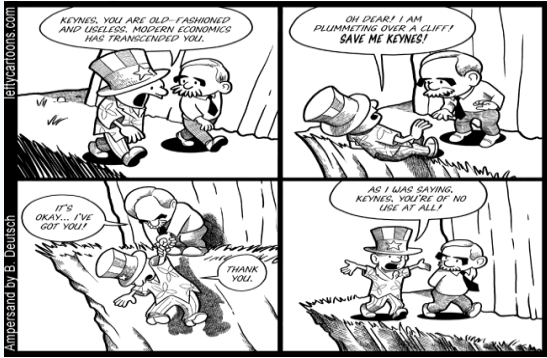


Chapter 11 Lecture - Keynesianism: The Macroeconomics of Wage and Price Rigidity

Chapter 11 Lecture- Keynesianism: The Macroeconomics of Wage and Price Rigidity



Real-Wage Rigidity

- Wage rigidity is important in explaining unemployment
 - In the classical model, unemployment is due to mismatches between workers and firms
 - Keynesians are skeptical, believing that recessions lead to substantial cyclical unemployment
 - To get a model in which unemployment persists, Keynesian theory posits that the real wage is slow to adjust to equilibrate the labor market

11-2

Real-Wage Rigidity

Some reasons for real-wage rigidity

- For unemployment to exist, the real wage must exceed the market-clearing wage
- If the real wage is too high, why don't firms reduce the wage?
 - One possibility is that the minimum wage and labor unions prevent wages from being reduced
 - But most U.S. workers aren't minimum wage workers, nor are they in unions
 - The minimum wage would explain why the nominal wage is rigid, but not why the real wage is rigid
 - This might be a better explanation in Europe, where unions are far more powerful

11-3

Real-Wage Rigidity

Some reasons for real-wage rigidity

- If the real wage is too high, why don't firms reduce the wage?
 - Another possibility is that a firm may want to pay high wages to get a stable labor force and avoid turnover costs—costs of hiring and training new workers
 - A third reason is that workers' productivity may depend on the wages they're paid—the efficiency wage model

11-4

Chapter 11 Lecture - Keynesianism: The Macroeconomics of Wage and Price Rigidity

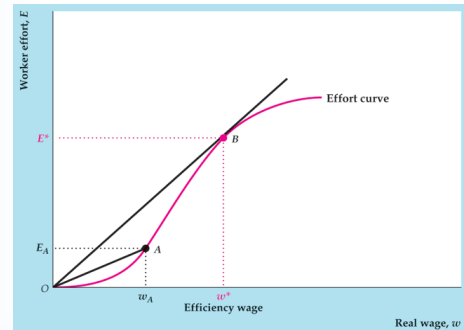
Real-Wage Rigidity

The Efficiency Wage Model

- Workers who feel well treated will work harder and more efficiently (the "carrot"); this is Akerlof's *gift exchange motive*
- Workers who are well paid won't risk losing their jobs by shirking (the "stick")
- Both the gift exchange motive and shirking model imply that a worker's effort depends on the real wage
- Effort curve, plotting effort against the real wage, is S-shaped
 - At low levels of the real wage, workers make hardly any effort
 - Effort rises as the real wage increases
 - As the real wage becomes very high, effort flattens out as it reaches the maximum possible level

11-5

Determination of the Efficiency Wage



11-6

Real-Wage Rigidity

Wage determination in the efficiency wage model

- Given the effort curve, what determines the real wage firms will pay?
- To maximize profit, firms choose the real wage that gets the most effort from workers for each dollar of real wages paid
- This occurs at point B in the figure, where a line from the origin is just tangent to the effort curve
- The wage rate at point B is called the efficiency wage
- The real wage is rigid, as long as the effort curve doesn't change

