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Learning Objectives

1. Explain why wages and other factor prices change when there is an output gap.
2. Explain how induced changes in factor prices affect firms' costs and shift the AS curve.
3. Explain why output gradually returns to potential output following an aggregate demand or supply shock.
4. Recognize how lags and uncertainty place limitations on the use of fiscal policy.

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The Short Run

The defining characteristics of the short run are:

- factor prices are assumed to be constant, and
- technology and factor supplies are assumed to be constant.

The Adjustment of Factor Prices

During the adjustment process, factor prices are assumed to be flexible, but technology and factor supplies are constant.

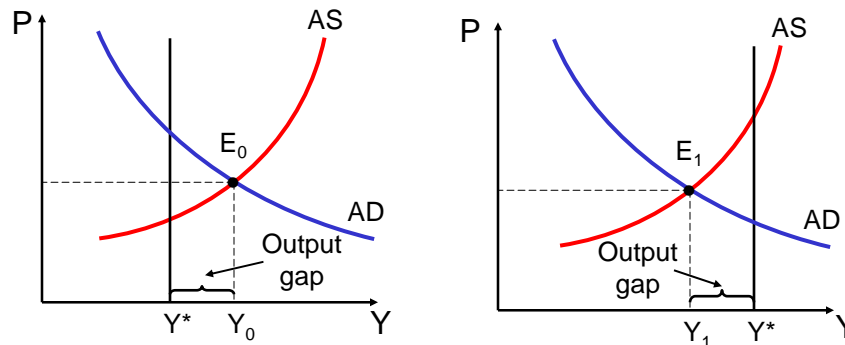
The Long Run

In the long run, factor prices are assumed to *have completely adjusted*, and technology and factor supplies are assumed to be changing.

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1 Output Gaps and Factor Prices

Potential Output and the Output Gap



$$\text{Output Gap} = Y - Y^*$$

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Factor Prices and the Output Gap

An Inflationary Output Gap

When actual GDP exceeds potential GDP ($Y > Y^*$), the demand for labour (and other factor services) is relatively high.

The boom that is associated with an inflationary gap generates a set of conditions — high profits for firms and unusually large demand for labour — that causes wages and unit costs to rise.

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When actual GDP is below potential ($Y < Y^*$), the demand for labour (and other factor services) is relatively low.

The slump that is associated with a recessionary gap generates a set of conditions — low profits for firms and low demand for labour — that causes wages and unit costs to fall.

Speed of Factor-Price Adjustment

The speed of factor-price adjustment depends on the situation — booms typically cause wages to rise rapidly, whereas slumps often cause wages to fall only slowly.

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Potential Output as an “Anchor”

Following an aggregate demand or supply shock, the short-run equilibrium level of output may be different from potential output. As a result, wages and other factor prices will adjust, eventually bringing the equilibrium level of output back to potential.

When $Y = Y^*$, the unemployment rate equals the NAIRU, the natural rate of unemployment (denoted U^*).

U^* includes both structural and frictional unemployment.

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The Phillips Curve

The Phillips curve was originally drawn as a negative relationship between the unemployment rate and the rate of change in nominal wages.

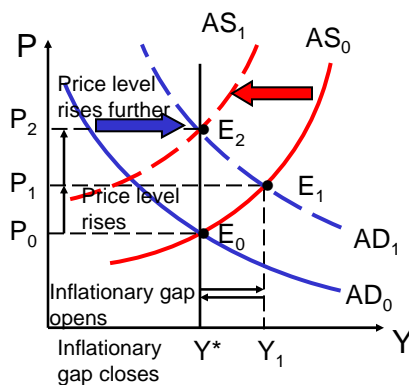
- $Y > Y^* \Rightarrow$ excess demand for labour \Rightarrow wages rise
- $Y < Y^* \Rightarrow$ excess supply for labour \Rightarrow wages fall
- $Y = Y^* \Rightarrow$ no excess supply/demand \Rightarrow wages constant

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2 Demand and Supply Shocks

Expansionary AD Shocks

A positive demand shock first raises **P** and **Y**. The output gap then causes wages to rise and this shifts the **AS** curve, closing the output gap and raising **P** further.

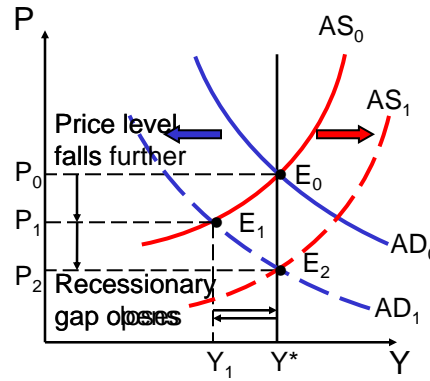


This automatic adjustment mechanism eventually eliminates any boom caused by a demand shock by returning **Y** to **Y***.

