

CHAPTER 33 & 34

Aggregate Demand and Aggregate Supply with Policies

PRINCIPLES OF
Economics

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Premium PowerPoint Slides
by Ron Cronovich, Updated by Vance Ginn

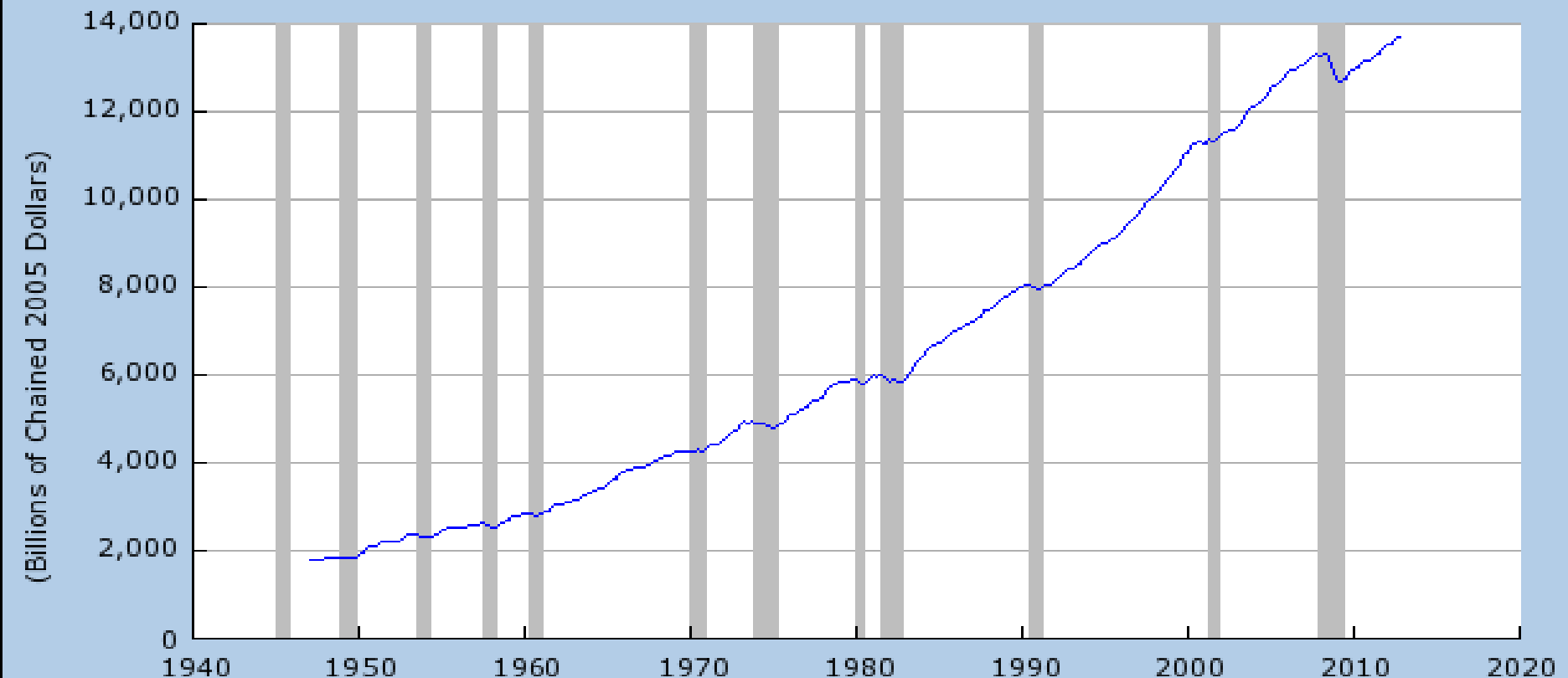
Introduction

- Over the long run, real GDP grows about 3% per year on average.
- In the short run, GDP fluctuates around its trend.
 - _____ : periods of falling real incomes and rising unemployment
 - _____ : severe recessions (very rare)
- Short-run economic fluctuations are often called **business cycles**.

Three Facts About Economic Fluctuations

FACT 1: Economic fluctuations are irregular and unpredictable.

Real Gross Domestic Product, 1 Decimal (GDPC1)
Source: U.S. Department of Commerce: Bureau of Economic Analysis

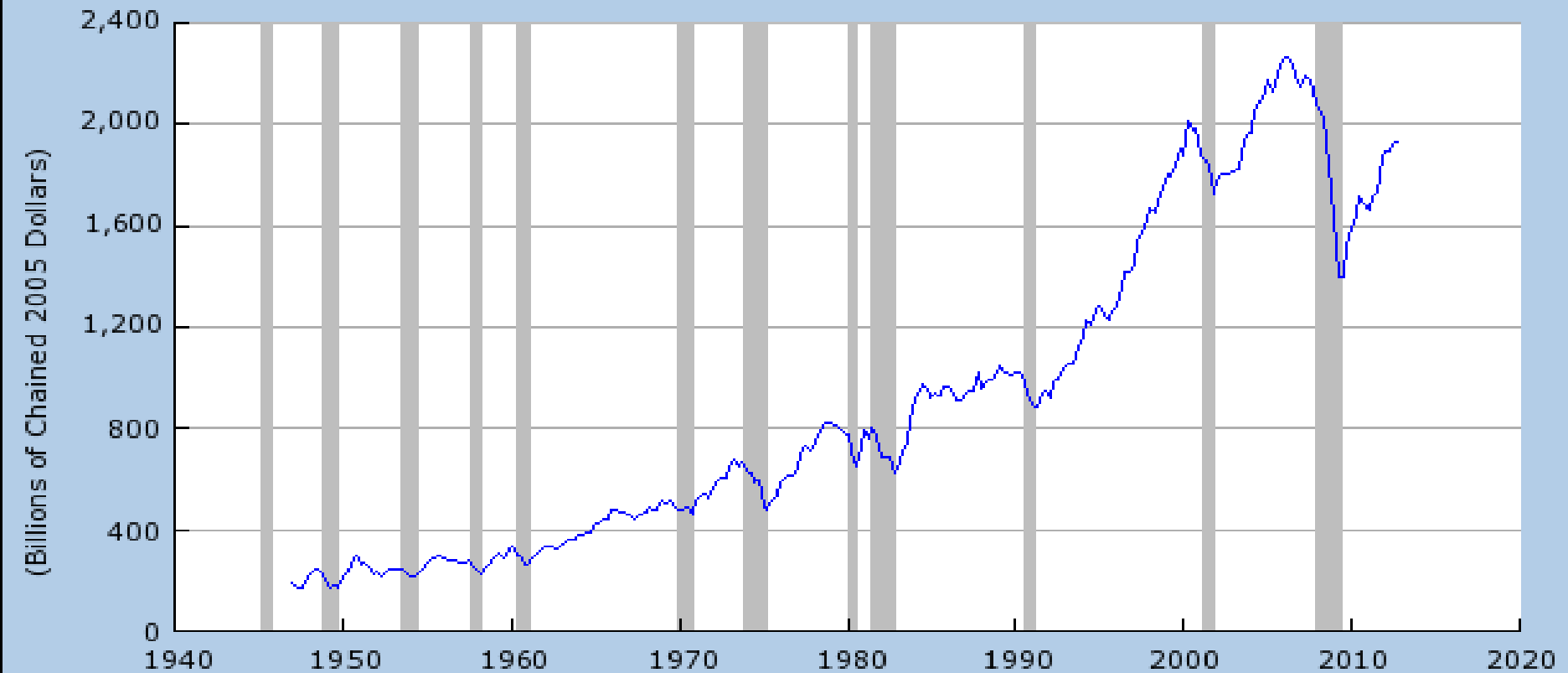


Shaded areas indicate US recessions.
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Three Facts About Economic Fluctuations

FACT 2: Most macroeconomic quantities fluctuate together.

Real Gross Private Domestic Investment, 1 Decimal (GPDIC1)
Source: U.S. Department of Commerce: Bureau of Economic Analysis



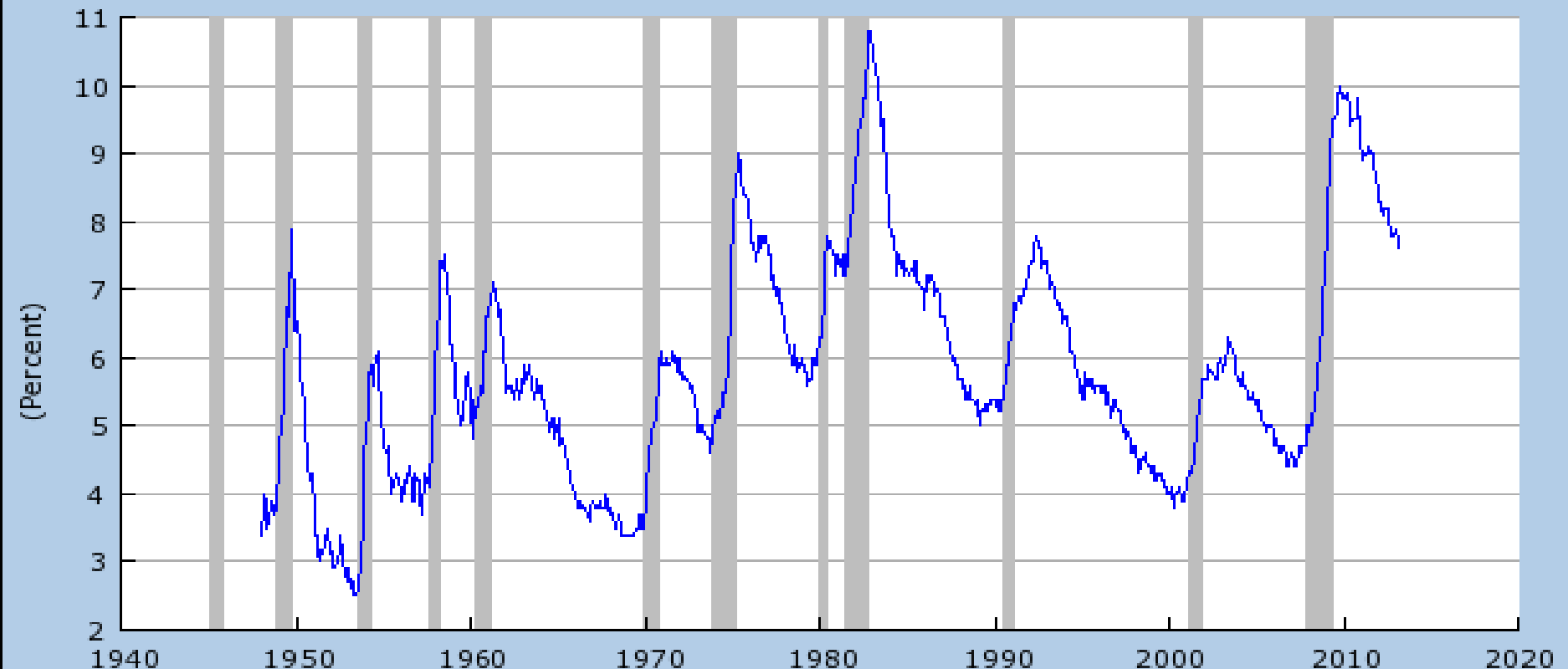
Shaded areas indicate US recessions.
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Three Facts About Economic Fluctuations

FACT 3: As output falls,
unemployment rises.

Civilian Unemployment Rate (UNRATE)

Source: U.S. Department of Labor: Bureau of Labor Statistics



Shaded areas indicate US recessions.