11-7

Real-Wage Rigidity

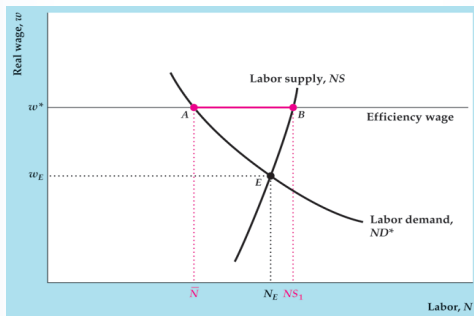
Employment and Unemployment in the Efficiency Wage Model

- The labor market now determines employment and unemployment, depending on how far above the market-clearing wage is the efficiency wage
- The labor supply curve is upward sloping, while the labor demand curve is the marginal product of labor when the effort level is determined by the efficiency wage
- The difference between labor supply and labor demand is the amount of unemployment
- The fact that there's unemployment puts no downward pressure on the real wage, since firms know that if they reduce the real wage, effort will decline

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Excess Supply of Labor in the Efficiency Wage Model



11-9

Real-Wage Rigidity

Employment and Unemployment in the Efficiency Wage Model

- Does the efficiency wage theory match up with the data?
- It seems to have worked for Henry Ford in 1914
- Plants that pay higher wages appear to experience less shirking
- But the theory implies that the real wage is completely rigid, whereas the data suggests that the real wage moves over time and over the business cycle
- It is possible to jazz up the model to allow for the efficiency wage to change over time
 - Workers would be less likely to shirk and would work harder during a recession if the probability of losing their jobs increased
 - This would cause the effort curve to rise and may cause the efficiency wage to decline somewhat
 - This would lead to a lower real wage rate in recessions, which is consistent with the data

11-10

Real-Wage Rigidity

- Efficiency wages and the *FE* line
 - The *FE* line is vertical, as in the classical model, since full-employment output is determined in the labor market and doesn't depend on the real interest rate
 - But in the Keynesian model, changes in labor supply don't affect the *FE* line, since they don't affect equilibrium employment
 - A change in productivity does affect the *FE* line, since it affects labor demand

11-11

Price Stickiness

Price stickiness is the tendency of prices to adjust slowly to changes in the economy

- The data suggest that money is not neutral, so Keynesians reject the classical model (without misperceptions)
- Keynesians developed the idea of price stickiness to explain why money isn't neutral
- An alternative version of the Keynesian model assumes that nominal wages are sticky, rather than prices; that model also suggests that money isn't neutral

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Price Stickiness

Sources of price stickiness: Monopolistic competition and menu costs

- Monopolistic competition
 - If markets had perfect competition, the market would force prices to adjust rapidly; sellers are price takers, because they must accept the market price
 - In many markets, sellers have some degree of monopoly; they are price setters under monopolistic competition
 - Keynesians suggest that many markets are characterized by monopolistic competition
- In monopolistically competitive markets, sellers do three things
 - They set prices in nominal terms and maintain those prices for some period
 - They adjust output to meet the demand at their fixed nominal price
 - They readjust prices from time to time when costs or demand change significantly

11-13

Price Stickiness

Monopolistic competition

- Menu costs and price stickiness
 - The term menu costs comes from the costs faced by a restaurant when it changes prices—it must print new menus
 - Even small costs like these may prevent sellers from changing prices often
 - Since competition isn't perfect, having the wrong price temporarily won't affect the seller's profits much
 - The firm will change prices when demand or costs of production change enough to warrant the price change

11-14

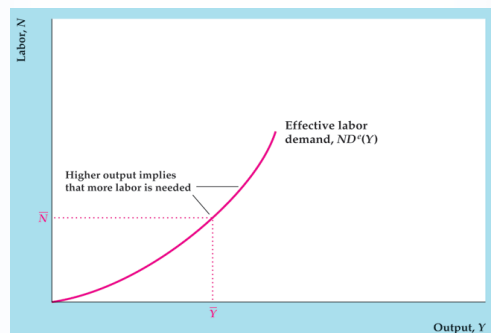
Price Stickiness

Monopolistic competition

- Effective labor demand
 - The firm's labor demand is thus determined by the demand for its output
 - The effective labor demand curve, $ND^e(Y)$, shows how much labor is needed to produce the output demanded in the economy
 - It slopes upward from left to right because a firm needs more labor to produce additional output

