

THE MUNDELL-FLEMING MODEL

Instructor: Dmytro Hryshko

- Small open economy with *perfect* capital mobility.

$$r = r^*,$$

where r^* is the world interest rate.

- Goods-market equilibrium:

$$Y = C(Y - T) + I(r^*) + G + NX(q) \quad (\text{IS}^*)$$

where q is the *real* exchange rate.

- Money market equilibrium:

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

- Assume $P = \bar{P}$, $P^* = \bar{P}^*$.

Money market equilibrium:

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

The equilibrium in the money market is consistent with only one value of Y , given M/P and r^* , $Y \left(\frac{M}{P}, r^* \right)$.

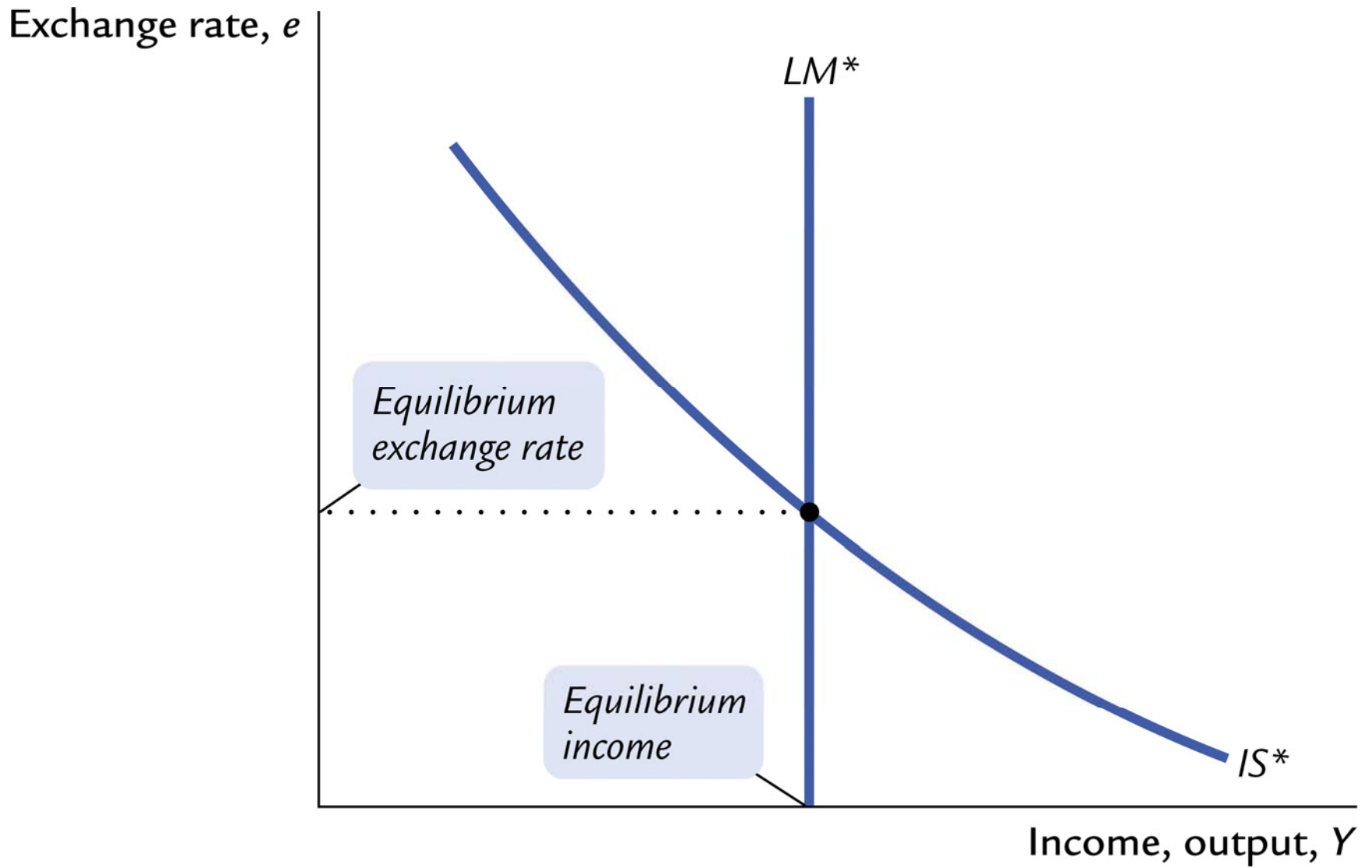


Figure 12.3 The Mundell-Fleming Model
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Floating (flexible) and fixed exchange rates

- In a system of **floating exchange rates**, the nominal exchange rate is allowed to fluctuate in response to changing economic conditions.
- Under **fixed exchange rates**, the central bank trades domestic for foreign currency at a predetermined price, that is at a fixed nominal exchange rate.

Importantly, the effect of monetary, fiscal, and trade (e.g., import quotas) policies will be different under different nominal exchange rate regimes.

