Principles of Macroeconomics

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Decide whether each of the following are frictional, structural, or cyclical unemployment:

a The economy gets worse, so General Motors shuts down a factory for four months, laying off workers.

b General Motors lays off 5,000 workers and replaces them with robots.The workers start looking for jobs outside the auto industry.

c About 10 workers per month at a General Motors plant quit their jobs because they want to live in another town. They start searching for work in the new town.

When the following events happen, does the unemployment rate rise, fall, or stay the same?

a Workers are laid off and start looking for work.

b People without jobs who are looking for work find work.

c People without jobs and looking for work give up and stop looking.

d People without jobs and not looking for work become encouraged and decide to start looking for work.

e People without jobs and not looking for work take a job immediately.

a If European governments set rules for marriage the same way they set rules for employment—with tough, preset rules that make it difficult to end the relationship—would you expect rates of divorce to rise, fall, or can't you tell with the information given?

b Would the length of marriages rise, fall, or can't you tell with the information given?

c Would married couples probably be happier (more productive) or less happy (less productive) than under more flexible marriage rules? The last of these three questions might have more than one correct answer.

The U.S. Great Depression

- A deep recession that began in 1929 and lasted for 10 years
- Output fell by 30%
- Unemployment rose to 25%
- It was a defining event that undermined people's faith in markets
- Led to emphasis on the short-run and the demand side of the economy and the development of macroeconomic theory separate from microeconomics

Classical Economists

- Earlier economists who focused on long-run issues
- Markets were self-regulating through the "invisible hand"
- The economy would always return to its potential output and target rate of unemployment in the long run
- Blamed the Depression on labor unions and government policies that prevented prices from falling
- Advocated a laissez-faire economic policy

The Essence of Keynesian Economics

- First outlined in 1936 by John Maynard Keynes
- Problems of the Depression required a short-run, rather than long-run, focus
- Keynes famously said: "In the long run, we're all dead"
- Adjustments to equilibrium for a single market (micro issue) and the aggregate economy (macro issue) are different
- Keynesians argued that, in times of recession, spending is a public good that benefits everyone

The Essence of Keynesian Economics

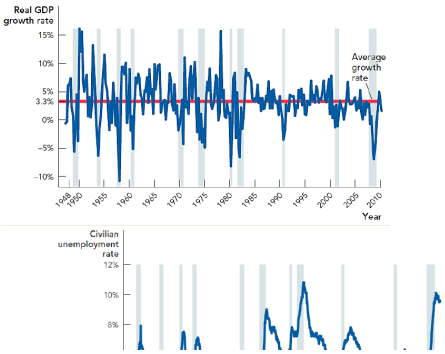
- Short-run equilibrium income may differ from long-run potential income
- Equilibrium income is the level of income toward which the economy gravitates in the short run because of the cumulative cycles of declining or increasing production
- Potential income is the level of income that the economy technically is capable of producing without generating accelerating inflation
- Market forces may not be strong enough to get the economy out of a recession

The Essence of Keynesian Economics

- Paradox of thrift
- In the long run, saving leads to investment and growth
- In the short run, saving may lead to a decrease in spending, output, and employment
- Aggregate demand management, which is government's attempt to control the aggregate level of spending, may be necessary
- Keynesian economists advocated an activist demand management policy

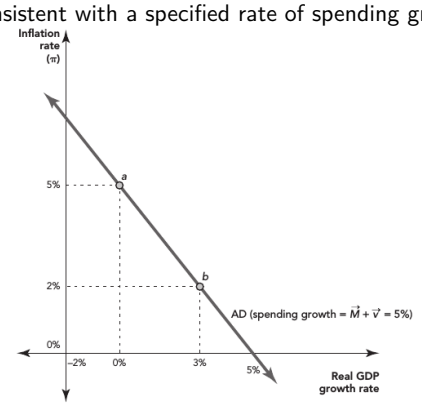
Economic Growth is Not a Smooth Process

- Real GDP grew at an average rate of 3% over the past 50 years. Growth wasn't smooth.
- A business fluctuation is a fluctuation in the growth rate of real GDP around its trend growth rate.
- A recession is a significant, widespread decline in real income and employment. (Shaded blue areas)



The Dynamic Aggregate Demand Curve

A curve showing all the combinations of inflation and real growth that are consistent with a specified rate of spending growth.



