Introduction to Economic Fluctuations

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Introduction

So far we have studied the economy in the long-run. We have studied:

- The closed economy model.
- Monetary System.
- Inflation in the long-run.
- Unemployment in the long-run.
- Economic Growth.

The long-run is about the average level, or the trend, of the economy variables such as output, inflation, and unemployment.

We will not switch gears and study the economy in the short-run:

The short-run is about:

- Temporary departures from the trend in these variables.
- Fluctuations in the economy.
- Booms and recessions.

Introduction

We refer to short-run fluctuations as business cycle.

- This might be a bit misleading, as the business cycle is not a regular cycle.
- They are irregular and unpredictable.

Our goal in this last part of the course is to try to understand:

- What causes short-run fluctuations.
- What model should we use to explain them.
- What policymakers can do to stabilize the economy and avoid recessions.

In this lecture we will examine the data that describes the short-run fluctuations.

In the next lectures:

- Build the IS-LM model to explain these fluctuations.
- Use the IS-LM model to derive the aggregate demand curve.
- Combine the aggregate demand curve with the aggregate supply curve to understand the effects of shocks in the economy.

GDP and its components

So far, we often assumed that GDP grows at a constant rate.

However, in reality, GDP fluctuates around its trend and the growth rate is far from constant.
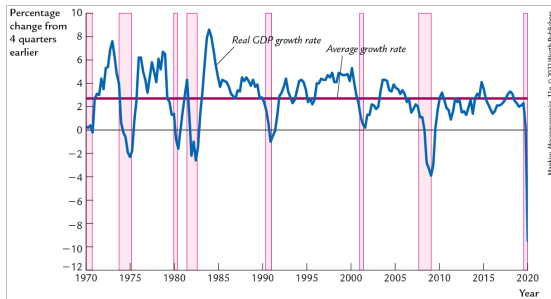

The average growth rate of GDP in the US is around 3% per year. However, the growth rate fluctuates a lot around this average.

The shaded areas in the figure represent recessions! How do we define a recession?

Recessions

The official arbiter of when recessions begin and end is the National Bureau of Economic Research (NBER).

The starting date of a recession is the peak of the business cycle, and the ending date is the trough.
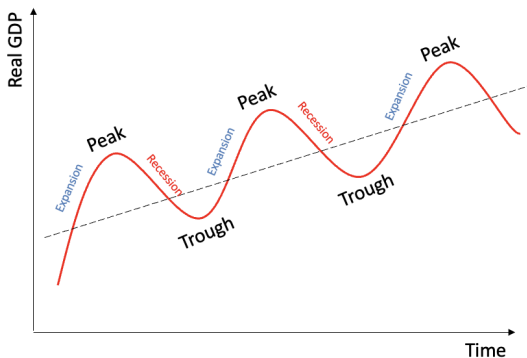
Recessions

The NBER's Business Cycle Dating Committee chooses the peak and through dates.

Is there a specific rule they follow?

- An old rule of thumb says that a recession is a period of two consecutive quarters of negative GDP growth.
- This rule doesn't always hold, though!
- In reality, the dating committee looks at a variety of indicators, such as GDP and employment, and uses its judgment to determine the dates.

Procyclical and Countercyclical Variables

We can classify each variable in the economy as procyclical or countercyclical.

Procyclical Variables:
- We say that a variable is procyclical when it moves together with GDP.
- When GDP goes up, the variable goes up.
- When GDP goes down, the variable goes down.
- GDP and procyclical variables are positively correlated.

Countercyclical Variables:
- We say that a variable is countercyclical when it moves in the opposite direction of the GDP.
- When GDP goes up, the variable goes down.
- When GDP goes down, the variable goes up.
- GDP and countercyclical variables are negatively correlated.

Volatility
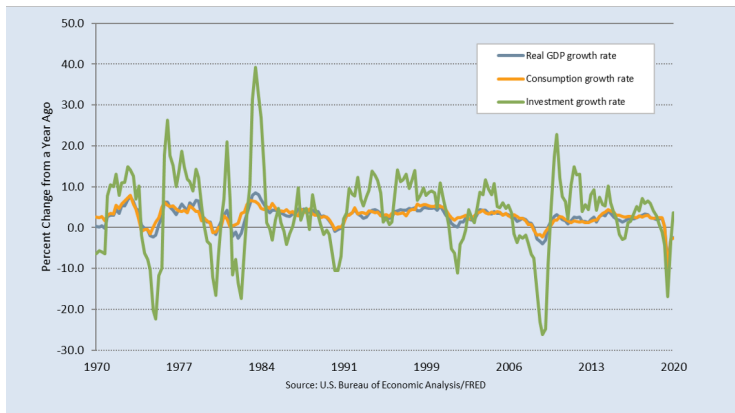
- It's a measure of dispersion of the variable.
- High volatility means, intuitively, the variable changes a lot.
- Can be measured by the standard deviation of the variable.
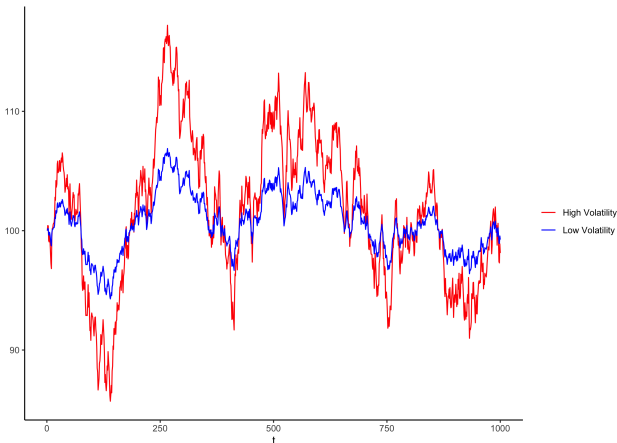
Consumption and Investment in the short-run

How does consumption and investment behave in the short-run?