Floating exchange rates and fiscal policy

Endogenous variables: Y and q .

$$Y = C(Y - T) + I(r^*) + G + NX(q) \quad (\text{IS}^*)$$

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

Expansionary fiscal policy: $G \uparrow$, or $T \downarrow$.

At a given q , planned expenditures go up, IS shifts to the right, $e \uparrow$, $q \uparrow$ (domestic currency appreciates), and \bar{Y} . Expansionary fiscal policy *crowds out* exports, NX .

Compare with closed economy: $G \uparrow$ crowds out I , via an increase in r .

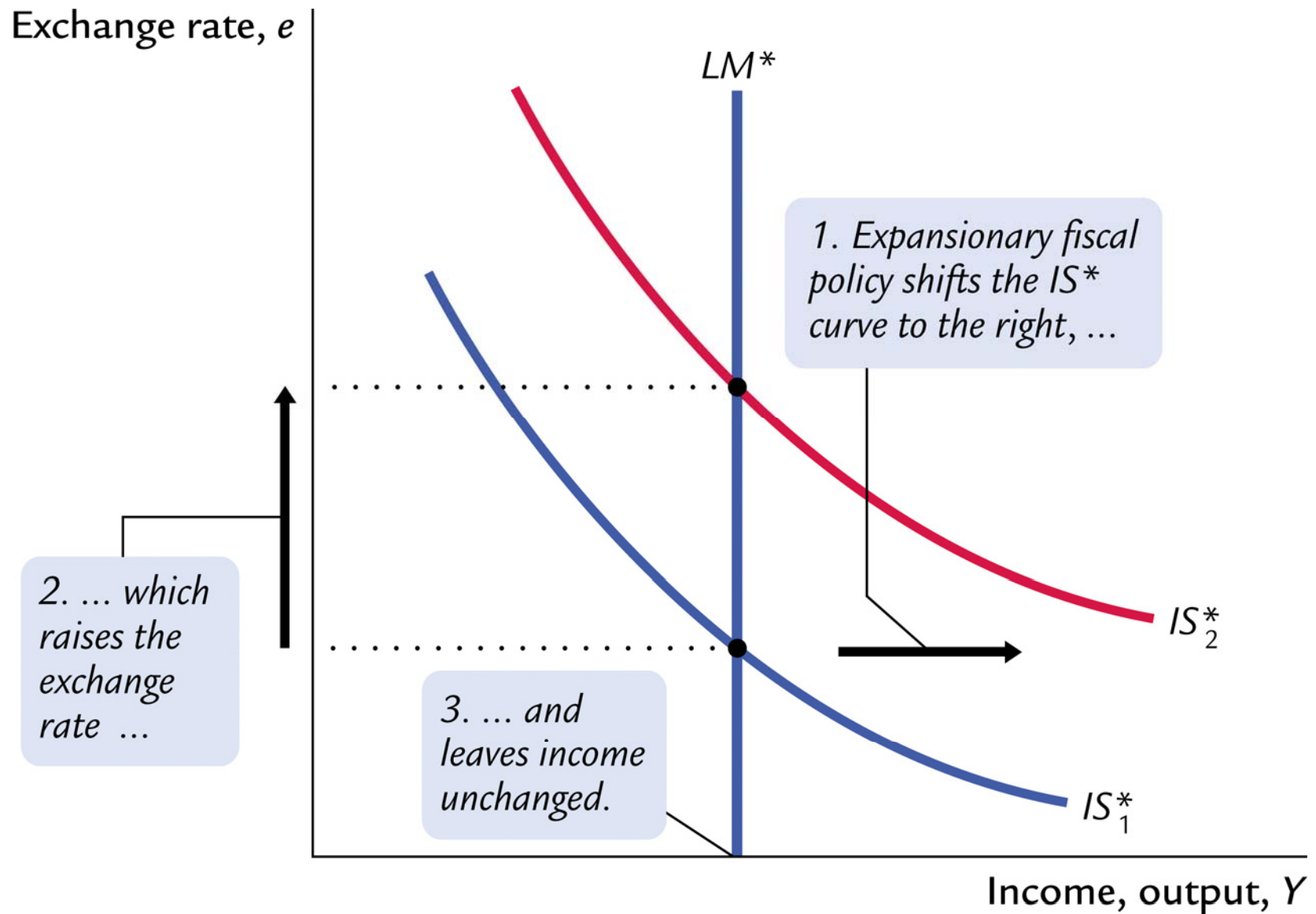


Figure 12.4 A Fiscal Expansion Under Floating Exchange Rates
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Under floating exchange rate, fiscal policy is *ineffective* in stabilizing/altering Y . Same conclusion applies to an *exogenous* change in *any* component of the IS (e.g., import quota, investors' optimism/pessimism, etc.).

To confirm, consider an example of restrictive trade policy.

Import quota

Endogenous variables: Y and q .

$$Y = C(Y - T) + I(r^*) + G + NX(q) \quad (\text{IS}^*)$$

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

Put quantity restrictions on IM .

$IM \downarrow$, $NX \uparrow$ for any q , IS^* shifts to the right, $e \uparrow$, $q \uparrow$, \bar{Y} .

