Factors that Shift the IS Curve

- A change in autonomous factors that is unrelated to the interest rate
  - Changes in autonomous consumer expenditure
  - Changes in planned investment spending unrelated to the interest rate
  - Changes in government spending
  - Changes in taxes
  - Changes in net exports unrelated to the interest rate
FIGURE 1 Shift in the IS Curve

(b) Effect on goods market equilibrium when the interest rate is $i_A$
FIGURE 1 Shift in the IS Curve (continued)

(b) Effect on goods market equilibrium when the interest rate is $i_A$
**Figure 1**

**Shift in the IS Curve**

(a) Shift of the IS curve

(b) Effect on goods market equilibrium when the interest rate is \( i_A \)
Factors that Shift the LM Curve

- Changes in the money supply
- Autonomous changes in money demand
Figure 2: Shift in the \( LM \) Curve from an Increase in the Money Supply
FIGURE 3  Shift in the LM Curve When Money Demand Increases
Response to a Change in Monetary Policy

• An increase in the money supply creates an excess supply of money
• The interest rate declines
• Investment spending and net exports rise
• Aggregate demand rises
• Aggregate output rises
• The excess supply of money is eliminated
• Aggregate output is positively related to the money supply
**FIGURE 4** Response of Aggregate Output and the Interest Rate to an Increase in the Money Supply
Response to a Change in Fiscal Policy

• An increase in government spending raises aggregate demand directly; a decrease in taxes makes more income available for spending

• The increase in aggregate demand cause aggregate output to rise

• A higher level of aggregate output increases the demand for money
Response to a Change in Fiscal Policy (cont’d)

• The excess demand for money pushes the interest rate higher

• The rise in the interest rate eliminates the excess demand for money

• Aggregate output and the interest rate are positively related to government spending and negatively related to taxes
Figure 5 Response of Aggregate Output and the Interest Rate to an Expansionary Fiscal Policy
Monetary versus Fiscal Policy

• Complete crowding out
  - Expansionary fiscal policy does not lead to a rise in output
  - Increased government spending increases the interest rate and ‘crowds out’ investment spending and net exports

• The less interest-sensitive money demand is, the more effective monetary policy is relative to fiscal policy
### Table 1  Effects from Factors That Shift the IS and LM Curves

<table>
<thead>
<tr>
<th>Factor</th>
<th>Autonomous Change in Factor</th>
<th>Response</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer expenditure, $C$</td>
<td>↑</td>
<td>$Y \uparrow, i \uparrow$</td>
<td>$C \uparrow \Rightarrow Y^{ad} \uparrow \Rightarrow IS$ shifts right</td>
</tr>
<tr>
<td>Investment, $I$</td>
<td>↑</td>
<td>$Y \uparrow, i \uparrow$</td>
<td>$I \uparrow \Rightarrow Y^{ad} \uparrow \Rightarrow IS$ shifts right</td>
</tr>
<tr>
<td>Government spending, $G$</td>
<td>↑</td>
<td>$Y \uparrow, i \uparrow$</td>
<td>$G \uparrow \Rightarrow Y^{ad} \uparrow \Rightarrow IS$ shifts right</td>
</tr>
<tr>
<td>Taxes, $T$</td>
<td>↑</td>
<td>$Y \downarrow, i \downarrow$</td>
<td>$T \uparrow \Rightarrow C \downarrow \Rightarrow Y^{ad} \downarrow \Rightarrow IS$ shifts left</td>
</tr>
</tbody>
</table>

(continued)
### Table 1: Effects from Factors That Shift the IS and LM Curves (continued)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Autonomous Change in Factor</th>
<th>Response</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net exports, NX</td>
<td>↑</td>
<td>Y ↑, i ↑</td>
<td>( NX \uparrow \Rightarrow Y^{ad} \uparrow \Rightarrow IS \text{ shifts right} )</td>
</tr>
<tr>
<td>Money supply, ( M^c )</td>
<td>↑</td>
<td>Y ↑, i ↓</td>
<td>( M^c \uparrow \Rightarrow i \downarrow \Rightarrow LM \text{ shifts right} )</td>
</tr>
<tr>
<td>Money demand, ( M^d )</td>
<td>↑</td>
<td>Y ↓, i ↑</td>
<td>( M^d \uparrow \Rightarrow i \uparrow \Rightarrow LM \text{ shifts left} )</td>
</tr>
</tbody>
</table>

*Note: Only increases (↑) in the factors are shown. The effect of decreases in the factors would be the opposite of those indicated in the "Response" column.*
**Summary**

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<td>C↑ ⇒ Y↑ ⇒ IS shifts right</td>
</tr>
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<td>Investment, I</td>
<td>↑</td>
<td>Y↑, i↑</td>
<td>I↑ ⇒ Y↑ ⇒ IS shifts right</td>
</tr>
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<td>Government spending, G</td>
<td>↑</td>
<td>Y↑, i↑</td>
<td>G↑ ⇒ Y↑ ⇒ IS shifts right</td>
</tr>
<tr>
<td>Taxes, T</td>
<td>↑</td>
<td>Y↓, i↓</td>
<td>T↑ ⇒ C↓ ⇒ Y↓ ⇒ IS shifts left</td>
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<tr>
<td>Net exports, NX</td>
<td>↑</td>
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<td>NX↑ ⇒ Y↑ ⇒ IS shifts right</td>
</tr>
<tr>
<td>Money supply, M(^s)</td>
<td>↑</td>
<td>Y↑, i↓</td>
<td>M(^s)↑ ⇒ I↓ ⇒ LM shifts right</td>
</tr>
<tr>
<td>Money demand, M(^d)</td>
<td>↑</td>
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</tr>
</tbody>
</table>

Note: Only increases (↑) in the factors are shown. The effect of decreases in the factors would be the opposite of those indicated in the “Response” column.
FIGURE 6

Effectiveness of Monetary and Fiscal Policy When Money Demand Is Unaffected by the Interest Rate

(a) Response to expansionary fiscal policy

(b) Response to expansionary monetary policy
Targeting $M^s$ versus Interest Rates

- If the IS curve is more unstable (uncertain) than the LM curve, a $M^s$ target is preferable.

- If the LM curve is more unstable than the IS curve, an interest-rate target is preferred.
FIGURE 7 Money Supply and Interest-Rate Targets When the IS Curve Is Unstable and the LM Curve Is Stable


**FIGURE 8** Money Supply and Interest-Rate Targets When the *LM* Curve Is Unstable and the *IS* Curve Is Stable
ISLM Model in the Long Run

- Natural rate level of output ($Y_n$)
  - Rate of output at which the price level has no tendency to change
- Using real values, so when the price level changes, the IS curve does not change
- The LM curve is affected by the price level
  - As the price level rises, the quantity of money in real terms falls, and the LM curve shifts to the left until it reaches $Y_n$ (long-run monetary neutrality)
- Neither monetary or fiscal policy affects output in the long run
FIGURE 9 The ISLM Model in the Long Run

(a) Response to a rise in the money supply, M

(b) Response to a rise in government spending, G
FIGURE 10 Deriving the Aggregate Demand Curve
Shifts in the Aggregate Demand Curve

- ISLM analysis shows how the equilibrium level of aggregate output changes for a given price level.
- A change in any factor except the price level, that causes the IS or LM curve to shift, causes the aggregate demand curve to shift.
Figure 11: Shift in the Aggregate Demand Curve Caused by a Shift in the IS Curve
FIGURE 12  Shift in the Aggregate Demand Curve Caused by a Shift in the LM Curve