Short-run and Long-run equilibria in the AD-AS model: Flexible Wages and Prices
The Classical View

- The term classical economics is often used to refer to an era in the history of economic thought that stretched from about 1750 to the early 1900s.

- Although classical economists lived and wrote many years ago, their ideas are often employed by some modern-day economists.
Classical Economists and Say’s Law

- The theory of supply and demand suggests that markets can experience temporary shortages and surpluses.

- But can the economy have a general surplus of goods and services?

- The classical economists thought not, largely because they believed in Say’s law (named after J. B. Say).

- In its simplest version, Say’s law states that supply creates its own demand.
Classical Economists and Say’s Law

- This law is most easily understood in terms of a barter economy.

- Consider a person baking bread in a barter economy; the baker is a supplier of bread.

- According to Say, the baker works at his trade because he plans to demand other goods.

- As he is baking bread, the baker is thinking of the goods and services he will obtain in exchange for it.

- Thus, his act of supplying bread is linked to his demand for other goods. Supply creates its own demand.
Classical Economists and Say’s Law

- If supplying some goods leads to a simultaneous demand for other goods, then Say’s law implies that there cannot be either
  1. a general overproduction of goods (where supply in the economy is greater than demand) or
  2. a general underproduction of goods (where demand in the economy is greater than supply).

- On the other hand, if the baker is baking bread in a money economy, does Say’s law hold?
Classical Economists and Say’s Law

- Over a period of time, the baker earns an income as a result of supplying bread.

- What does he do with the income?

- One use of the money is to buy goods and services.

- However, his demand for goods and services does not necessarily match the income that he generates by supplying bread.

- The baker may spend less than his full income because he saves.
So, does it mean that Say’s law does not hold in a money economy?

According to classical economists - NO

They argued that even in a money economy, where individuals sometimes spend less than their full incomes, Say’s law still holds.

Their argument was partly based on the assumption of interest rate flexibility.
Classical Economists and Interest Rate Flexibility

- For Say’s law to hold in a money economy, the funds saved must give rise to an equal amount of funds invested.

- This means, what leaves the spending stream through one door must enter it through another door.

- If not, then some of the income earned from supplying goods may not be used to demand goods (good-bye Say’s law).

- As a result, goods will be overproduced.
Classical Economists and Interest Rate Flexibility

Suppose now that saving increases at each interest rate level. In this Figure, the saving increase is represented by a rightward shift in the saving supply curve from $S_1$ to $S_2$. The classical economists believed that an increase in saving puts downward pressure on the interest rate, moving it from $i_1$ to $i_2$, thereby increasing the number of dollars firms invest.
The Classical View of Say’s Law in a Money Economy

According to classical economists, a decrease in consumption and subsequent increase in saving will be matched by an equal increase in investment. Thus, there is no change in total expenditures.

1. \[ TE = C + I + G + (EX - IM) \]
   - $5,000 = $3,000 + $600 + $1,200 + $200

2. Saving increases by $100; so consumption decreases by $100. Consumption is now $2,900.

3. The additional saving lowers the interest rate and increases investment by $100. Investment is now $700.

4. \[ TE = C + I + G + (EX - IM) \]
   - $5,000 = $2,900 + $700 + $1,200 + $200

TE is $5,000 before and after saving increased.
Classical Economists and Interest Rate Flexibility

- According to the classical view of the economy, then, Say’s law holds both in a barter economy and in a money economy.

- In a money economy, according to classical economists, interest rates will adjust to equate saving and investment. Therefore, any fall in consumption (and consequent rise in saving) will be matched by an equal rise in investment.

- In essence, at a given price level, total expenditures will not decrease as a result of an increase in saving. So: *Saving is not the same as “Not Spending”*. 
Classical Economists and Interest Rate Flexibility

- What does an increase in saving imply for aggregate demand (AD)?

- In chapter 8, we learned that aggregate demand changes only if total spending in the economy changes at a given price level.

- Therefore, because total spending does not change as a result of an increase in saving, aggregate demand does not change.
Classical Economists on Prices and Wages: Both Are Flexible

- Classical economists believed that most, if not all, markets are competitive; that is, supply and demand operate in all markets.

- If the labor market has a surplus, the wage rate will decline, and the quantity supplied of labor will equal the quantity demanded of it. Similarly, given a shortage in the labor market, the wage rate will rise, and the quantity supplied will equal the quantity demanded.

