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PRINCIPLES OF

# ECONOMICS

*Eight Edition*

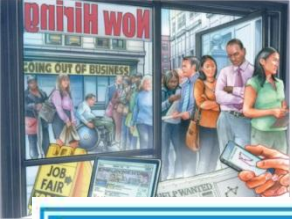


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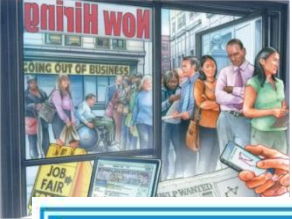
## The Influence of Monetary and Fiscal Policy on Aggregate Demand

PowerPoint Slides prepared by:  
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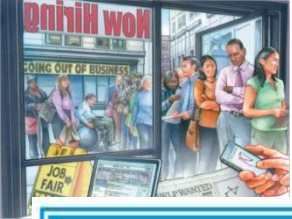
# Aggregate Demand, Part 1

- Aggregate-demand (AD) curve slopes downward:
  - Simultaneously:
    - The wealth effect
    - The interest-rate effect
    - The exchange-rate effect
  - When price level falls - quantity of goods and services demanded increases
    - When price level rises - quantity of goods and services demanded decreases



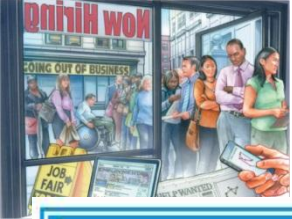
# Aggregate Demand, Part 2

- For the U.S. economy
  - The wealth effect - least important
    - Money holdings – a small part of household wealth
  - The exchange-rate effect - not large
    - Exports and imports – small fraction of GDP
  - The interest-rate effect
    - The most important



# Aggregate Demand, Part 3

- The theory of liquidity preference
  - Keynes's theory
  - Interest rate adjusts:
    - To bring money supply and money demand into balance
  - Nominal interest rate
  - Real interest rate
  - Assumption: expected rate of inflation is constant

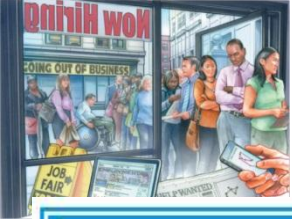


# Demand and Supply of Money, Part 1

- Money supply

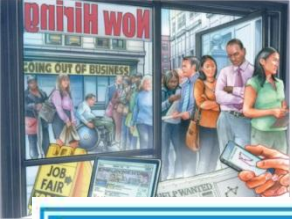
- Controlled by the Fed
- Quantity of money supplied
  - Fixed by Fed policy
  - Doesn't vary with interest rate
- Fed alters the money supply
  - Changing the quantity of reserves in the banking system
    - Purchase and sale of government bonds in open-market operations





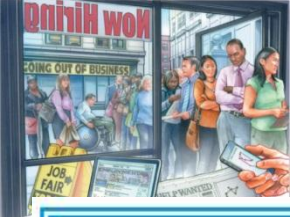
# Demand and Supply of Money, Part 2

- Money demand
  - Money – most liquid asset
    - Can be used to buy goods and services
  - Interest rate – opportunity cost of holding money
  - Money demand curve – downward sloping
    - Increase in the interest rate
      - Raises the cost of holding money
      - Reduces the quantity of money demanded



# Demand and Supply of Money, Part 3

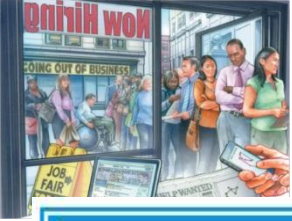
- Equilibrium in the money market
  - Interest rate – adjusts to balance the supply and demand for money
  - Equilibrium interest rate
  - Quantity of money demanded exactly balances the quantity of money supplied



# Demand and Supply of Money, Part 4

- If interest rate  $>$  equilibrium
  - Quantity of money people want to hold
    - Less than quantity supplied
  - People holding the surplus
    - Buy interest-bearing assets
  - Lowers the interest rate
  - People - more willing to hold money
  - Until: equilibrium