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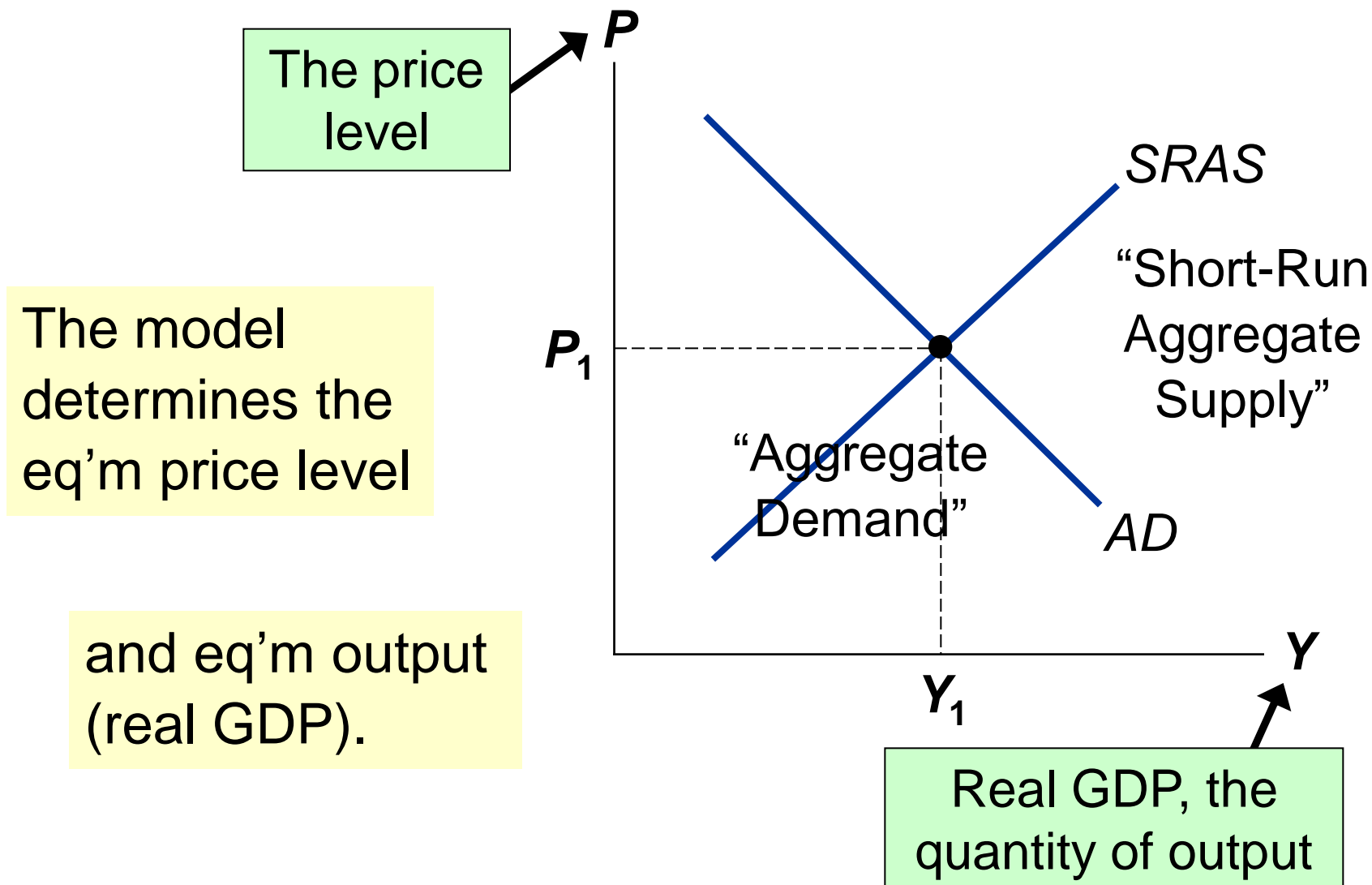
Classical Economics – A Recap

- The previous chapters are based on the ideas of classical economics, especially:
- The **Classical Dichotomy**, the separation of variables into two groups:
 - Real – quantities, relative prices
 - Nominal – measured in terms of money
- The **neutrality of money**:
Changes in the money supply affect nominal but not real variables.

Classical Economics – A Recap

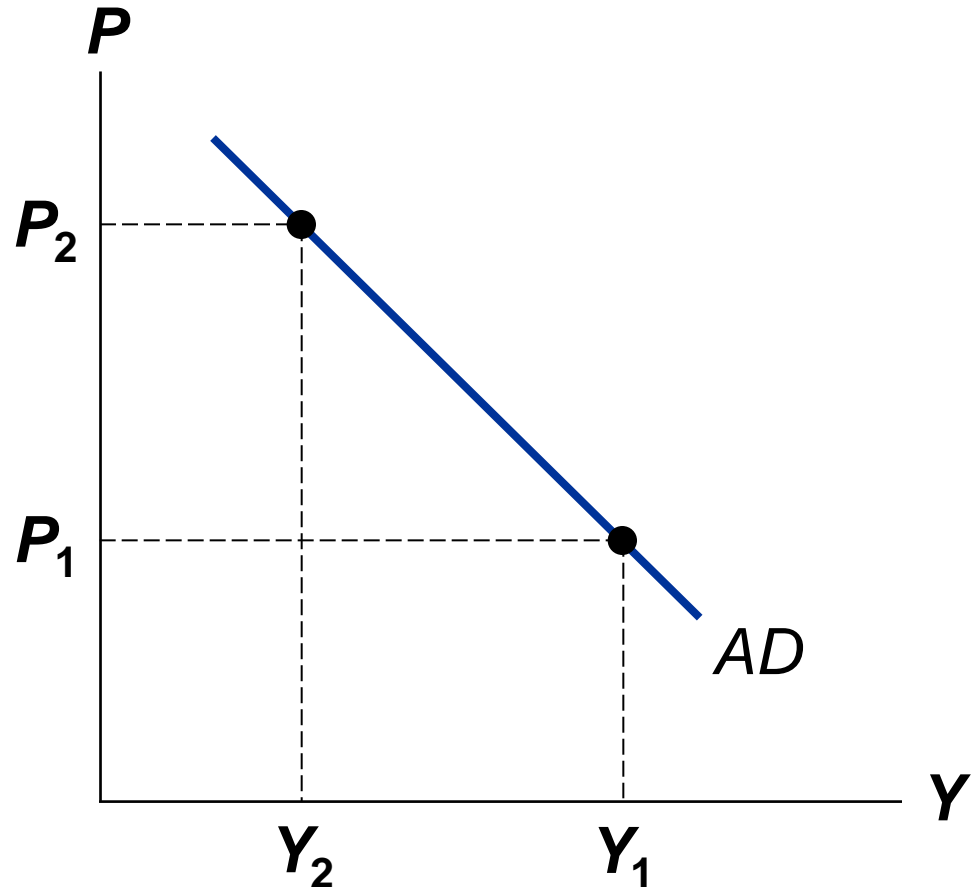
- Most economists believe classical theory describes the world in the _____, but not the short run.
- In the short run, changes in nominal variables (like the money supply or ***P***) can affect real variables (like ***Y*** or the u-rate).
- To study the short run, we use a new model.

The Model of Aggregate Demand and Aggregate Supply



The Aggregate-Demand (AD) Curve

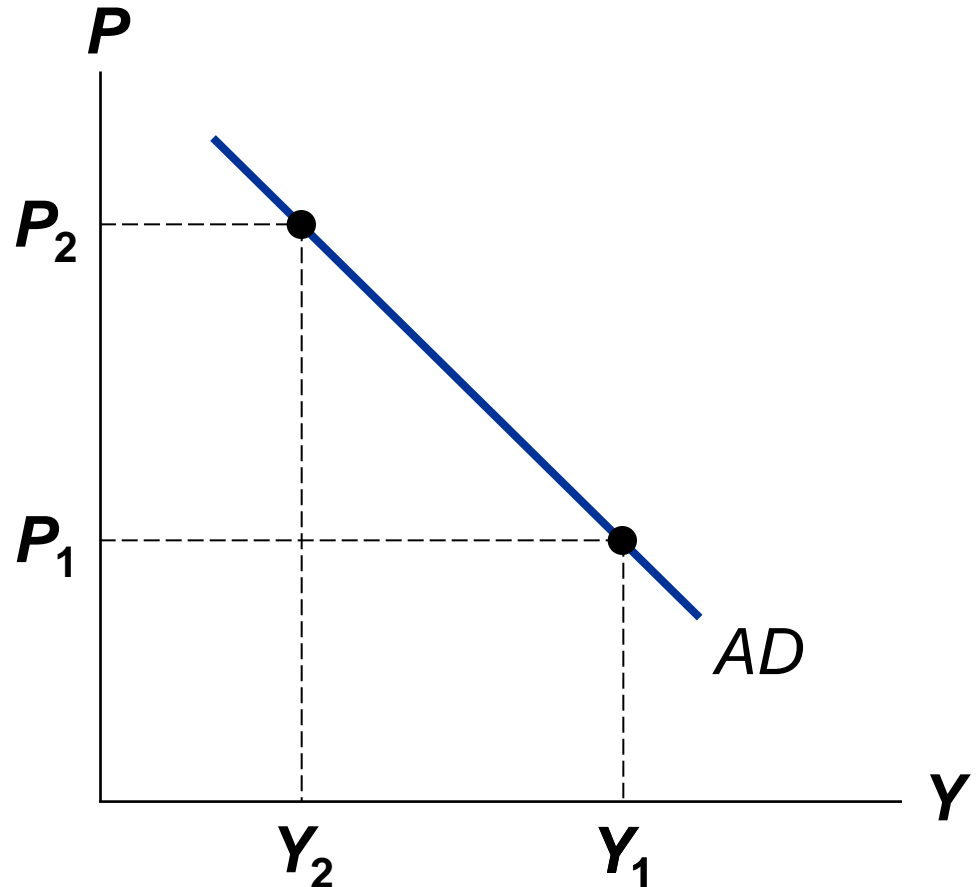
The **AD curve** shows the quantity of all g&s demanded in the economy at any given price level.



Why the *AD* Curve Slopes Downward

Assume **G** fixed
by govt policy.

To understand
the slope of *AD*,
must determine
how a change in **P**
affects **C**, **I**, and **NX**.



The _____ (P and C)

Suppose P rises.

- The dollars people hold buy fewer g&s, so real wealth is lower.
- People feel poorer.

Result: _____

The _____ (P and I)

Suppose ***P*** rises.

- Buying g&s requires more dollars.
- To get these dollars, people sell bonds or other assets.
- This drives up interest rates.

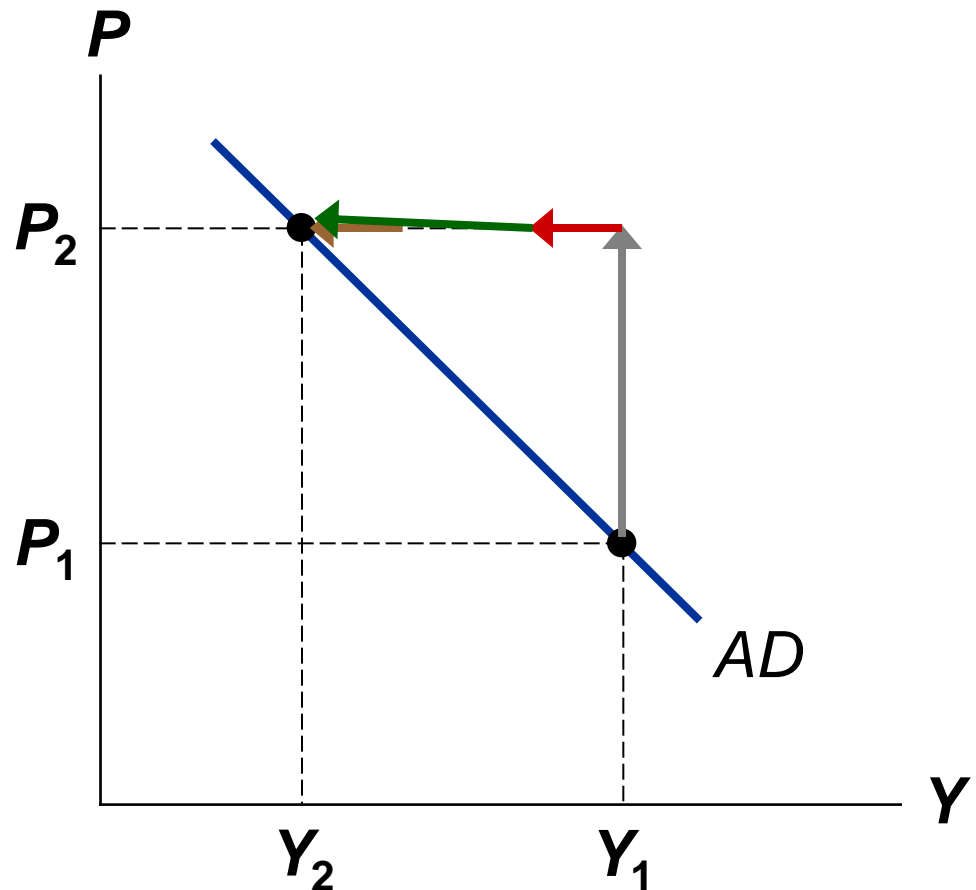
Result: _____

(Recall, ***I*** depends negatively on interest rates.)

