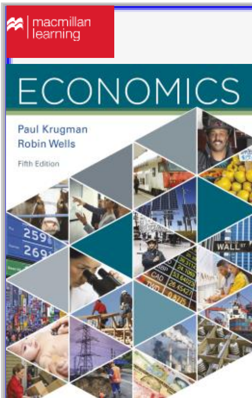
CHAPTER 16 LECTURE - INFLATION, DISINFLATION, AND DEFLATION



16(31)

INFLATION, DISINFLATION, AND DEFLATION

Revised by Solina Lindahl

WHAT YOU WILL LEARN IN THIS CHAPTER

- Why can printing money lead to higher rates of inflation and hyperinflation?
- How does the Phillips curve describe the short run trade-off between inflation and unemployment?
- Why does the trade off between inflation and unemployment cease in the long run?
- Why can even moderate levels of inflation be hard to end?
- Why is deflation a problem for economic policy makers?

2

MONEY AND PRICES

- What caused 500 billion percent inflation in Zimbabwe (2008) and Germany (1922–1923)?
- Why did inflation spiral out of control in Armenia (27,000%) and Nicaragua (60,000%)?

PHILLIMON BULAWAYO/Newscom/European Pressphoto Agency/HARARE/Zimbabwe

3

HOW DOES MONEY AFFECT PRICES?

- **As we have established, an increase in the money supply changes only prices in the long run.**
- **According to the *classical model of the price level,* the real quantity of money is always at its long-run equilibrium level.**

Real quantity of money= *M*/*P*

- **where *M* = nominal money supply and *P* = price level.**

4

THE EFFECTIVENESS OF MONETARY POLICY

- **If money supply increases, what happens?**
- **The increase in *AD* will increase the price level and output and eventually pull up nominal wages, which moves the *SRAS* curve leftward.**

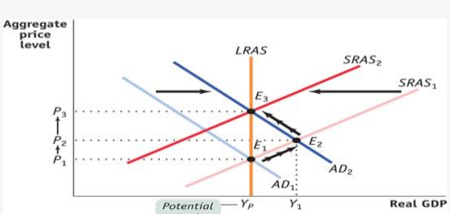


FIGURE 16-1 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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THE CLASSICAL MODEL OF THE PRICE LEVEL

- **The "classical" (pre-Keynes) model assumes the economy moves directly from E_1 to E_3—not necessarily a good assumption during normal times of low inflation.**

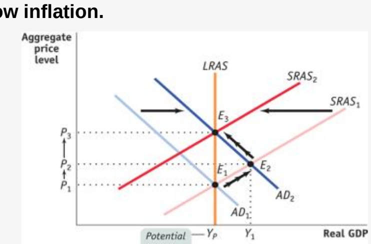

FIGURE 16-1 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

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CHAPTER 16 LECTURE - INFLATION, DISINFLATION, AND DEFLATION

MONEY SUPPLY GROWTH AND INFLATION IN ZIMBABWE

- **In general, inflation and money supply move together, especially during periods of high inflation.**

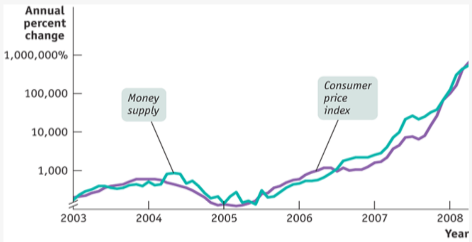


FIGURE 16-2 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: International Monetary Fund.

SEIGNORAGE

- **Seignorage:** the revenue generated by a government's right to print money (less than 1% of U.S. government's budget…*although in the Civil War both sides printed money to finance the costs of war)*

THE INFLATION TAX

- **So what are some costs of inflation?**
- **The inflation tax:** the reduction in the real value of money held by the public caused by inflation
  - ***Equal to the inflation rate × the money supply.***

THE LOGIC OF HYPERINFLATION

Seignorage = Δ*M*

- **where Δ = monthly change and *M* = money supply**
- **(It's more useful to look at real seignorage, the revenue created by printing money divided by the price level, P.)**

Real seignorage = ΔM/P

- **This can be rewritten to:**

Real seignorage = (Δ*M*/*M*) × (*M*/*P*) or

Real seignorage = rate of growth of the money supply × real money supply.