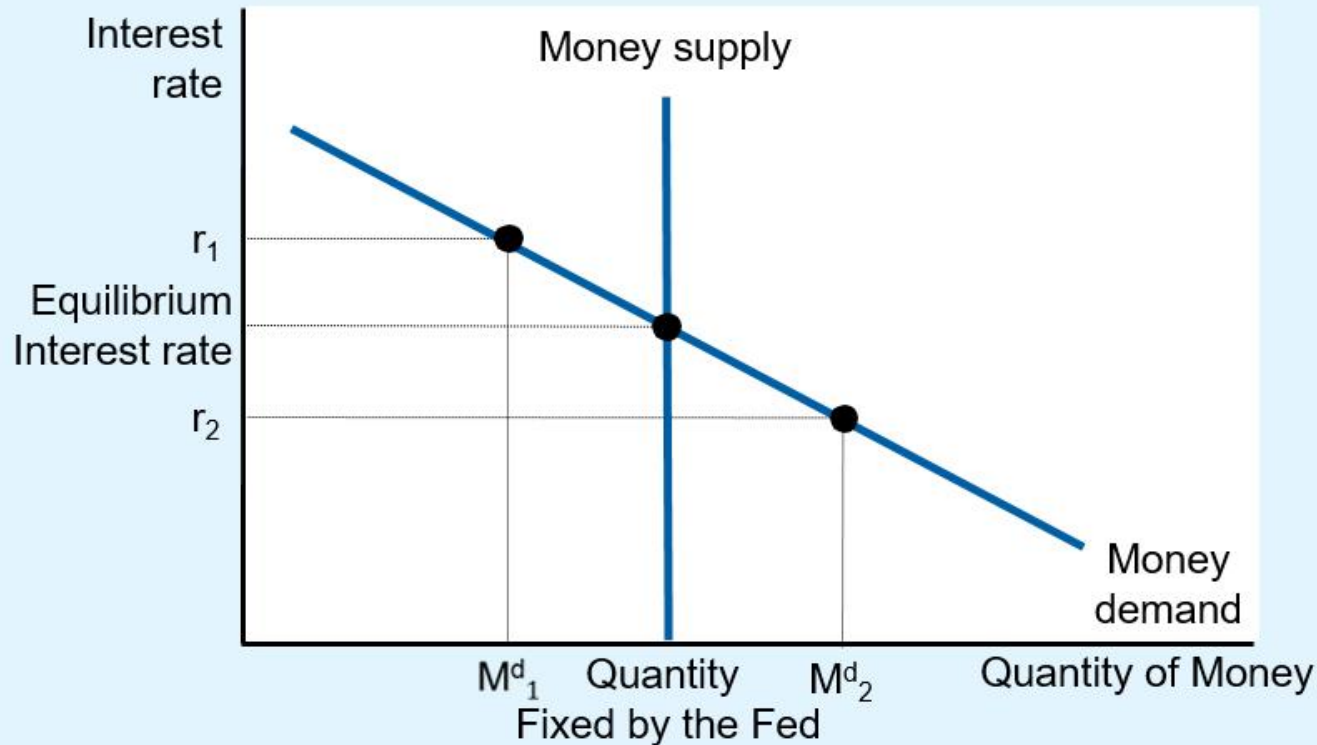




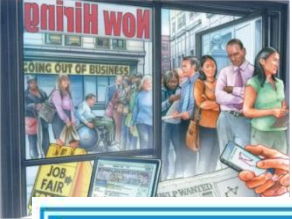
# Demand and Supply of Money, Part 5

- If interest rate  $<$  equilibrium
  - Quantity of money people want to hold
    - More than quantity supplied
  - People - increase their holdings of money
    - Sell - interest-bearing assets
  - Increase interest rates
  - Until: equilibrium

# Figure 1 Equilibrium in the Money Market



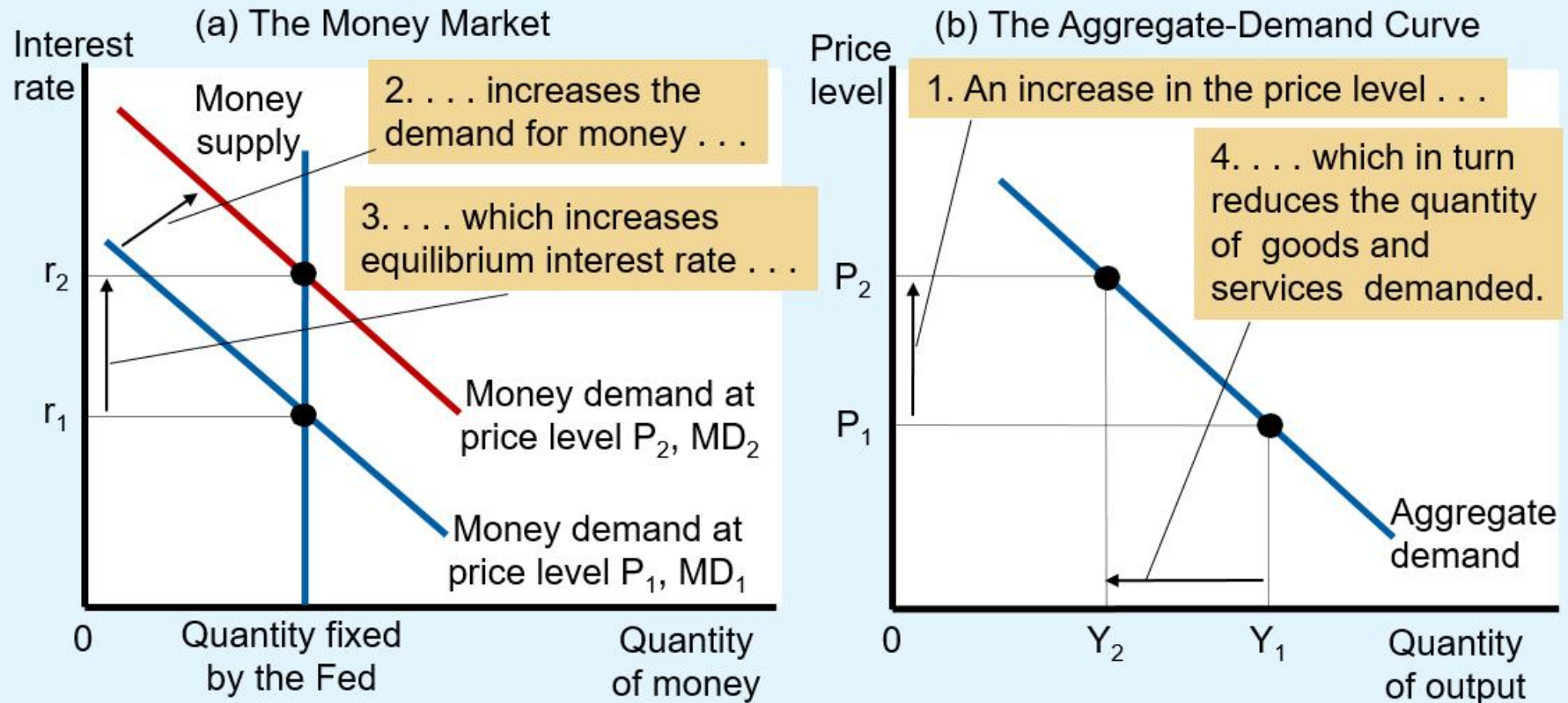
According to theory of liquidity preference, the interest rate adjusts to bring the quantity of money supplied and the quantity of money demanded into balance. If the interest rate is above the equilibrium level (such as at  $r_1$ ), the quantity of money people want to hold ( $M^d_1$ ) is less than the quantity the Fed has created, and this surplus of money puts downward pressure on the interest rate. Conversely, if the interest rate is below the equilibrium level (such as at  $r_2$ ), the quantity of money people want to hold ( $M^d_2$ ) is greater than the quantity the Fed has created, and this shortage of money puts upward pressure on the interest rate. Thus, the forces of supply and demand in the market for money push the interest rate toward the equilibrium interest rate, at which people are content holding the quantity of money the Fed has created.



