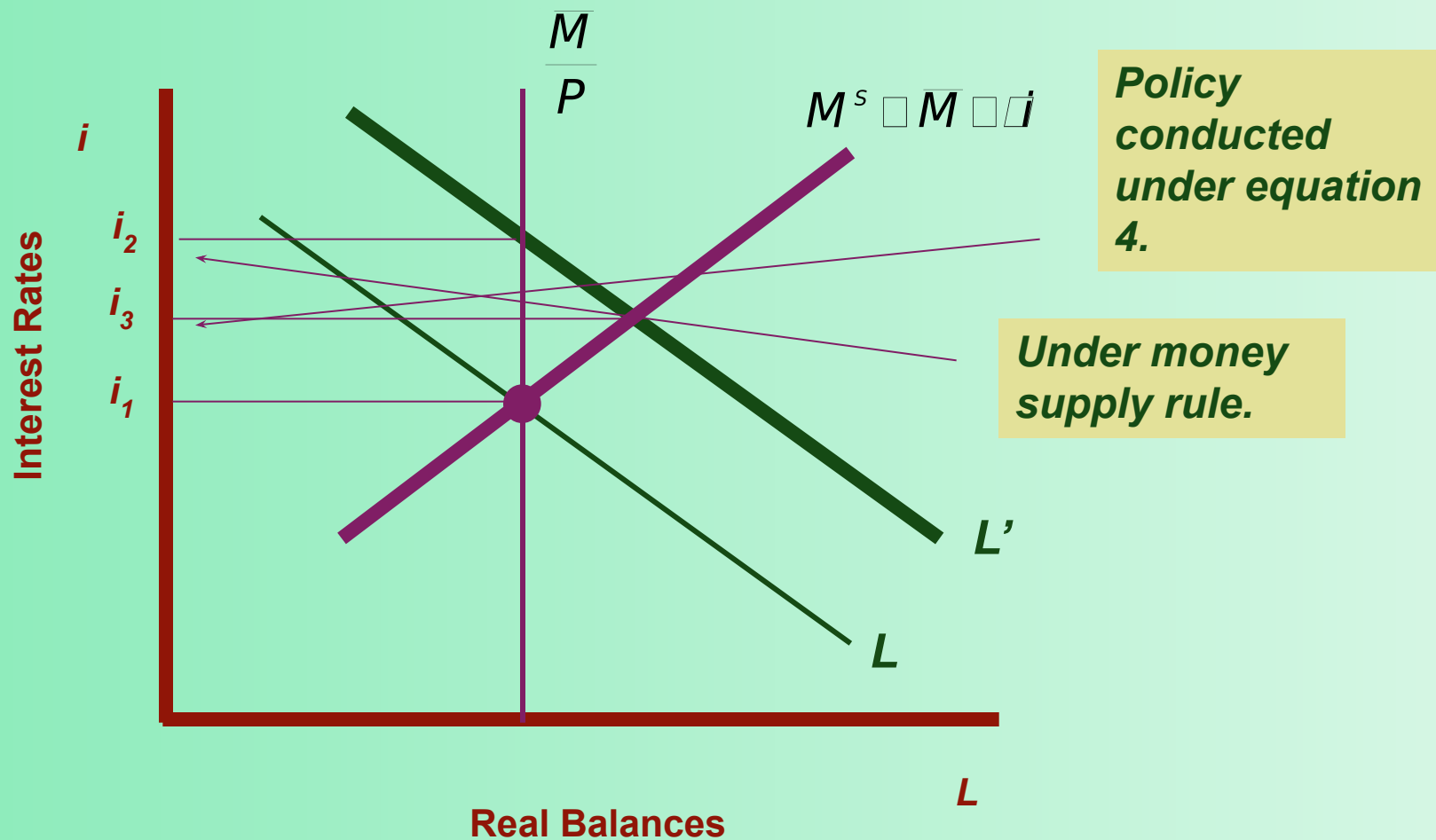


*If the money supply is increased when the demand for money shifts outward...*

*...then the interest rate would not rise as it would if the money supply was not changed.*