For a given level of spending growth the AD curve shows the combinations of inflation and real growth that add up to that spending growth.

The Dynamic Aggregate Demand Curve

Deriving the Dynamic Aggregate Demand Curve from the quantity theory of money in dynamic form: $\vec{M} + \vec{v} = \vec{P} + \vec{Y}$

The AD curve represents a specific nominal spending growth, e.g. 5%, so that:

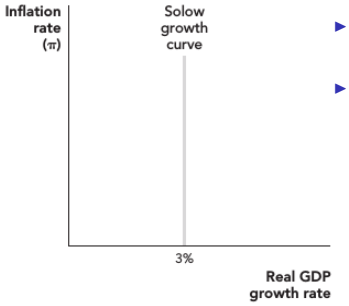
$$\text{nominal spending growth } = \vec{M} + \vec{v} = \vec{P} + \vec{Y}$$

- Increases in spending growth lead to a shift to the right.
- Decreases in spending growth lead to a shift to the left.
- A shift in the AD curve means that at every inflation level, total expenditures growth has changed.
- important shift factors are:
  - changes in the money growth rate
  - changes in consumer and/or business confidence
  - changes in taxes
  - changes in government spending
  - changes in export or import growth
- Deliberate shifting of the AD curve is what most policy makers mean by macro policy

Solow growth rate

An economy's potential growth rate, the rate of economic growth that would occur given flexible prices and existing real factors of production.

If markets are working well and prices are perfectly flexible, the economy will grow at the potential growth rate.



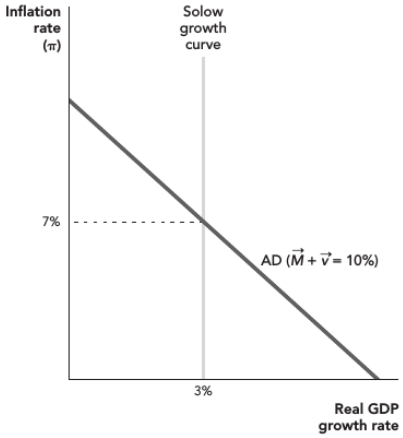
- Potential growth does not depend on the inflation rate.
- Real shocks ("Productivity Shocks") increase or decrease the potential growth rate.
  - Positive productivity shocks increase the ability of the economy to produce.
  - Negative productivity shocks decrease the ability of the economy to produce.

The Solow Growth Curve

Increases in the Solow Growth Curve are caused by increases in:

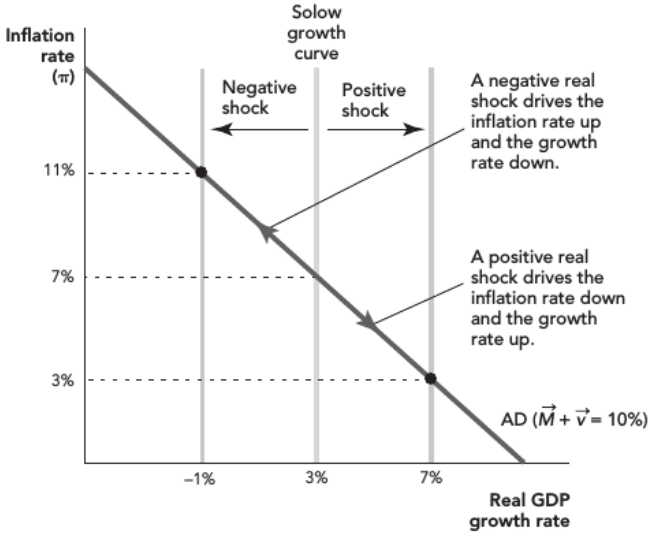
- Capital
- Resources
- Growth-compatible institutions
- Technology
- Entrepreneurship

Long-run Equilibrium: The Solow Growth Curve and AD



The notion of "long-run" equilibrium does not necessarily imply that a long period of time is required to achieve it, but rather, only a period of time long enough that prices have fully adjusted.

