Ch 6: Macro

Introduction

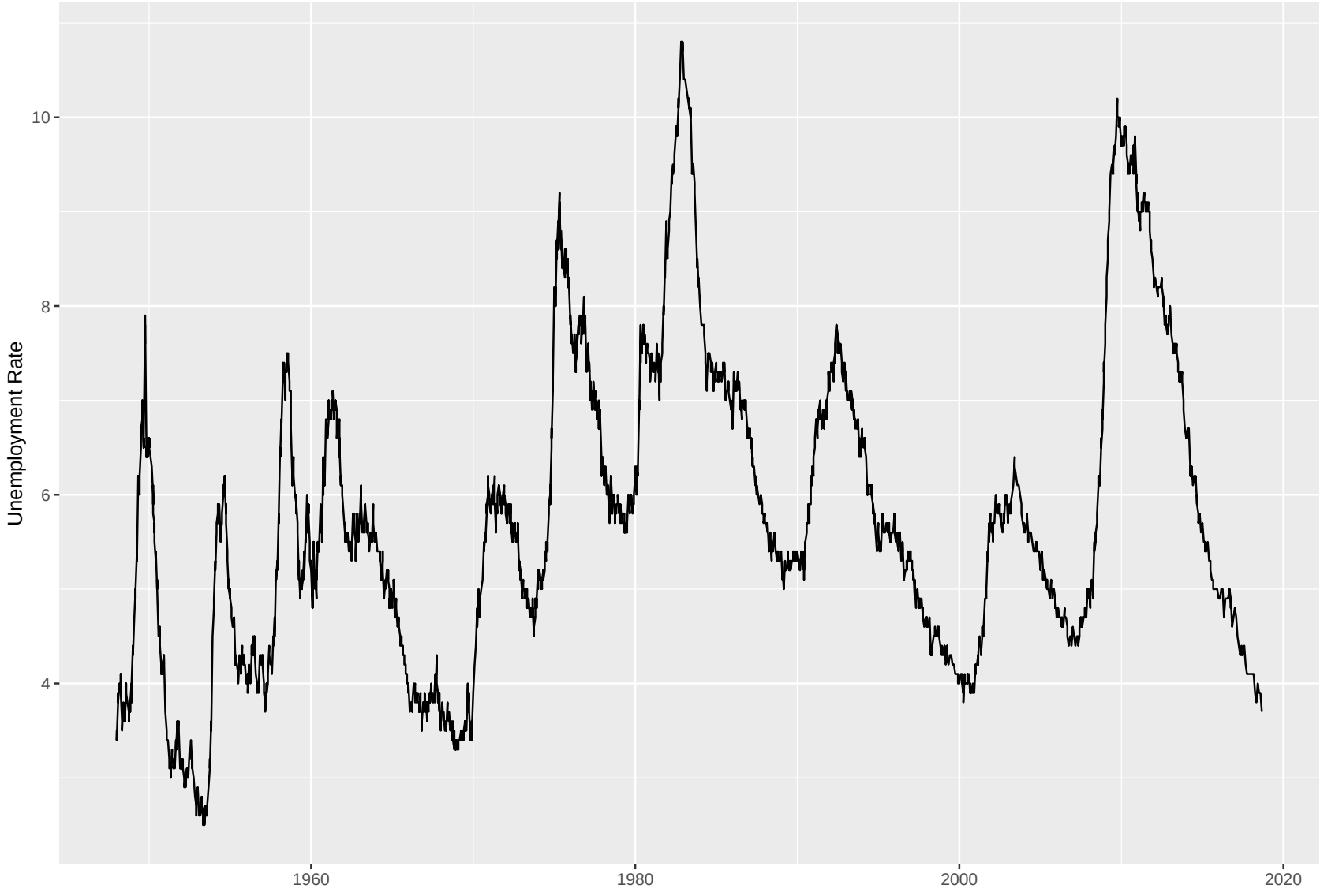
- You can summarize the state of the macroeconomy with just a few numbers:
  - Inflation – How all prices are changing
  - GDP Growth – How production of goods and services is changing
  - Unemployment – People that are looking for work.
- Each one has a lot of details, definitions and alternative measures
- How we think of them has changed over time
- All are generated by surveys. There is no dial on the economy.