Result of the policy: same output, same NX but crowding out of exports via an increase in the value of domestic currency; the volume of trade $IM + EX$ goes down.

Less trade means fewer “gains from trade.”

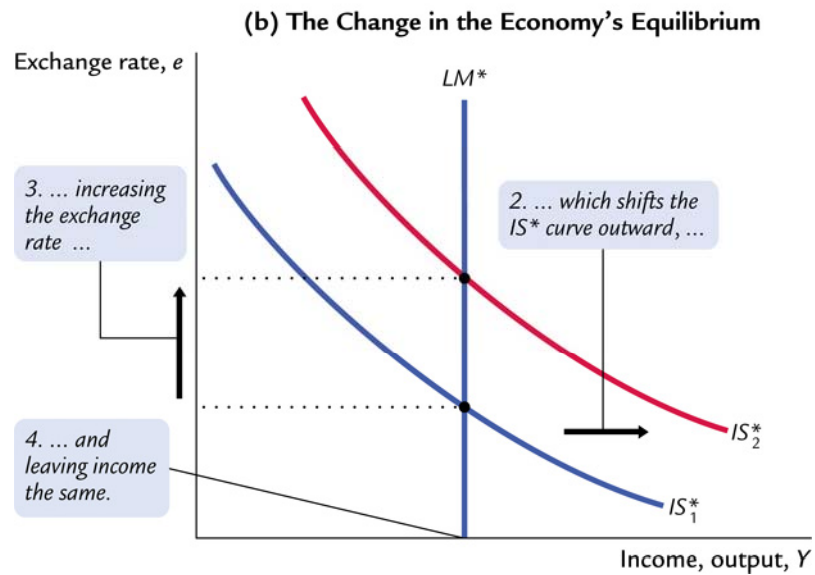
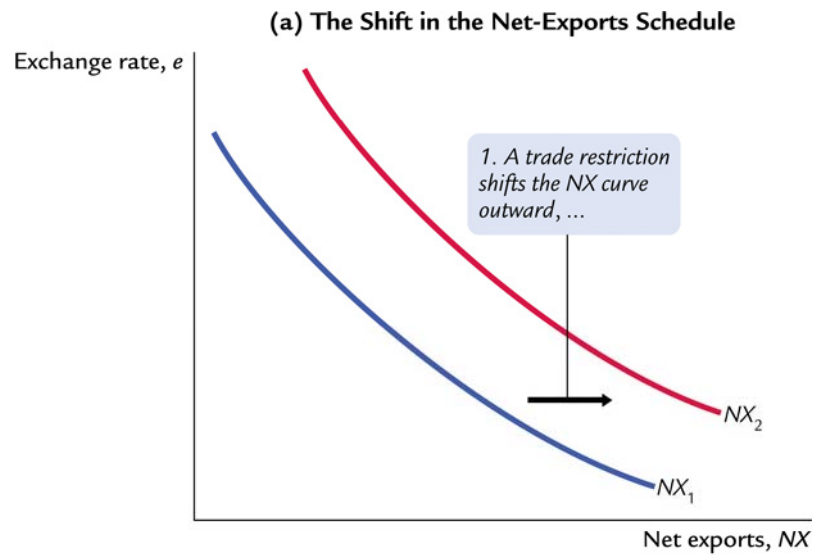


Figure 12.6 A Trade Restriction Under Floating Exchange Rates
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Monetary policy under floating exchange rate regime

Endogenous variables: Y and q .

$$Y = C(Y - T) + I(r^*) + G + NX(q) \quad (\text{IS}^*)$$

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

Expansionary monetary policy: $M \uparrow$.

LM shifts to the right. Results: $Y \uparrow$, $e \downarrow$, $q \downarrow$.

