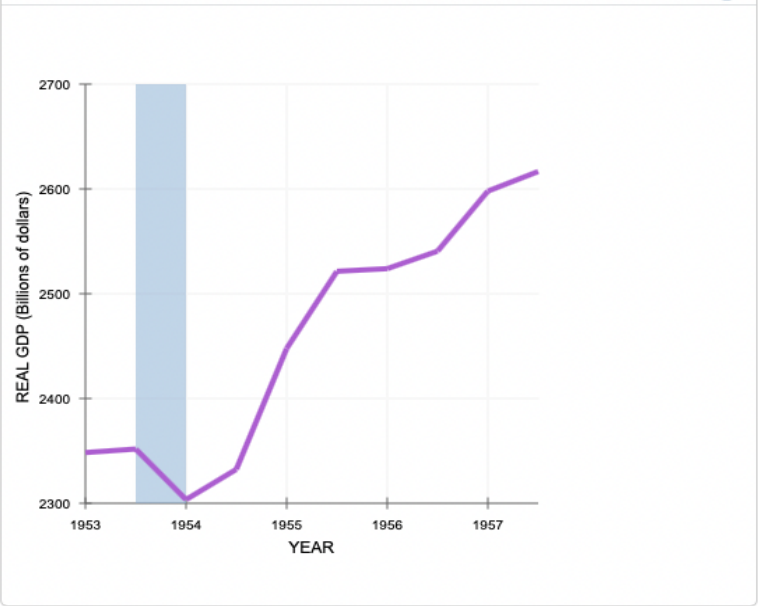
Problem Sets 8

1. Key facts about economic fluctuations

The graph included below approximates United States business cycles between quarter one of 1953 and quarter three of 1957. The shaded region denotes periods of six or more consecutive months of declining real gross domestic product (real GDP).



Source: "Current-dollar and Real GDP," Bureau of Economics Analysis, last modified May 1, 13, accessed May 15, 13, http://www.bea.gov/national/xls/gdplev.xls.

1) Notice that real GDP trends upward over time but experiences ups and downs in the short run. These short-run fluctuations in real GDP are often referred to as _____.
2) True or False: Small ups and downs in real GDP follow a consistent, predictable pattern. Explain.
3) Which of the following probably occurred as the U.S. economy experienced increasing real GDP in 1954?
    A. Total real income increased.
    B. Corporate profits increased.
    C. Consumer spending declined.
    D. Car sales declined.

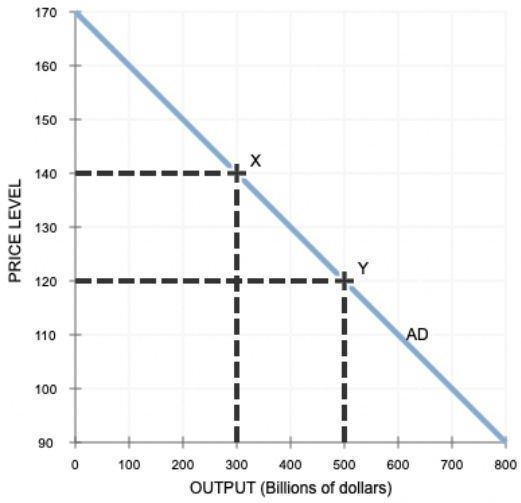
2. Explaining short-run economic fluctuations
A majority of economists believe that in the long run, real economic variables and nominal economic variables behave independently of one another.

For example, an increase in the money supply, a _____ variable, will cause the price level, a _____ variable, to increase but will have no long-run effect on the quantity of goods and services the economy can produce, a _____ variable. The distinction between real variables and nominal variables is known as _____.

However, in the short run, most economists believe that real and nominal variables are intertwined. Economists use the model of aggregate demand and aggregate supply to examine the economy's short-run fluctuations around the long-run output level.

The aggregate _____ curve shows the quantity of goods and services that firms produce and sell at each price level. The vertical axis of the aggregate demand and aggregate supply model measures the overall _____.

3. Why the aggregate demand curve slopes downward [Extra Credit: 0.5 pts]
The graph below shows the aggregate demand curve for a hypothetical economy. At point X, the quantity of output demanded is $300 billion, and the price level is 140. Moving down along the AD curve from point X to point Y, the quantity of output demanded rises to $500 billion, and the price level falls to 120.

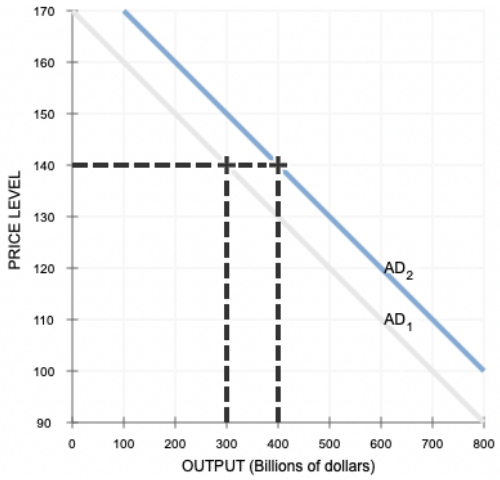


As the price level falls, the purchasing power of households' real wealth will _____, causing the quantity of output demanded to _____. This phenomenon is known as the _____ effect.