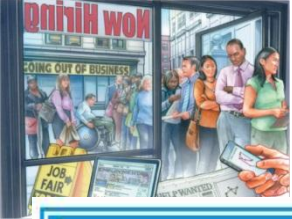
# Aggregate Demand

- The downward slope of the AD curve
  1. A higher price level
    - Raises money demand
  2. Higher money demand
    - Leads to a higher interest rate
  3. A higher interest rate
    - Reduces the quantity of goods and services demanded

# Figure 2 The Money Market and the Slope of the Aggregate-Demand Curve

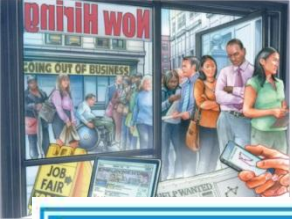


An increase in price level from  $P_1$  to  $P_2$  shifts money-demand curve to the right, as in panel (a). This increase in money demand causes the interest rate to rise from  $r_1$  to  $r_2$ . Because the interest rate is the cost of borrowing, the increase in the interest rate reduces the quantity of goods and services demanded from  $Y_1$  to  $Y_2$ . This negative relationship between the price level and quantity demanded is represented with a downward-sloping aggregate-demand curve, as in panel (b).



# Monetary Policy Influences AD, Part 1

- Aggregate-demand curve shifts
  - Quantity of goods and services demanded changes
  - For a given price level
- Monetary policy
  - Increase in money supply
  - Decrease in money supply
  - Shifts aggregate-demand curve



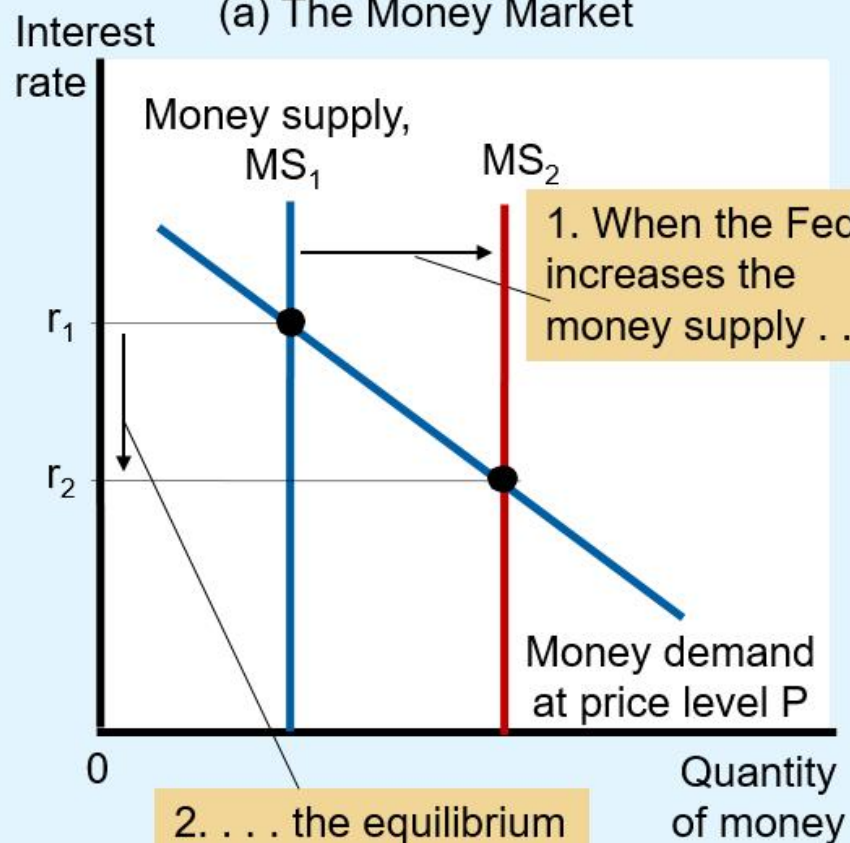
# Monetary Policy Influences AD, Part 2

- The Fed increases the money supply
  - Money-supply curve shifts right
  - Interest rate falls
  - At any given price level
    - Increase in quantity demanded of goods and services
  - Aggregate-demand curve shifts right