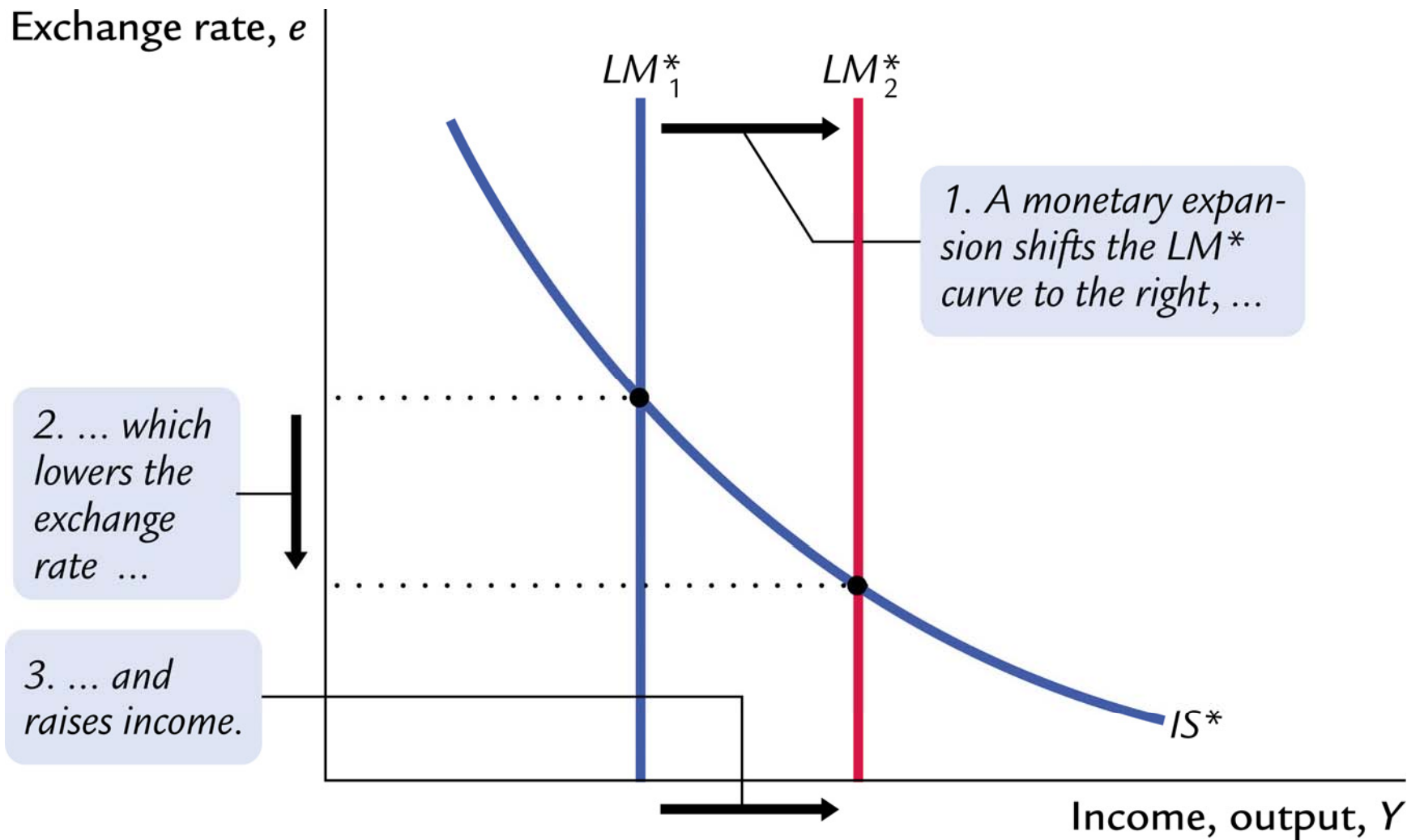


Figure 12.5 A Monetary Expansion Under Floating Exchange Rates
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Monetary policy is *effective* in stabilizing/altering Y —via altering the nominal (and real) exchange rate and NX .

The same conclusion applies to any exogenous change in the money market (e.g., shocks to the demand for money).

Fixed exchange rate regime

Under fixed exchange rates, the central bank (CB) stands ready to buy or sell the domestic currency for foreign currency at a predetermined rate.

Temporary deviations of the market exchange rate from the official one can create *arbitrage* opportunities—profit at no cost.

Arbitrage transactions

- Next slide, figure (a): e.g., market $ER=150$ Yen/\$ $>$ fixed $ER=100$ Yen/\$.

(CB values Yen more than the market, sell Yen to the CB.)

Arbitrage transaction: purchase Yen 300 for \$2 in the market, and sell Yen 300 to the CB to obtain \$3—arbitrage profit of \$1. Leads to an *endogenous* increase in M .

- Next slide, figure (b): e.g., the market $ER=50$ Yen/\$ and the fixed $ER=100$ Yen/\$.

Arbitrage transaction: purchase Yen 100 from the CB for \$1 and sell them in the market for \$2. M is reduced *endogenously* by \$1.)