The Slope of the *AD* Curve: Summary

An increase in P reduces the quantity of g&s demanded because:

- the wealth effect (C falls)
- the interest-rate effect (I falls)



Why the *AD* Curve Might Shift

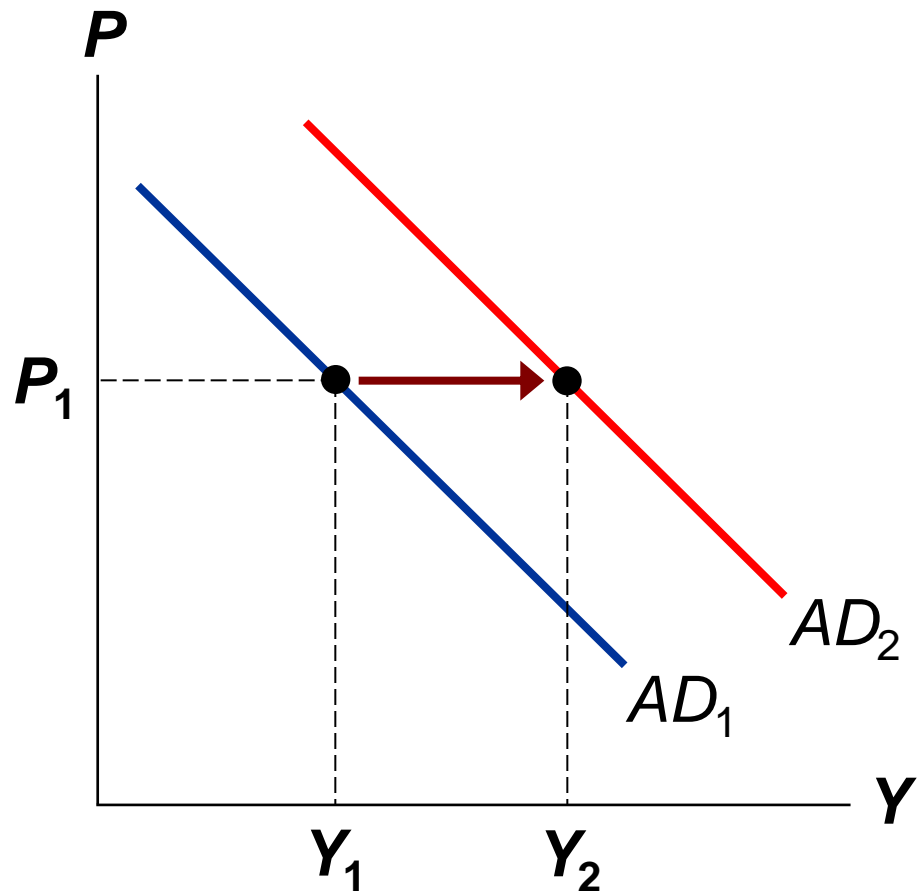
Any event that changes

C, ***I***, ***G***, or ***NX***

– except a change in ***P*** –
will shift the *AD* curve.

Example:

A stock market boom
makes households feel
wealthier, ***C*** rises,
the *AD* curve shifts right.



Why the *AD* Curve Might Shift

- Changes in **C**
 - Stock market boom/crash
 - Preferences re: consumption/saving tradeoff
 - Tax hikes/cuts
- Changes in **I**
 - Firms buy new computers, equipment, factories
 - Expectations, optimism/pessimism
 - Interest rates, monetary policy
 - Investment Tax Credit or other tax incentives
- Changes in **G**
 - Federal spending, *e.g.*, defense
 - State & local spending, *e.g.*, roads, schools

ACTIVE LEARNING 1

The Aggregate-Demand curve

What happens to the *AD* curve in each of the following scenarios?

- A.** A ten-year-old investment tax credit expires.
- B.** A fall in prices increases the real value of consumers' wealth.
- C.** State governments replace their sales taxes with new taxes on interest, dividends, and capital gains.

ACTIVE LEARNING 1

Answers

A. A ten-year-old investment tax credit expires.

B. A fall in prices increases the real value of consumers' wealth.

Move down along AD curve (wealth-effect).

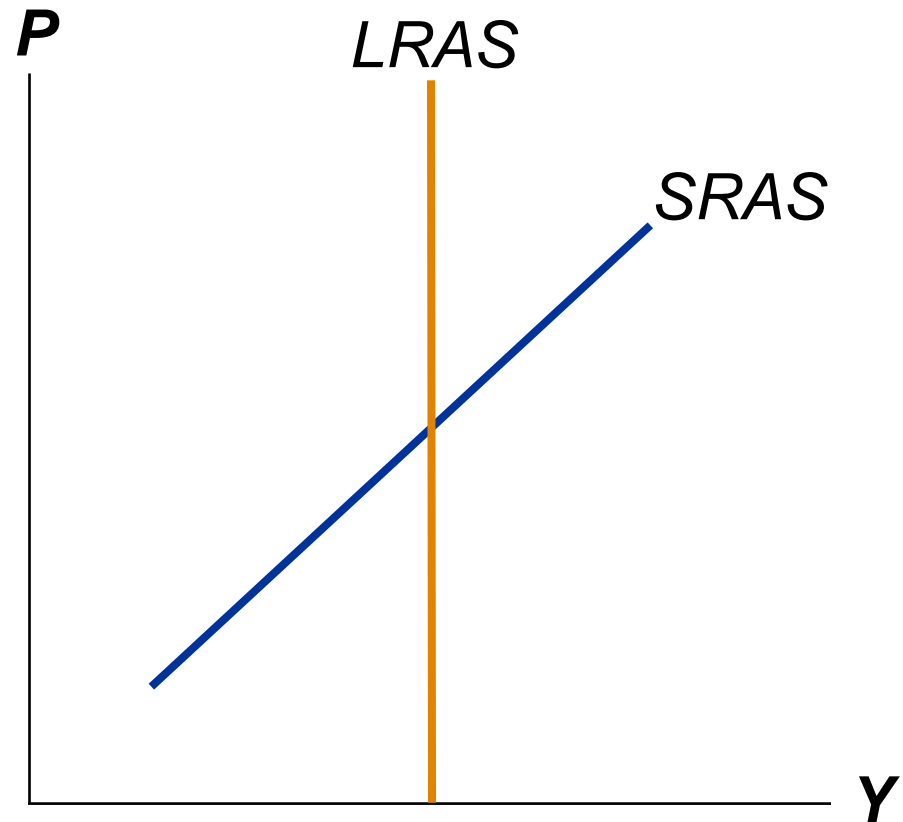
C. State governments replace sales taxes with new taxes on interest, dividends, and capital gains.

The Aggregate-Supply (AS) Curves

The **AS curve** shows the total quantity of g&s firms produce and sell at any given price level.

AS is:

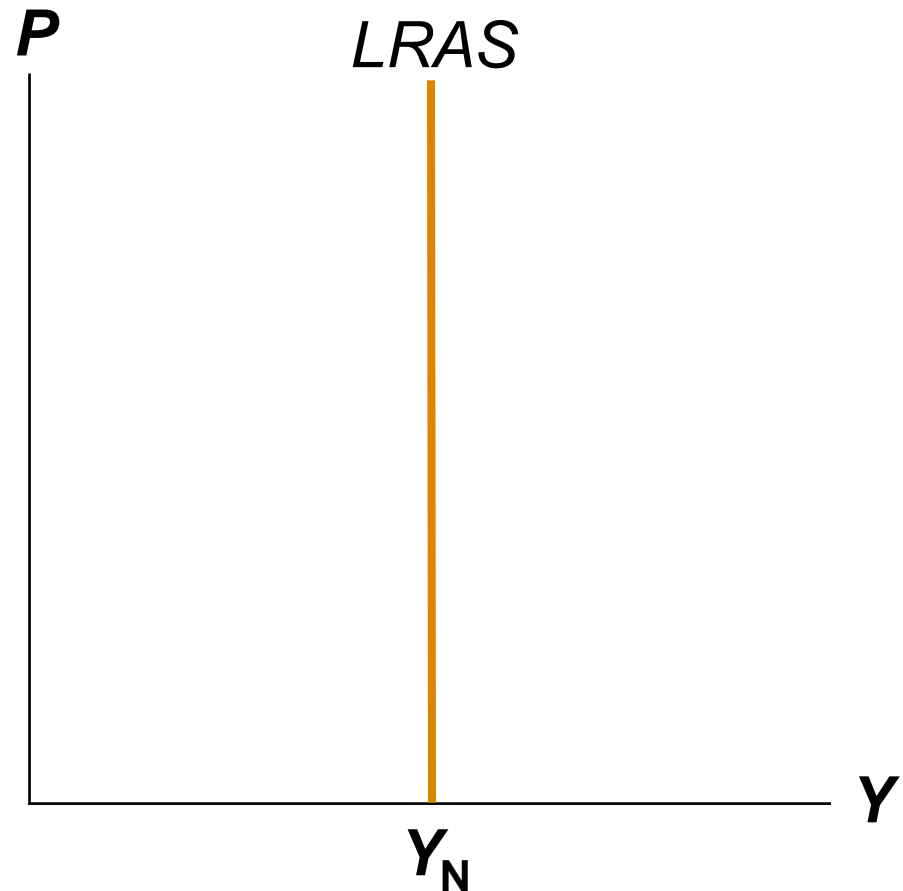
- upward-sloping in _____
- vertical in _____



The Long-Run Aggregate-Supply Curve (*LRAS*)

The **natural rate of output** (Y_N) is the amount of output the economy produces when unemployment is at its natural rate.

Y_N is also called **potential output** or **full-employment output**.

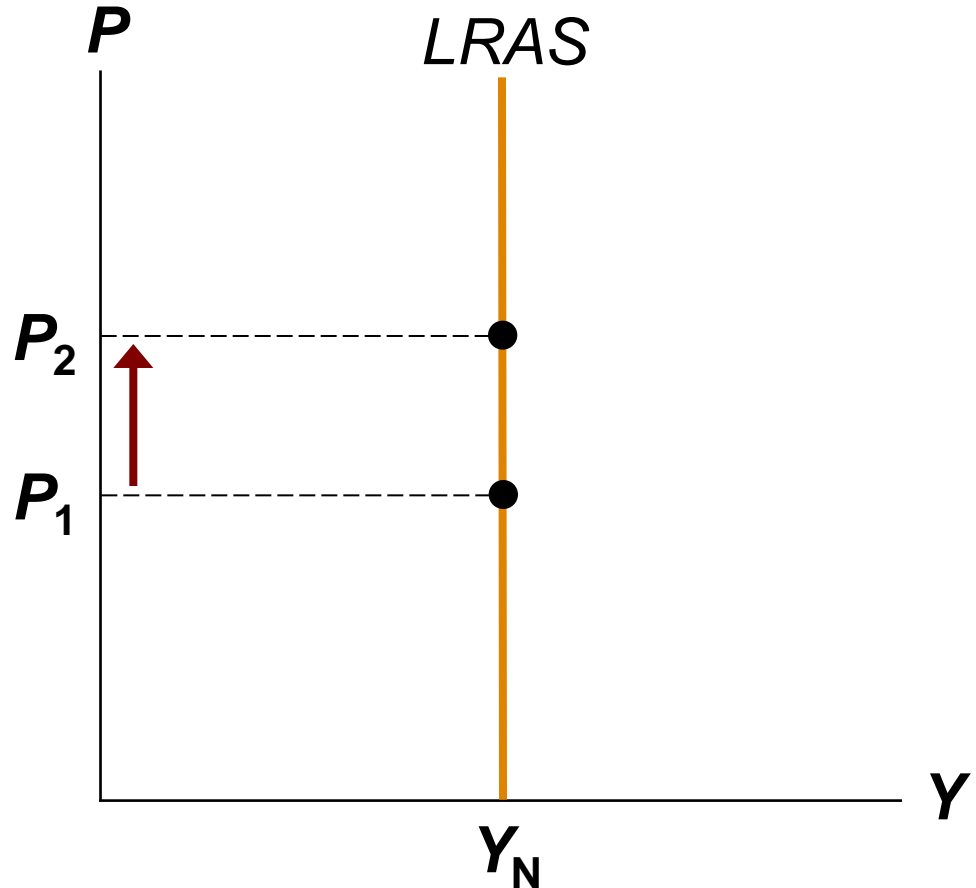


Why *LRAS* Is Vertical

Y_N determined by the economy's stocks of labor, capital, and natural resources, and on the level of technology.