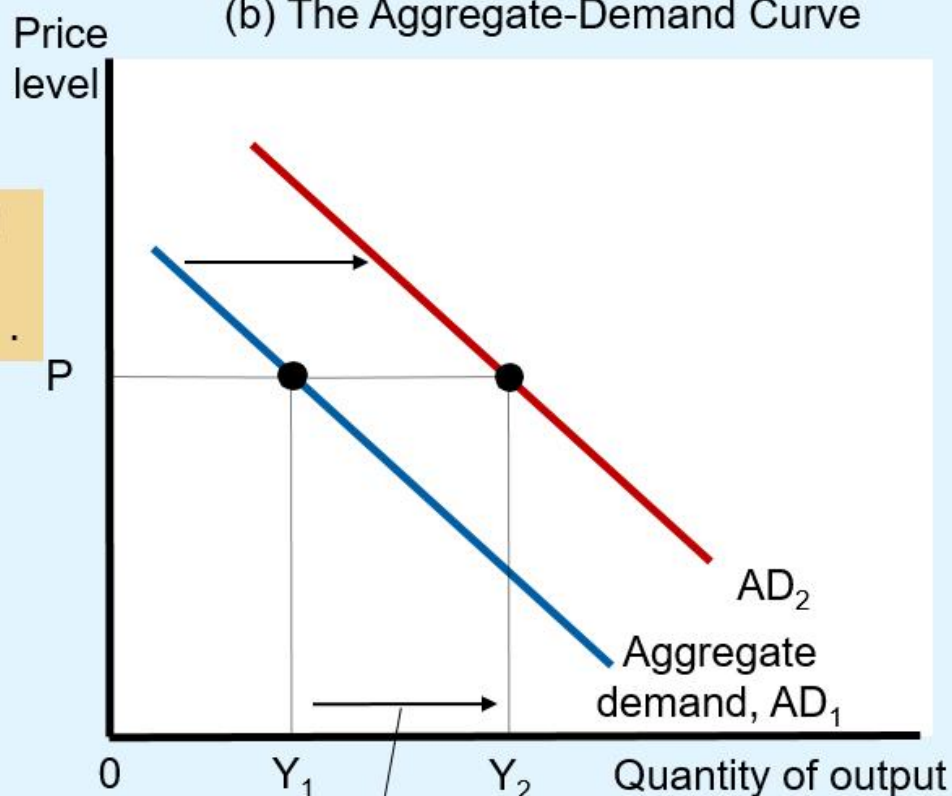
# Figure 3 A Monetary Injection

(a) The Money Market



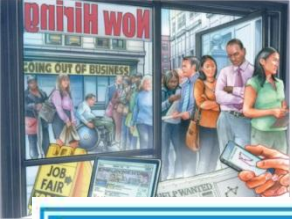
2. . . . the equilibrium interest rate falls . . .

(b) The Aggregate-Demand Curve



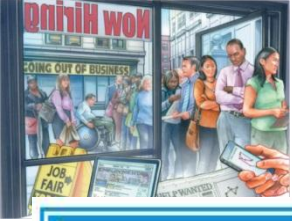
3. . . . which increases the quantity of goods and services demanded at a given price level.

In panel (a), an increase in the money supply from  $MS_1$  to  $MS_2$  reduces the equilibrium interest rate from  $r_1$  to  $r_2$ . Because the interest rate is the cost of borrowing, the fall in the interest rate raises the quantity of goods and services demanded at a given price level from  $Y_1$  to  $Y_2$ . Thus, in panel (b), the aggregate-demand curve shifts to the right from  $AD_1$  to  $AD_2$ .



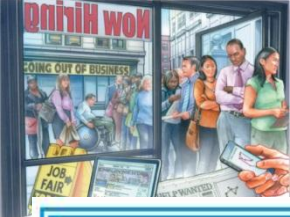
# Monetary Policy Influences AD, Part 3

- The Fed decreases the money supply
  - Money-supply curve shifts left
  - Interest rate increases
  - At any given price level
    - Decrease in quantity demanded of goods and services
  - Aggregate-demand curve shifts left



# Monetary Policy Influences AD, Part 4

- Federal funds rate
  - Interest rate
  - Banks charge one another
  - For short-term loans
- The Fed: targets the federal funds rate
  - The FOMC – open-market operations
    - Adjust money supply



# Monetary Policy Influences AD, Part 5

- Changes in monetary policy aimed at expanding aggregate demand
  - Increasing the money supply
  - Lowering the interest rate
- Changes in monetary policy aimed at contracting aggregate demand
  - Decreasing the money supply
  - Raising the interest rate



# Why the Fed Watches the Stock Market (and Vice Versa), Part 1

- **Fluctuations in stock prices**
  - Sign of broader economic developments
  - Economic boom of the 1990s
    - Rapid GDP growth and falling unemployment
    - Rising stock prices (fourfold)
  - Deep recession of 2008 and 2009
    - Falling stock prices
      - From November 2007 to March 2009, the stock market lost about half its value



# Why the Fed Watches the Stock Market (and Vice Versa), Part 2

- **The Fed**
  - Not interested in stock prices themselves
  - Monitor and respond to developments the overall economy
- **Stock market boom expands the AD**
  - Households – wealthier
    - Stimulates consumer spending
  - Firms – want to sell new shares of stock
    - Stimulates investment spending





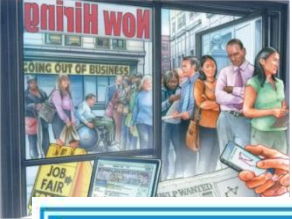
# Why the Fed Watches the Stock Market (and Vice Versa), Part 3

- The Fed's goal: stabilize AD
  - Greater stability in output and price level
- The Fed's response to a stock-market boom
  - Keep money supply lower
  - Keep interest rates higher
- The Fed's response to a stock-market fall
  - Increase money supply
  - Lower interest rates



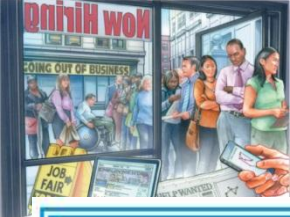
# Why the Fed Watches the Stock Market (and Vice Versa), Part 4

- **Stock-market participants**
  - Keep an eye on the Fed
  - The Fed can
    - Influence interest rates and economic activity
    - Alter the value of stocks
- **The Fed - raises interest rates**
  - Less attractive owning stocks
    - Bonds - earning a higher return
    - Reduced demand for goods and services



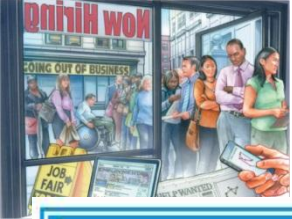
# Monetary Policy Influences AD, Part 6

- Liquidity trap
  - If interest rates have already fallen to around zero
  - Monetary policy may no longer be effective
  - Aggregate demand, production, and employment may be "trapped" at low levels



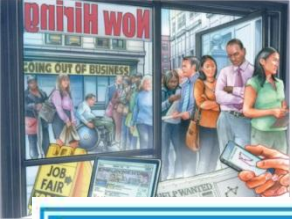
# Monetary Policy Influences AD, Part 7

- Zero lower bound (interest rate)
  - A central bank continues to have tools to expand the economy:
    - Forward guidance: raise inflation expectations by committing to keep interest rates low
    - Quantitative easing: buy a larger variety of financial instruments (mortgages, corporate debt, and longer-term government bonds)