- What holds for wages in the labor market holds for prices in the goods and services market. Prices will adjust quickly to any surpluses or shortages, and equilibrium will be quickly re-established.

- In short, the classical view is that prices and wages are flexible: They rise and decline in response to shortages and surpluses.
Three States of the Economy

Real GDP and Natural Real GDP: Three Possibilities

Economists often refer to three possible states of an economy when considering the relationship between Real GDP and Natural Real GDP:

- Real GDP is less than Natural Real GDP
- Real GDP is greater than Natural Real GDP
- Real GDP is equal to Natural Real GDP
REAL GDP IS LESS THAN NATURAL REAL GDP (RECESSSIONARY GAP)

This Figure shows an AD curve, an SRAS curve, and the LRAS curve. It also shows that Natural Real GDP ($Q_N$) is produced in the long run.

Short-run equilibrium is at the intersection of the AD and SRAS curves; so, in this Figure, short-run equilibrium is at point 1. The Real GDP level that the economy is producing at point 1 is designated by $Q_1$. 
REAL GDP IS LESS THAN NATURAL REAL GDP (RECESSIONARY GAP)

Compare $Q_1$ with $Q_N$. Obviously, $Q_1$ is less than $Q_N$. In other words, the economy is currently producing a level of Real GDP in the short run that is less than its Natural Real GDP level. When the Real GDP that the economy is producing is less than its Natural Real GDP, the economy is said to be in a recessionary gap.
REAL GDP IS GREATER THAN NATURAL REAL GDP (INFLATIONARY GAP)

In this Figure, \( Q_1 \) is greater than \( Q_N \). In other words, the economy is currently producing a level of Real GDP in the short run that is greater than its Natural Real GDP level, or potential output. When the Real GDP that the economy is producing is greater than its Natural Real GDP, the economy is said to be in an inflationary gap.
REAL GDP IS EQUAL TO NATURAL REAL GDP (LONG-RUN EQUILIBRIUM)

This time, $Q_1$ is equal to $Q_N$. In other words, the economy is currently producing a level of Real GDP that is equal to its Natural Real GDP, or potential output. When the Real GDP that the economy is producing is equal to its Natural Real GDP, the economy is in **long-run equilibrium**.
The Labor Market and the Three States of the Economy

Three States of the Economy

The labor market consists of the demand for and the supply of labor. Like a goods market, the labor market can have three possible scenarios:

(1) Equilibrium
(2) Shortage
(3) Surplus
Three States of the Economy

The Labor Market and the Three States of the Economy

**Equilibrium:** When the labor market is in equilibrium, the same number of jobs are available as the number of people who want to work. The quantity demanded of labor is equal to the quantity supplied.

**Shortage:** When the labor market has a shortage, more jobs are available than are people who want to work. The quantity demanded of labor is greater than the quantity supplied.

**Surplus:** When the labor market has a surplus, more people want to work than there are jobs available. The quantity supplied of labor is greater than the quantity demanded.
Three States of the Economy

The Labor Market and the Three States of the Economy: Recessionary gap and the labor market

The unemployment rate that exists when the economy produces Natural Real GDP is, of course, the natural unemployment rate. So if the economy is in a recessionary gap, is the labor market in equilibrium, shortage, or surplus?

When the economy is in a recessionary gap, the unemployment rate is higher than the natural unemployment rate. This implies a surplus in the labor market: The quantity supplied of labor is greater than the quantity demanded; that is, more people want to work than there are jobs available.

**Summary:** If the economy is in a recessionary gap, the unemployment rate is higher than the natural unemployment rate, and a surplus exists in the labor market.
Three States of the Economy

The Labor Market and the Three States of the Economy: Inflationary gap and the labor market

When the economy is in an inflationary gap, the unemployment rate is lower than the natural unemployment rate. This implies a shortage in the labor market: The quantity demanded of labor is greater than the quantity supplied; that is, more jobs are available than there are people who want to work.

Summary: If the economy is in an inflationary gap, the unemployment rate is less than the natural unemployment rate, and a shortage exists in the labor market.
The Labor Market and the Three States of the Economy: Long-run equilibrium and the labor market

When the economy is in long-run equilibrium, it is producing a Real GDP level equal to Natural Real GDP. In this state, the unemployment rate in the economy is the same as the natural unemployment rate. This implies that the labor market has neither a shortage nor a surplus but is in equilibrium.