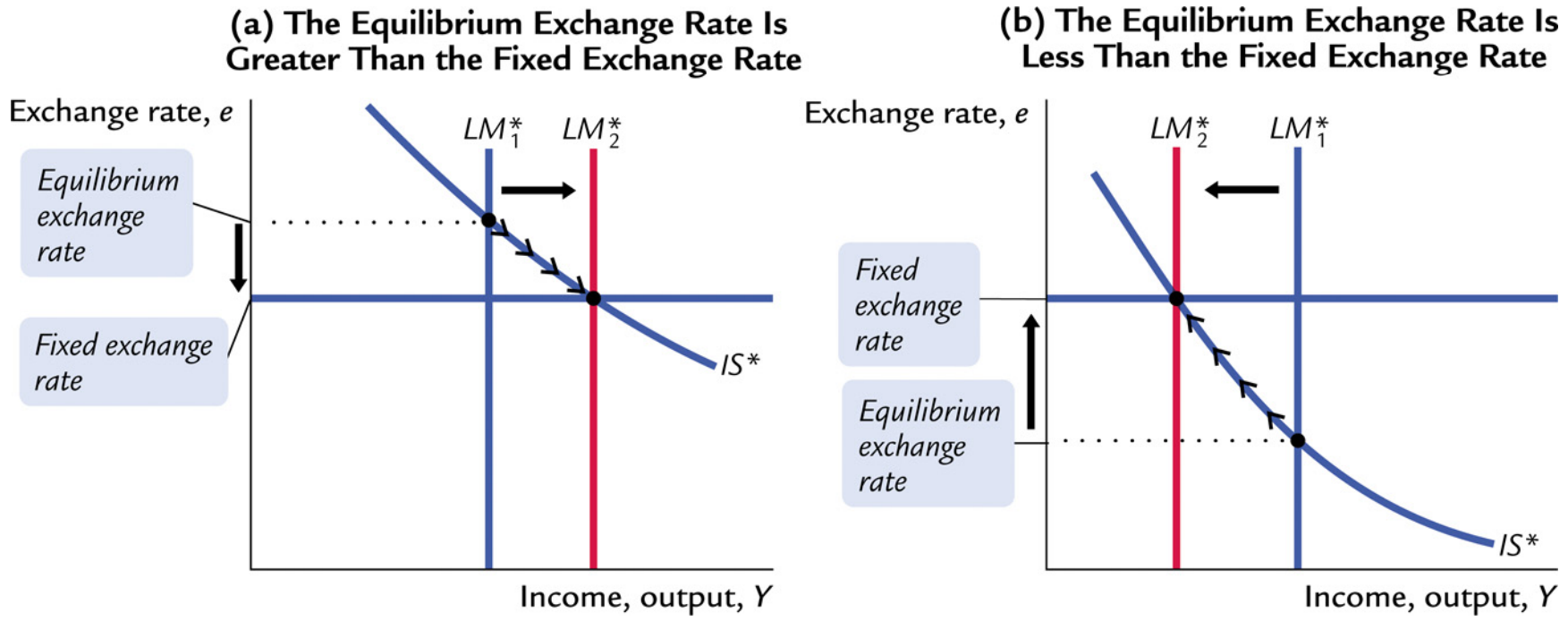


Figure 12.7 How a Fixed Exchange Rate Governs the Money Supply
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Fiscal policy under the fixed exchange rate regime

Endogenous variables: Y and M .

$$Y = C(Y - T) + I(r^*) + G + NX(\bar{q}) \quad (\text{IS}^*)$$

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

Expansionary fiscal policy: $G \uparrow \Rightarrow \text{IS}^*$ shifts to the right \Rightarrow (upward pressure on the exchange rate, arbitrageurs selling foreign currency to the CB) $\Rightarrow M \uparrow \Rightarrow \text{LM}$ shifts to the right, $Y \uparrow$.