A VICIOUS CYCLE

- **To avoid paying the inflation tax, people reduce their real money holdings and force the government to increase inflation to capture the same amount of real inflation tax.**
- **In some cases, this leads to a vicious circle of a shrinking real money supply and a rising rate of inflation.**
- **This leads to *hyperinflation* and a fiscal crisis.**

ZIMBABWE'S INFLATION (1 of 2)

- **Over 8 years, consumer prices rose by 80 trillion percent.**
- **Why? When Robert Mugabe rose to power he seized farms owned by the descendants of white colonists and gave them to his supporters.**
- **Production fell, the tax base fell, and Zimbabwe couldn't borrow money in world markets because of its instability.**
- **What's left? The printing press.**

ZIMBABWE'S INFLATION (2 of 2)

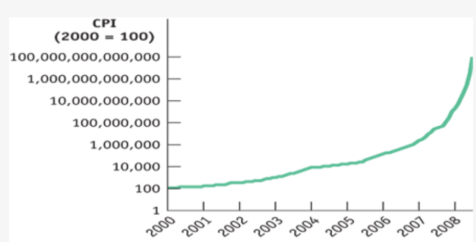


FIGURE 16-3 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: International Monetary Fund.

CHAPTER 16 LECTURE - INFLATION, DISINFLATION, AND DEFLATION

MODERATE INFLATION AND DISINFLATION

- **The governments of wealthy, stable countries like the United States and Britain don't find themselves forced to print money to pay their bills.**
- **Yet over the past 40 years both countries, along with a number of other nations, have had uncomfortable episodes of inflation.**
- **Is there an asymmetry for politicians that favors inflation?**
  - **If inflationary policies often produce political gains while policies to reduce inflation carry political costs, is it any wonder?**
- **In the short run, policies that produce a booming economy also tend to lead to higher inflation, and policies that reduce inflation tend to depress the economy.**
- **This creates both temptations and dilemmas for politicians.**

THE OUTPUT GAP AND THE UNEMPLOYMENT RATE

- **Recall:**
  1. **When the output gap is positive (an inflationary gap), the unemployment rate is *below* the natural rate.**
  2. **When the output gap is negative (a recessionary gap), the unemployment rate is *above* the natural rate.**
- **Fluctuations in the long-run trend of potential output correspond to fluctuations in the natural rate of unemployment.**

CYCLICAL UNEMPLOYMENT AND THE OUTPUT GAP

- **The actual unemployment rate fluctuates around the natural rate… and these fluctuations correspond to the output gap.**

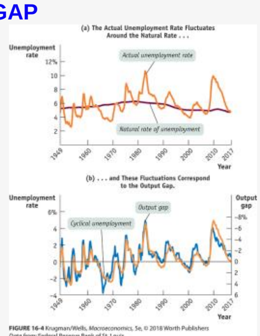


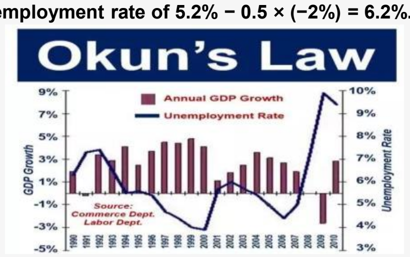
FIGURE 16-4 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Federal Reserve Bank of St. Louis

OKUN'S LAW

- **Cyclical unemployment seems to move *less* than the output gap.**
  - **The output gap reached −8% in 1982, but cyclical unemployment reached only 4%.**
- **Arthur Okun,** John F. Kennedy's chief economic adviser, discovered this.
- **Okun's law:** There is a predictable **negative relationship between the output gap and the unemployment rate.** Modern estimates find that a **rise in the output gap of 1% reduces the unemployment rate by about 0.5%.**

OKUN'S LAW: EXAMPLE

- If the natural rate of unemployment is 5.2% and the economy is producing at only 98% of potential output, the output gap is −2%, then **Okun's law predicts an unemployment rate of 5.2% − 0.5 × (−2%) = 6.2%.**



THE SHORT-RUN PHILLIPS CURVE: EVIDENCE

- The ***short-run Phillips curve:*** the negative short-run relationship between the unemployment rate and the inflation rate

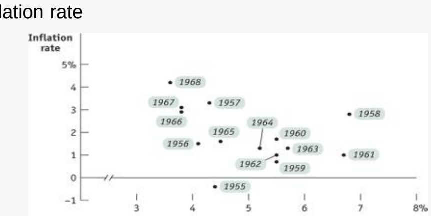


FIGURE 16-5 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Bureau of Labor Statistics.