# Monetary Policy Influences AD, Part 8

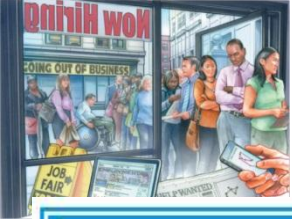
- Hitting the zero lower bound for interest rates
  - Justifies setting the target rate of inflation well above zero
  - Moderate inflation gives monetary policymakers more room to stimulate the economy when needed



# Fiscal Policy Influences AD, Part 1

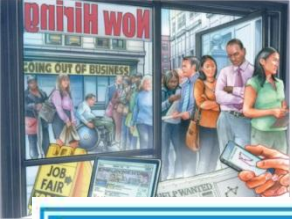
- Fiscal policy
  - Government policymakers
  - Set the level of government spending and taxation
    - Shift the aggregate demand
      - Multiplier effect
      - Crowding-out effect





# Fiscal Policy Influences AD, Part 2

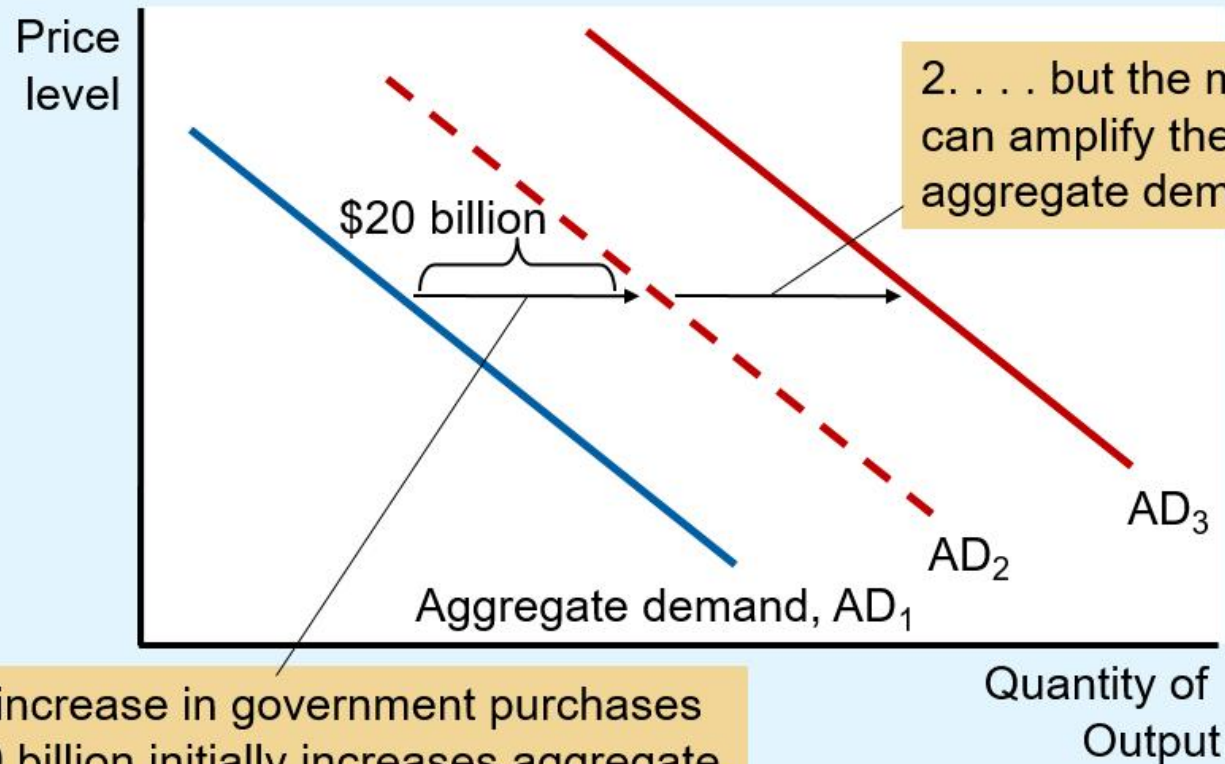
- The multiplier effect
  - Additional shifts in aggregate demand
    - Result when expansionary fiscal policy increases income
    - And thereby increases consumer spending



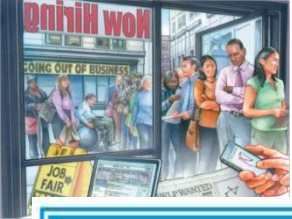
# Fiscal Policy Influences AD, Part 3

- The multiplier effect of an increase in government purchases by \$20 billion
  - Aggregate-demand curve
    - Shifts right by exactly \$20 billion
  - Consumers respond
    - Increase spending
  - Aggregate-demand curve
    - Shifts right again

# Figure 4 The Multiplier Effect

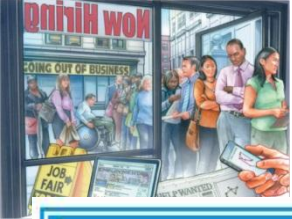


An increase in government purchases of \$20 billion can shift the aggregate-demand curve to the right by more than \$20 billion. This multiplier effect arises because increases in aggregate income stimulate additional spending by consumers.



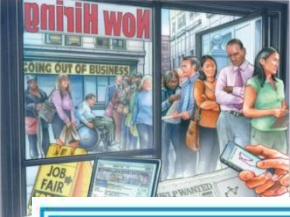
# Fiscal Policy Influences AD, Part 4

- Multiplier effect
  - Response of consumer spending
  - Response of investment
- Investment accelerator
  - Higher government demand
    - Higher demand for investment goods
  - Positive feedback from demand to investment



# Fiscal Policy Influences AD, Part 5

- Spending multiplier
  - Marginal propensity to consume, MPC
    - Fraction of extra income that consumers spend
  - Size of the multiplier
    - Depends on the MPC
  - A larger MPC
    - Larger multiplier