11-15

The Effective Labor Demand Curve



11-16

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Monetary and Fiscal Policy in the Keynesian Model

Monetary policy

- Monetary policy in the Keynesian *IS-LM* model
 - The Keynesian *FE* line differs from the classical model in two respects
 - The Keynesian level of full employment occurs where the efficiency wage line intersects the labor demand curve, not where labor supply equals labor demand, as in the classical model
 - Changes in labor supply don't affect the *FE* line in the Keynesian model; they do in the classical model

11-17

Monetary and Fiscal Policy in the Keynesian Model

Monetary policy

- Monetary policy in the Keynesian *IS-LM* model
 - Since prices are sticky in the short run in the Keynesian model, the price level doesn't adjust to restore general equilibrium
 - Keynesians assume that when not in general equilibrium, the economy lies at the intersection of the *IS* and *LM* curves, and may be off the *FE* line
 - This represents the assumption that firms meet the demand for their products by adjusting employment

11-18

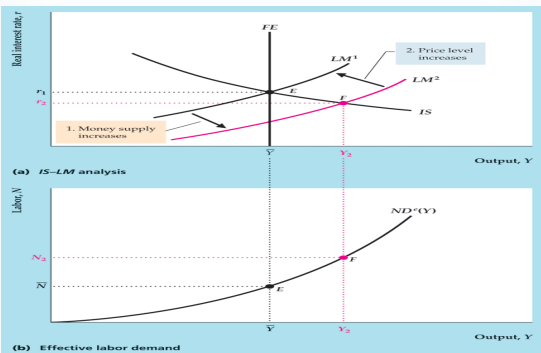
Monetary and Fiscal Policy in the Keynesian Model

Monetary policy

- Analysis of an increase in the nominal money supply. Easy money increases real money supply, causing the real interest rate to fall to clear the money market
 - The lower real interest rate increases consumption and investment
 - With higher demand for output, firms increase production and employment
- Eventually firms raise prices, the *LM* curve shifts back to its original level, and general equilibrium is restored
- Thus money is neutral in the long run, but not in the short run

11-19

An Increase in the Money Supply



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Monetary and Fiscal Policy in the Keynesian Model

Monetary Policy in the Keynesian *AD-AS* framework

- We can do the same analysis in the *AD-AS* framework
- The main difference between the Keynesian and classical approaches is the speed of price adjustment
 - The classical model has fast price adjustment, so the *SRAS* curve is irrelevant
 - In the Keynesian model, the short-run aggregate supply (*SRAS*) curve is horizontal, because monopolistically competitive firms face menu costs

11-21

Monetary and Fiscal Policy in the Keynesian Model

Monetary Policy in the Keynesian *AD-AS* framework

- The effect of a 10% increase in money supply is to shift the *AD* curve up by 10%
 - Thus output rises in the short run to where the *SRAS* curve intersects the *AD* curve
 - In the long run the price level rises, causing the *SRAS* curve to shift up such that it intersects the *AD* and *LRAS* curves
- So in the Keynesian model, money is not neutral in the short run, but it is neutral in the long run
- WE CAN SHOW

11-22

Monetary and Fiscal Policy in the Keynesian Model

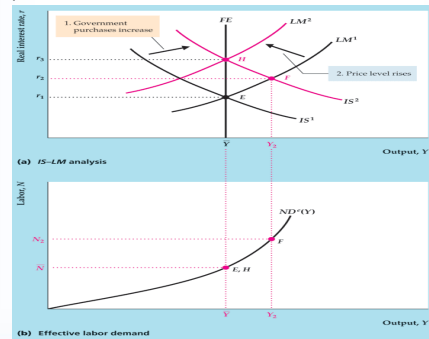
Fiscal policy

- The effect of increased government purchases
 - The *multiplier*, $\Delta Y/\Delta G$, tells how much increase in output comes from the increase in government spending
 - Keynesians think the multiplier is bigger than 1, so that not only does total output rise due to the increase in government purchases, but output going to the private sector increases as well
 - Classical analysis also gets an increase in output, but only because higher current or future taxes caused an increase in labor supply, a shift of the *FE* line
 - In the Keynesian model, the *FE* line doesn't shift, only the *IS* curve does
 - Fiscal policy - When prices adjust, the *LM* curve shifts up and equilibrium is restored at the full-employment level of output with a higher real interest rate than before