Today

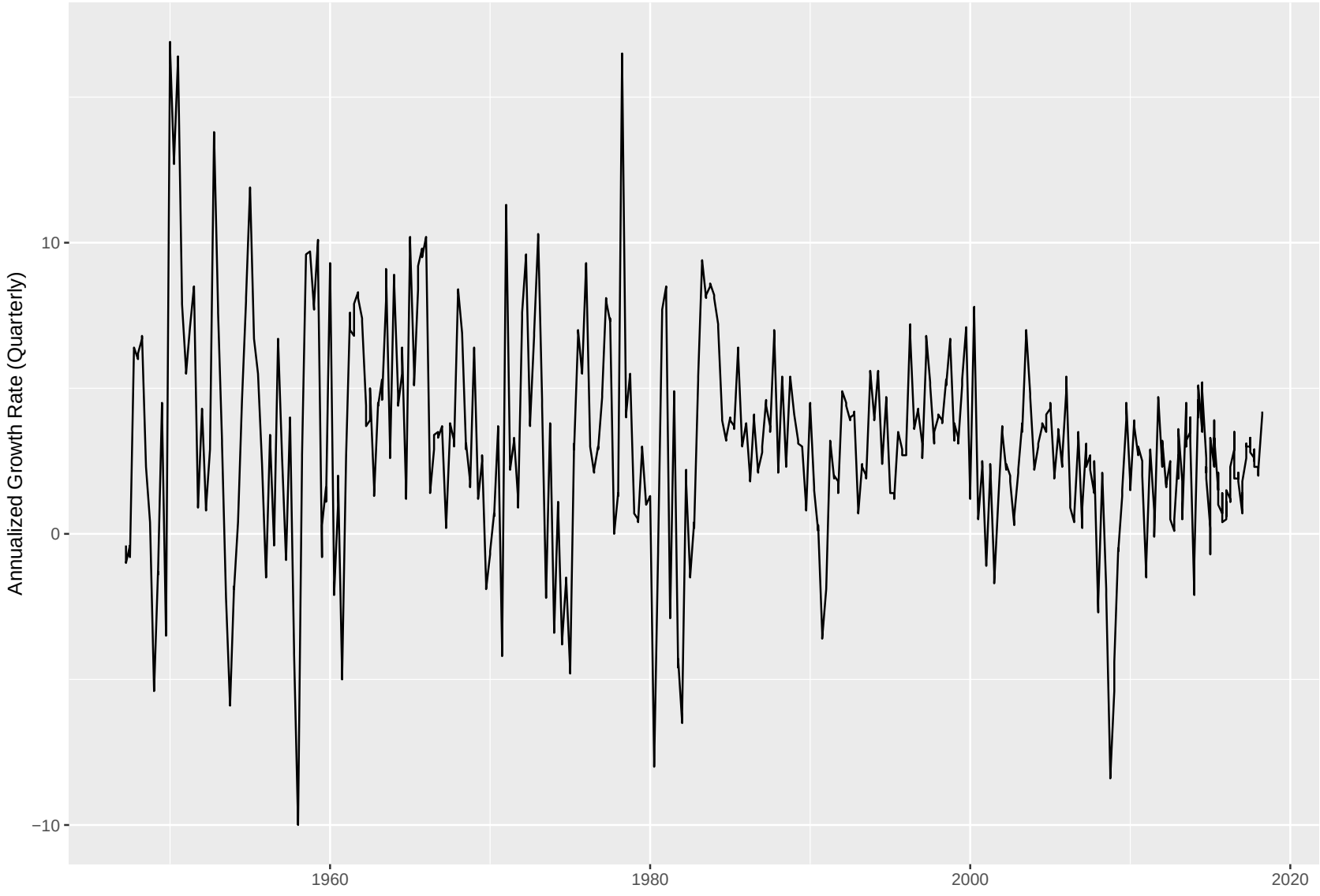
- Unemployment Rate Last Month: 3.7%
- GDP Growth (From Previous Quarter Annualized): 4.2%
- CPI-U Inflation Last Month (From Previous Year): 2.7%