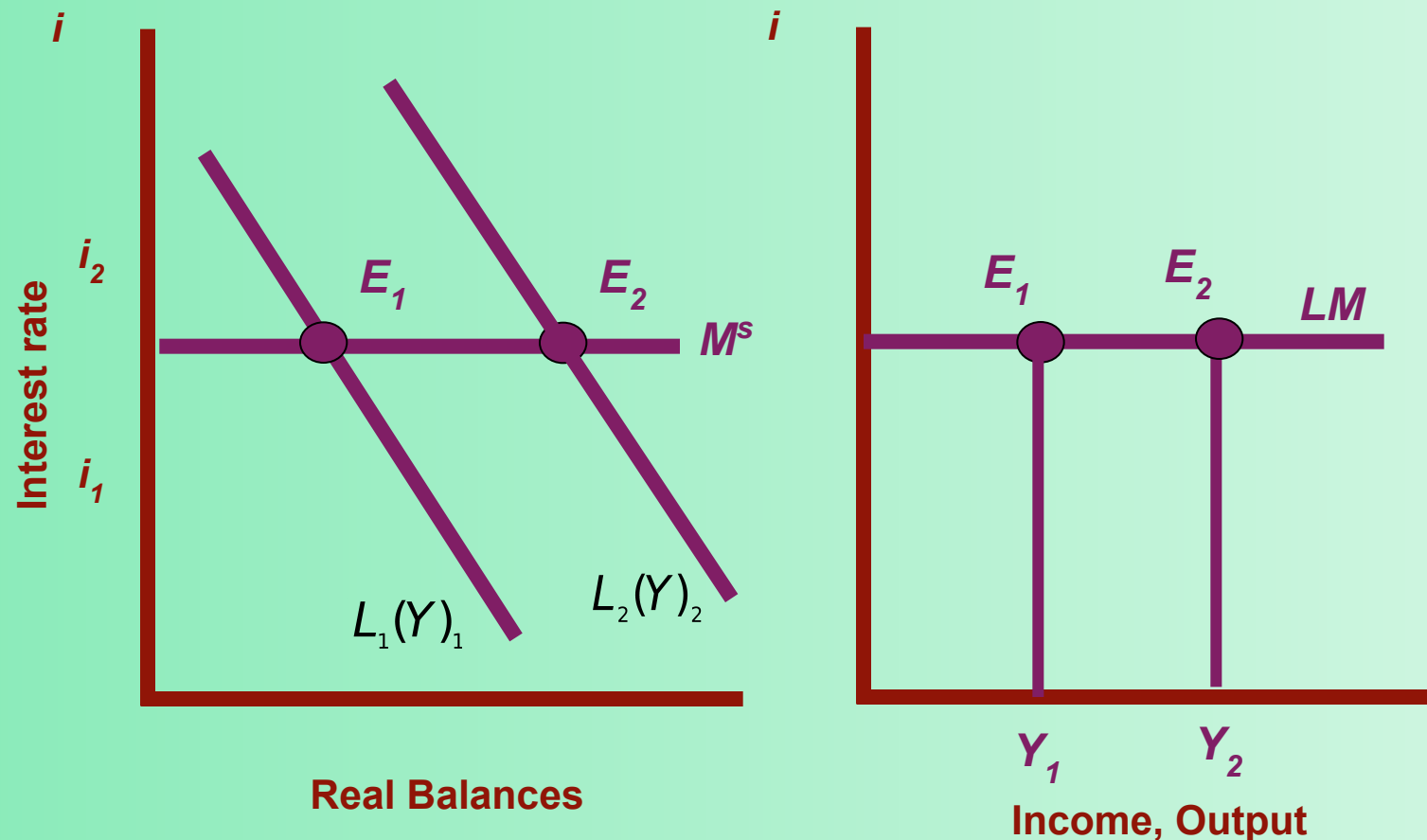
# Monetary Policy and the Interest Rate Rule

