Ch 8: Unemployment and Inflation

Goals

- Deeper dive on both unemployment and inflation
- How do we think about causes of unemployment
- The relationship between unemployment, and its determinants, and inflation.

Recall

- We find out about unemployment rates through the Current Population Survey.
- We report out monthly
- We have several alternative measures of unemployment, U1 - U6, with U3 being the official rate.

In the past . . .

- The Current Population Survey (CPS) has:
  - Been designed with a concern about job loss through automation
  - Struggled with how to define both employment (at least an hour for pay or profit) and unemployment (looked for and available in the last 4 weeks)
  - The U1- U6 measures use a variety of definitions
- Always, at least starting in the 40s, with an interest in who could work

Economists are interested the maximum amount of labor but also why people are not working, under a variety of definitions.

Why?

- The amount of people working tracks population
  - Variations because of changing birth rates.
  - Boomers and Millennials are known BOOMS and Xers are known BUSTS.
- You can get everyone working but it pretty expensive to do.
  - Everyone = Everyone 16 years or older and not institutionalized.
  - Increasing opportunity cost
  - Imagine working a 60 hour week for months on end.
    - Fatigue
    - Mistakes
    - Breakdowns

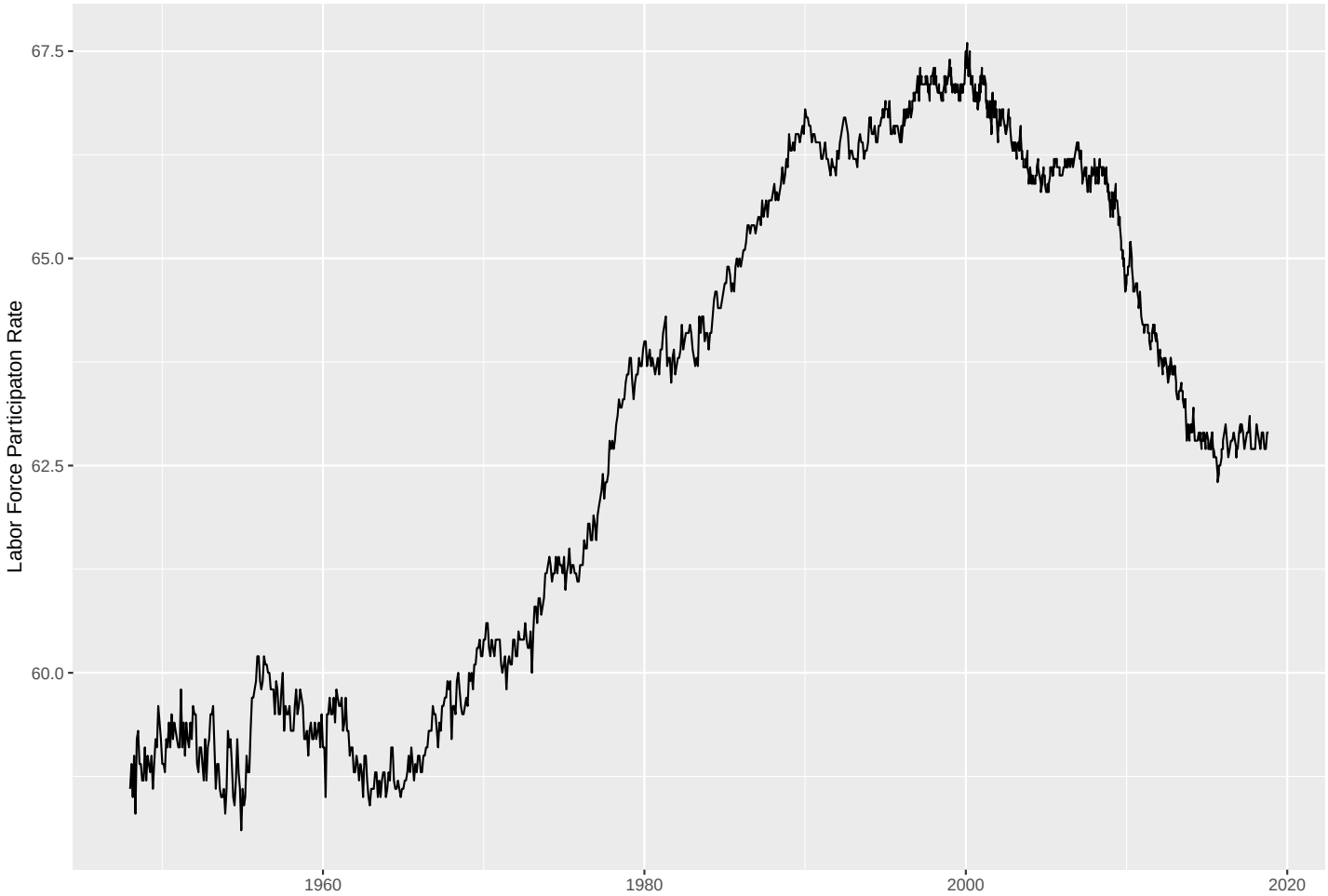
The practical limit is something less than everybody.