Lets get today's numbers in context with the past

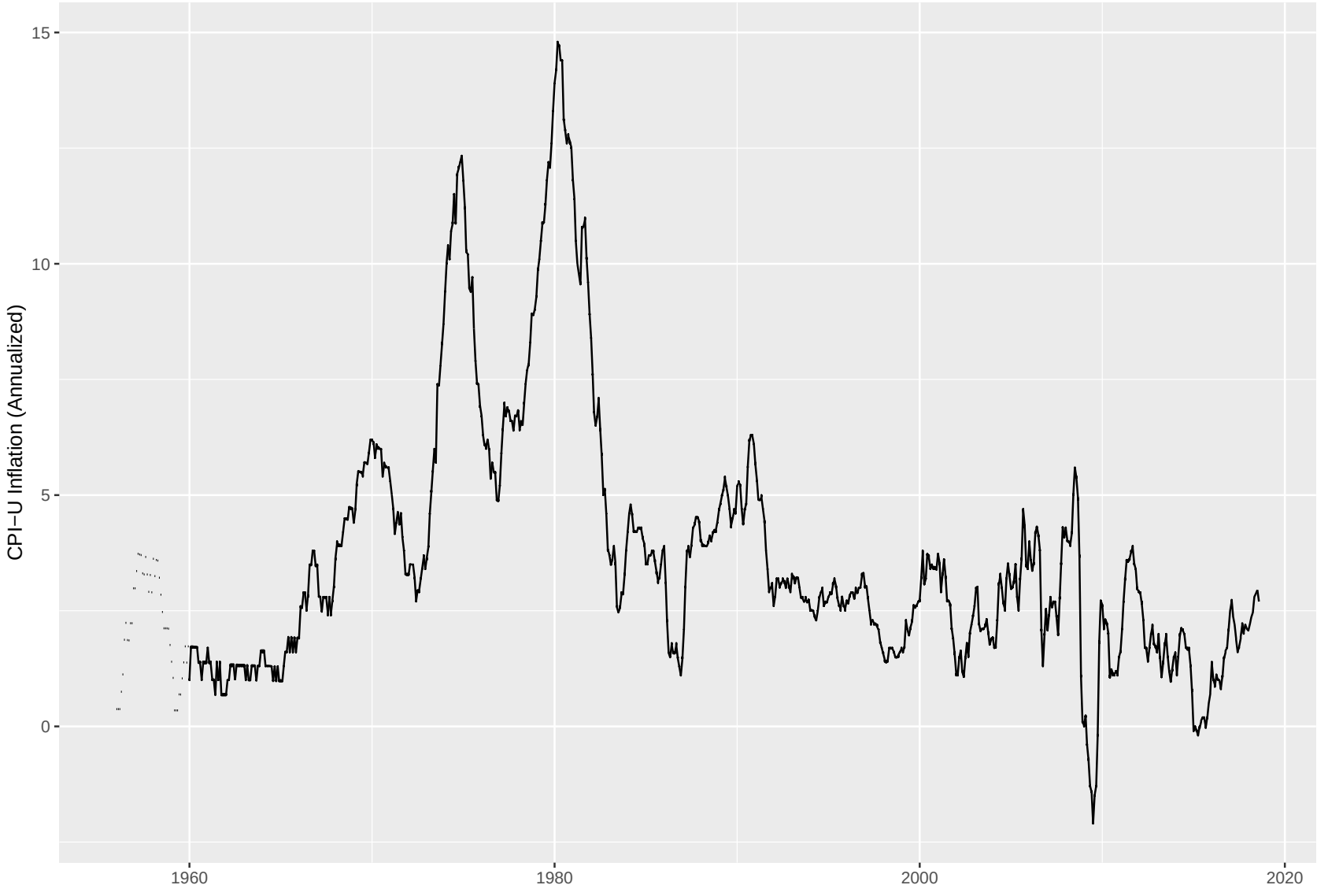
Unemployment



GDP Growth


Annualized Growth Rate (Quarterly)
10
0
−10
1960
1980
2000
2020

Inflation



Where are we going with this?

Into the past

- Talk about how we started with each of these measures
- How our ideas have changed
- Some controversies
- Keep in mind that we rolled into the great depression with none of this, we made it up because we needed to.

Unemployment

We came into the great depression with no national measure of unemployment. We were guessing from many different sources.

- While conducting the 1940 census
- We tried a probability sample at the same time to see if the sample reflected the census.
- That survey eventually became the **Current Population Survey** – which is conducted monthly.
- There is also an annual supplement with other questions.

The Activity Concept

Finding if people are employed is easy – We ask if people are **employeed for pay or profit**.

- Assumes any job, part-time or full-time is good.
- Assumes that the job is the best use of skills.