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THE SHORT-RUN PHILLIPS CURVE: GRAPH

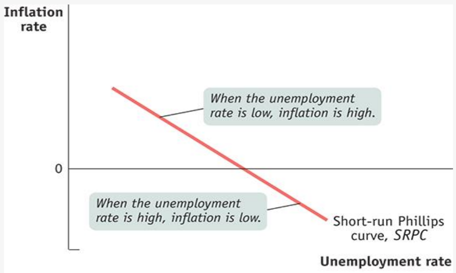


FIGURE 16-6 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

THE AD–AS MODEL AND THE SHORT-RUN PHILLIPS CURVE

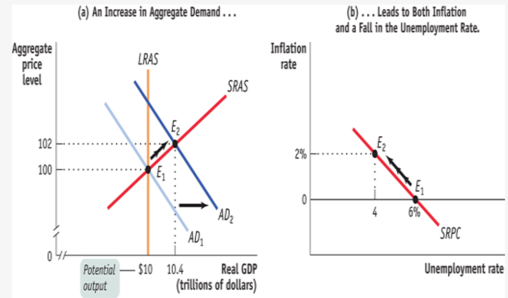


FIGURE 16-7 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

THE SHORT-RUN PHILLIPS CURVE AND SUPPLY SHOCKS

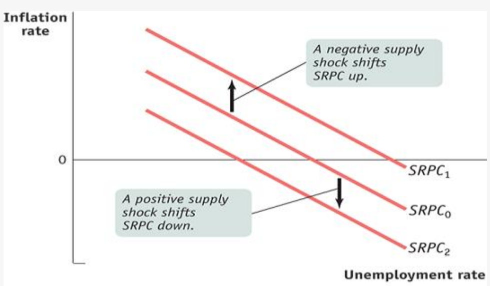


FIGURE 16-8 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

INFLATION EXPECTATIONS AND THE SHORT-RUN PHILLIPS CURVE

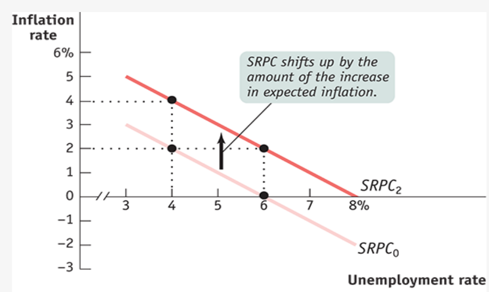


FIGURE 16-9 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

UNEMPLOYMENT AND INFLATION, 1961–1990

- **The Phillips curve explained fluctuations very well in the 1950s and 1960s. Then along came stagflation. Oil shocks and rising inflationary expectations created real problems.**

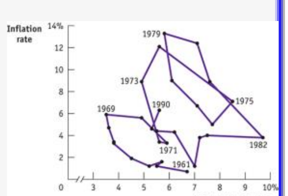


FIGURE 16-10 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Bureau of Labor Statistics.

INFLATION AND UNEMPLOYMENT IN THE LONG RUN

- Since the *SRPC* shifts whenever inflationary expectations change, **attempts to reduce unemployment below the natural rate may be effective only in raising prices.**
- **The long-run Phillips curve:** the relationship between unemployment and inflation after expectations of inflation have had time to adjust to experience

CHAPTER 16 LECTURE - INFLATION, DISINFLATION, AND DEFLATION

THE PHILLIPS CURVE IN THE GREAT RECESSION

- Data from the Great Recession show that there was generally a **fall in inflation for most countries that experienced rising unemployment.**

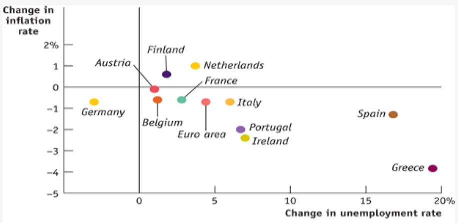


FIGURE 16-11 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: IMF World Economic Outlook.

THE NAIRU AND THE LONG-RUN PHILLIPS CURVE

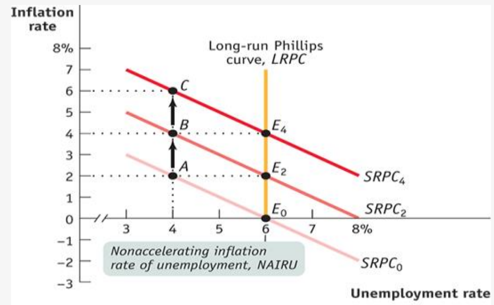


FIGURE 16-12 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

INFLATION AND UNEMPLOYMENT IN THE LONG RUN

- **The nonaccelerating inflation rate of unemployment, or NAIRU,** is the unemployment rate at which inflation does not change over time.
- To **avoid accelerating inflation** over time, the **unemployment rate** must be **high enough that the actual rate of inflation matches the expected rate of inflation.**
- **Disinflation** is the process of bringing down inflation that is embedded in expectations.

