Extending the Analysis of Aggregate Supply



Introduction

- Recent focus on the long-run adjustments and economic outcomes has renewed debates about stabilization policy and causes of instability.
- This chapter makes the distinction between short run and long run aggregate supply.
- The extended model is then used to glean new insights on demand-pull and cost-push inflation.
- The relationship between inflation and unemployment is examined; we look at how expectations can affect the economy, and assess the effect of taxes on aggregate supply.

Short-Run and Long-Run Aggregate Supply

- Definition:Short-run and long-run.
 - For macroeconomics the short-run is a period in which nominal wages (and other input prices) remain fixed as the price level changes.
 - Workers may not be fully aware of the change in their real wages due to inflation (or deflation) and thus have not adjusted their labor supply decisions and wage demands accordingly.
 - Employees hired under fixed wage contracts must wait to renegotiate regardless of changes in the price level.
 - Long run aggregate supply (See Figure 16-1b). Formed by long-run equilibrium points a₁, b₁, c₁.
 - In the long run, nominal wages are fully responsive to price level changes.
 - The long run aggregate supply curve is a vertical line at the full employment level of real GDP. (See Figure 16-1b) (b1, a1, c1).

- Short-run aggregate supply curve AS₁, is constructed with three assumptions. (see Figure 16-1a)
 - The initial price level is given at P_1 .
 - Nominal wages have been established on the expectation that this specific price level will persist.
 - The price level is flexible both upward and downward.
 - If the price level rises, higher product prices with constant wages will bring higher profits and increased output. (See Figure 16-1a) (The economy moves from a_1 to a_2 on curve AS₁.)
 - If the price level falls, lower product price with constant wages will bring lower profits and decreased output. (See Figure 16-1a) (The economy moves from a_1 to a_3 on curve AS₁.)
- The extended AD-AS makes the distinction between the short run and long run aggregate supply curves.(See Figure 16-2)Equilibrium occurs at point a where aggregate demand intersects both the vertical long run supply curve and the short run supply at full employment output.

Applying the Extended AD-AS Model

- Demand-pull inflation: In the short run it drives up the price level and increases real output; in the long run, only price level rises.(See Figure 16-3)
- Cost push inflation arises from factors that increase the cost of production at each price level; the increase in the price of a key resource, for example. This shifts the short run supply to the left, not as a response to a price level increase, but as its initiating *cause*. Cost-push inflation creates a dilemma for policymakers. (See Figure 16-4)
 - If government attempts to maintain full employment when there is cost-push inflation an inflationary spiral may occur.
 - If government takes a hands-off approach to cost push inflation, a recession will occur. The recession may eventually undo the initial rise in per unit production costs, but in the meantime unemployment and loss of real output will occur.
- Recession and the extended AD-AS model.
 - When aggregate demand shifts leftward a recession occurs. If prices and wages are downwardly flexible, the price level falls. The decline in the price level reduces nominal wages, which then eventually shifts the aggregate supply curve to the right. The price level declines and output returns to the full employment level. (See Figure 16-5)
 - This is the most controversial application of the extended AD-AS model. The key point of dispute is how long it would take in the real world for the necessary price and wage adjustments to take place to achieve the indicated outcome.

The Phillips Curve and the Inflation - Unemployment Tradeoff

- Both low inflation and low unemployment are major goals.But are they compatible?
- The Phillips Curve is named after A.W. Phillips, who developed his theory in Great Britain by observing the British relationship between unemployment and wage inflation.

