Chapter 33: Aggregate Demand and Aggregate Supply
Principles of Economics, 8th Edition
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1. Introduction
   a. We now turn to a short term view of fluctuations in the economy.
   b. This is the chapter that made this book controversial as Mankiw tends to ignore
      the Keynesian framework contained in most Principles textbooks.
   c. I personally find that to be a substantial improvement over those earlier books.
   d. Here we use the aggregate demand-aggregate supply model to explain short term
      economic fluctuations around the long term trend of the economy.
   e. On average over the past 50 years, the production of the US economy as
      measured by real GDP has grown by about 3 percent per year.
      i. While this has to be adjusted for population growth, one has to wonder why
         people tend to view their economic position so negatively.
      ii. Recession is a period of declining real incomes and rising unemployment.
          P. 702.
      iii. A depression is a severe recession.  P. 702.

2. Three Key Facts about Economic Fluctuations
   a. Fact 1: Economic fluctuations are irregular and unpredictable
      i. They are called the business cycle, which can be misleading.
      ii. Figure 1: A Look at Short-run Economic Fluctuations.  P. 703.
      iii. Every time that you hear depressing economic news and they are reported
           often, remember Figure 1(a).
      iv. The last 25 years has observed steady real growth with only minor reversals.
   b. Fact 2: Most macroeconomic quantities fluctuate together
   c. Fact 3: As output falls, unemployment rises

3. Explaining Short Run Economic Fluctuations
   a. The key to understanding the short run is the presence of rigidities in
      i. Prices and
      ii. Expectations.
   b. The Assumptions of Classical Economics
      i. The classical theory--the classical dichotomy and monetary neutrality that
         we used in prior chapters describes the world in the long run, but not in the
         short run.
      ii. In a sense, money does not matter in a classical world.
   c. The Reality of Short-Run Fluctuations
      i. Most economists believe that classical theory describes the world in the
         long run, but not in the short run.
      ii. In the short run, real and nominal variables are highly intertwined.
      iii. In particular, changes in the money supply can temporarily push output
           away from its long run trend.
           (1) This was observed by David Hume in the 18th Century.
4. The Model of Aggregate Demand and Aggregate Supply
   a. Model of aggregate demand and aggregate supply is the model that most
      economists use to explain short run fluctuations in economic activity around its
      long run trend. P. 706.
      i. Do not confuse this with the microeconomic forces of supply and demand
         that respond to changes in relative prices.
      ii. Here the response is to a change in the average level of prices.
   b. Our model of short run economic fluctuations focuses on the behavior of two
      variables:
      i. GDP and
      ii. Prices.
   c. **Figure 2: Aggregate Demand and Aggregate Supply.** P. 714.
   d. Aggregate demand curve is a curve that shows the quantity of goods and services
      that households, firms, and the government want to buy at any price level. P. 706.
   e. Aggregate supply curve is a curve that shows the quantity of goods and services
      that firms choose to produce and sell at any price level. P. 707.

5. The Aggregate Demand Curve
   a. Why the Aggregate Demand Curve Is Downward Sloping
      i. \( Y = C + I + G + NX \)
      ii. **Figure 3: The Aggregate Demand Curve.** P. 708.
   b. With government expenditures fixed, there are three inter-related explanations
      that apply to the other three components of GDP.
      i. The Price Level and Consumption: The Wealth Effect
         (1) A decrease in the price level raises the real value of money and makes
             consumers wealthier, which in turn encourages them to spend more.
         (2) The increase in consumer spending means a larger quantity of goods
             and services demanded.
         (3) Conversely, an increase in the price level reduces the real value of
             money, in turn reducing wealth, consumer spending, and the quantity
             of goods and services demanded.
      ii. The Price and Investment: The Interest Rate Effect
         (1) When the price level falls, households try to reduce their holdings of
             money by lending it out.
             (a) This reduces the interest rate.
         (2) A lower price level reduces the interest rate, encourages greater
             spending on investment goods, and thereby increases the quantity of
             goods and services.
iii. The Price Level and Net Exports: The Exchange Rate Effect
   (1) When a fall in the U. S. price level causes U. S. interest rates to fall, the real exchange rate depreciates, and this depreciation stimulates U. S. net exports and, thereby, increases the quantity of goods and services demanded.