Additionally, as the price level falls, the impact on the domestic interest rate will cause the real value of the dollar to _____ in foreign exchange markets. The number of domestic products purchased by foreigners (exports) will therefore _____, and the number of foreign products purchased by domestic consumers and firms (imports) will _____. Net exports will therefore _____, causing the quantity of domestic output demanded to _____. This phenomenon is known as the _____ effect.

4. Determinants of aggregate demand

The graph below is associated with a hypothetical country. Consider an increase in aggregate demand (AD). Specifically, aggregate demand shifts to the right from AD1 to AD2, causing the quantity of output demanded to rise at each price level. For instance, at a price level of 140, output is now $400 billion, where initially it was $300 billion.



Fill in the missing values in the table by selecting the change in each scenario required to increase aggregate demand.

	Change Required to Increase AD
Expected rate of return on investment	
Incomes in other countries	
Wealth	
Taxes	

5. The slope and position of the long-run aggregate supply curve

1) Assume the Federal Reserve triples the growth rate of the quantity of money in circulation. In the long run, this increase in money growth will affect which of the following?

A. The inflation rate
B. The level of technological knowledge
C. The quantity of physical capital
D. The price level

2) Suppose when unemployment is at its natural rate the economy produces a level of real GDP equal to $60 billion. Plot the economy's long-run aggregate supply (LRAS) curve on a graph.

3) Suppose now the government passes a law that significantly increases the minimum wage. This change in policy will cause the natural rate of unemployment to _____, which will:

A. Not impact the long-run aggregate supply curve
B. Shift the long-run aggregate supply curve to the left
C. Shift the long-run aggregate supply curve to the right

4) Complete the following table by determining how each event impacts the position of the long-run aggregate supply (LRAS) curve.

	Direction of LRAS Curve Shift
An investment tax credit increases the rate at which firms acquire machinery and equipment.	
The government allows more immigration of working-age adults who find work.	
For environmental and safety reasons, the government requires that the country's nuclear power plants be permanently shut down.	

6. Why the aggregate supply curve slopes upward in the short run [Extra Credit: 1 point]

In the short run, the quantity of output supplied by firms can deviate from the natural level of output if the actual price level deviates from the expected price level in the economy. A number of theories explain reasons why this might happen.

For example, the sticky-price theory asserts that the output prices of some goods and services adjust slowly to changes in the price level. Suppose firms announce the prices for their products in advance, based on an expected price level of 100 for the coming year. Many of the firms sell their goods through catalogs and face high costs of reprinting if they change prices. The actual price level turns out to be 90. Faced with high menu costs, the firms that rely on catalog sales choose not to adjust their prices. Sales from catalogs will _____, and firms that rely on catalogs will respond by _____ the quantity of output they supply. If enough firms face high costs of adjusting prices, the unexpected decrease in the price level causes the quantity of output supplied to _____ the natural level of output in the short run.

Suppose the economy's short-run aggregate supply (AS) curve is given by the following equation:

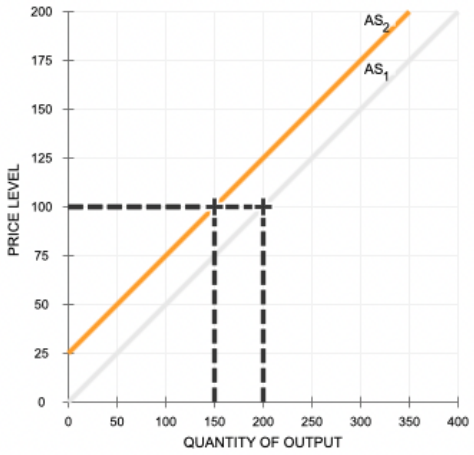
$$Quantity\ of\ Output\ Supplied = Natural\ Level\ of\ Output + \alpha \times \left(Price\ Level_{Actual} - Price\ Level_{Expected}\right)$$

The Greek letter α represents a number that determines how much output responds to unexpected changes in the price level. In this case, assume that α=$2 billion. That is, when the actual price level exceeds the expected price level by 1, the quantity of output supplied will exceed the natural level of output by $2 billion.

Suppose the natural level of output is $60 billion of real GDP and that people expect a price level of 100. **On the graph, plot this economy's long-run aggregate supply (LRAS) curve.** Then plot the economy's short-run aggregate supply (AS) curve at each of the following price levels: 90, 95, 100, 105, and 110. The short-run quantity of output supplied by firms will exceed the natural level of output when the actual price level _____ the price level that people expected.

7. Determinants of aggregate supply

The following graph shows a decrease in short-run aggregate supply (AS) in a hypothetical economy where the currency is the dollar. Specifically, the short-run aggregate supply curve shifts to the left from AS1 to AS2, causing the quantity of output supplied at a price level of 100 to fall from $200 billion to $150 billion.