Real Shocks Shift the Solow Growth Curve



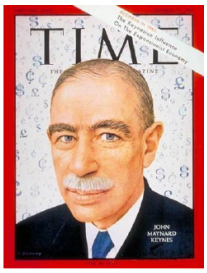
Real Shocks

Negative Shocks = Solow Growth Curve Moves Left	Positive Shocks = Solow Growth Curve Moves Right
Bad weather (important in agricultural economy)	Good weather (important in agricultural economy)
Higher price of oil or other important input	Lower price of oil or other important input
Productivity slump/technology slump	Productivity boom/technology boom
Higher taxes or regulation	Lower taxes or regulation
Major shifts in consumer preferences	Predictable consumer preferences
Disruption of production by war, earthquake, pandemic	Smooth production without disruption

Key Characteristics of Fluctuations Caused by Real Shocks

- Business fluctuations result from shifts in the Solow growth curve.
- Fluctuations are accompanied by changes in the inflation rate.
- Changes in money growth have no real effects, but cause proportionate changes in inflation (money is neutral in the long run).
- Inflation is a monetary phenomenon (since money is the only factor that can permanently shift the AD curve).

The short run



John Maynard Keynes (1883-1946)
— The General Theory of Employment, Interest, and Money, 1936.
Explained that when prices are not perfectly flexible (sticky), deficiencies in aggregate demand could cause recessions
Key to the model: when prices are sticky, the economy can grow faster or slower than the Solow growth rate.

Aggregate Demand Shocks and the Short-Run Aggregate Supply Curve

An aggregate demand shock is a rapid and unexpected shift in the AD curve (spending).

The Short-Run Aggregate Supply Curve

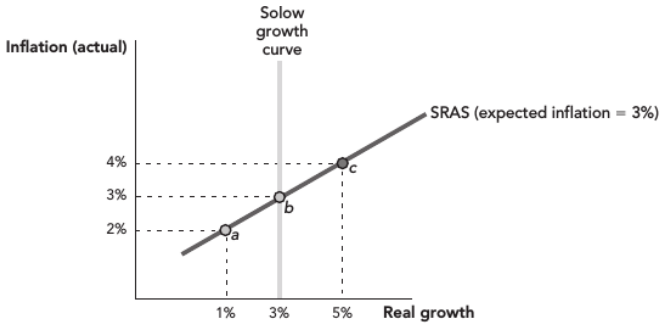
- If wages are not as flexible as prices...
  - Inflation will result in higher profits.
  - Higher profits lead to increased output, or, real GDP growth.
- Two reasons why there can be a positive relationship between the inflation rate and the growth rate of real GDP in the short-run:
  1. Sticky wages
  2. Sticky prices

Sticky Wages

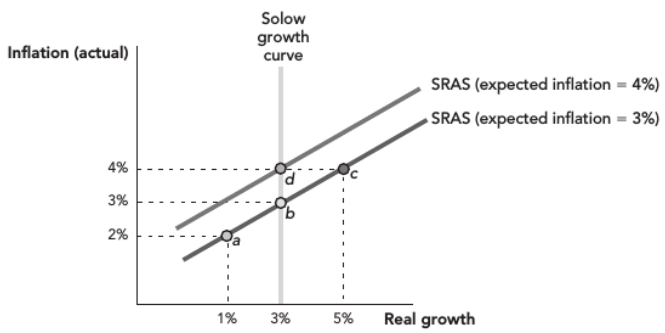
Expected inflation is built into labor contracts.
What happens if inflation is higher or lower than expected?

The short-run aggregate supply curve (SRAS)

Shows the positive relationship between the inflation rate and real growth during the period when prices and wages are sticky.



There is a different SRAS for every level of expected inflation



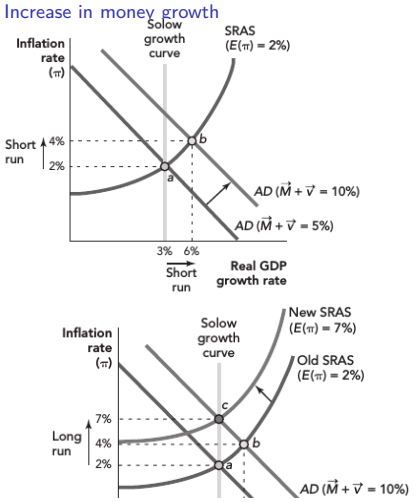
Why Do Spending Increases Temporarily Increase Growth?