Unemployment is harder:

- We could ask if people wanted a job, but that is more of a hypothetical that comes with no cost.
- We what they **did** to find a job

$$Unemployment\ Rate = \frac{Unemployed}{Unemployed + Employed}$$

The First Survey

- March 1940
- Probability sampling worked.
- Measured 15% unemployment, high, but lower than the estimated 25% the the peak of the Great Depression.

1942 Change in Concerns

- Pearl Harbor
- They were suddenly worried about having enough workers
- They added questions about who could work
  - Women
  - Children
- Soon unemployment was about 1%.

End of WW2

- There was some worry that we would go back into the Great Depression
  - We didn't
  - Yeah, fiscal stimulus.

The worry and the idea that government spending can keep us out of depression was in many places, both technical writing and the arts.

- Brave New World (1931)
- Keynes's General Theory (1936)
- 1984 (1949)

The 50s

A few changes in the unemployment concepts:

- Temporary layoff ($<$ 30days) were now "unemployed"
- Waiting to start a job ($<$ 30 days) now "unemployed"

This helped make the measure more sensitive to output.

They also noticed that some people said that they were not looking for work because of the, "belief that no work was available in their line of work or community."

Seasonality

There are wide swings in employment, much Agriculture driven (1/5 work force then but 1/50th now.)

- For much of the 40s they calculated unemployed/population – a different rate than we report now.
- They removed regular patterns so you can:
  - compare unemployment month to month and not just
  - same month in previous year.

The 60s Begin

- 1959, 2 years after the last recession, unemployment is still over 5%.
- New recession in April 1960.
- Accusations that methods magnified the growing unemployment problem
- Seasonal adjustments were accused of being used for political purposes.

Gordon Committee 1961

- No manipulations. Stats done well.
- Added:
  - Looked in the last 4 weeks (specific)
  - Available to work in last 4 weeks.
  - Defined employed as 1 hr of pay or profit
- Concerns about automation
  - Ask whey they were not looking.

Gorden Committee (Con't)

Is unemployment a measure of hardship?

- Indirect measure of hardship.
- Not everyone who is looking, needs a job
  - Students
  - Housewives
- Income data in supplemental survey asked income.
- Poverty rates, based on threshold income and family size, were now also published as a hardship measures (1965).

The 70s

- The “significance” controversy and accusations of manipulation.
- U-1 through U-7, the new measures of unemployment
- Another commission

Significance

- February 1971 0.2% drop in unemployment rate
  - BLS “marginally significant”
  - Labor Sec. “of great significance.”
- March 1971
  - BLS “sort of mixed”
  - Labor Sec. “heartening”
- July 1971 had a technical problem.

Accusations of politicization.

This is Why We have Release Schedules

- All dates are known a year ahead of time
- Restricted access to pre-release data
- No public commentary till 1hr before

Trump violated this in **June 2018**

More measures

- U-1 through U-4: Narrow definition of unemployed.
- U-5: Official
- U-6 through U-7: Broad

They all show similar trend and movement and have since been revised.

While similar issues have been in the **news** it is an old idea.

The 90s

- More focus on permanent and widespread job loss and definition of labor force (Unemployed and Employed)
- Discouraged worker measurement.

The Current Definitions

- U1: Percent of labor force unemployed 15 weeks or longer
- U2: Percent of labor force who lost jobs or completed temporary work.
- U3: Official Without jobs and have looked for work in past 4 weeks.
- U4: U3 + Discouraged workers (Believe no work is available and stopped looking)
- U5: U4 + Marginally attached (Stopped looking but think there may be jobs.)
- U6: U5 + Part-time workers that want full-time but can't find it.

Currently:

- **Latest Release**
- **The Alternative Measures**

GDP and CPI Are Bound Together

Gross Domestic Product (GDP) is suppose to be a measure how much we produce.

- Don't read more into it.
- It is not well-being
- It combines goods and bads

Consumer Price Index (CPI) is suppose to measure how expensive things are.

- Everyone buys different things.
- Everyone adapts when prices change.
- We buy things that last for years. You have to figure out how to spread that out over time.

There is a Fundimental Problem

Average usually means adding things up and dividing by the number of things.

- You can't add apples, oranges and movies together.
- You can't add the prices of rent, vitamins and plane trips.

There is a whole area of study on indexes that solves these problems.

The idea

Goods	$Production_0$	$Price_0$	$Production_1$	$Price_1$
Apple	100	1	50	3
Coffee	50	2	40	4

We can observe the individual production of goods and we can observe the individual prices.