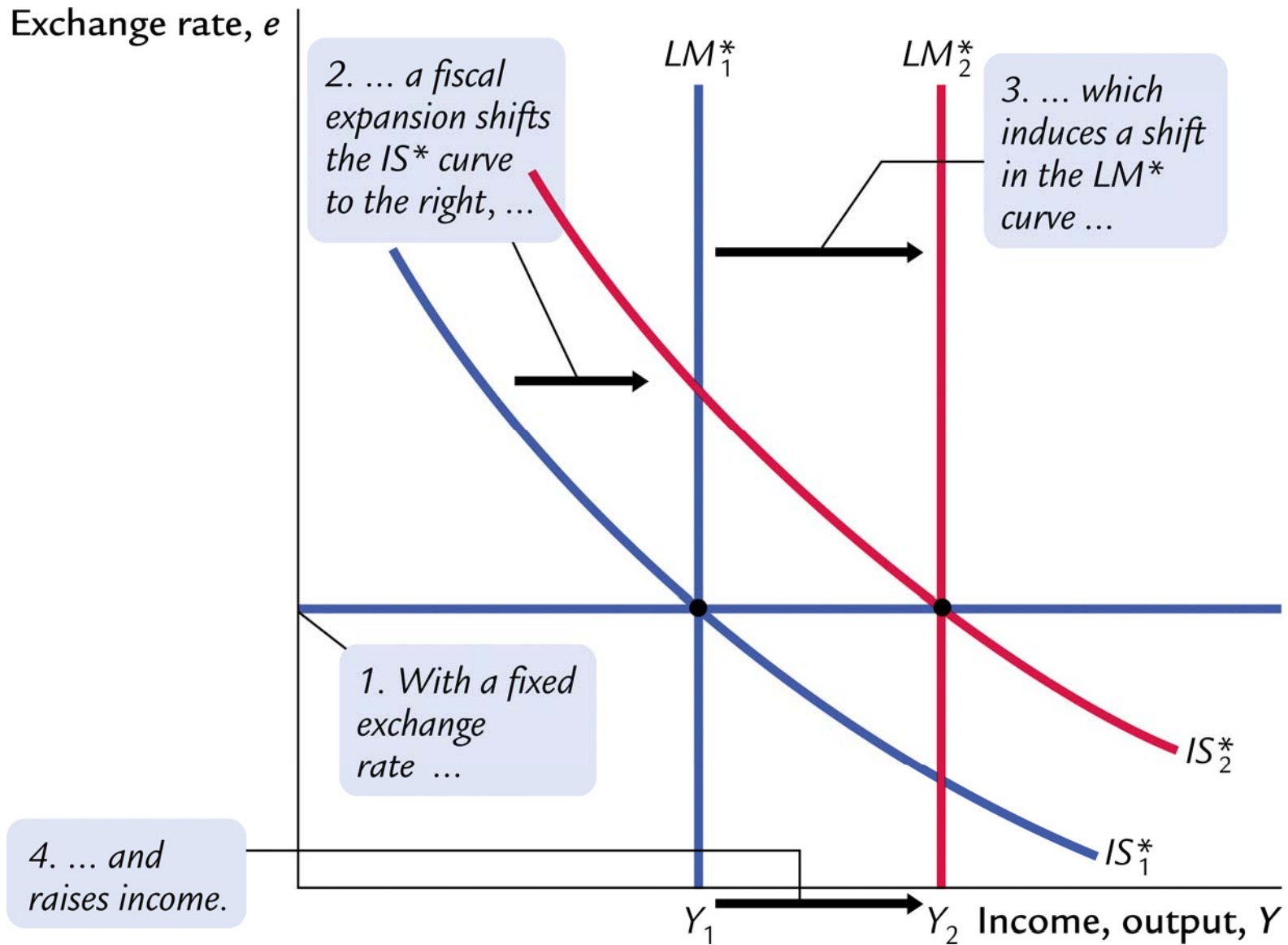


Figure 12.8 A Fiscal Expansion Under Fixed Exchange Rates
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Under the fixed exchange rate regime, fiscal policy is *effective* in stabilizing/altering Y . Same conclusion applies to an *exogenous* change in *any* component of the IS (e.g., import quota, investors' optimism/pessimism, etc.).

To confirm, consider an example of restrictive trade policy.