An increase in P does not affect any of these, so it does not affect Y_N .

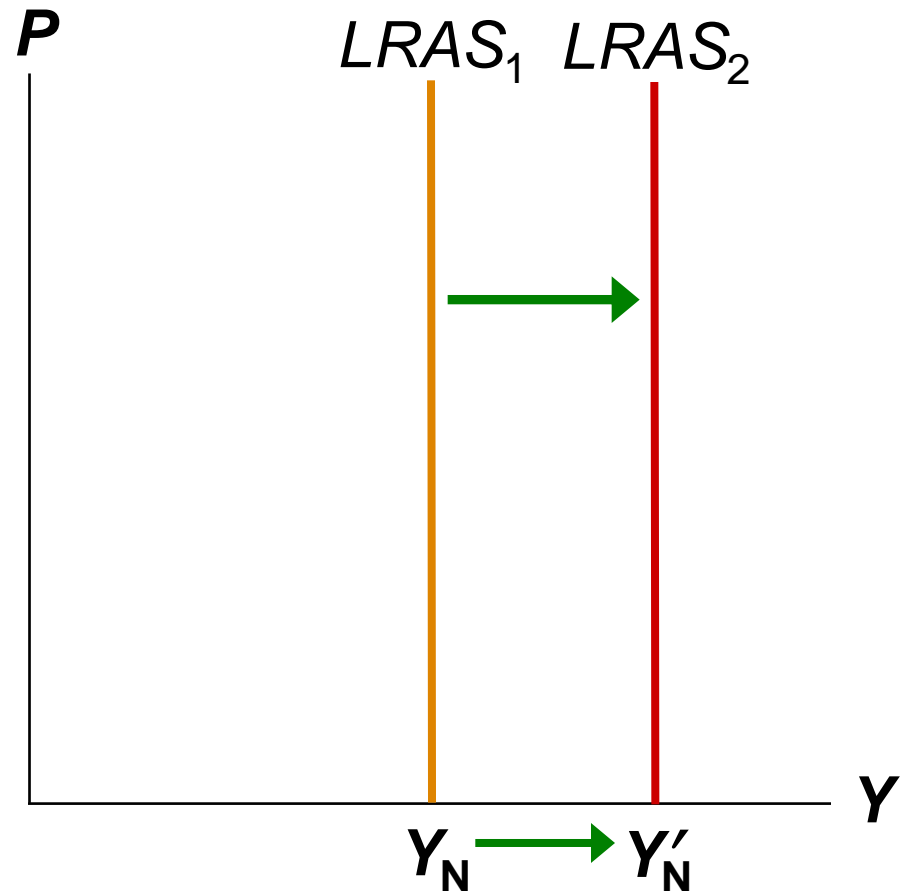
(Classical dichotomy)



Why the *LRAS* Curve Might Shift

Any event that changes any of the determinants of Y_N will shift *LRAS*.

Example:
Immigration increases L , causing Y_N to rise.



Why the *LRAS* Curve Might Shift

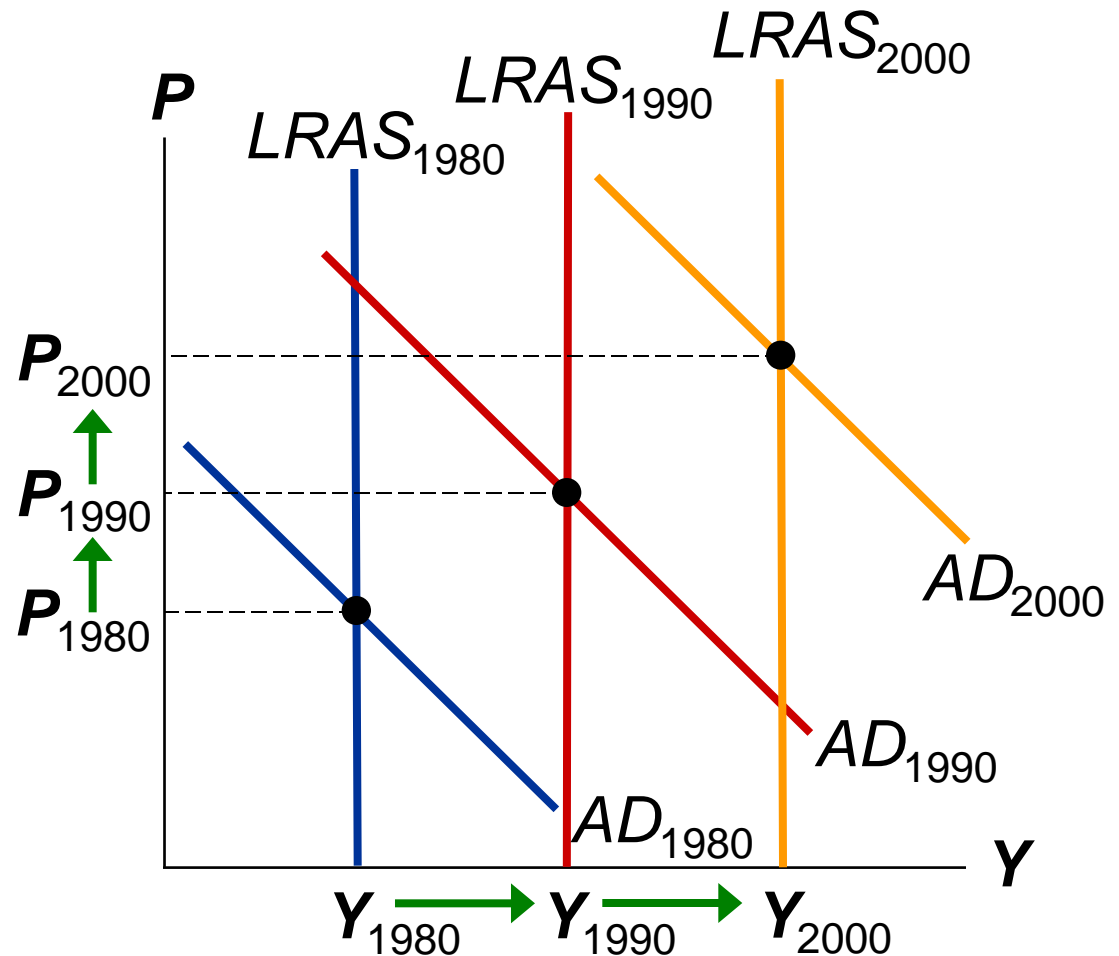
- Changes in *L* or natural rate of unemployment
 - Immigration
 - Baby-boomers retire
 - Govt policies reduce natural u-rate
- Changes in *K* or *H*
 - Investment in factories, equipment
 - More people get college degrees
 - Factories destroyed by a hurricane
- Changes in natural resources
 - Discovery of new mineral deposits
 - Reduction in supply of imported oil
 - Changing weather patterns that affect agricultural production
- Changes in technology
 - Productivity improvements from technological progress

Using *AD* & *AS* to Depict *LR* Growth and Inflation

Over the long run,
tech. progress shifts
LRAS to the right

and growth in the
money supply shifts
AD to the right.

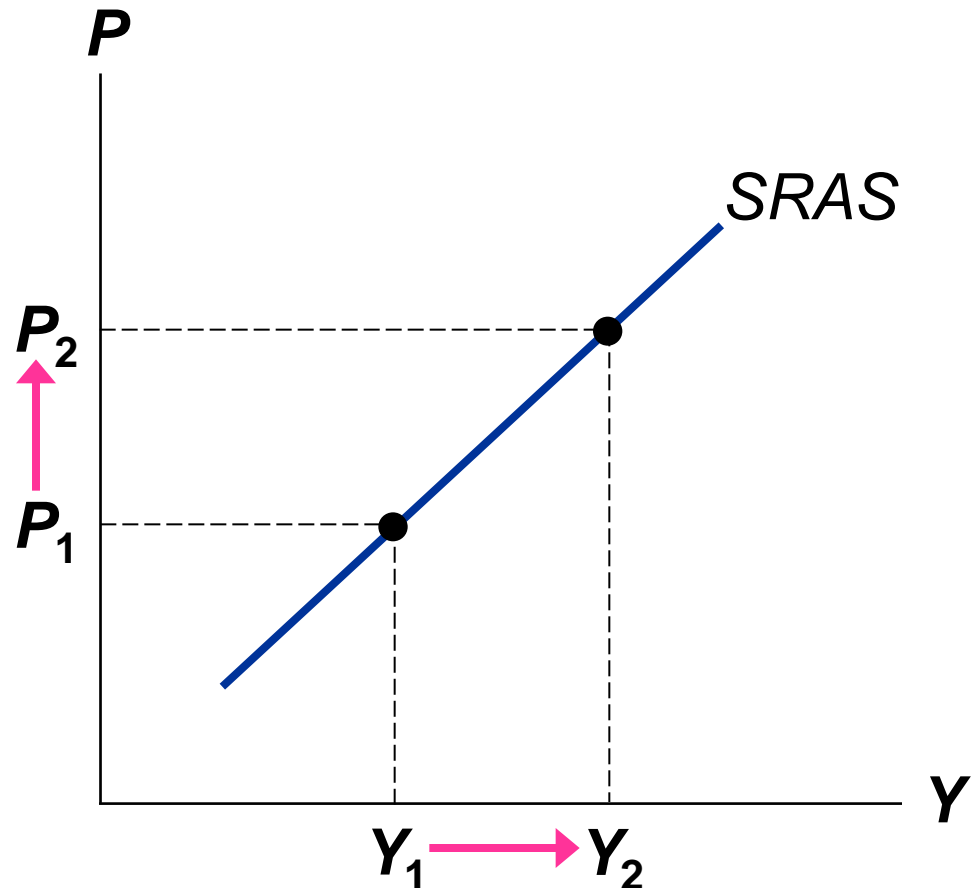
Result:
ongoing inflation
and growth in
output.