Index Theory for Output

Goods	$Production_0$	$Price_0$	$Production_0 * Price_0$
Apple	100	1	100
Coffee	50	2	100

- Measure output by the market value of the goods.
- Price times output and add them up.
- In this case $200.

Problem: Prices could, will, change too. You can have actual production go down and prices go up and it looks like more output.

Like this

Goods	$Production_1$	$Price_1$	$Production_1 * Price_1$
Apple	50	3	150
Coffee	40	4	160

- Note production fell for both goods.
- Prices increased for both goods.
- But the value of the the output increased from \$200 to \$310.

Solution? Control for Price Changes

Goods	$Production_1$	$Price_1$	$Production_1 * Price_0$
Apple	50	1	50
Coffee	40	2	80

- Hold prices as they were in the base year
- Weight output the same way you did in the base year.
- Now you can see that output, production, actually went down.

To measure output changes, you hold prices constant.

There is a Similar Problem with Prices

- People react to price changes. They buy more as they get cheaper and less as they get more expensive.
- Check pork prices in the grocery store.
  - Reciprocal tariffs hit the pork producers.
  - They can't sell as much abroad as before.
  - They sell it here for lower prices.
  - The guy at Winco said it was walking out the door.

When measuring prices, you need to hold production constant.

Try Buying all the Production

Goods	$Production_0$	$Price_1$	$Production_0 * Price_1$
Apple	100	3	300
Coffee	50	4	200

Note that in year zero, you could buy all production for \$200 and now to buy the same, year zero, production it costs \$500.

In Short

- We try to measure output by holding prices constant. We call this real GDP.
- We try to measure prices by buying a fixed market basket.
  - We have a lot of price indexes.
  - The most common is CPI, which covers consumer prices.

The CPI

- It is older than our GDP measures
- It is older than our unemployment measures
- Goes back to 1913
- It is embedded in law and is not revised when new data is available.

What Do We Put in the Market Basket?

We put in what we observe people buying

- The Consumer Expenditure Survey
  - Purchase diary
  - Receipts
  - Quarterly interviews for big purchases

Here is the lastest by age. We don't use them this way in the CPI but it is fun.

We Keep Separate Market Baskets

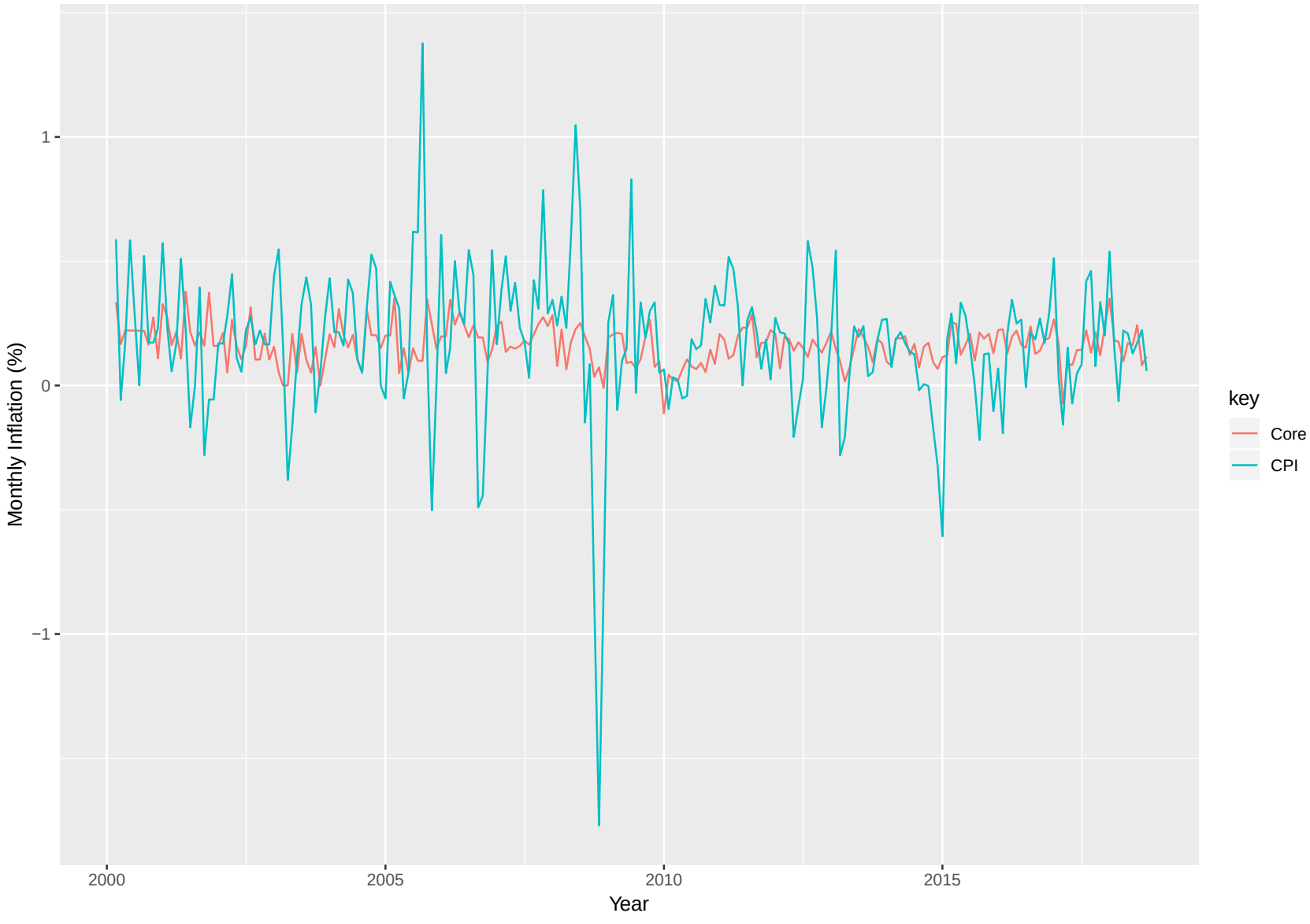
- CPI-U: All urban workers
- CPI-W: Urban wage and clerical workers. Narrower than U
- CPI-E: Elderly