**Summary:** If the economy is in long-run equilibrium, the unemployment rate equals the natural unemployment rate, and the labor market is in equilibrium.
## Three States of the Economy

### The Labor Market and the Three States of the Economy

<table>
<thead>
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<th>State of the Economy</th>
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</table>
Some people mistakenly think that the economy’s unemployment rate cannot be lower than the natural unemployment rate (as it is in an inflationary gap).

In other words, if the natural unemployment rate is 5 percent, then the unemployment rate can never be 4 percent.

But that assumption is a myth.
A society has both a physical PPF and an institutional PPF. The physical PPF illustrates different combinations of goods the economy can produce given the physical constraints of (1) finite resources and (2) the current state of technology.

The institutional PPF illustrates different combinations of goods the economy can produce given the physical constraints of (1) finite resources, (2) the current state of technology, and (3) any institutional constraints (e.g., minimum wage).
The economy is at the natural unemployment rate if it is located on its institutional PPF, such as at points A, B, or C. An economy can never operate beyond its physical PPF, but it is possible for it to operate beyond its institutional PPF because institutional constraints are not always equally effective (e.g., inflation reducing minimum real wage). If the economy does operate beyond its institutional PPF, such as at point D, then the unemployment rate in the economy is lower than the natural unemployment rate.
Three States of the Economy and Two PPF Curves
Assume that in year 1 country A’s unemployment rate is equal to its natural unemployment rate at 4.7 percent. In year 2, its unemployment rate is still equal to its natural unemployment rate at 5.4 percent. If there was no change to the country’s Physical PPF, what was going on in the country over the two years?
Answer

- If $U = U_N$, then the country is operating on its institutional PPF, i.e., economy is at long-run equilibrium.

- So, the country must be operating on its institutional PPF in both year 1 and year 2.

- Then why are both $U$ and $U_N$ higher (each at 5.4 percent) in year 2 than in year 1? What does this difference mean?

- Since there is no change in the country’s physical PPF, it has to be that the country’s institutional PPF has shifted inward between the two years.

- In other words, some institutional changes came about between years 1 and 2—perhaps changes in the regulatory climate—that made it more difficult to produce goods and services.
The Self-Regulating Economy

- Some economists believe that the economy is self-regulating.

- In other words, if the economy is not at the natural unemployment rate (or full employment)—that is, it is not producing Natural Real GDP—then it can move on its own to this position.

- The notion of a self-regulating economy is very classical, but it is also a view held by some modern-day economists.
The Self-Regulating Economy

Self-Regulating Economy in a Recessionary Gap

If the economy is in a recessionary gap:

1. It is producing a Real GDP level that is less than Natural Real GDP.

2. The unemployment rate is greater than the natural unemployment rate.

3. A surplus exists in the labor market.
Self-Regulating Economy in a Recessionary Gap

According to economists who believe the economy is self-regulating, the surplus in the labor market begins to exert downward pressure on wages. In other words, as old wage contracts expire, business firms negotiate contracts that pay workers lower wage rates.
The Self-Regulating Economy

Self-Regulating Economy in a Recessionary Gap

This Figure illustrates the adjustment to long-run equilibrium.

Initially, the economy is at below-full employment equilibrium.

In the long run, the money wage falls until the SAS curve passes through the long-run equilibrium point.
The Self-Regulating Economy

Self-Regulating Economy in a Recessionary Gap

Recessionary gap $\rightarrow$
Unemployment rate $>$ Natural unemployment rate $\rightarrow$
Surplus in labor market $\rightarrow$ Wages fall $\rightarrow$ SRAS curve shifts to the right $\rightarrow$
Economy moves into long-run equilibrium
The Self-Regulating Economy

Self-Regulating Economy in an Inflationary Gap

If the economy is in an inflationary gap:

1. It is producing a Real GDP level that is greater than Natural Real GDP.

2. The unemployment rate is less than the natural unemployment rate.

3. A shortage exists in the labor market.
According to economists who believe the economy is self-regulating, the shortage in the labor market begins to exert upward pressure on wages. In other words, as old wage contracts expire, business firms negotiate contracts that pay workers higher wage rates.
Self-Regulating Economy in an Inflationary Gap

This Figure illustrates the adjustment to long-run equilibrium.

Initially, the economy is at an above-full employment equilibrium.