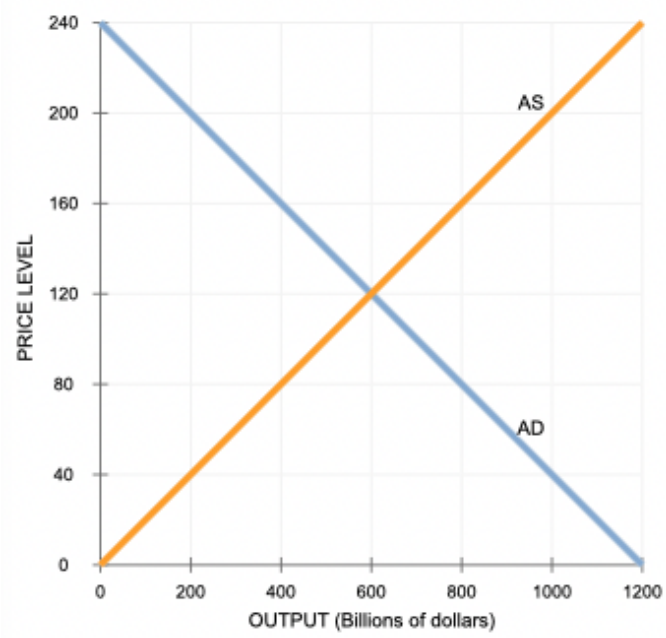
The following table lists several determinants of short-run aggregate supply. Complete the table by selecting the changes in each scenario necessary to decrease short-run aggregate supply.

	Change Necessary to Decrease AS
Regulations on the firm	
Tax rates	
Input prices	

8. Economic fluctuations I

The following graph shows a hypothetical economy in long-run equilibrium at an expected price level of 120 and a natural output level of $600 billion. Suppose firms become pessimistic about future business conditions and cut back on investment spending.

Using the graph, shift the short-run aggregate supply (AS) curve or the aggregate demand (AD) curve to show the short-run impact of the business pessimism.



In the short run, the decrease in investment spending associated with business pessimism causes the price level to _____ the price level people expected and the quantity of output to _____ the natural level of output. The business pessimism will cause the unemployment rate to _____ the natural rate of unemployment in the short run.

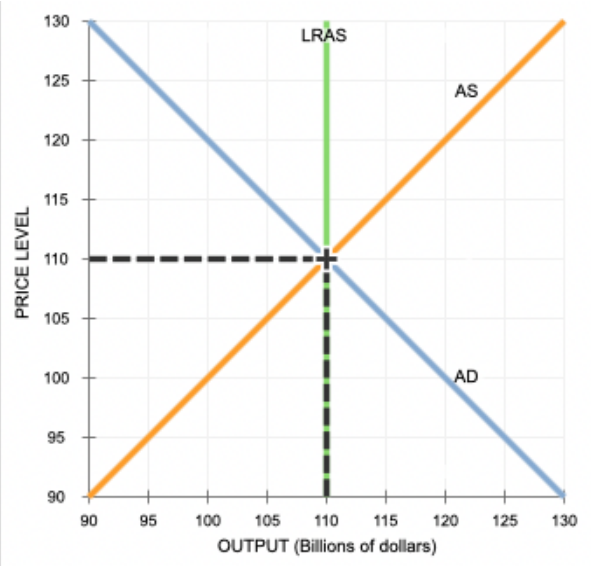
Again, the graph shows a hypothetical economy experiencing long-run equilibrium at the expected price level of 120 and natural output level of $600 billion, prior to the decrease in investment spending associated with business pessimism. Along the transition from the short run to the long run, price-level expectations will _____ and the _____ curve will shift to the _____.

Using the graph, illustrate the long-run impact of the business pessimism by shifting both the aggregate demand (AD) curve and the short-run aggregate supply (AS) curve in the appropriate directions. In the long run, due to the business pessimism, the price level _____, the quantity of output _____ the natural level of output, and the unemployment rate _____ the natural rate.

9. Economic fluctuations II

The following graph shows the aggregate demand curve (AD), the short-run aggregate supply curve (AS), and the long-run aggregate supply curve (LRAS) for a hypothetical economy. Initially, the expected price level equals the actual price level, and the economy experiences long-run equilibrium at a natural level of output of $110 billion.

Suppose a bout of severe weather drives up agricultural costs, increases the costs of transporting goods and services, and increases the costs of producing goods and services. Use the graph to help you answer the questions about the short-run and long-run effects of the increase in production costs that follow. **Hint**: For simplicity, ignore any possible impact of the severe weather on the natural level of output.



The short-run economic outcome resulting from the increase in production costs is known as _____.

Suppose now that the government decides not to take any action in response to the short-run impact of the severe weather. In the long run, given that the government does nothing, the output level in the economy will equal _____ billion and the price level will equal _____.

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