We also often report out the indexes without food and energy and call it *core*.

Why Core?

- It is not that we don't think that food and energy are important.
- CPI is one of the few measures **not** revised when new data arrive.
  - It is built into laws about social security, tax brackets.
  - Contracts with escalator clauses.
- Food and Energy
  - Follow the same trend as other prices
  - But they are more volatile.
- Leaving out food and energy
  - Removes volatility
  - Keeps the trend (We hope)

See! Seasonally Adjusted.



How We do the Price Survey

"Prices are collected each month in 75 urban areas across the country from about 5,000 housing units and approximately 22,000 retail establishments (department stores, supermarkets, hospitals, filling stations, and other types of stores and service establishments)."

- We adjust the basked every 2 years
- We have a separate measure, chained CPI, that changes the basket every month.

Here is the lastest press release

Everything From A Survey Has Uncertainty

"1-month change of 0.2 percent in the all items CPI-U, we are 95 percent confident that the actual percent change based on all retail prices would fall between 0.14 and 0.26 percent""

GDP is the most complex

It uses data from all over the place

- Tax receipts
- Economic census
- Census of Population and Housing
- Everything

When a country looks for international help, setting up this kind of tracking system is one of the first tasks.

Revised When we Get More Data

**Here is the latest press release

Note the following helpful table

Vintage	Average Revision
Advance to second	0.5
Advance to third	0.6
Second to third	0.2
Advance to latest	1.3

In other words if you see 4.2% annualized growth reported, on average it will be in 2.9% - 5.5% range.

The Data

- This is an overview of the data we use.
- Now lets talk about macro theory.