# Fiscal Policy Influences AD, Part 6

- Spending multiplier =  $1/(1 - MPC)$

Change in government purchases = \$ 20 billion

First change in consumption =  $MPC \times \$ 20 \text{ billion}$

Second change in consumption =  $MPC^2 \times \$ 20 \text{ billion}$

Third Change in consumption =  $MPC^3 \times \$ 20 \text{ billion}$

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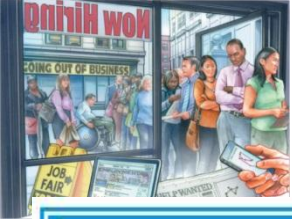
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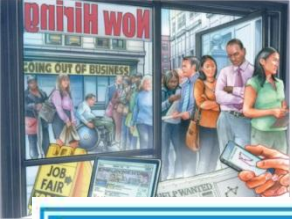
Total change in demand =  $(1 + MPC + MPC^2 + MPC^3 + \dots) \times \$20 \text{ billion.}$





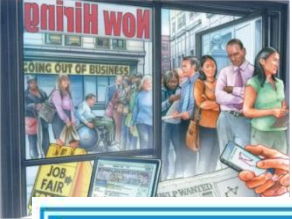
# Fiscal Policy Influences AD, Part 7

- Because of multiplier effect
  - \$1 of government purchases
    - Can generate  $> \$1$  of aggregate demand
  - \$1 of consumption, investment, or net exports
    - Can generate  $> \$1$  of aggregate demand



# Fiscal Policy Influences AD, Part 8

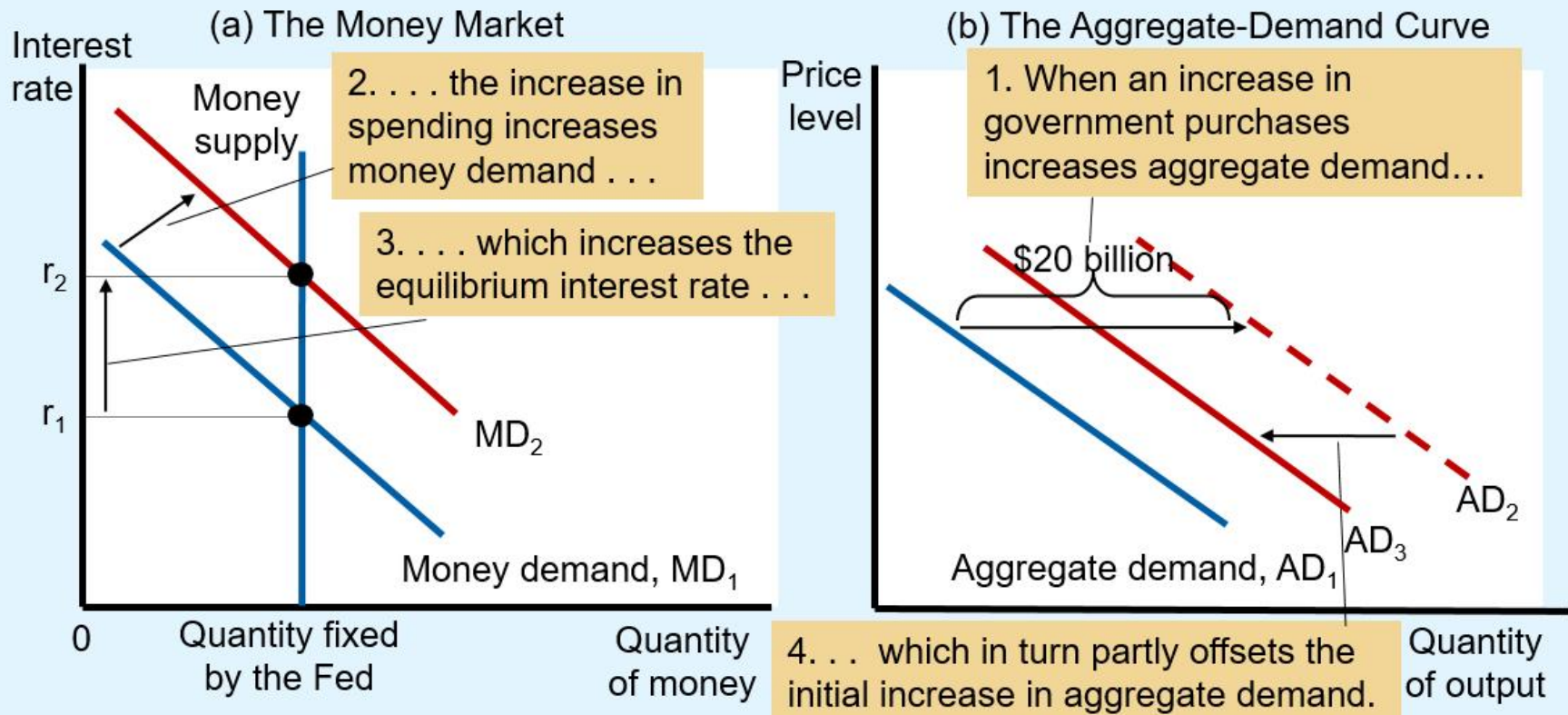
- The crowding-out effect
  - Offset in aggregate demand
  - Results when expansionary fiscal policy raises the interest rate
  - Thereby reduces investment spending



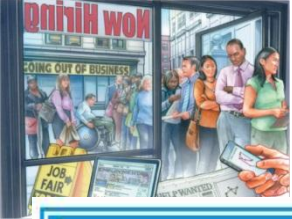
# Fiscal Policy Influences AD, Part 9

- The crowding-out effect of an increase in government spending
  - Aggregate-demand curve – shifts right
    - Increase in income
    - Money demand – increases
    - Interest rate – increases
    - Aggregate-demand curve – shifts left

# Figure 5 The Crowding-Out Effect

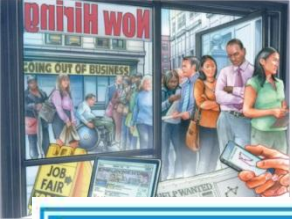


Panel (a) shows the money market. When the government increases its purchases of goods and services, the resulting increase in income raises the demand for money from  $MD_1$  to  $MD_2$ , and this causes the equilibrium interest rate to rise from  $r_1$  to  $r_2$ . Panel (b) shows the effects on aggregate demand. The initial impact of the increase in government purchases shifts the aggregate-demand curve from  $AD_1$  to  $AD_2$ . Yet because the interest rate is the cost of borrowing, the increase in the interest rate tends to reduce the quantity of goods and services demanded, particularly for investment goods. This crowding out of investment partially offsets the impact of the fiscal expansion on aggregate demand. In the end, the aggregate-demand curve shifts only to  $AD_3$ .