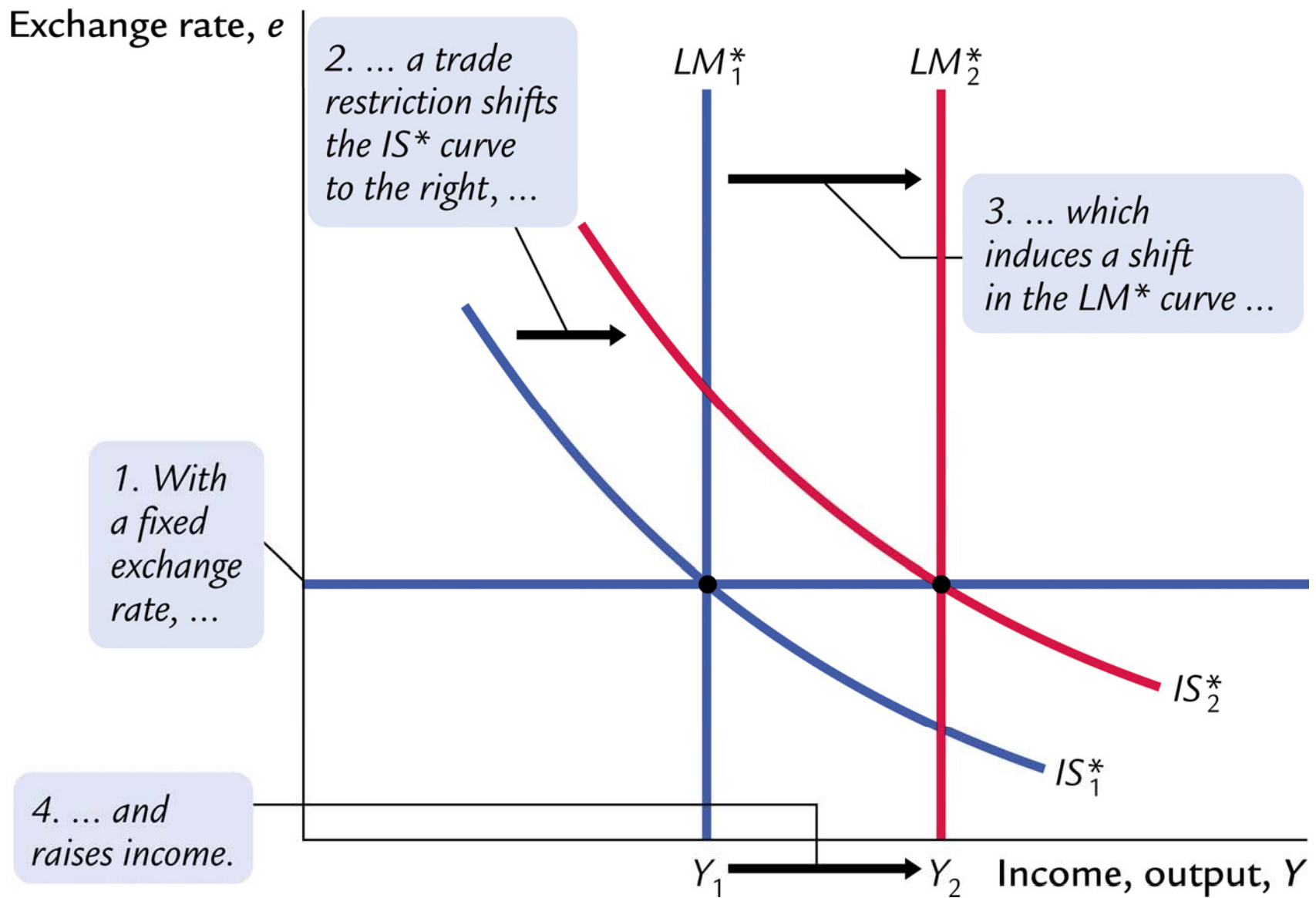


Figure 12.10 A Trade Restriction Under Fixed Exchange Rates
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Monetary policy under fixed exchange rate regime

Endogenous variables: Y and M .

$$Y = C(Y - T) + I(r^*) + G + NX(\bar{q}) \quad (\text{IS}^*)$$

$$\frac{M}{P} = L(r^*, Y) \quad (\text{LM}^*)$$

Expansionary monetary policy: $M \uparrow$.

LM shifts to the right; expansion of M puts a downward pressure on the exchange rate. (CB values \$ more. Purchase Yen from the CB and sell to the market. E.g., the market ER=50 Yen/\$ and the fixed ER=100 Yen/\$. Arbitrage transaction: purchase Yen 100 from the CB for \$1 and sell them in the market for \$2. M is reduced *endogenously* by \$1.)

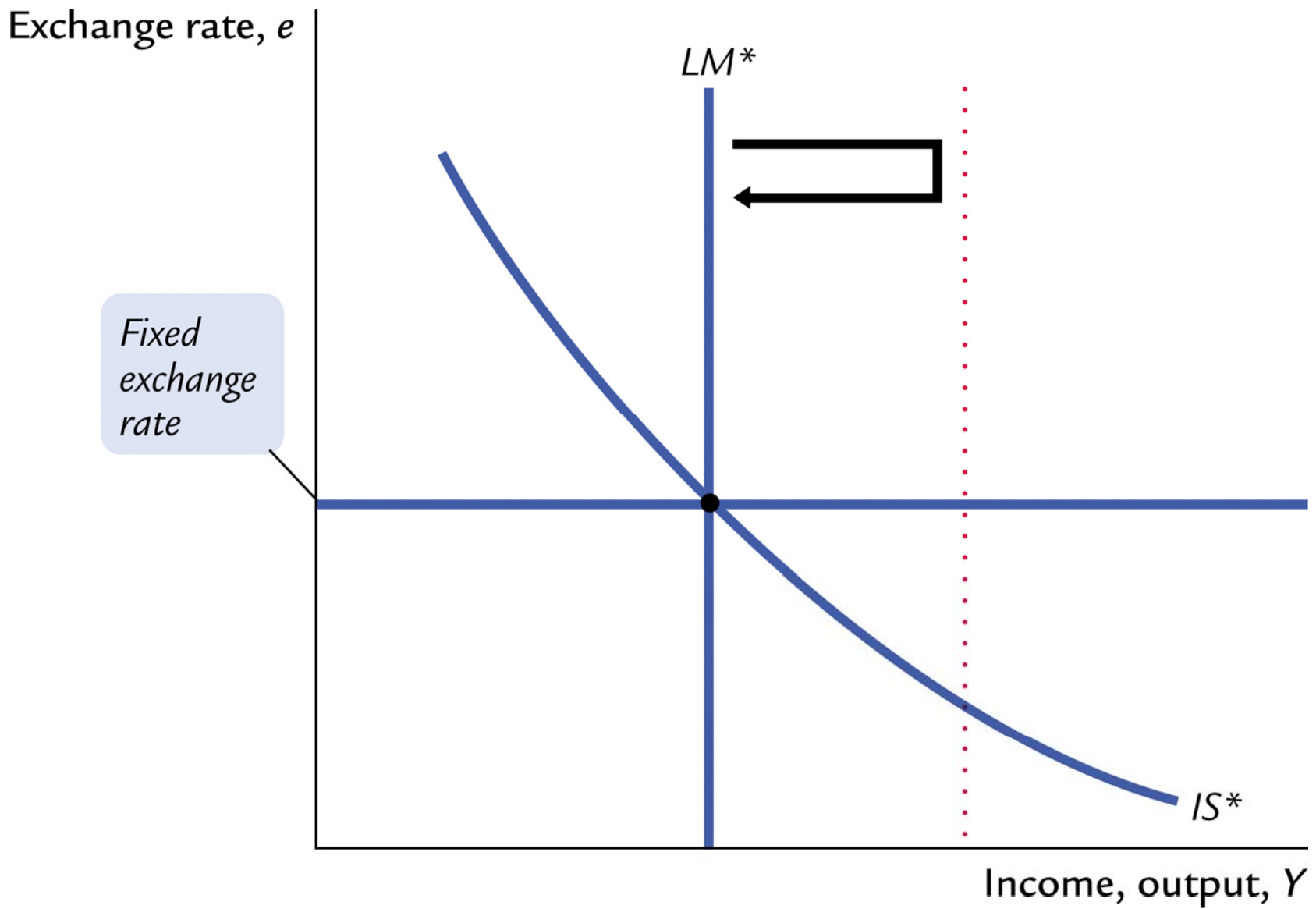


Figure 12.9 A Monetary Expansion Under Fixed Exchange Rates
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Monetary policy is *ineffective* in stabilizing/altering Y .