   c. Summary
   i. There are three distinct but related reasons a fall in the price level increases the quantity of goods and services demanded:
      (1) Consumers are wealthier, which stimulates the demand for consumption goods.
      (2) Interest rates fall, which stimulates the demand for investment goods.
      (3) The currency depreciates, which stimulates the demand for net exports.

   d. Why the Aggregate Demand Curve Might Shift
   i. The AD curve shifts due to anything that would effect demand except for prices.
   ii. Some of the important factors are
      (1) shifts arising from consumption,
         (a) consumer attitudes,
      (2) shifts arising from investments,
         (a) an increase in investment opportunities,
         (b) changes in the money supply are an important cause of shifts in the AD,
      (3) shifts arising from government purchases, and
      (4) shifts arising from net exports.
      (5) And we will also see that changes in the money supply will shift the AD curve.
      (6) Table 1: The Aggregate Demand Curve: Summary. P. 712.

6. The Aggregate Supply Curve
   a. In the long run, the AS curve is vertical (it is not affected by the price level), whereas in the short run, the AS curve is positively (upward) sloped (because changes in the price level--usually unexpected--affect supply.)
   b. Why the Aggregate Supply Curve Is Vertical in the Long Run
      i. In the long run, an economy’s supply of goods and services depend on its supply of capital and labor and on the available production technology used to turn capital and labor into goods and services.
      ii. It is not affected by the price level.
   c. Why the Long Run Aggregate Supply Curve Might Shift
      i. The natural rate of output is the production of goods and services that an economy achieves in the long run when unemployment is at its normal rate.
ii. Shifts arising from
   (1) Labor,
   (2) Capital,
   (3) Natural Resources, and
   (4) Technological knowledge.

iii. The long run AS coincides with equilibrium in the labor market (another way of thinking about long run equilibrium) and it shifts as the long run equilibrium in the labor market changes.

iv. Equilibrium in the labor market changes as
   (1) the capital stock or natural resources increases,
   (2) the technology increases and
   (3) population and immigration grows.

d. A New Way to Depict Long-Run Growth and Inflation
i. When the AD curve shifts more than the AS, then the equilibrium price level increases.

ii. Short-run fluctuations in output and the price level should be viewed as deviations from the continuing long run trend.

iii. Figure 5: Long-Run Growth and Inflation in the Model of Aggregate Demand and Aggregate Supply. P. 716.

iv. You are probably better off just considering the supply and demand for money framework presented in Chapter 30.

e. Why the Aggregate Supply Curve Is Upward Sloping in the Short Run
i. The quantity of output supplied deviates from its long run, or natural, level when the actual price level in the economy deviates from the price level that people expected to prevail.

ii. Figure 6: The Short Run Aggregate Supply Curve. P. 717.

iii. There are three theories--all of which share a common theme: the quantity of output supplied deviates from its long run level when the price level deviates from the price level that people expect--about why this occurs:
   (1) The sticky wage theory argues that lower price lead to lower profits and, therefore, lower output.
      (a) Because this is the simplest of the three theories, it is the one emphasized in the book.
   (2) The sticky price theory relies less on rigid prices and more on the low adjustment of prices to unexpected events.
      (a) Businesses respond to increases in demand by increasing output.
   (3) The misperceptions theory is based on a change in the price level being initially misinterpreted as a change in a relative price causing producers to respond by producing more.
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f. Summary
   i. Quantity of output supplied = Natural rate of output + $\alpha$ (Actual price level - Expected price level)
   (1) $Q_s = Q_n + \alpha (P_{Actual} - P_{Expected})$
   (2) Notice that each of the three theories of short run aggregate supply emphasizes a problem that is likely to be temporary.