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Contractionary AD Shocks

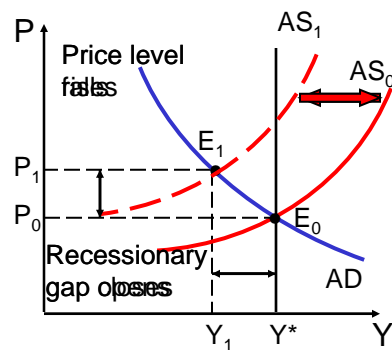
A negative demand shock first reduces P and Y . The output gap then causes wages to fall and this shifts the **AS** curve, closing the output gap and reducing P further.



The automatic adjustment mechanism works following negative demand shocks too!

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Aggregate Supply Shocks



A negative supply shock causes Y to fall and P to rise.

The adjustment of factor prices then reverses the **AS** shift and returns the economy to its starting point.

Example: Consider an increase in the world price of some important raw materials.

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It Matters how Quickly Wages Adjust!

Following either a demand or supply shock, the speed the economy returns to Y^* depends on the amount of wage flexibility.

Wages that are flexible — and thus change rapidly during output gaps — provide an automatic adjustment mechanism that pushes the economy back toward potential output.

But if wages are sticky or rigid, the economy's adjustment mechanism is sluggish and thus output gaps tend to persist.

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Economic Shocks and Business Cycles

Both aggregate demand and aggregate supply are subject to continual random shocks.

The economy's automatic adjustment mechanism converts these shocks into cyclical fluctuations in real GDP.

Because of the significant lags in the economy's responses to these shocks, changes in output are drawn out over substantial periods of time.

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Long-Run Equilibrium

The economy is in a state of long-run equilibrium when factor prices are no longer adjusting to output gaps.

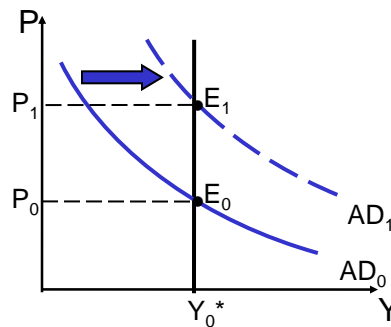
In other words, full employment of factors will prevail, and output will be at its potential level, Y^* .

The vertical line (P, Y) that depicts potential output is sometimes called the *long-run aggregate supply curve*, or the *Classical aggregate supply curve*.

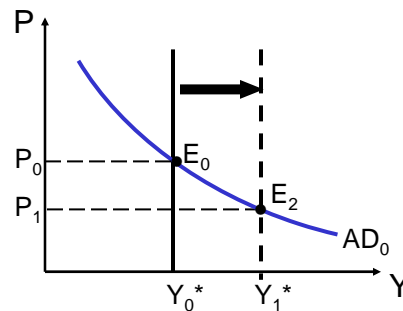
This curve is vertical because there is no relationship in the long run between the price level and the amount of output that the economy can produce under full employment.

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In the long run, Y is determined only by potential output — aggregate demand determines P .

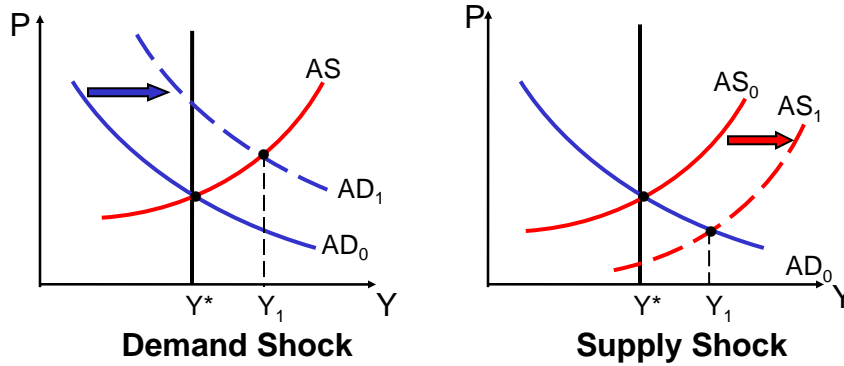


Growth in potential output, holding demand constant, will result in a lower price level.