In the long run, the money wage rate rises until the SAS curve passes through the long-run equilibrium point.
The Self-Regulating Economy

Self-Regulating Economy in an Inflationary Gap

Inflationary gap →
Unemployment rate < Natural unemployment rate →
Shortage in labor market → Wages rise → SRAS curve shifts to the left →
Economy moves into long-run equilibrium
The Self-Regulating Economy: Role of Flexible Wage Rates

- Flexible wage rates (and other resource prices) play a critical role in the self-regulating economy.

- For example, suppose wage rates are not flexible and do not fall in a recessionary gap. Then the SRAS curve does not shift to the right, the price level does not fall, and the economy doesn’t move down the AD curve toward long-run equilibrium.

- Similarly, if wage rates are not flexible and do not rise in an inflationary gap, then the economy won’t move up the AD curve toward long-run equilibrium.
The economists who say the economy is self-regulating believe that wage rates and other resource prices are flexible and that they move up and down in response to market conditions.

These economists believe that wage rates will fall when there is a surplus of labor and that wage rates will rise when there is a shortage of labor.

You will see in the next chapter that this flexible wages and prices position has not gone unchallenged.
Policy Implication of Believing the Economy Is Self-Regulating

- For economists who believe in a self-regulating economy, full employment is the norm: The economy always moves back to Natural Real GDP.

- Stated differently, if the economy contracts an “illness”—in the form of a recessionary or an inflationary gap—it is capable of healing itself through changes in wages and prices.

- This position on how the economy works has led these economists to advocate a macroeconomic policy of *laissez-faire*, or *noninterference*. In these economists’ view, government does not have an economic management role to play.
Changes in a Self-Regulating Economy: Short Run and Long Run

If the economy is self-regulating, how does a change in aggregate demand affect the economy in the short run and the long run?

Suppose, the economy is initially in long-run equilibrium. An increase in aggregate demand is brought about by, say, an increase in government purchases.

What will happen?
Fluctuations in Aggregate Demand

This Figure shows the effects of an increase in aggregate demand.

An increase in aggregate demand shifts the $AD$ curve rightward.

Firms increase production and the price level rises in the short run.
Fluctuations in Aggregate Demand

At the short-run equilibrium, there is an inflationary gap. The money wage rate begins to rise and the SAS curve starts to shift leftward.

The price level continues to rise and real GDP continues to decrease until it equals potential GDP.

(b) Long-run effect
Changes in a Self-Regulating Economy: Short Run and Long Run

Fluctuations in Aggregate Demand

Summary: If the economy is self-regulating, an increase in aggregate demand can raise the price level and Real GDP in the short run, but in the long run the only effect is a rise in the price level. In other words, in the long run, we have only higher prices to show for an increase in aggregate demand.

So, what would happen if aggregate demand falls for some reason?
Summary: If the economy is self-regulating, a decrease in aggregate demand can lower the price level and Real GDP in the short run, but in the long run the only effect is a lower price level.
A Recap of Classical Macroeconomics and a Self-Regulating Economy

1. Say’s law holds.

2. Interest rates change such that savings equals investment.

3. The economy is self-regulating, making full employment and an economy producing Natural Real GDP the norm.

4. Prices and wages are flexible. In other words, if the economy is in a recessionary gap, wages fall and the economy soon moves itself toward producing Natural Real GDP (at a lower price level than in the recessionary gap). If the economy is in an inflationary gap, wages rise and the economy soon moves itself toward producing Natural Real GDP (at a higher price level than in the inflationary gap).

5. Because the economy is self-regulating, laissez-faire is the policy prescription.
True or False

“Suppose, in year 1, an economy is in a recessionary gap, i.e., $Q < Q_N$. In year 2, the economy is no longer in a recessionary gap. It is in long-run equilibrium, producing $Q_N$. However, you notice that the price level hasn’t declined. Since price level has not declined, it must be that the economy is NOT self-regulating.”
True or False

The answer is: FALSE

A constant price level does not mean that the economy is not self-regulating. While the economy was self-regulating (and the SRAS curve was shifting to the right), aggregate demand in the economy might have risen. Moreover, the rise in aggregate demand could be totally unrelated to the change occurring on the supply side of the economy.
True or False

A Self-Regulating Economy with Aggregate Demand Increasing

The economy is initially in a recessionary gap at point 1. As the economy is self-regulating and the SRAS curve shifts to the right, something unrelated to the self-regulating properties of the economy occurs. Specifically, aggregate demand rises and the $AD$ curve shifts rightward. The economy ends up at point 2, out of the recessionary gap but with no change in the price level.