Figure 12-7: Monetary Policy Reacts to Interest Rate Changes



# Monetary Policy and the Interest Rate Rule

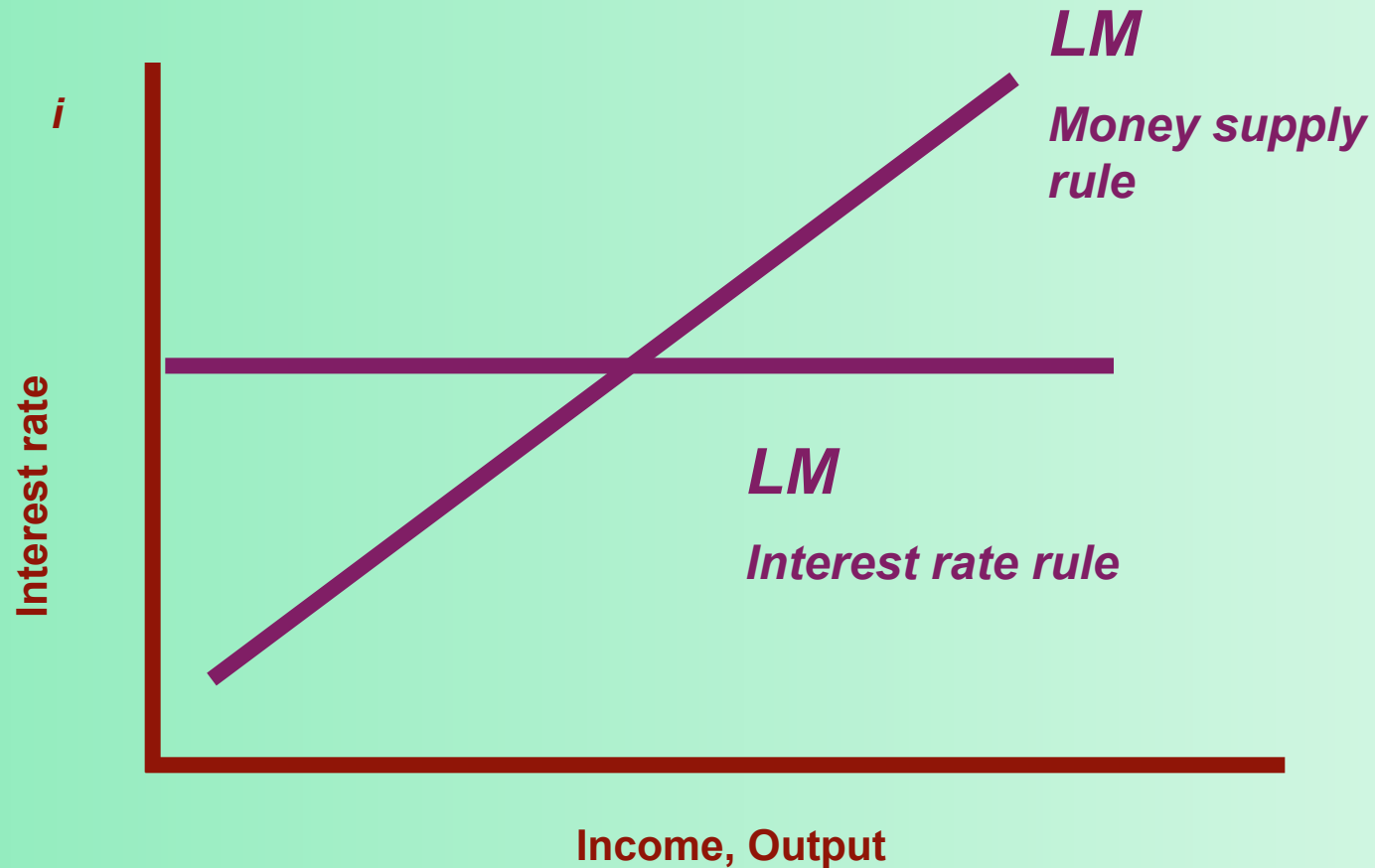
Figure 12-8: Deriving the *LM* curve under the interest rate rule.



*...and the LM curve is horizontal! If monetary policy is conducted according to an interest rate rule, then the money supply is changed any time there is a small change in the interest rate.*