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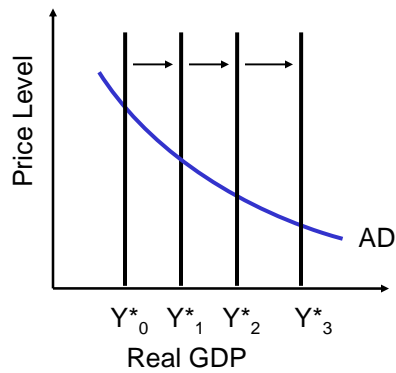
Fiscal Policy and the Business Cycle



In the short run, the economy is in equilibrium where the **AD** curve intersects the **AS** curve.

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In the long run, the economy is in equilibrium at $Y = Y^*$, the position of the vertical Y^* curve.

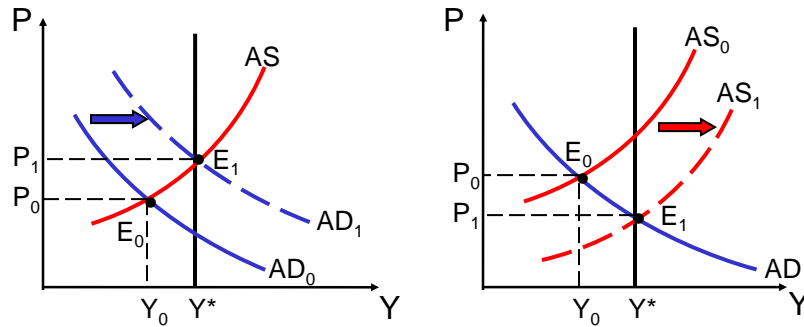


The price level is determined where the **AD** curve intersects potential output.

In the long run, only changes in the level of Y^* can change the level of real GDP.

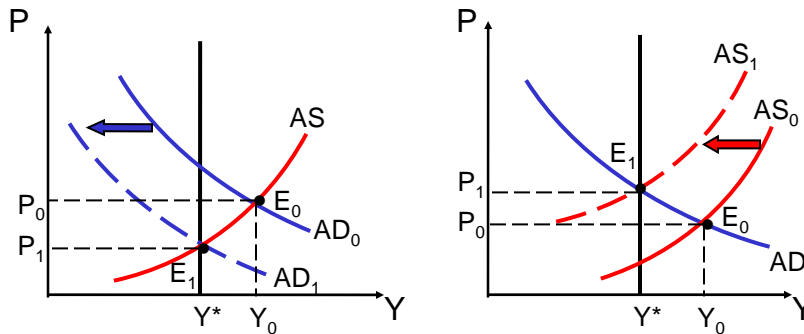
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The Basic Theory of Fiscal Stabilization



A recessionary gap may be closed by a rightward shift in **AD** or by a (possibly slow) rightward shift in the **AS** curve.

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An inflationary gap may be removed by a leftward shift in **AD**, or by a leftward shift of **AS**.

When the economy's adjustment mechanism is slow to operate, there is a potential stabilizing role for fiscal policy.

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The Paradox of Thrift

The paradox of thrift (the idea that an increase in saving reduces the level of real GDP) is only true in the short run, when the level of aggregate demand is relevant for determining real GDP.

In the long run, an increase in desired saving has the following effects:

- the price level falls,
- investment rises, and
- output returns to its potential level.

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Automatic vs. Discretionary Fiscal Policy

Discretionary fiscal policy occurs when the government decides to change **G** and/or **T** in an effort to change real GDP. Discretionary fiscal policy is reflected in a shift of the **AD** curve.

The upward slope of the budget surplus function means that there are fiscal effects that cause the tax-and-transfer system to act as an automatic stabilizer for the economy.

As real GDP rises, tax revenues rise, and this reduces expenditure, dampening the increase in GDP. As real GDP falls, tax revenues fall, and this increases expenditure, dampening the fall of real GDP.

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Limitations of Discretionary Fiscal Policy

Most economists agree that automatic fiscal stabilizers are desirable and generally work well, but they have concerns about discretionary fiscal policy.

Issues concerning the limitations of discretionary fiscal policy are:

- long and uncertain lags,
- temporary versus permanent changes in policy, and
- the impossibility of “fine tuning.”

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Fiscal Policy and Growth

The desirability of using fiscal policy to stabilize the economy depends a great deal on the speed with which the economy's automatic adjustment mechanism returns the economy to potential output.

Fiscal stabilization policy will generally have consequences for economic growth:

- an increase in **G** temporarily increases real GDP,
- investment is lower in the new long-run equilibrium, and
- this may reduce the rate of growth of potential output.