Labor Force Participation Rate

$$Labor\ Force\ Participation\ Rate = \frac{Employed + Unemployed}{Uninstitutionalized\ \ Popluation\ 16+} 100$$

Remember that Employed and Unemployed is defined as the labor force.

History of Labor Force Participation Rate



You Can Clearly See

- Women entering the economy starting in the mid-60s
- Boomers entering the economy
- The peak in 2000 with all the boomers working
- Small tail off from the boomers starting to retire
- Big drop offs since 2008.
  - Some are retirements
  - Some are discouraged workers

Your Mileage May Vary

Here are the 2016 labor force participation rates with projections by gender, race and ethnicity.

https://www.bls.gov/emp/tables/civilian-labor-force-participation-rate.htm

A few things of note: (Grossly Simplifying!!!!!!)

- You can spot either gender role or salary differential in child raising years
- After 65 the gender gap in participation is even higher.
- Hispanic Men top the list of participation rate, but some of this is age distribution.

The Interesting Connection to the Unemployment Rate

The unemployment rate is:

$$Unemployment\ Rate = \frac{Unemployed}{Employed + Unemployed} 100$$

You can make the unemployment rate change a few ways.

Math Time . . .

How to Decrease the Unemployment Rate

$$Unemployment\ Rate = \frac{Unemployed}{Employed + Unemployed} 100$$

- You can increase the number of people with jobs, i.e., the employed
  - The number of unemployed stays the same
  - The denominator gets bigger
  - The fraction unemployed shrinks
- You can decrease the number of people unemployed, i.e., get them out of the labor force.
  - You can institutionalize people
  - Discourage them
  - Numerator goes down
  - Denominator goes down but not by as much
  - Unemployment rate falls.

There is also no one unemployment rate

Here is unemployment by Age, Race and Gender

https://www.bls.gov/web/empsit/cpsee_e16.htm

A few things of note: (Grossly Simplifying!!!!!!)

- African American rate is about X2 White/Asian with Hispanic somewhere in the middle.
- Teens have very high rates, but the female rate is lower.