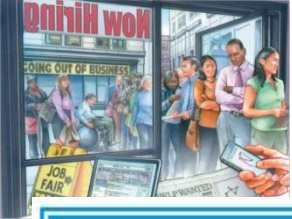
# Fiscal Policy Influences AD, Part 10

- A decrease in personal income taxes
  - Households income – increases
  - Multiplier effect
    - Aggregate demand – increases
  - Crowding-out effect
    - Aggregate demand – decreases
  - Permanent tax cut – large impact on AD
  - Temporary tax cut – small impact on AD



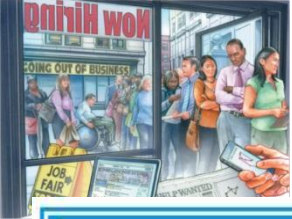
# Using Policy for Stabilization, Part 1

- The case for active stabilization policy
  - A change in aggregate-demand
    - The government: use fiscal policy
    - The Fed: use monetary policy
    - To stabilize the economy



# Using Policy for Stabilization, Part 2

- Employment Act of 1946
  - “It is the continuing policy and responsibility of the federal government to . . . promote full employment and production”
  - Implications – the government should
    - Avoid being a cause of economic fluctuations
    - Respond to changes in the private economy to stabilize aggregate demand



# Using Policy for Stabilization, Part 3

- Keynes

- Key role of AD in explaining short-run economic fluctuations
- The government should actively stimulate aggregate demand
  - When AD appeared insufficient to maintain production at its full-employment level





# Keynesians in the White House, Part 1



- 1964, President John F. Kennedy
  - Advocated a tax cut - to stimulate the economy
  - Investment tax credit
  - John Maynard Keynes's *General Theory*
  - Stimulate aggregate demand
  - Change incentives that people face
  - Can alter the aggregate supply of goods and services



# Keynesians in the White House, Part 2



- 1964, President John F. Kennedy
  - Investment tax credit
    - Tax break to firms that invest in new capital
    - Higher investment
      - Stimulate aggregate demand immediately
      - Increase the economy's productive capacity over time
  - Enacted in 1964
    - Period of robust economic growth

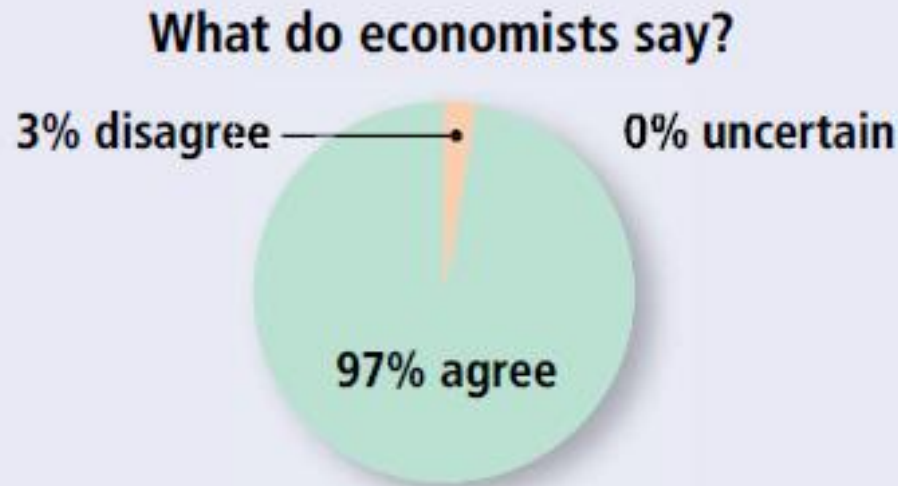


- **Fiscal policy**
  - Short-run: increase production through higher aggregate demand
  - Long-run: increase production through higher aggregate supply
- **2009, President Barak Obama**
  - Economy in recession
  - Policy: stimulus bill - the American Recovery and Reinvestment Act (ARRA),
    - Substantial increase in government spending

# ASK THE EXPERTS, Part 1

## Economic Stimulus

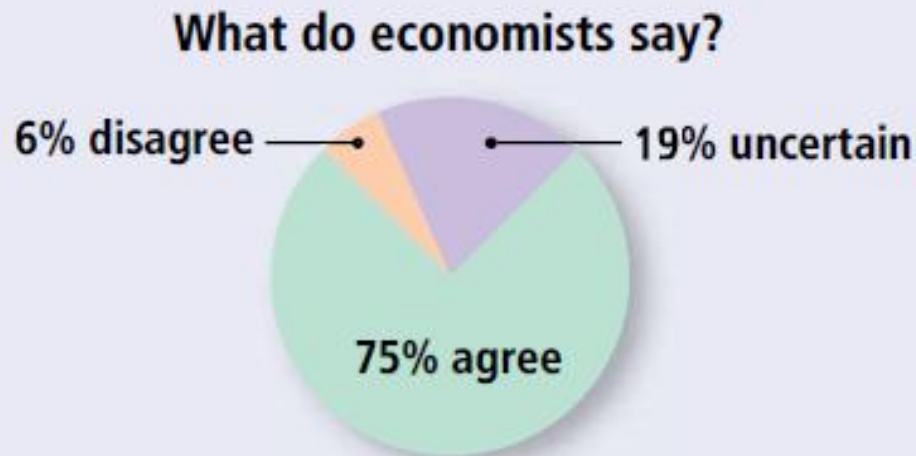
*“Because of the American Recovery and Reinvestment Act of 2009, the U.S. unemployment rate was lower at the end of 2010 than it would have been without the stimulus bill.”*