They also fluctuate! How does it compare to fluctuations on GDP?

Consumption and Investment in the short-run

Consumption:
- Procyclical.
- Less volatile than GDP.
- How do you remember this?
    - If your income is reduced in a recession, you have less money to spend buying things (Procyclical)
    - However, you still need to eat, so you can't adjust your consumption in the same proportion your income was reduced (Less volatile).

Investment:
- Procyclical.
- More volatile than GDP.
- How do you remember this? If your income is reduced in a recession, you will save less!
- What about the volatility? (Next slide!)

Consumption and Investment in the short-run

Consider the following example:

- Say your income is 100 dollars, you need 80 dollars to survive and spend 10 dollars on insomnia cookies.

- Consider you don't need insomnia cookies to survive (I need. Life is sad without coffee and insomnia cookies). You save $100 - 80 - 10 = 10$ dollars.

- In a recession, say your income goes down by 20%. You now receive 80 dollars. You need 80 dollars to survive, no more money to spend on insomnia cookies nor to save!

- Your consumption goes down by $(90 - 80)/90 \approx 11.1\%$. Less than the 20% decrease in your income.

- Savings (=investment) goes down by 100%. More than the decrease in your income.

Unememployment and Okun's Law

What happens to unemployment in the short-run?

The shaded areas represent recessions in the last figure.
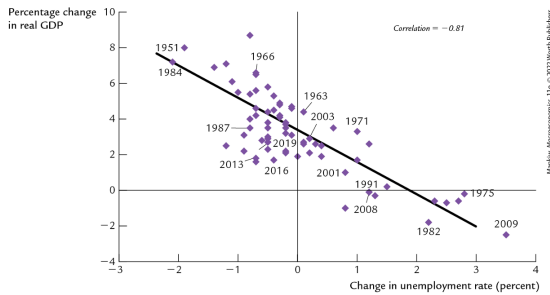
During economic downturns, jobs are harder to find:
- Unemployment goes up.
- Job vacancies go down.

Unemployment and Okun's Law

The negative relationship between GDP and unemployment is known as Okun's Law.

- It is named after the economist Arthur Okun, who first proposed it.
- Fun fact: he also studied at Columbia University!

How does Okun's Law work for the US?

Unemployment and Okun's Law

The last plot shows: the relationship between the change in the unemployment rate and the percentage change in real GDP.

Each point in the plot represents a year.

If we were to fit a line to this data, we would find that:

Percentage change in Real GDP = 3% − 2 × Change in Unemployment

$$\frac{\Delta Y}{Y} = 3\% - 2 \times \Delta u$$

This is the Okun's Law for the US.

Let's see how to apply it!

Unemployment and Okun's Law

Example: Suppose the unemployment rate increases from 2% to 4%. What is the percentage change in Real GDP? *Answer*: -1%

Be careful when applying this law!

- Change in unemployment is in percentage points! If unemployment goes from 2% to 4%, the change is 2 percentage points.
- Percentage change in Real GDP is in percentage (growth rate)! If Real GDP goes from 100 to 98, the percentage change is -2%.
- This equation is an approximation and is different for each country.

Unemployment and Okun's Law

Okun's law is a short-run phenomenon!

Recall that in the long-run, growth in GDP:
- Is determined by technological progress!
- Not associated with any long-run trend in the rate of unemployment.

In contrast, short-run movements in GDP are strongly correlated (negatively) with unemployment!
- Unemployment is countercyclical!

How the Short Run and the Long Run Differ

We want to develop a theory that explains the short-run fluctuations in the economy.

We need different models for different time horizons.

The classical economy theory we saw before is a good tool to understand the long-run, but fails to explain the short-run. Why?

In the long run, prices are flexible!
- They can respond to changes in supply and demand.

In the short run, prices are sticky.
- If prices are sticky, then quantities must adjust to changes in supply and demand.
- Nominal variables (e.g. prices) will impact real variables (e.g. quantities).

How the Short Run and the Long Run Differ

Suppose the Fed suddenly reduces the money supply by 5%.

According to the classical model:

- All prices will fall by 5%.
- Output, unemployment, and other real variables remain the same.
- Changes in the money supply do not cause fluctuations in output and employment.

In the short run:

- Many prices are sticky and don't respond immediately to changes in Monetary policy.
- Since prices don't adjust quickly, real variables such as output and employment must adjust instead.

The classical dichotomy no longer holds: nominal variables can affect real variables.