Macro is more than the sum of the parts

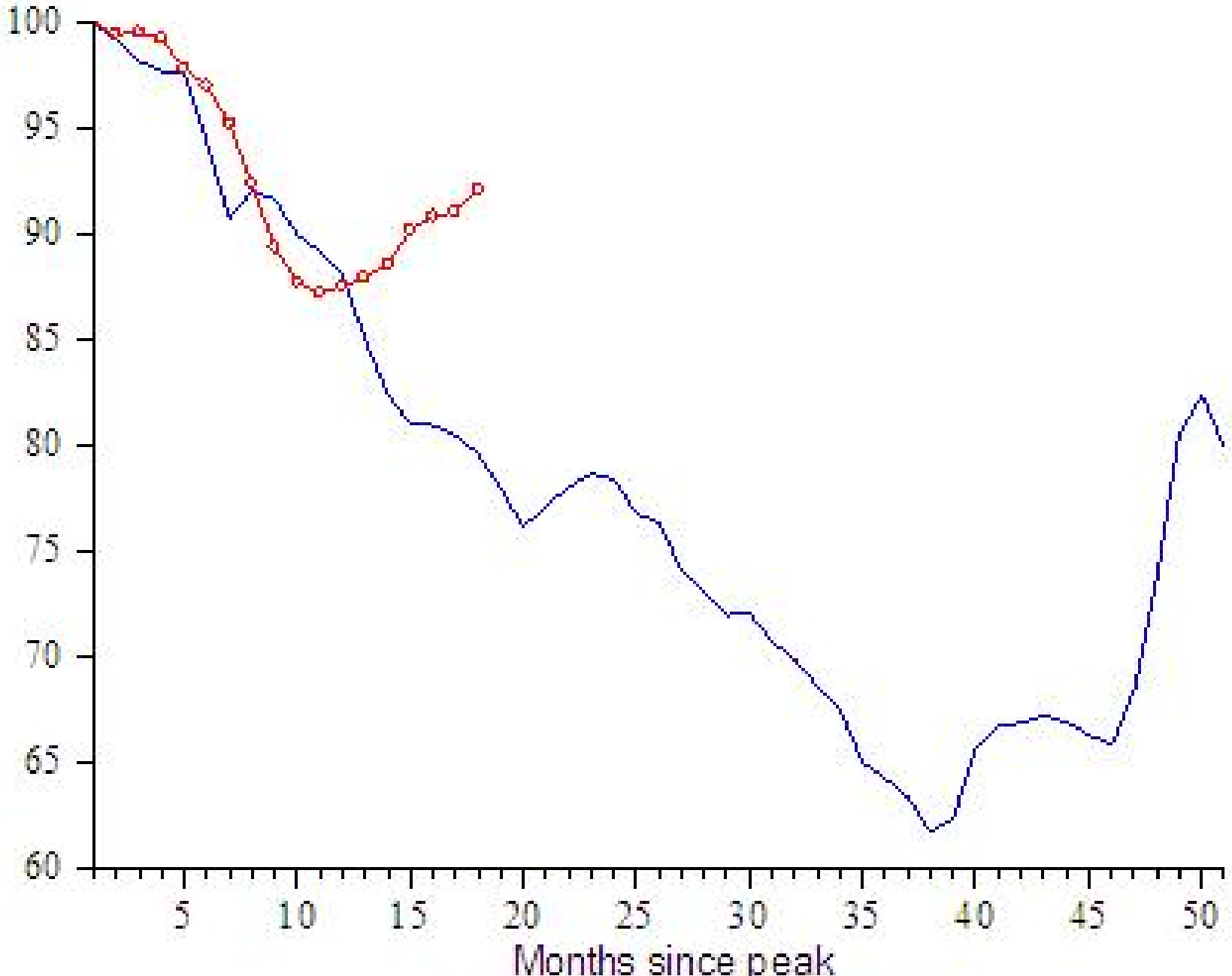
- Another phrase for that is "emergence"
  - Book talks about traffic waves.
  - Temperature can't be inferred from properties of molecules
  - Nor sound or music or convection
- Emergence is the result of interactions of simple rules, that yield complex phenomena or behavior.
- Emergence is why
  - People with intuition on the emergent behavior in household or businesses, get economy-wide ideas wrong.
  - There is a whole new level of emergence after individual households and business.

A favorite physical example

Macro has a focus on policy interventions

- What to do when something is wrong?
- How to keep something from going wrong?
- The usual names are:
  - Fiscal policy, which covers government tax and expenditure policy, including rules and incentives.
  - Monetary policy, which covers control and manipulation of the amount of money in the economy and interest rates.
  - Some economists add, Financial policy, which covers how we handle payments systems and markets for investments, loans and transactions.

Good Thing We Learned From Great Depression



What is a Business Cycle?

It is a generalized slowdown in economic activity across many sectors.

- Some countries have a two quarter decline in real GDP growth as a standard
- We allow the National Bureau of Economic Research (NBER) Business cycle dating committee to make the call.
  - The US economy is very diverse
  - Different sectors respond at different rates
  - Some sectors go up when others go down
- NBER tells that a recess started and ended, but does so with a lag.