The Relationship Between GDP Growth and Unemployment Rates

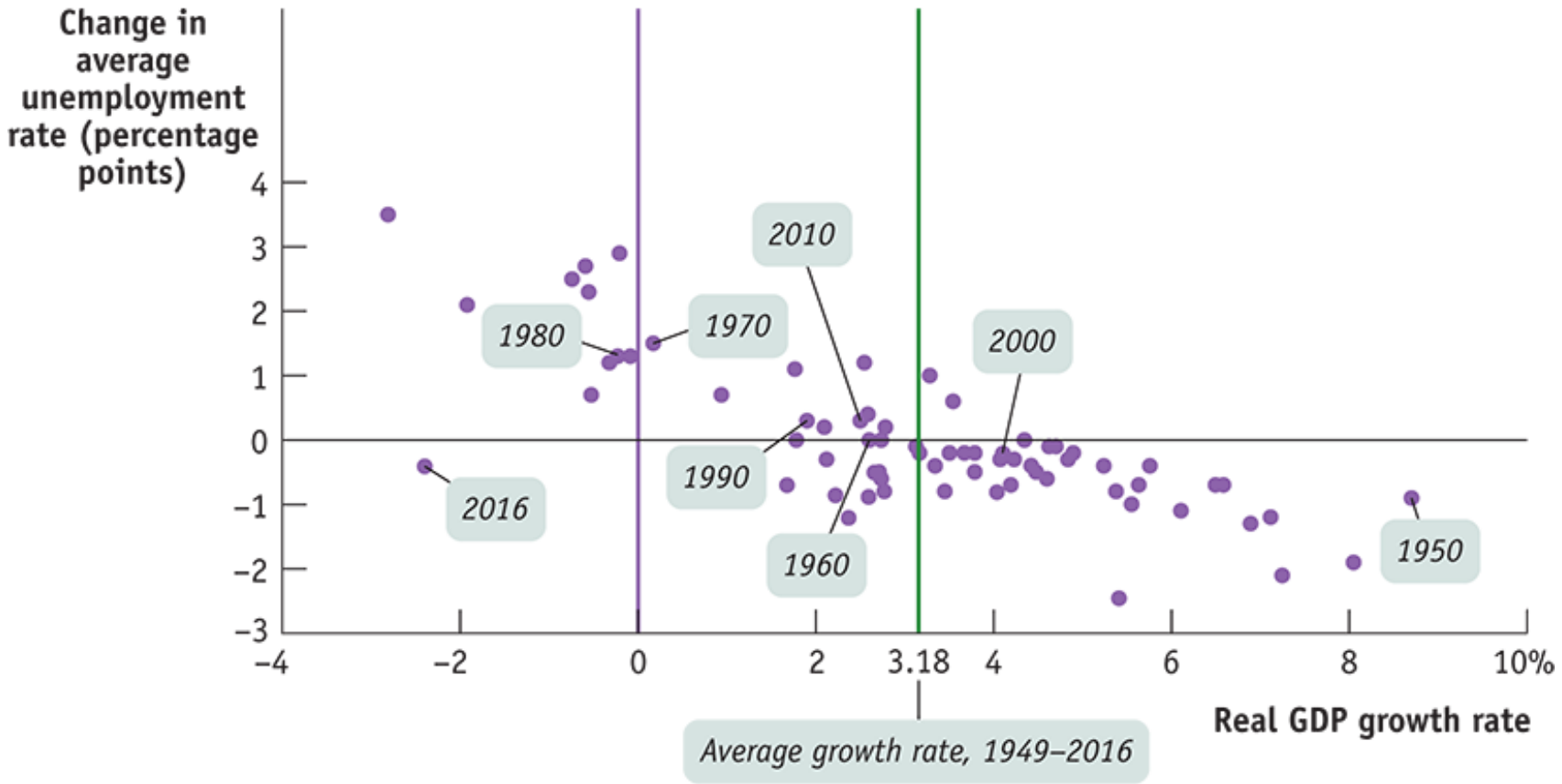


FIGURE 8-5 Krugman/Wells, *Macroeconomics*, 5e, © 2018 Worth Publishers

Quick Note

- Macro has a lot of NAME curve or NAME relationships.
- These are, for the most part, empirical relationships.
- They create a theory after the fact.
- Many have an annoying property, once you try to use them as a policy lever, they vanish.
  - Does not happen in the physical sciences.
  - Atoms do not anticipate policies or have a model of self.
  - Goodhart's law:"Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes."

Okun's Law

- More exactly a rule of thumb
- 1% increase in unemployment is associated with a 2% decrease in GDP growth.
- This is an empirical relationship, not a policy lever.
  - Car has pedals to control speed
  - Also speedometer.
  - Turning the speedometer does not change how fast you go, but
  - Strong empirical relationship with speed of car.
- Can get GDP growth w/o changing unemployment
  - Increased productivity
  - Increased capacity utilization (unemployment rate for capital)

So much for measurement

Lets get into the why part of unemployment.

Economists Define a few "Why"

- Frictional: Between jobs. The normal search time.
- Structural: Changing industry composition, technological change. Your job is not as common where you live.
- Cyclical: Output in your industry increasing and decreasing. Hours worked adapts (Okun's law intent)

Frictional

This is the normal time it takes to get a good match on a job.