Short Run Aggregate Supply (SRAS)

The SRAS curve is upward sloping:

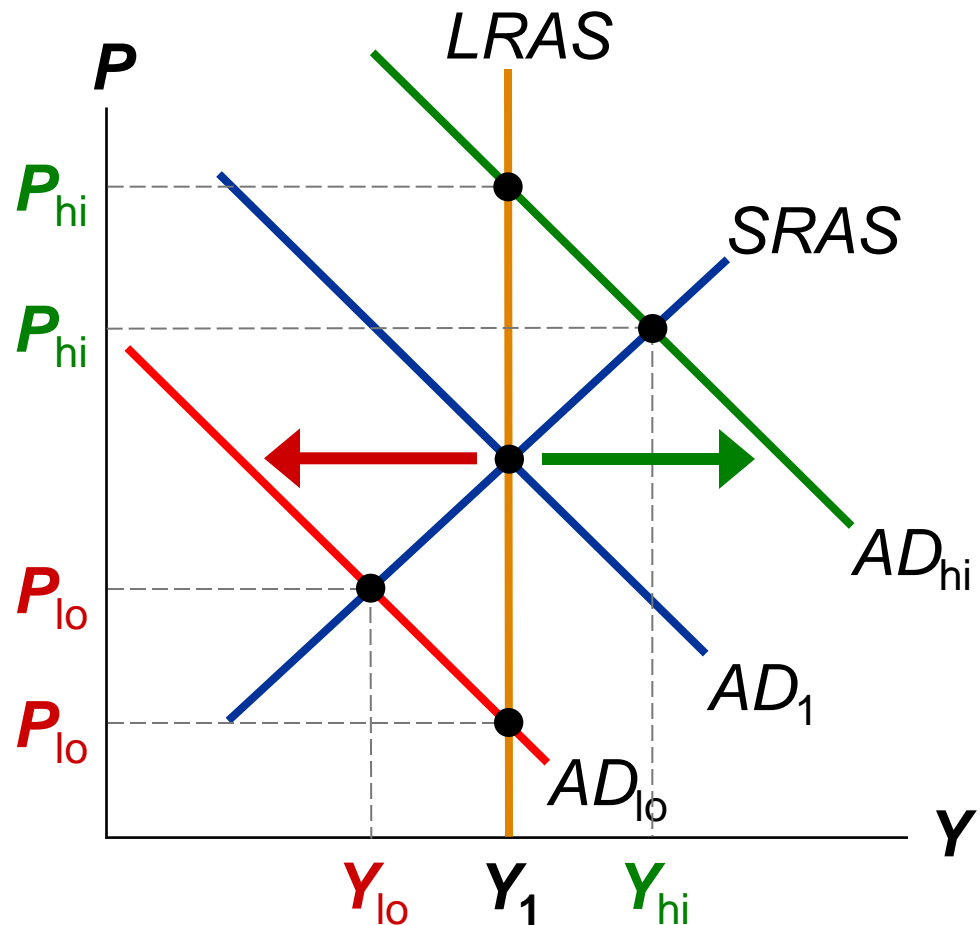
Over the period of 1-2 years, an increase in P causes an increase in the quantity of g & s supplied.



Why the Slope of *SRAS* Matters

If *AS* is vertical, fluctuations in *AD* do not cause fluctuations in output or employment.

If *AS* slopes up, then shifts in *AD* do affect output and employment.



Three Theories of SRAS

In each,

- some type of market imperfection
- result:

Output deviates from its natural rate when the actual price level deviates from the price level people expected.

1.

- Imperfection:
Nominal wages are **sticky** in the short run,
they adjust sluggishly.
 - Due to labor contracts, social norms
- Firms and workers set the nominal wage in advance
based on P_E , the price level they expect to prevail.
- If $P > P_E$,
revenue is higher, but labor cost is not.
Production is more profitable,
so firms increase output and employment.
- Hence, higher P causes higher Y ,
so the **SRAS curve slopes upward**.

2.

- Imperfection:
Many prices are sticky in the short run.
 - Due to **menu costs**, the costs of adjusting prices.
 - Examples: cost of printing new menus, the time required to change price tags
- Firms set sticky prices in advance based on P_E .
- Suppose the Fed increases the money supply unexpectedly. In the long run, P will rise.
- Hence, higher P is associated with higher Y , so the ***SRAS curve slopes upward***.

3. The Misperceptions Theory

- Imperfection:
Firms may confuse changes in P with changes in the relative price of the products they sell.
- If P rises above P_E , a firm sees its price rise before realizing all prices are rising.
The firm may believe its *relative* price is rising, and may increase output and employment.
- So, an increase in P can cause an increase in Y , making the ***SRAS curve upward-sloping.***

SRAS and LRAS

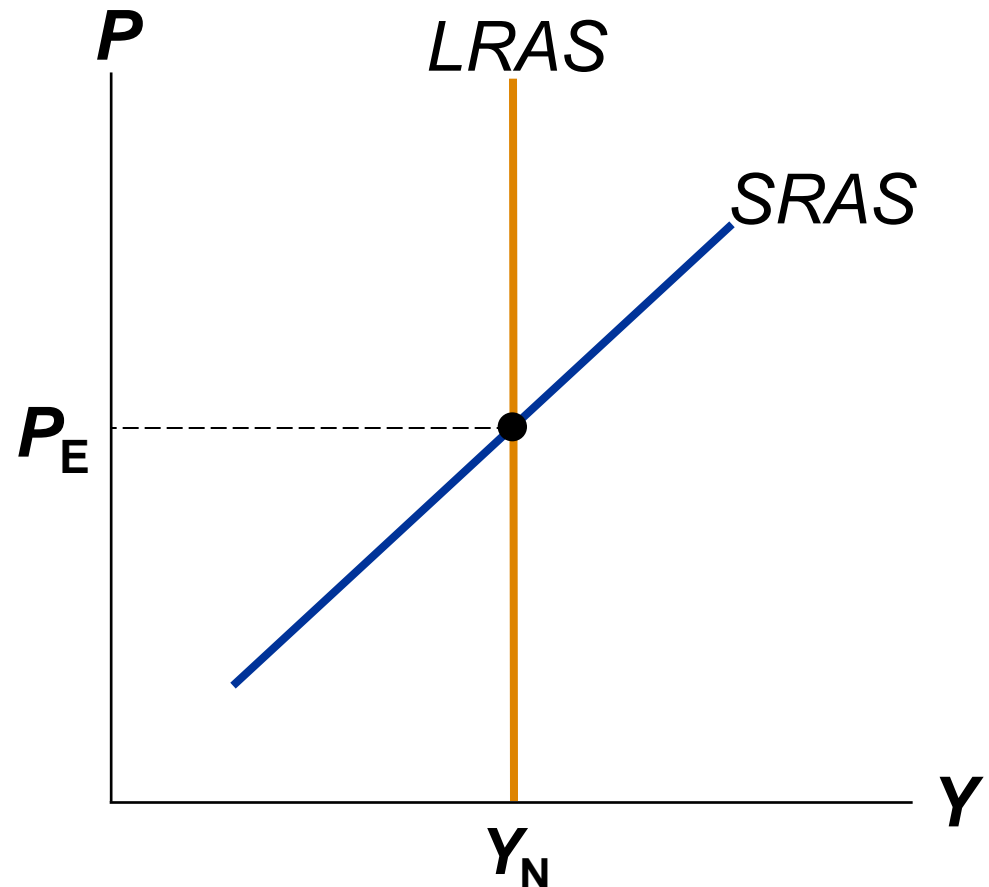
$$Y = Y_N + a(P - P_E)$$

In the long run,

$$P_E = P$$

and

$$Y = Y_N.$$



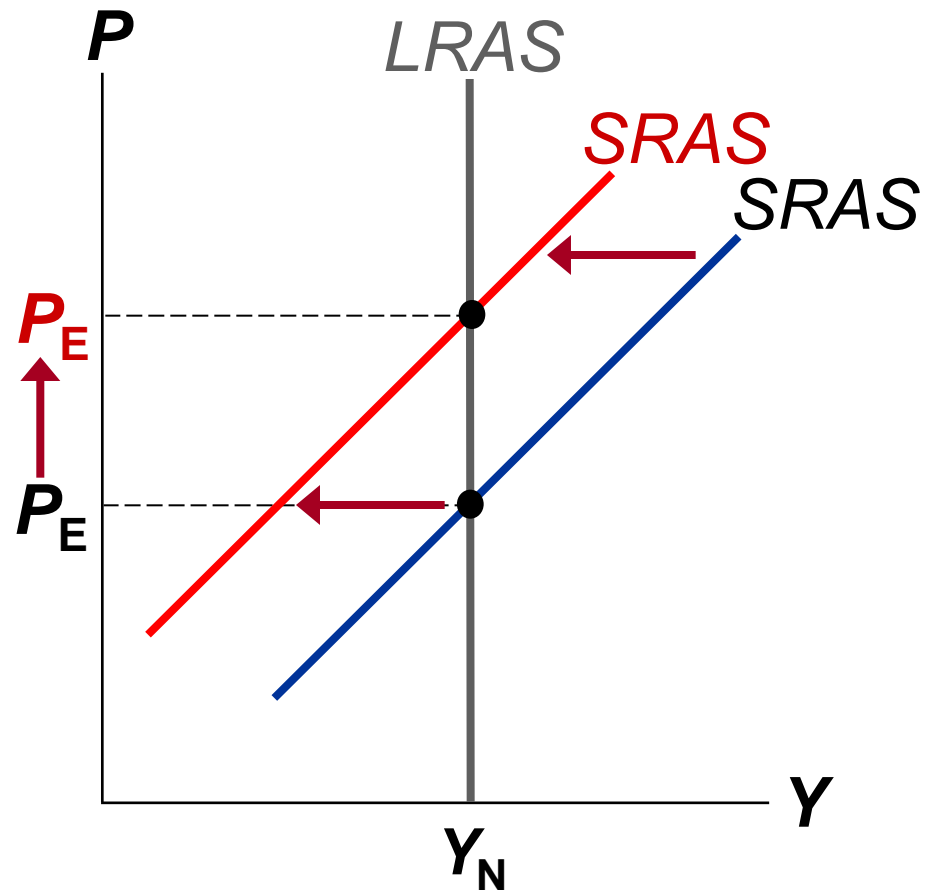
Why the *SRAS* Curve Might Shift

Everything that shifts *LRAS* shifts *SRAS*, too.

Also, P_E shifts *SRAS*:

If P_E rises,
workers & firms set
higher wages.

At each P ,
production is less
profitable, Y falls,
SRAS shifts left.