   g. Why the Short Run Aggregate Supply Curve Might Shift
   i. The key to understanding the SRAS curve is inflexible expectations.
      (1) In the long run, expectations adjust to reality.
   ii. An increase in the expected price level reduces the quantity of goods and services supplied and shifts the SRAS curve to the left.
   iii. A decrease in the expected price level raises the quantity of goods and services supplied and shifts the SRAS curve to the right.
   iv. *It is important to recognize that the SRAS curve cuts the LRAS curve when expectations and reality coincide.*
   v. *Table 2: The Short-Run Aggregate Supply Curve: Summary. P. 721.*

7. Two Causes of Economic Fluctuations
   a. The two basic causes of short-run fluctuations are due to
      i. Shifts in aggregate demand and
      ii. Shifts in aggregate supply.
   b. The Effects of a Shift in Aggregate Demand
      i. This can be due to increased pessimism.
      ii. AD shifts down and due to the positively sloped SRAS curve the price level falls, but output also falls.
      iii. As it is recognized that prices have fallen, the SRAS curve shifts down, eventually returning to equilibrium (the LRAS) at a lower price level.
      iv. If policy makers can act quickly enough, they can shift AD using monetary policy.
         (1) *However, they never can act rapidly enough.*
         (2) *Figure 7: The Long Run Equilibrium. P. 722.*
         (3) *Table 3: Four Steps for Analyzing Macroeconomic Fluctuations, P. 722.*
         (4) *Figure 8: A Contraction in Aggregate Demand. P. 723.*
   v. In the short run, shifts in AD cause fluctuations in the economy’s output of goods and services.
   vi. In the long run, shifts in AD affect the overall price level but do not affect output.
   vii. Policymakers who influence aggregate demand can potentially mitigate the severity of economic fluctuations.
      (1) *No way.*
   viii. *FYI: Monetary Neutrality Revisited, P. 724.*
   (1) Again, we are introduced to the fact that the money supply fell dramatically during the Great Depression.
   (2) While the initial reduction was due to runs on the banks (in part because there was no deposit insurance), the Fed took no remedial action.
   (3) Figure 9: U. S. Real GDP Growth Since 1900. P. 725.
      (a) Again we are reminded about the fairly robust annual increases that have occurred in real output over the last century.

   (1) Excellent discussion of the causes of the recent recession.
   (2) The role of the housing market
   (3) Two repercussions:
      (a) An increase in defaults and
      (b) Financial institutions cut back on lending.

   c. The Effects of a Shift in Aggregate Supply
      i. Please note that they keep the LRAS curve constant here although the increase in costs—if long term—could also shift it.
      ii. A temporary increase in production costs results in less being produced at each price level—the SRAS curve shifts to the left.
      iii. Given the negative slope of the AD curve, prices rise and output falls.
      iv. Gradually, the SRAS curve shifts up as the higher prices are recognized until the economy goes into a new equilibrium at a higher price level.
         (1) Energy prices increase
         (2) Figure 10: An Adverse Shift in Aggregate Supply. P. 730.
      v. Because output falls and prices increase, this is called stagflation.
         (1) Stagflation is a period of falling output and rising prices. P. 730.
         (2) Figure 11: Accommodating an Adverse Shift in Aggregate Supply. P. 731.
      vi. There are two important lessons from the shifts in AS:
         (1) Shifts in AS can cause stagflation—a combination of recession (falling output) and inflation (raising prices).
         (2) Policymakers who can influence AD cannot offset both of these adverse effects simultaneously.

   d. Case Study: Oil and the Economy, P. 731.
      (1) Given the recent past it is hard to use changes in energy prices as the cause of a recession.

   e. FYI: The Origins of Aggregate Demand and Aggregate Supply, P. 732.
      mcmxxii. Keynes was the initial economist to talk in terms of aggregate demand, although his understanding of aggregate supply is quite different
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from what we are discussing here.

mcmxxiii. He only observed one time period and that was one in which AD
determines AS.
mcmxxiv. The framework presented here recognizes that AD affects AS in the
short run, but not in the long run.

8. Conclusion:
   a. This chapter has achieved two goals:
      i. We have discussed some of the important facts about SR fluctuations in
economics activity.
      ii. We have introduced a basic model to explain those fluctuations.

9. Summary