THE NATURAL RATE OF UNEMPLOYMENT

- **The natural rate of unemployment** is the part of the unemployment rate unaffected by the swings of the business cycle.
- **The NAIRU is another name for the natural rate.**
  - **As of the end of 2018, the CBO estimate of the U.S. natural rate was 5.3%.**

COST OF DISINFLATION

- **Once inflation has become embedded in peoples' expectations, reducing it can be difficult.**
- Disinflation can require a recession.
- However, policy makers in the United States and other wealthy countries were willing to pay that price to bring down the high inflation of the 1970s.

THE GREAT DISINFLATION OF THE 1980S

- Beginning in late **1979, the Federal Reserve imposed strongly contractionary monetary policies,** which pushed the economy into its worst recession since the Great Depression. It cost 18% of our annual output.

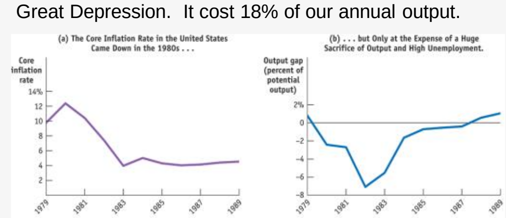
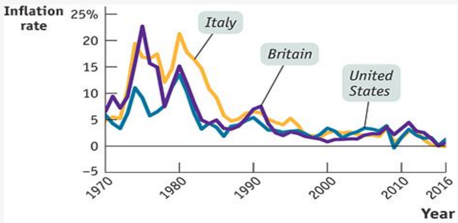


FIGURE 16-13 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Bureau of Labor Statistics; Congressional Budget Office.

CHAPTER 16 LECTURE - INFLATION, DISINFLATION, AND DEFLATION

DISINFLATION AROUND THE WORLD

- **Other nations also brought inflation under control in the 1980s after the oil shocks and inflation of the 1970s.**



Data from: World Development Indicators, World Bank.

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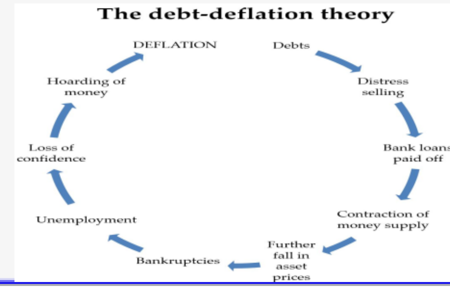
DEFLATION

- **Debt deflation:** the reduction in aggregate demand arising from the increase in the real burden of outstanding debt caused by deflation



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EFFECTS OF EXPECTED DEFLATION

- There is a **zero bound** on the nominal interest rate: it cannot go below zero.
- **Liquidity trap:** the inability to use monetary policy because nominal interest rates are too low and cannot fall below the zero bound
- **A liquidity trap can occur whenever there is a sharp reduction in demand for loanable funds.**

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THE ZERO BOUND IN U.S. HISTORY

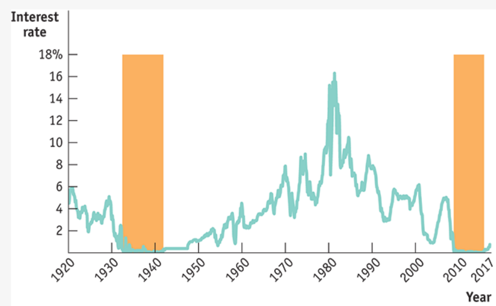

FIGURE 16-14 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: National Bureau of Economic Research; Federal Reserve Bank of St. Louis.

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JAPAN'S LOST DECADES

- **After the 1980s housing and property boom went bust, Japan fell into persistent deflation. Monetary policy can go only so far.**

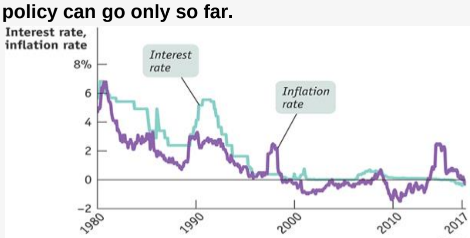

FIGURE 16-15 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Federal Reserve Bank of St. Louis.

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IS EUROPE TURNING JAPANESE?

- **The European Central Bank was out of options in June 2014 so began charging banks a fee for holding their money—a negative interest rate.**

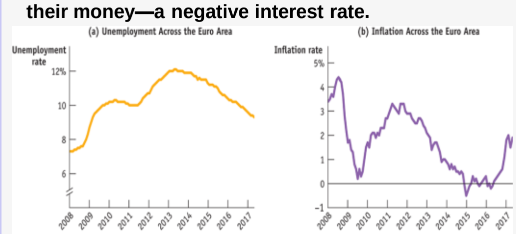

FIGURE 16-16 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers
Data from: Eurostat.

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