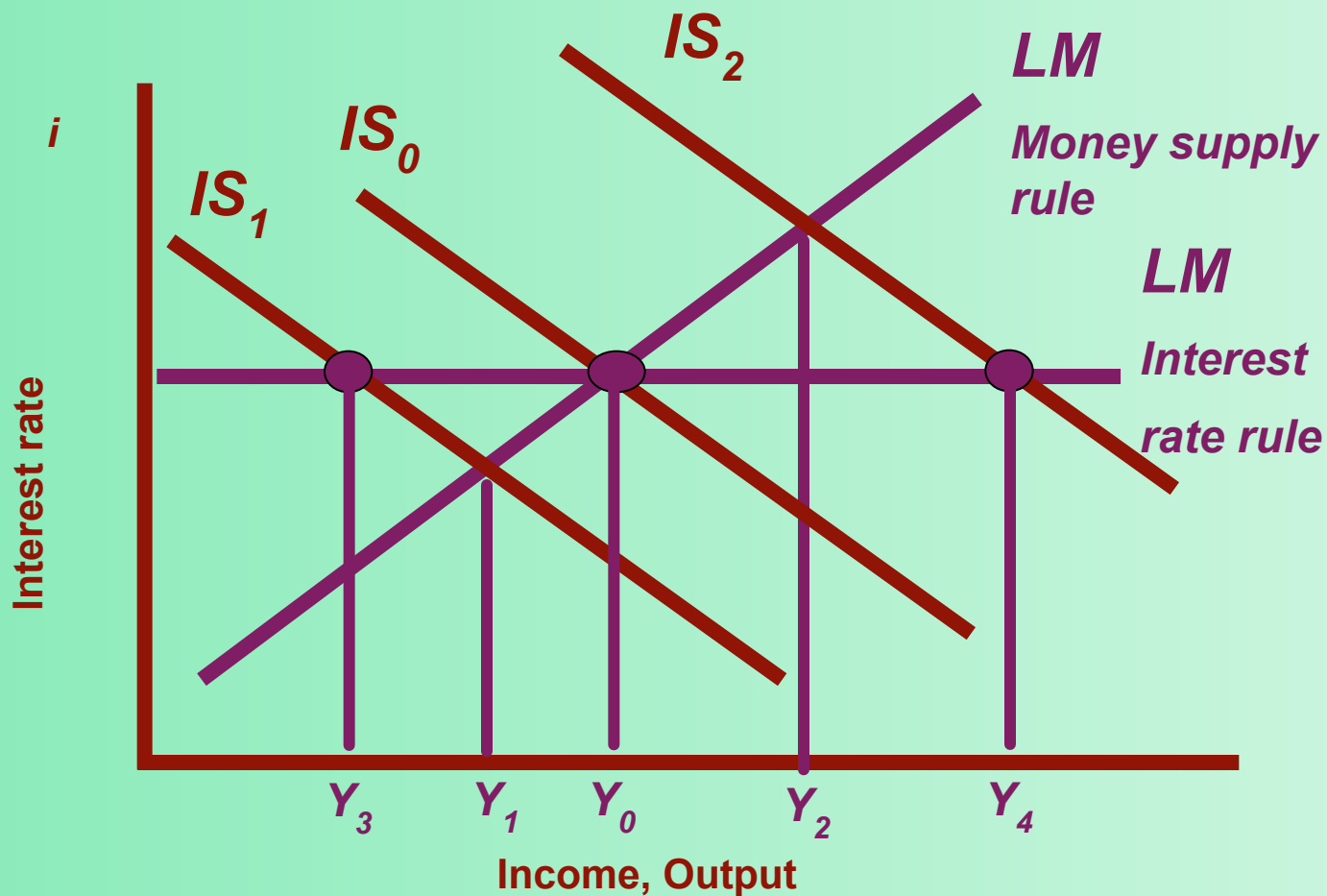
# Monetary Policy and the Interest Rate Rule