- The basic idea is that given the short run aggregate supply curve, an increase in aggregate demand will cause the price level to increase and real output to expand, and the reverse for a decrease in AD.(Figure 16-b)
- This tradeoff between output and inflation does not occur over long time periods.
- Empirical work in the 1960s verified the inverse relationship between the unemployment rate and the rate of inflation in the United States for 1961-1969. (See Figure 16-7b)
- The stable Phillips Curve of the 1960s gave way to great instability of the curve in the 1970s and 1980s. The obvious inverse relationship of 1961-1969 had become obscure and highly questionable. (See Figure 16-8)
 - In the 1970s the economy experienced increasing inflation and rising unemployment:stagflation.
 - At best, the date in Figure 16-8 suggests a less desirable combination of unemployment and inflation. At worse, the data imply no predictable trade off between unemployment and inflation.
- Adverse aggregate supply shocks-the stagflation of the 1970s and early 1980s may have been caused by a series of adverse aggregate supply shocks.(Rapid and significant increases in resource costs.)
 - The most significant of these supply shocks was a quadrupling of oil prices by the Organization of Petroleum Exporting Countries (OPEC).
 - Other factors included agricultural shortfalls, a greatly depreciated dollar, wage increases and declining productivity.
 - Leftward shifts of the short run aggregate supply curve make a difference. The Phillips Curve trade off is derived from shifting the aggregate demand curve along a stable short- run aggregate supply curve. (See Figure 16-6)
 - The "Great Stagflation" of the 1970s made it clear that the Phillips Curve did not represent a stable inflation/unemployment relationship.
- Stagflation's Demise.
 - Another look at Figure 16-8 reveals a generally inward movement of the inflation/unemployment points between 1982 and 1989.
 - The recession of 1981-1982, largely caused by a tight money policy, reduced double-digit inflation and raised the unemployment rate to 9.5% in 1982.
 - With so many workers unemployed, wage increases were smaller and in some cases reduced wages were accepted.
 - Firms restrained their price increases to try to retain their relative shares of diminished markets.
 - Foreign competition throughout this period held down wages and price hikes.
 - Deregulation of the airline and trucking industries also resulted in wage and price reductions.
 - A significant decline in OPEC's monopoly power produced a stunning fall in the price of oil.
- Global Perspective 16-1 portrays the "misery index" in 1999-2000 for several nations. The index adds unemployment and inflation rates.

Long-Run Vertical Phillips Curve

- This view is that the economy is generally stable at its natural rate of unemployment (or full-employment rate of output).
 - The hypothesis questions the existence of a long-run inverse relationship between the rate of unemployment and the rate of inflation.
 - Figure 16-9 explains how a short-run tradeoff exists, but not a long-run tradeoff.
 - In the short run we assume that people form their expectations of future inflation on the basis of previous and present rates of inflation and only gradually change their expectations and wage demands.
 - Fully anticipated inflation by labor in the nominal wage demands of workers generates a vertical Phillips Curve.(See Figure 16-9)This occurs over time.
- Interpretations of the Phillips Curve have changed dramatically over the past three decades.
 - The original idea of a stable tradeoff between inflation and unemployment has given way to other views that focus more on long-run effects.
 - Most economists accept the idea of a short-run tradeoff-where the short run may last several years-while recognizing that in the long run such a tradeoff is much less likely.

Taxation and Aggregate Supply

- Economic disturbances can be generated on the supply side, as well as on the demand side of the economy.Certain government policies may reduce the growth of aggregate supply."Supply-side" economists advocate policies that promote output growth.They argue that:
 - The U.S. tax transfer system has negatively affected incentives to work, invest, innovate and assume entrepreneurial risks.
 - To induce more work government should reduce marginal tax rates on earned income.
 - Unemployment compensation and welfare programs have made job loss less of an economic crisis for some people. Many transfer programs are structured to discourage work.
 - The rewards for saving and investing have also been reduced by high marginal tax rates. A critical determinant of investment spending is the expected after-tax return.
 - Lower marginal tax rates may encourage more people to enter the labor force and to work longer. The lower rates should reduce periods of unemployment and raise capital investment, which increases worker productivity. Aggregate supply will expand and keep inflation low.
- There is empirical evidence that the impact on incentives to work, save and invest are small.
- Tax cuts also increase demand, which can fuel inflation.Demand impact exceeds supply impact.
- The Laffer Curve (Figure 16-10) is based on a logical premise, but where the economy is located is an empirical question and difficult to determine. It may be hard to know in advance the impact of a tax cut on supply.