11-23

Fiscal Policy

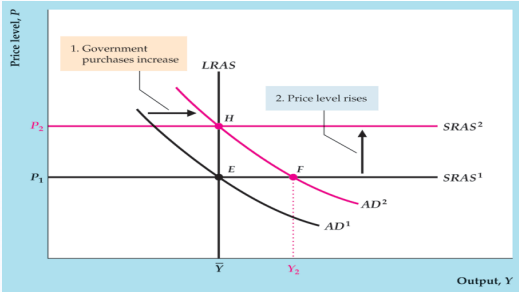
- A temporary increase in government purchases shifts the *IS* curve up in the short run, output and the real interest rate increase



11-24

Chapter 11 Lecture - Keynesianism: The Macroeconomics of Wage and Price Rigidity

An Increase in Government Purchases in the Keynesian AD-AS framework



11-25

Fiscal policy

- The effect of lower taxes
 - Keynesians believe that a reduction of (lump-sum) taxes is expansionary, just like an increase in government purchases
 - Keynesians reject Ricardian equivalence, believing that the reduction in taxes increases consumption spending, reducing desired national saving and shifting the IS curve up
 - The only difference between lower taxes and increased government purchases is that when taxes are lower, consumption increases as a percentage of full-employment output, whereas when government purchases increase, government purchases become a larger percentage of full-employment output

11-26

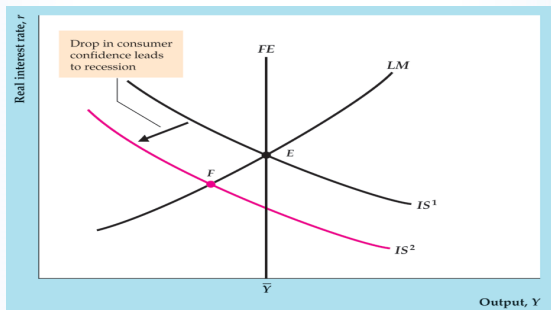
The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

Keynesian business cycle theory

- Keynesians think aggregate demand shocks are the primary source of business cycle fluctuations
- Aggregate demand shocks are shocks to the IS or LM curves, such as fiscal policy, changes in desired investment arising from changes in the expected future marginal product of capital, changes in consumer confidence that affect desired saving, and changes in money demand or supply

11-27

A Recession Arising from an Aggregate Demand Shock



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Chapter 11 Lecture - Keynesianism: The Macroeconomics of Wage and Price Rigidity

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

Keynesian business cycle theory

- A recession is caused by a shift of the aggregate demand curve to the left, either from the *IS* curve shifting down, or the *LM* curve shifting up
- The Keynesian theory fits certain business cycle facts
 - There are recurrent fluctuations in output
 - Employment fluctuates in the same direction as output
 - Money is procyclical and leading
- The Keynesian theory fits certain business cycle facts
 - Investment and durable goods spending is procyclical and volatile
 - This is explained by the Keynesian model if shocks to investment and durable goods spending are a main source of business cycles
 - Keynes believed in "animal spirits," waves of pessimism and optimism, as a key source of business cycles

11-29

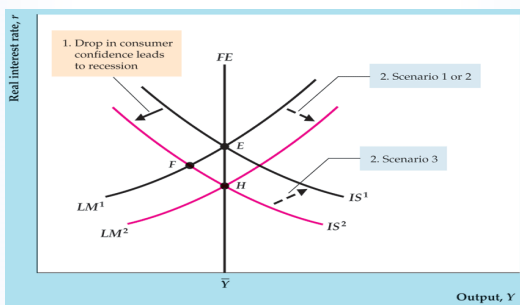
The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