Figure 12-9: *LM* Curve for a Money Supply Rule and for an Interest Rate Rule



# Monetary Policy and the Interest Rate Rule

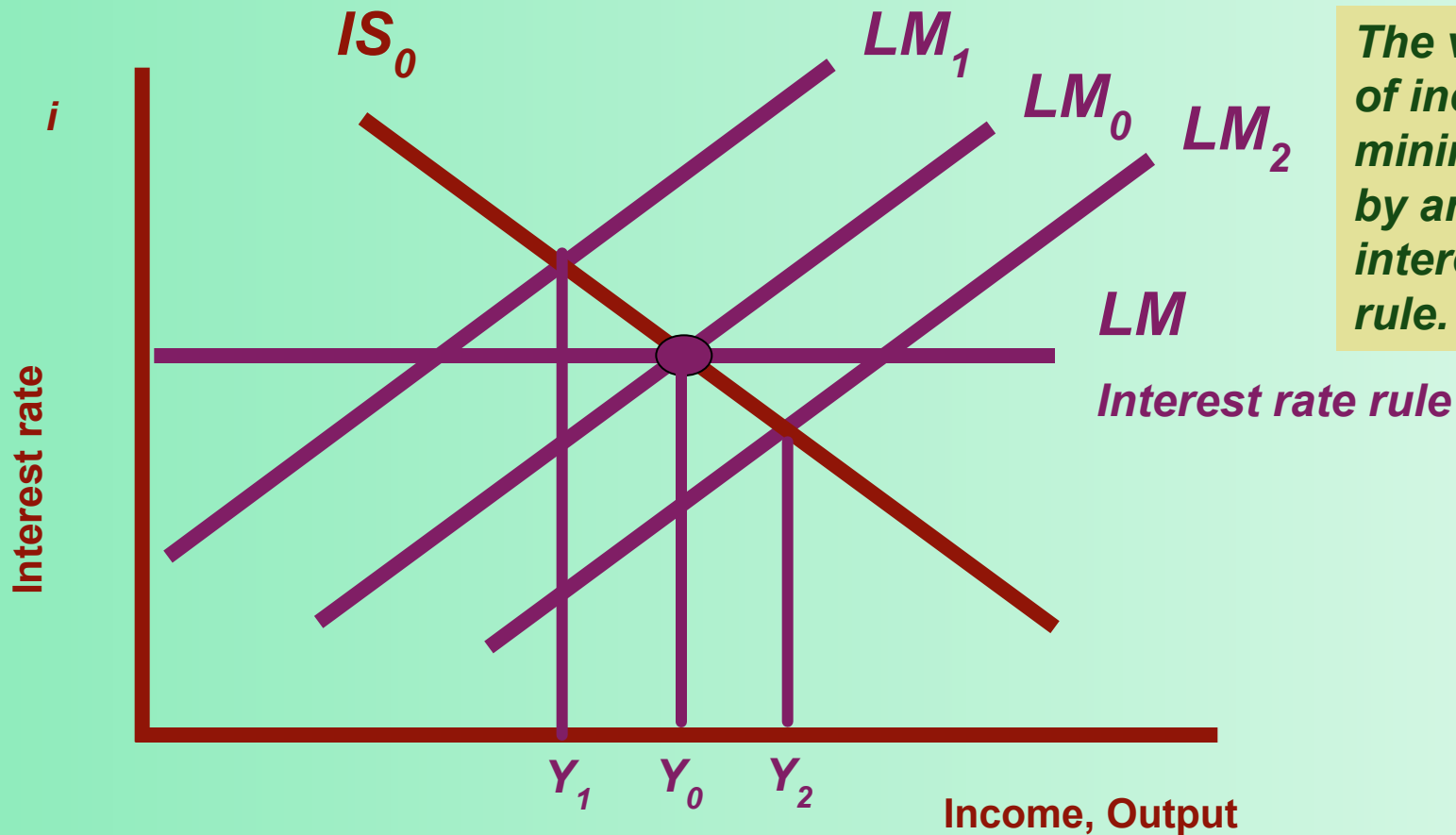
Figure 12-10: Monetary Policy with Shocks to the Goods Market



*The variance of income is minimized by a money supply rule.*

# Monetary Policy and the Interest Rate Rule

Figure 12-11: Monetary Policy with Shocks to the Money Market



*The variance of income is minimized by an interest rate rule.*



# Chapter Summary

- **Monetary policy affects the economy, first by affecting interest rates and then affecting aggregate demand.**
- **There are two extreme cases in the operation of monetary policy: The classical case and the liquidity trap.**
- **Taking into account the effects of fiscal policy on the interest rate modifies the multiplier results of chapter 8.**
- **Fiscal policy is more effective the smaller the induced changes in interest rates and the smaller the response of investment to these interest rate changes.**

# Chapter Summary (cont'd)

- The two extreme cases, the liquidity trap and the classical case, are useful to show what determine the magnitude of monetary and fiscal policy multipliers.
- A fiscal expansion, because it leads to higher interest rates, displaces, or crowds out, some private investment.
- If the central bank wants to minimize fluctuation in the interest rate, it can conduct policy according to an interest rate rule.
- If all the variation in income arises from fluctuations in the goods market, then the money supply rule reduces the variance of income.

# The End