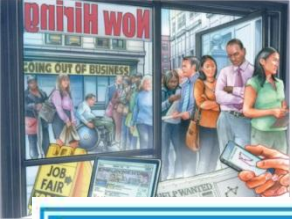


# ASK THE EXPERTS, Part 2

## Economic Stimulus

*“Taking into account all of the ARRA’s economic consequences — including the economic costs of raising taxes to pay for the spending, its effects on future spending, and any other likely future effects — the benefits of the stimulus will end up exceeding its costs.”*

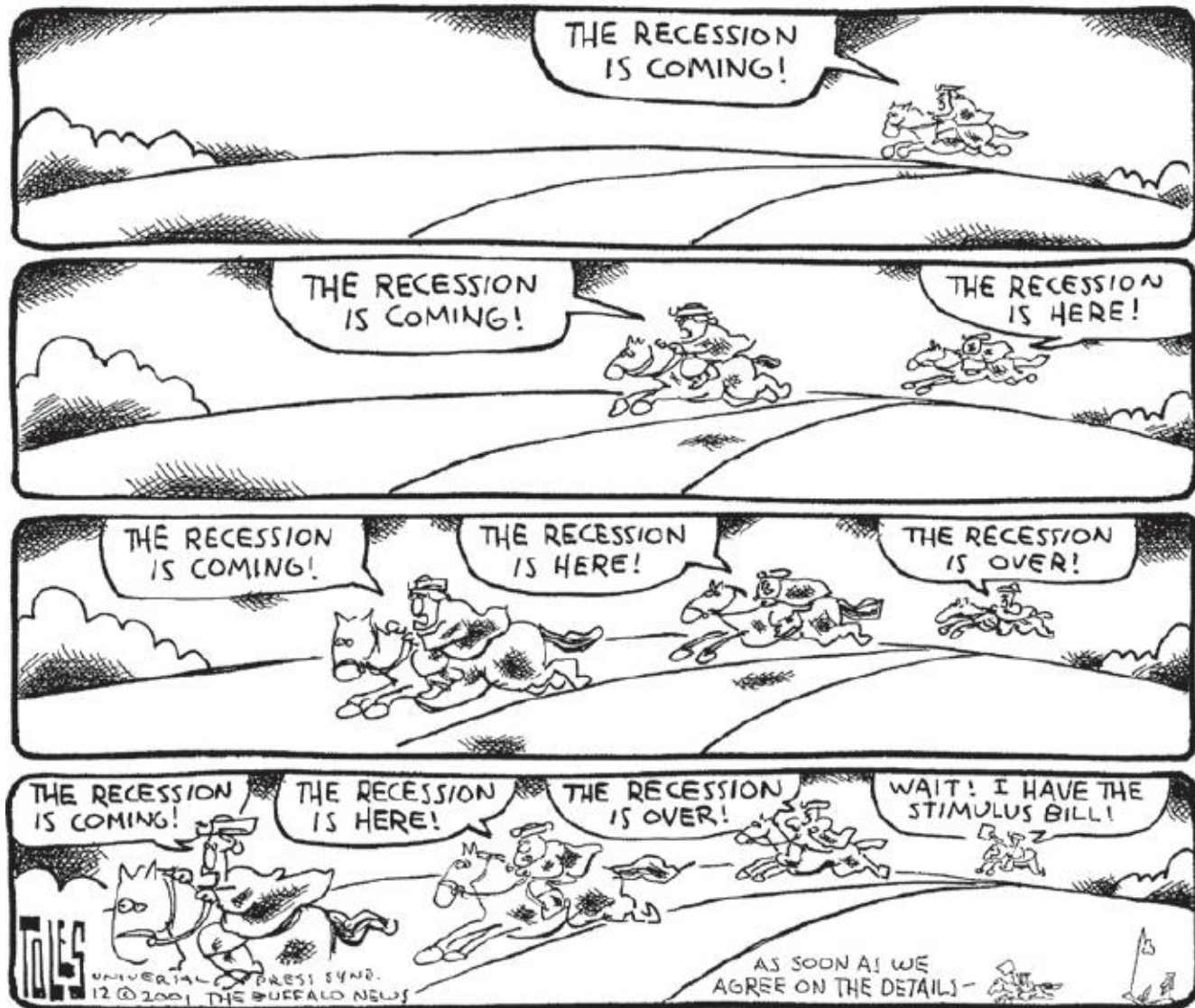




# Using Policy for Stabilization, Part 4

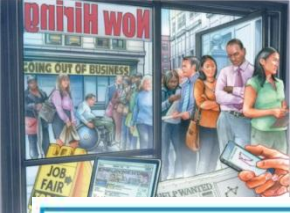
- Case against active stabilization policy
  - Government
    - Should avoid active use of monetary and fiscal policy to try to stabilize the economy
    - Affect the economy with a big lag
  - Policy instruments
    - Should be set to achieve long-run goals
    - The economy – left alone to deal with short-run fluctuations

# Using Policy for Stabilization, Part 5



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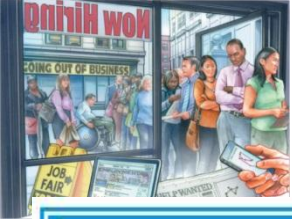




# Using Policy for Stabilization, Part 6

- Automatic stabilizers
  - Changes in fiscal policy
    - That stimulate aggregate demand
    - When the economy goes into a recession
  - Without policymakers having to take any deliberate action
  - The tax system
  - Government spending





# Using Policy for Stabilization, Part 7

- Automatic stabilizers in the U.S. economy
  - Not sufficiently strong to prevent recessions completely
  - Without them
    - Output and employment would probably be more volatile than they are
- Recession
  - Taxes fall, government spending rises
    - Government's budget moves toward deficit