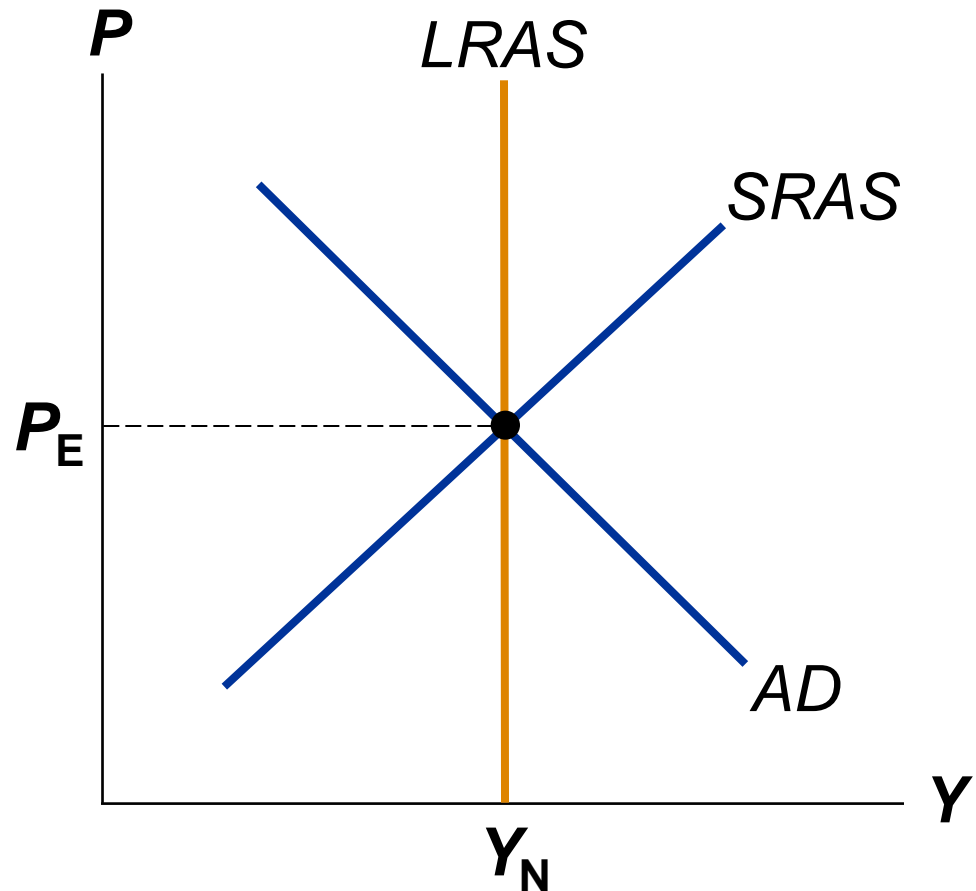
The Long-Run Equilibrium

In the long-run equilibrium,

$$P_E = P,$$

$$Y = Y_N,$$

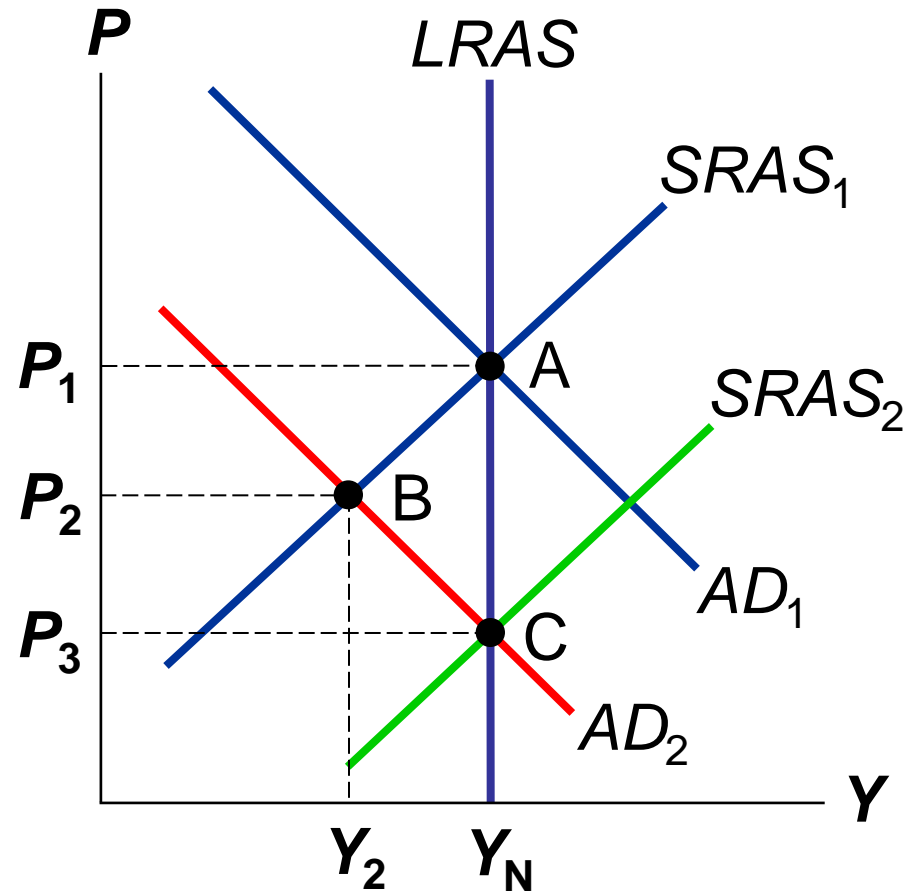
and unemployment is at its natural rate.



The Effects of a Shift in AD

Event: Stock market crash

1. Affects C , AD curve
2. C falls, so AD shifts left
3. SR eq'm at B.
 P and Y lower,
unemp higher
4. Over time, P_E falls,
 $SRAS$ shifts right,
until LR eq'm at C.
 Y and unemp back
at initial levels.



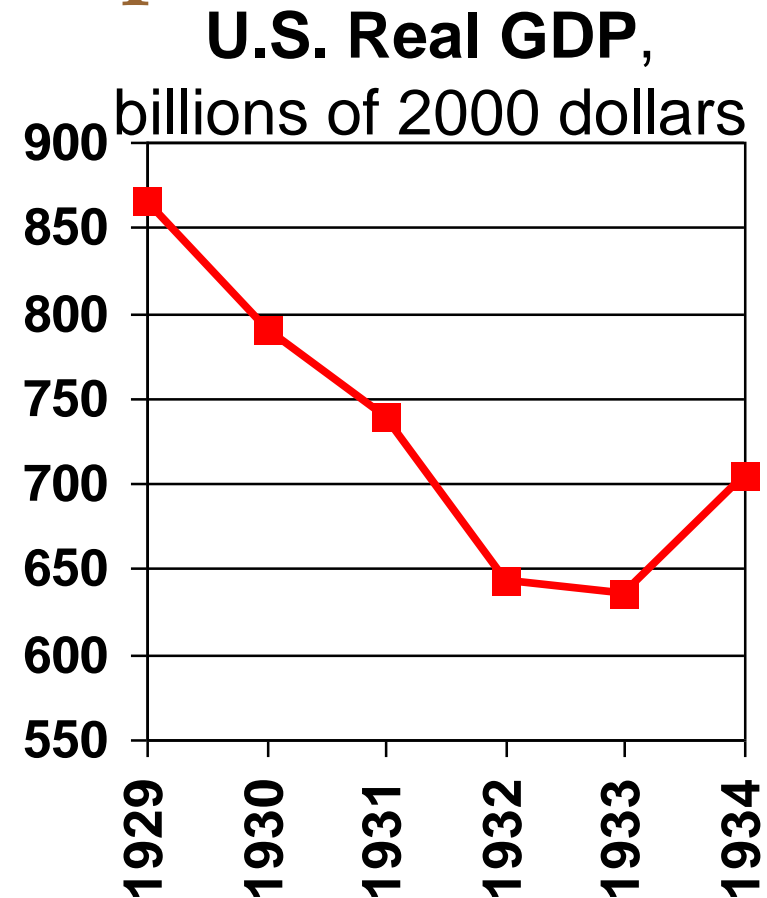
Two Big AD Shifts:

Myths About Great Depression -video

1. The Great Depression

From 1929-1933,

- money supply fell 28% due to problems in banking system
- stock prices fell 90%, reducing **C** and **I**
- **Y** fell 27%
- **P** fell 22%
- u-rate rose from 3% to 25%

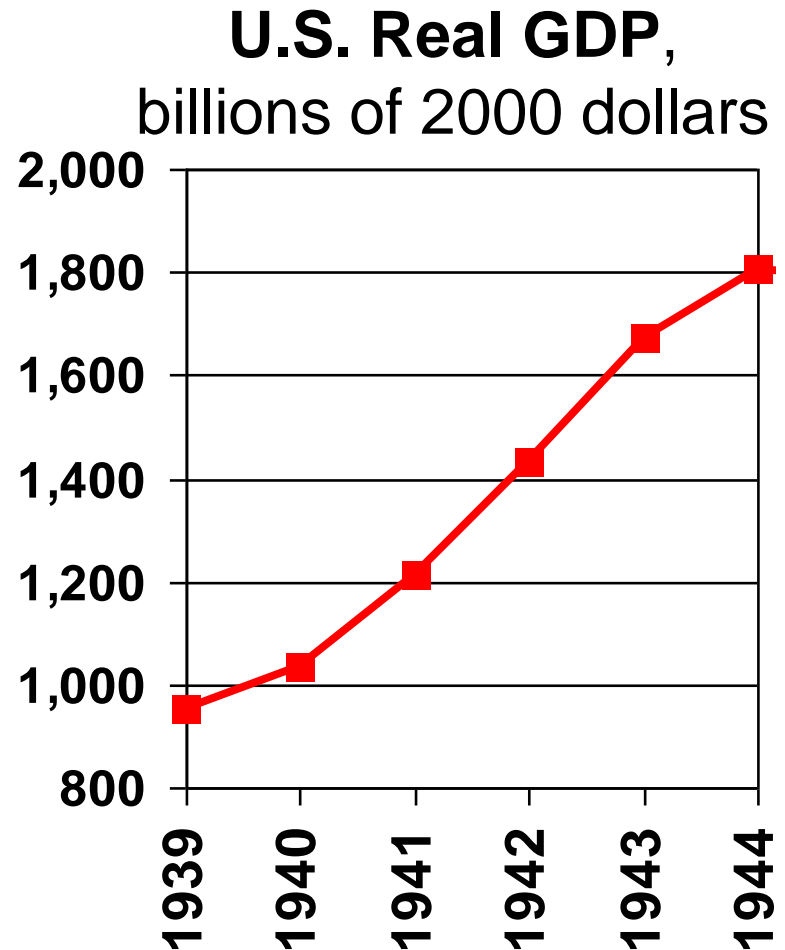


Two Big AD Shifts:

2. The World War II Boom

From 1939-1944,

- govt outlays rose from \$9.1 billion to \$91.3 billion
- Y rose 90%
- P rose 20%
- unemp fell from 17% to 1%

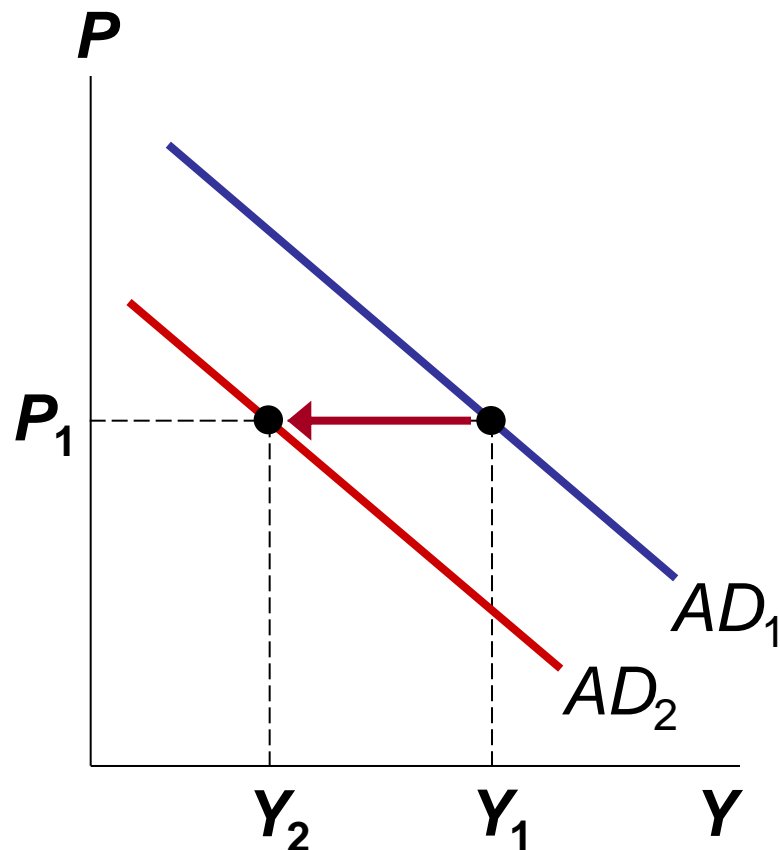
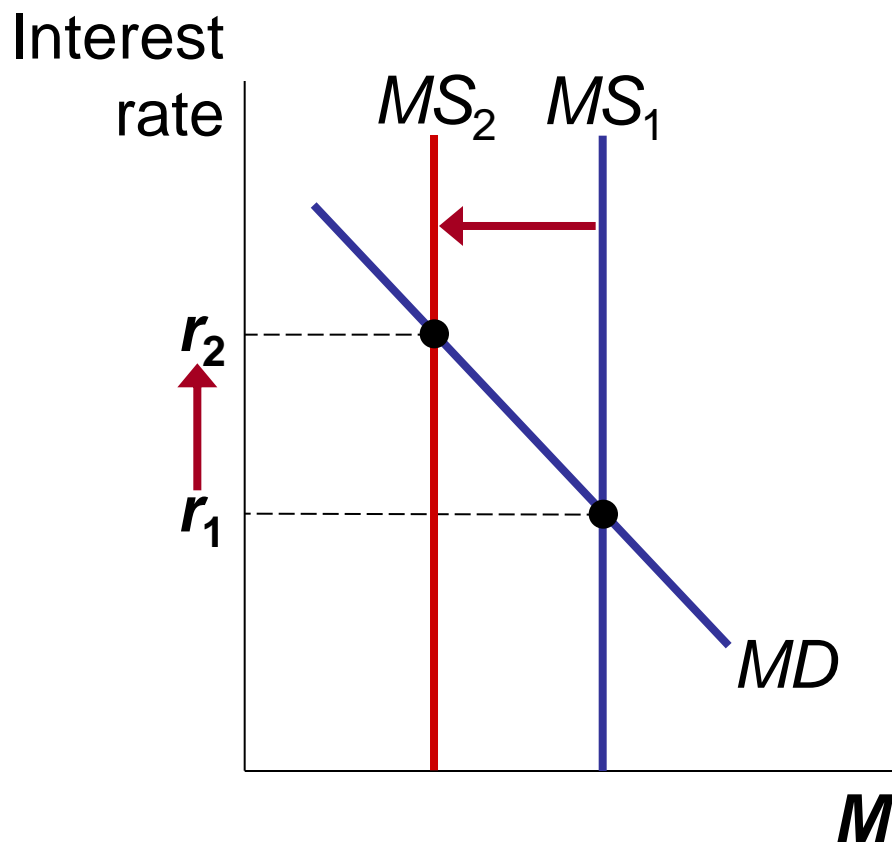


Monetary Policy and Aggregate Demand

- To achieve macroeconomic goals, the Fed can use monetary policy to shift the *AD* curve.
- The _____.
- The news often reports that the Fed targets the interest rate.
 - More precisely, the federal funds rate – which banks charge each other on short-term loans
- To change the interest rate and shift the *AD* curve, the Fed conducts open market operations to change *MS*.