•Macroeconomic stabilization

- Keynesians favor government actions to stabilize the economy
- Recessions are undesirable because the unemployed are hurt
- Suppose there's a shock that shifts the *IS* curve down, causing a recession

11-30

Stabilization Policy in the Keynesian Model



11-31

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

•Macroeconomic stabilization

- If the government does nothing, eventually the price level will decline, restoring general equilibrium. But output and employment may remain below their full-employment levels for some time
 - The government could increase the money supply, shifting the *LM* curve down to move the economy to general equilibrium
 - The government could increase government purchases to shift the *IS* curve back up to restore general equilibrium
- Using monetary or fiscal policy to restore general equilibrium has the advantage of acting quickly, rather than waiting some time for the price level to decline
- But the price level is higher in the long run when using policy than it would be if the government took no action

11-32

Chapter 11 Lecture - Keynesianism: The Macroeconomics of Wage and Price Rigidity

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

- Macroeconomic stabilization
 - The choice of monetary or fiscal policy affects the composition of spending
 - An increase in government purchases crowds out consumption and investment spending, because of a higher real interest rate
 - Tax burdens are also higher when government purchases increase, further reducing consumption

11-33

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

- Difficulties of macroeconomic stabilization
 - *Macroeconomic stabilization* is the use of monetary and fiscal policies to moderate the business cycle; also called *aggregate demand management*
 - In practice, macroeconomic stabilization hasn't been terribly successful
 - One problem is in gauging how far the economy is from full employment, since we can't measure or analyze the state of the economy perfectly

11-34

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

- Difficulties of macroeconomic stabilization
 - Another problem is that we don't know the quantitative impact on output of a change in policy
 - Also, because policies take time to implement and take effect, using them requires good forecasts of where the economy will be six months or a year in the future; but our forecasting ability is quite imprecise
 - These problems suggest that policy shouldn't be used to "fine tune" the economy, but should be used to combat major recessions

11-35

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

- Supply shocks in the Keynesian model
 - Until the mid-1970s, Keynesians focused on demand shocks as the main source of business cycles
 - But the oil price shock that hit the economy beginning in 1973 forced Keynesians to reformulate their theory
 - Now Keynesians concede that supply shocks can cause recessions, but they don't think supply shocks are the main source of recessions

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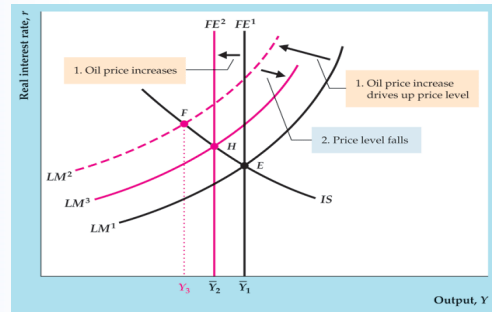
The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

•Supply shocks in the Keynesian model

- An adverse oil price shock shifts the FE line left
- The average price level rises, shifting the LM curve up (from LM^1 to LM^2), because the large increase in the price of oil outweighs the menu costs that would otherwise hold prices fixed
 - The LM curve could shift farther than the FE line, as in the figure, though that isn't necessary
 - So in the short run, inflation rises and output falls

11-37

An Oil Price Shock in the Keynesian Model



11-38

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

•Supply shocks in the Keynesian model

- There's not much that stabilization policy can do about the decline in output that occurs, because of the lower level of full-employment output
- Inflation is already increased due to the shock; expansionary policy to increase output would increase inflation further

11-39

The Keynesian Theory of Business Cycles and Macroeconomic Stabilization

•DSGE **Dynamic stochastic general equilibrium**

Models and the Classical-Keynesian Debate

- Economists were able to reconcile aggregative models with models of microeconomic foundations
- Classicals and Keynesians still disagree about the speed of wage and price adjustment and the role of government policy, but now speak the same language in modeling the economy

11-40