Why is the SRAS Upward-Sloping?

- Nominal Wage Confusion
  - workers respond to their nominal wage instead of to their real wage, they respond to the wage number on their paychecks rather than to what their wage can buy in goods and services (the wage after correcting for inflation).
- Menu Costs
  - the costs of changing prices.
  - Printing costs and the desire not to upset consumers with rapid price changes keep firms from changing prices frequently.
- Uncertainty
  - causes firms to hold off changing prices. They can be unsure about whether:
    - A shock is permanent or temporary.
    - Increases in demand are nominal, caused by inflation, or real.
- Sticky prices cause upward sloping SRAS

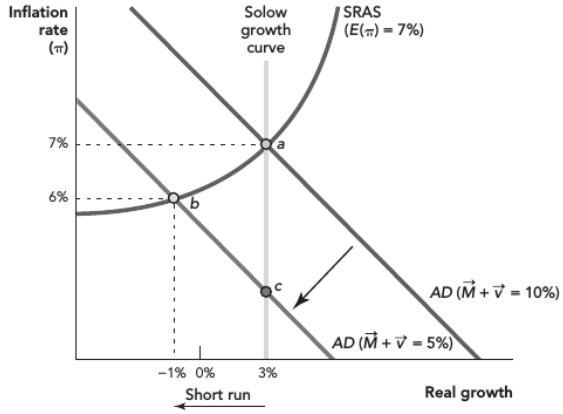
In the Long Run, Real Growth Eventually Returns to the Solow Rate

Increase in money growth



A Fall in Aggregate Demand Could Induce a Lengthy Recession

Decrease in money growth



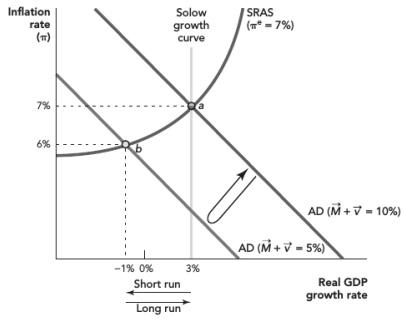
Other Factors that Shift the AD Curve

- Fear and confidence also affect growth of investment spending
  - Fear about the future will cause business people to put off large investments in capital.
  - Confidence about the future will result in greater investment spending by businesses.
- Wealth shocks can also increase or decrease AD.
- Taxes also shift consumption and investment
- Changes in government spending shift AD.
- Changes in the growth of net exports, NX.
  - Other countries increase spending on our goods leads to an increase in AD.
  - We increase our spending on foreign goods leads to a decrease in AD.

A Temporary Shock to the AD and the Adjustment

A change in the velocity: decrease in spending

- A negative spending shock reduces the real growth rate and inflation in the short-run only.
- Why?: Changes in spending growth are temporary.
- Shares of GDP devoted to C, I, G, and NX have been stable over time.
- This implies that their growth rates must also be stable.



Changes in the growth rates of spending do not change the long-run rate of inflation.

Sustained inflation requires continuing increases in the money supply.

Shocks to the Components of Aggregate Demand

Positive Shocks (Increase AD) (=Higher Growth Rate of Spending)	Negative Shocks (Decrease AD) (= Lower Growth Rate of Spending)
A faster money growth rate	A slower money growth rate
Confidence	Fear
Increased wealth	Reduced wealth
Lower taxes	Higher taxes
Greater growth of government spending	Lower growth of government spending
Increased export growth	Decreased export growth
Decreased import growth	Increased import growth

Key Characteristics of Fluctuations Caused by Demand Shocks

- Business fluctuations result from shifts in the AD curve.
- Changes in money growth (and demand shocks in general) have real effects in the short run, implying that money is not neutral in the short run.
- Changes in money growth (and demand shocks in general) have no real effects in the long run, implying that money remains neutral in the long run.

Aggregate Demand Policy

- A primary reason for government policy makers' interest in the AS/AD model is that monetary or fiscal policy shifts the AD curve
- Monetary policy involves the (Federal Reserve) Central Bank changing the money supply and interest rates
- Fiscal policy is the deliberate change in either government spending or taxes to stimulate or slow down the economy

Let's discuss the 2008 Financial Crisis:
Identify what type of shock hit the economy: a "real" shock or a demand-side shock?