The Effects of Reducing the Money Supply

The Fed can raise r by reducing the money supply.



An increase in r reduces the quantity of g&s demanded.

Fiscal Policy and Aggregate Demand

- **Fiscal policy**: the setting of the level of govt expenditure by govt policymakers
- **Expansionary** fiscal policy
 - an increase in **G** and/or decrease in **T**
 - shifts AD right
- **Contractionary** fiscal policy
 - a decrease in **G** and/or increase in **T**
 - shifts AD left
- Fiscal policy has two effects on AD ...

1. The Multiplier Effect

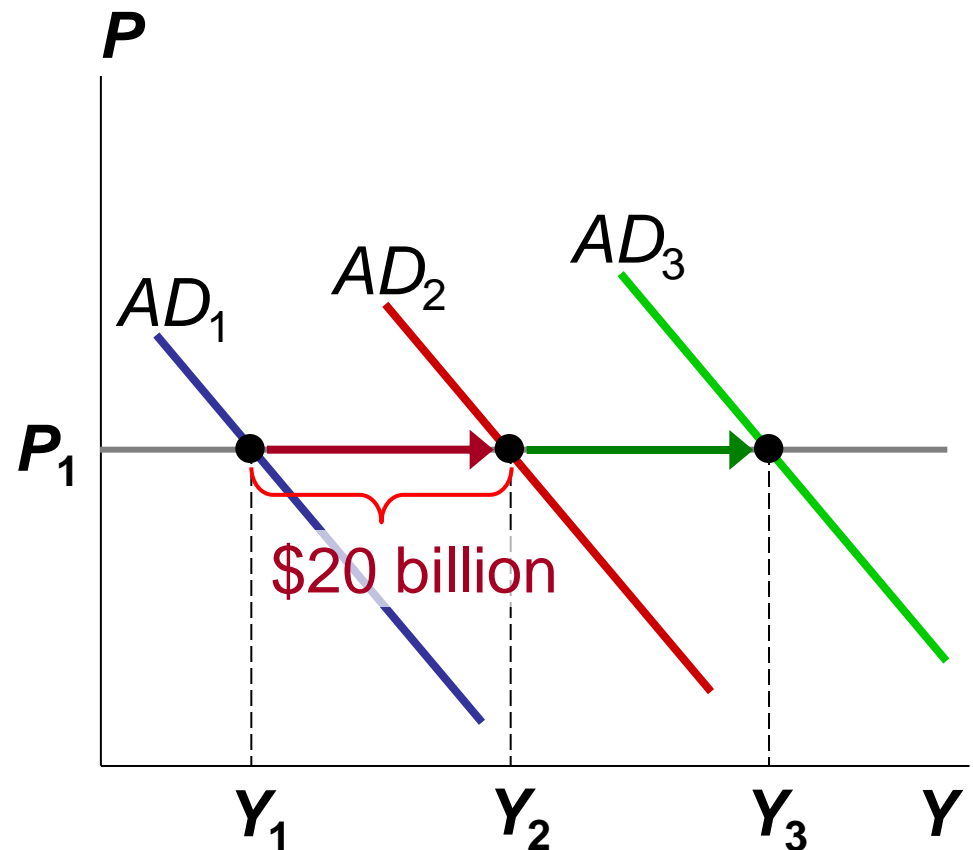
- If the govt buys \$20b of planes from Boeing, Boeing's revenue increases by \$20b.
- This is distributed to Boeing's workers (as wages) and owners (as profits or stock dividends).
- These people are also consumers and will spend a portion of the extra income.
- This extra consumption causes further increases in aggregate demand.

Multiplier effect: the additional shifts in *AD* that result when fiscal policy increases income and thereby increases consumer spending

1. The Multiplier Effect

A \$20b increase in **G** initially shifts *AD* to the right by \$20b.

The increase in **Y** causes **C** to rise, which shifts *AD* further to the right.



Marginal Propensity to Consume

- How big is the multiplier effect?

It depends on how much consumers respond to increases in income.

- **Marginal propensity to consume (MPC):**

that households consume rather than save
E.g., if $MPC = 0.8$ and income rises \$100,
C rises \$80.

A Formula for the Multiplier

Notation: $\Delta \mathbf{G}$ is the change in \mathbf{G} ,
 $\Delta \mathbf{Y}$ and $\Delta \mathbf{C}$ are the ultimate changes in \mathbf{Y} and \mathbf{C}

$$\mathbf{Y} = \mathbf{C} + \mathbf{I} + \mathbf{G} + \mathbf{NX} \quad \text{identity}$$

$$\Delta \mathbf{Y} = \Delta \mathbf{C} + \Delta \mathbf{G}$$

\mathbf{I} and \mathbf{NX} do not change

$$\Delta \mathbf{Y} = \text{MPC} \Delta \mathbf{Y} + \Delta \mathbf{G}$$

because $\Delta \mathbf{C} = \text{MPC} \Delta \mathbf{Y}$

$$\Delta \mathbf{Y} = \frac{1}{1 - \text{MPC}} \Delta \mathbf{G}$$

solved for $\Delta \mathbf{Y}$

The multiplier

Tax multiplier?

A Formula for the Multiplier

The size of the multiplier depends on MPC .

E.g., if $MPC = 0.5$ multiplier = 2
 if $MPC = 0.75$ multiplier = 4
 if $MPC = 0.9$ multiplier = 10

$$\Delta Y = \frac{1}{1 - MPC} \Delta G$$

*The
government
spending
multiplier*

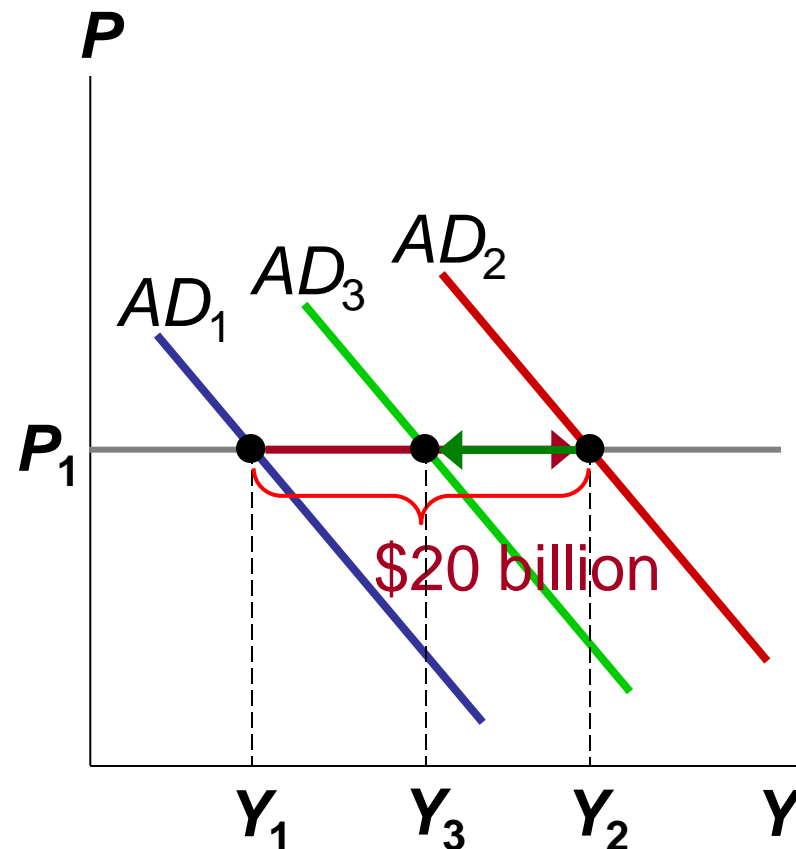
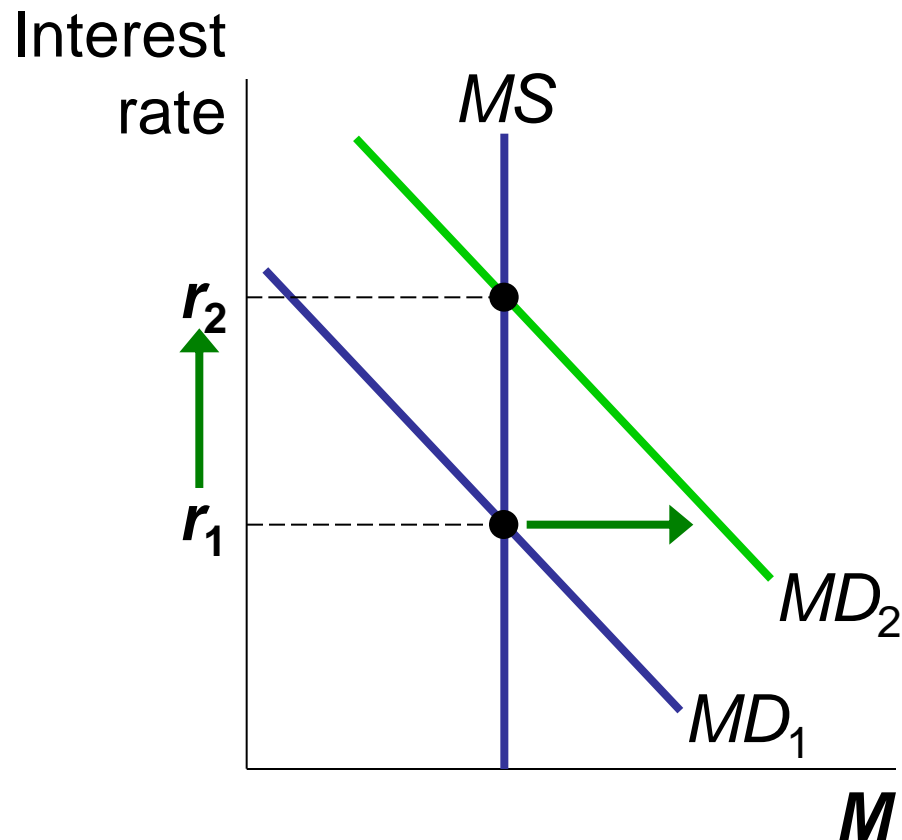
A bigger MPC means changes in Y cause bigger changes in C , which in turn cause more changes in Y .

2. The Crowding-Out Effect

- Fiscal policy has another effect on AD that works in the opposite direction.
- A _____, which reduces investment, which reduces the net increase in agg demand.
- So, the size of the AD shift may be smaller than the initial fiscal expansion.
- This is called the **crowding-out effect**.
- [How the Government Crowds Out Investment](#)-video

How the Crowding-Out Effect Works

A \$20b increase in **G** initially shifts *AD* right by \$20b



But higher **Y** increases *MD* and *r*, which reduces *AD*.