The same conclusion applies to any exogenous change in the money market (e.g., shocks to the demand for money).

Floating vs. fixed exchange rate regimes

Argument for floating rates:

- Allows monetary policy to be used to pursue other goals (stable growth, low inflation).

Arguments for fixed rates:

- Avoids uncertainty and volatility, making international transactions easier;
- Disciplines monetary policy to prevent excessive money growth and hyperinflation.

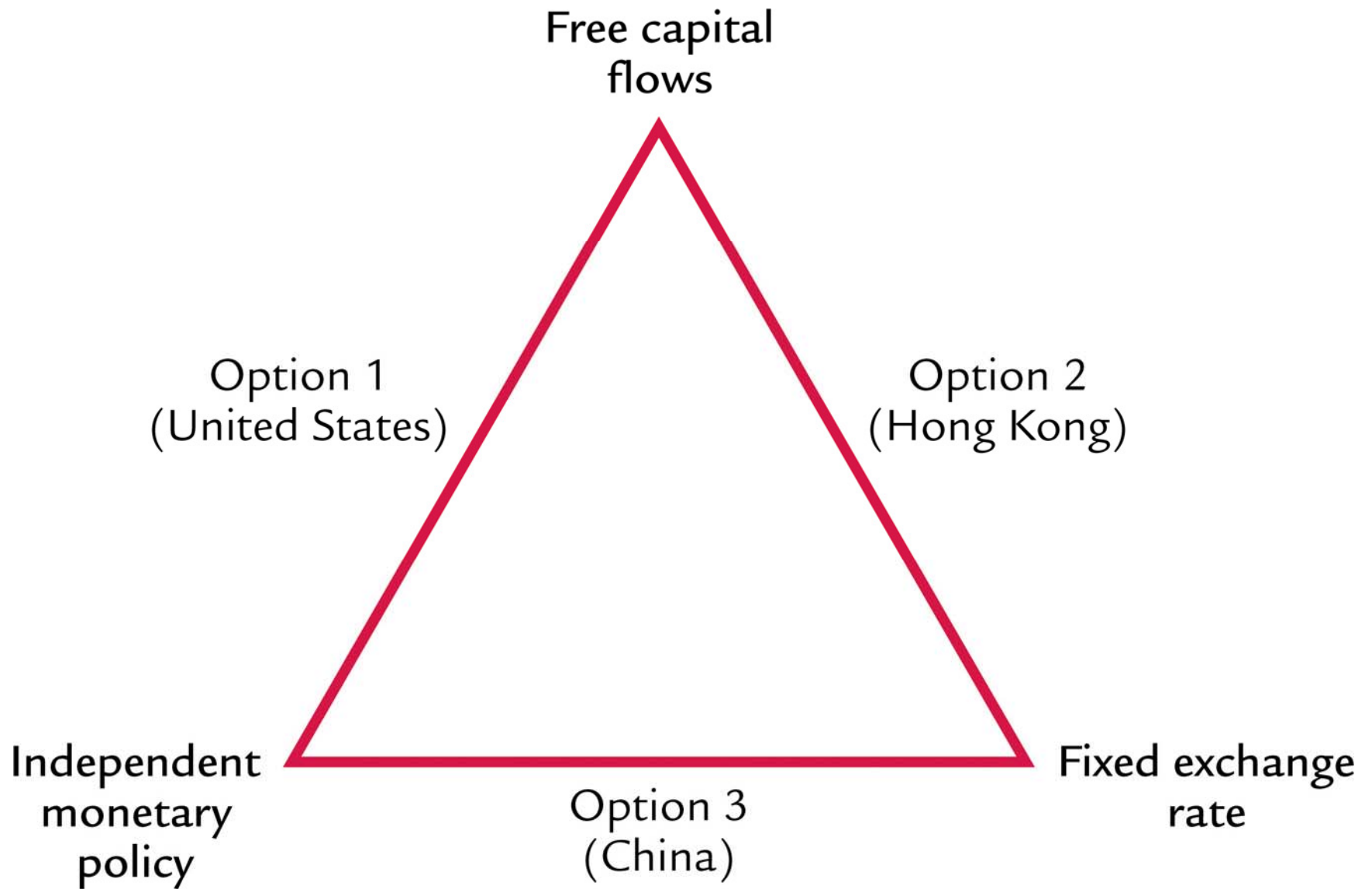


Figure 12.12 The Impossible Trinity
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