The Parts

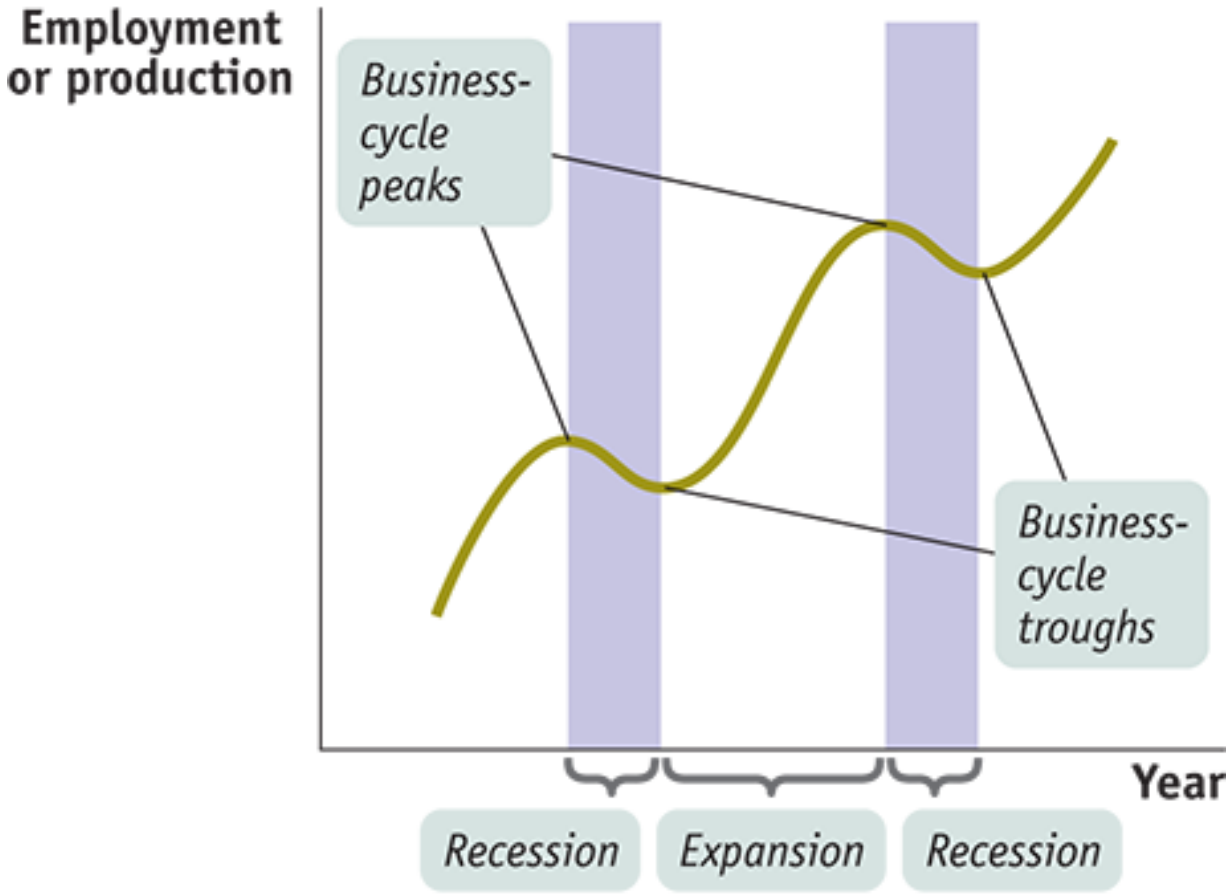


FIGURE 6-3 Krugman/Wells, *Macroeconomics*, 5e,
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Figure 2

The Lags

Turning Point Date	Peak or Trough	Announcement Date
June 2009	Trough	September 20, 2010
December 2007	Peak	December 1, 2008
November 2001	Trough	July 17, 2003
March 2001	Peak	November 26, 2001
March 1991	Trough	December 22, 1992
July 1990	Peak	April 25, 1991
November 1982	Trough	July 8, 1983
July 1981	Peak	January 6, 1982
July 1980	Trough	July 8, 1981
January 1980	Peak	June 3, 1980

We Try to Avoid Recessions

- Remember when we talked about unemployment and hardship?
  - Unemployment wasn't the only issue in hardship
  - Income too.
- Recessions provide hardships besides simple income
  - Can harm your human capital
  - Businesses fail
  - Your physical capital is worth less

Business Cycles are Also Associated with Inflation Changes

- Inflation harms some and benefits others
- We will talk about this more later.

Remember that Our Models are All Incomplete

- Why we will use some models for business cycles
- Others for long-term growth.

Next up

Ch 7 A deeper dive into GDP and CPI.