Changes in Taxes

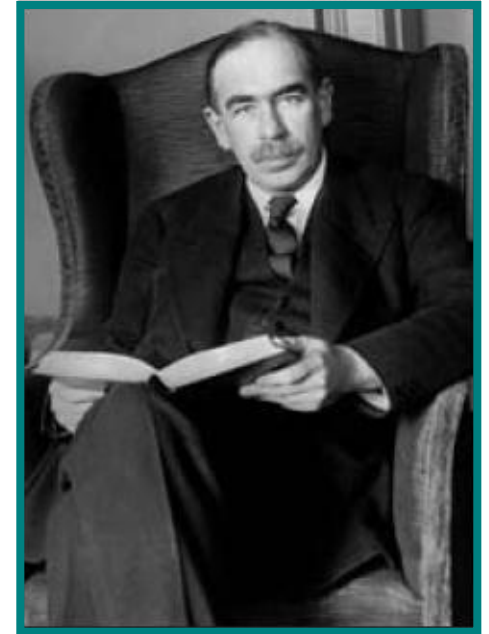
- A tax cut increases households' take-home pay.
- Households respond by spending a portion of this extra income, _____.
- The size of the shift is affected by the multiplier and crowding-out effects.
- Another factor: whether households perceive the _____
 - A permanent tax cut causes a bigger increase in **C** – and a bigger shift in the *AD* curve – than a temporary tax cut.

Fiscal Policy and Aggregate Supply

- Most economists believe the short-run effects of fiscal policy mainly work through agg demand.
- But fiscal policy might also affect agg supply.
- Recall one of the Ten Principles from Chap 1:
People respond to incentives.
- A cut in the tax rate gives workers incentive to work more, so it might increase the quantity of g&s supplied and shift AS to the right.
- People who believe this effect is large are called **“Supply-siders.”**

John Maynard Keynes, 1883-1946

- *The General Theory of Employment, Interest, and Money*, 1936
- Argued recessions and depressions can result from inadequate demand; policymakers should shift *AD*.
- Famous critique of classical theory:
The long run is a misleading guide to current affairs. In the long run, we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us when the storm is long past, the ocean will be flat.



The Case for Active Stabilization Policy

- Keynes: “Animal spirits” cause waves of pessimism and optimism among households and firms, leading to shifts in aggregate demand and fluctuations in output and employment.
- Also, other factors cause fluctuations, *e.g.*,
 - booms and recessions abroad
 - stock market booms and crashes
- If policymakers do nothing, these fluctuations are destabilizing to businesses, workers, consumers.
- [2008 Financial Crisis-Govt's Response](#)-video

The Case Against Active Stabilization Policy

- Monetary policy affects economy with a long lag:
 - Firms make investment plans in advance, so I takes time to respond to changes in r .
 - Most economists believe it takes at least 6 months for mon policy to affect output and employment.
- Fiscal policy also works with a long lag:
 - Changes in G and T require Acts of Congress.
 - The legislative process can take months or years.
- Due to these long lags, critics of active policy argue that such policies may destabilize the economy rather than help it:

By the time the policies affect agg demand, the economy's condition may have changed.
- These critics contend that policymakers should focus on long-run goals like economic growth and low inflation.

- When Governments Cut Spending-video

CHAPTER Oil and the economy

- Economic fluctuations in the U.S. economy
 - Since 1970
 - Some: originated in the oil fields of the Middle East
- Some event - reduces the supply of crude oil flowing from Middle East
 - Price of oil - rises around the world
 - Aggregate-supply curve – shifts left
- Recent years: World market for oil – not an important source of economic fluctuations
 - Changes in technology
- 2008 - world oil prices – rising significantly
 - Increased demand from a rapidly growing China

The Effects of a Shift in *SRAS*

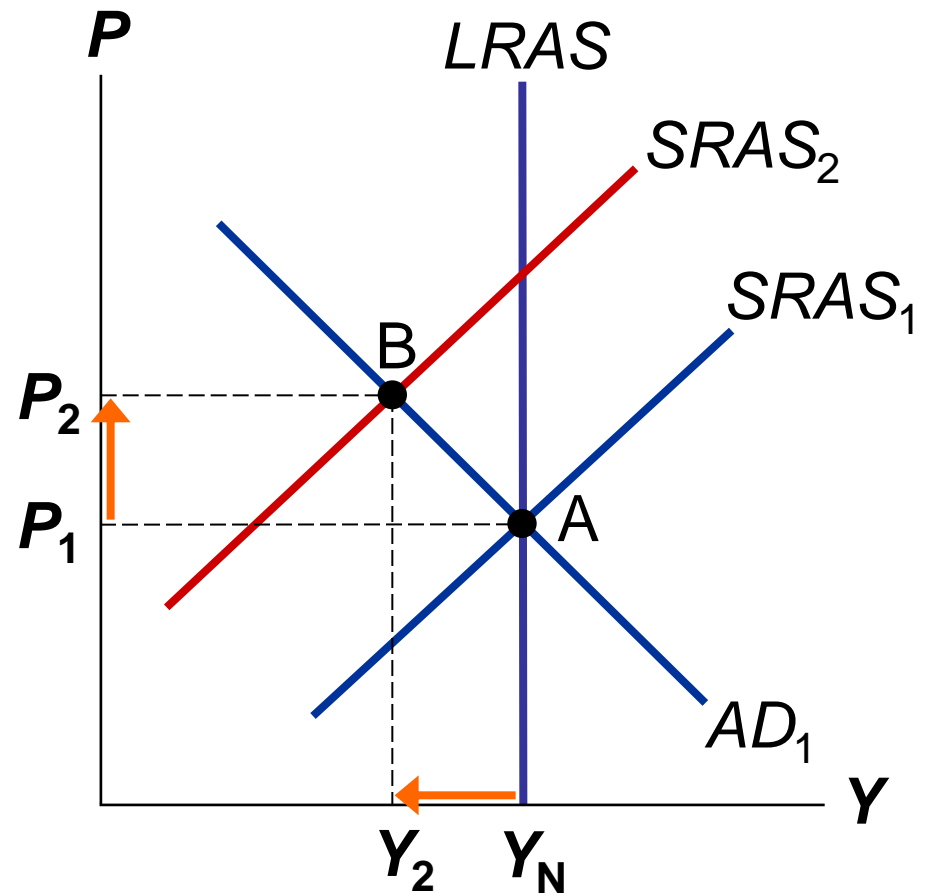
Event: Oil prices rise

1. Increases costs,
shifts *SRAS*
(assume *LRAS* constant)

2. *SRAS* shifts left

3. SR eq'm at point B.
P higher, *Y* lower,
unemp higher

From A to B, **stagflation**,
a period of
falling output
and rising prices.



The 1970s Oil Shocks and Their Effects

	1973-75	1978-80
Real oil prices	+ 138%	+ 99%
CPI	+ 21%	+ 26%
Real GDP	– 0.7%	+ 2.9%
# of unemployed persons	+ 3.5 million	+ 1.4 million

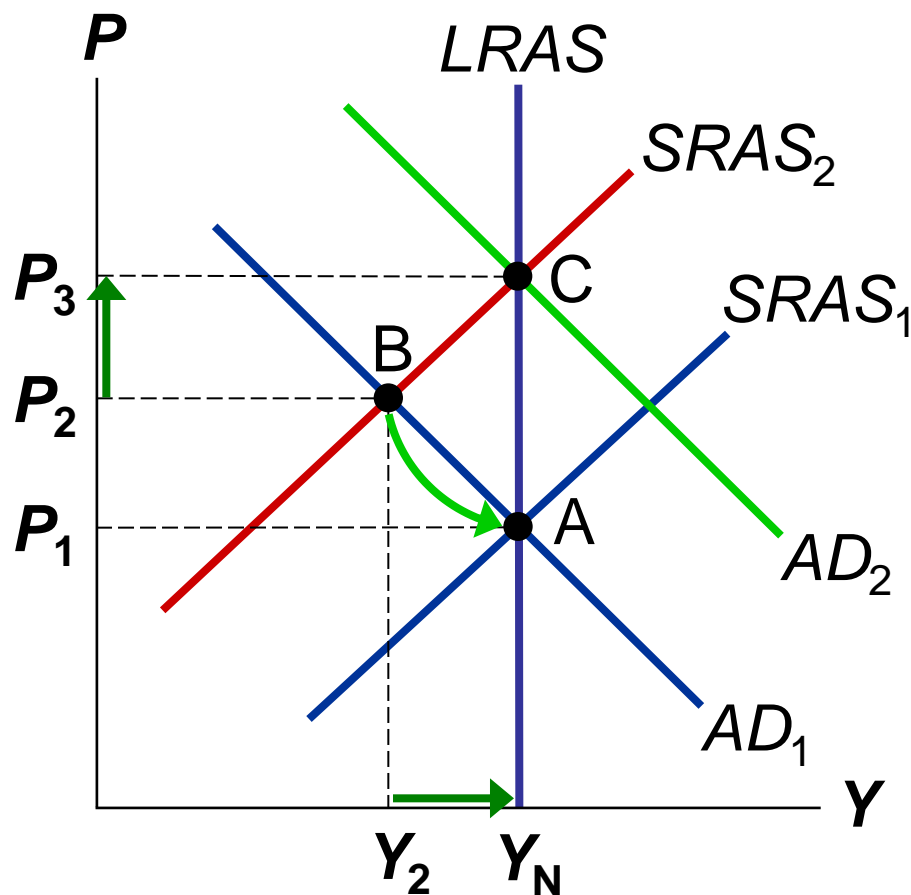
Accommodating an Adverse Shift in *SRAS*

If policymakers do nothing,

4. Low employment causes wages to fall, *SRAS* shifts right, until LR eq'm at A.

Or, policymakers could use fiscal or monetary policy to increase *AD* and accommodate the *AS* shift:

Y back to Y_N , but *P* permanently higher.



Macroeconomic Schools of Thought- video

■ The Classical View

- A **classical** macroeconomist believes that the economy is self-regulating and always at full employment.
- The term “classical” derives from the name of the founding school of economics that includes Adam Smith, David Ricardo, and John Stuart Mill.
- A **new classical** view is that business cycle fluctuations are the efficient responses of a well-functioning market economy that is bombarded by shocks that arise from the uneven pace of technological change.

Macroeconomic Schools of Thought

■ The Keynesian View

- A **Keynesian** macroeconomist believes that left alone, the economy would rarely operate at full employment and that to achieve and maintain full employment, active help from fiscal policy and monetary policy is required.
- The term “Keynesian” derives from the name of one of the twentieth century’s most famous economists, John Maynard Keynes.
- A **new Keynesian** view holds that not only is the money wage rate sticky but also are the prices of goods sticky.

Macroeconomic Schools of Thought

■ The Monetarist View

- A **monetarist** is a macroeconomist who believes that the economy is self-regulating and that it will normally operate at full employment, provided that monetary policy is not erratic and that the pace of money growth is kept steady.
- The term “monetarist” was coined by an outstanding twentieth-century economist, Karl Brunner, to describe his own views and those of Milton Friedman.

Utilitarianism

- **Utility**: a measure of happiness or satisfaction
- **Utilitarianism**: argues that govt should choose policies to maximize society's total utility
 - Founders: Jeremy Bentham, John Stuart Mill
- Because of **diminishing marginal utility**, redistributing income from rich to poor increases utility of the poor more than it reduces utility of the rich.
- Yet, utilitarians do not advocate *equalizing* incomes – would reduce total income of everyone due to incentive effects and efficiency losses.

Liberalism

- **Liberalism**: argues that govt should choose policies deemed to be just by an impartial observer behind a “veil of ignorance”
 - Founder: John Rawls
- **Maximin criterion**: govt should aim to maximize the well-being of society’s worst-off person
- Calls for more redistribution than utilitarianism (though still not complete equalization of incomes).
- Income redistribution is a form of **social insurance**, a govt policy aimed at protecting people against the risk of adverse events.

Libertarianism

- **Libertarianism**: argues that govt should punish crimes and enforce voluntary agreements but not redistribute income
 - Advocate: Robert Nozick
 - [How to Fix Our Fiscal Crisis](#)-video
- Instead of focusing on outcomes, libertarians focus on the process.
 - Govt should enforce individual rights, should try to equalize opportunities.
 - If the income distribution is achieved fairly, govt should not interfere, even if unequal.
 - [Austrian Economics-Business Cycles](#)-vide0