- Not all jobs are the same.
- Work cultures differ.
- It can be a bit like dating.
- Institutions matter
  - Academic job cycle is one year
  - Job boards with automated scanning of resumes
  - Part-time agencies and freelance boards

Shrinking Frictional is not Always Good

- Searching longer means a better match and higher wages or well-being.
- This is the US
  - Easiest way to get a raise is to change jobs
  - Easiest way to get a vacation is to change jobs

Structural

This is because technological change or big global trends in industry composition.

- If your industry is rapidly automating (Forest products)
- If your industry started competing with Chinese imports
- Industry moving and you are not.

IRL Not All is Counted as Unemployment

Autor, David H., David Dorn, and Gordon H. Hanson. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." American Economic Review, 103 (6): 2121-68.

" [. . .] 9.9 percent of those who lose employment following an import shock obtain federal disability insurance benefits."

"For regions affected by Chinese imports, the estimated dollar increase in per capita SSDI payments is more than thirty times as large as the estimated dollar increase in TAA [*Trade Adjustment Assistance*] payments."

Structural Unemployment

- Increases when there is rapid technological change because human capital is slow to adapt on individual basis.
- Costs to adapt can be high.
- Expect more of this.

Institutions Can Also Effect Structural

The usual suspects are:

- Minimum wage laws
- Unions
- Efficiency Wages
- Unemployment Benefits
- Health insurance tied to jobs
- Home ownership

Minimum Wage Laws

- US minimum wage laws are far below average wages.
- Card, David and Alan Krueger (1995) "Myth and Measurement: The New Economics of the Minimum Wage" Princeton, NJ: Princeton University Press.
  - Nothing
- Outside of US, you may be on to something.
- Don't get me wrong, low wages probably delayed automation.

Unions

- Acts like a minimum wage, price floor.
- US has low unionization rates and have been falling since the 70s.
  - Private sector is 7.4%
  - Pubic sector is 39.5%
- Other countries are much higher and do have an effect

No bang on unions. I'm a member and former negotiator.

Efficiency Wages

Pay more than you need to so that:

- People put in effort (No shirking)
- No churn of employees (Job searches are expensive)
- Attract the best workers.

Unemployment Benefits

- Huge variance on how this is implemented
  - US is a mandatory insurance payment.
  - Ghent System (Denmark, Sweden, Iceland) is through union membership.
  - Government payments
- The intensity/duration trade-off
  - High payments but short duration
  - Low payments but long duration (Ireland is 193 EUR as long as you are unemployed)
  - More common is 30 months.
  - US is the rare short duration, 6 months.
  - Most OECD countries are far more than a year.

In general, it increases the amount of frictional unemployment and increases quality of the match. It can also induce people to shirk, if the payments are too high and their skills or income potential are

Health insurance tied to jobs

This is mostly about covering pre-existing conditions

- Health insurance tied to jobs is an artifact of WWII.
- Wages were fixed, to stop inflation.
- Firms started offering health insurance to attract more workers.
- Not a big cost till the 70s.
  - There was a huge round of innovation
  - New Drugs
  - New imaging technology, e.g., MRI

Homeownership

Remember when I said movers do better than stayers?

- If you are willing to move for higher wages, you get higher wages.
- Harder to move if you own a home:
  - Transaction costs are large
  - More delays and risks

The Natural Rate

There are actually two competing concepts:

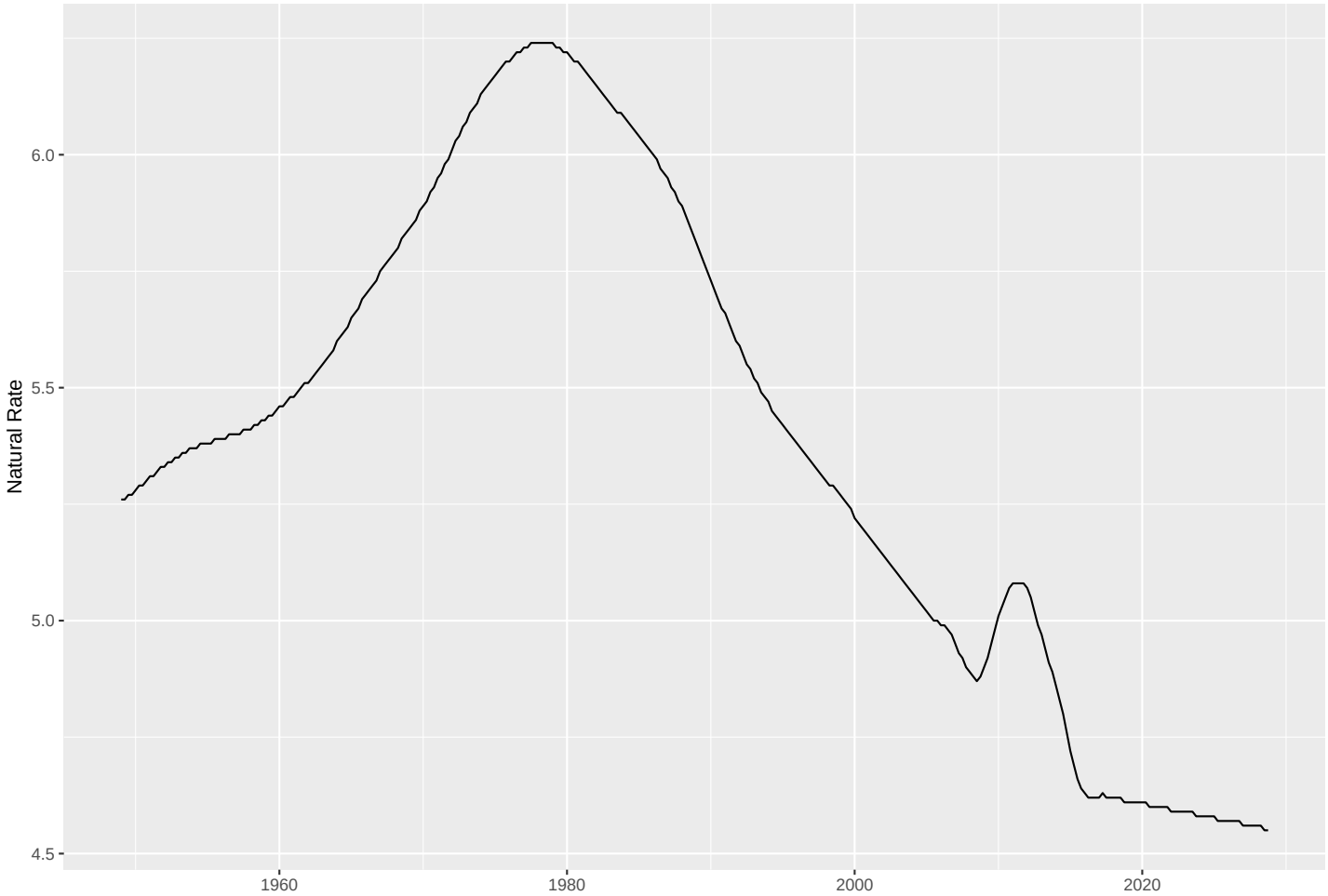
- The natural rate, which is the sum of frictional and structural unemployment
- The non-accelerating inflation rate of unemployment (NAIRU) which is the highest unemployment consistent inflation not increasing.

They can be thought of as being the same but differ when estimated.

What Makes the Natural Rate Hard

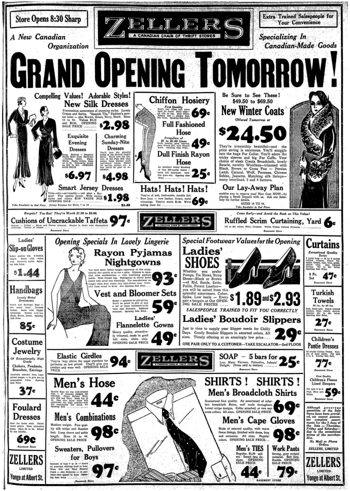
- We don't have a good month-to-month direct measurement. Who is frictional and structural.
- We use the Beveridge relationship, unemployment vs job-openings and longer term trends.

What Do You See?



- The long decline since the 80s was a decrease in frictional.
- Also, more young people and young people going to college.
- College grads have a lower unemployment rate.
- The post 2010 is an uptick in structural
  - Lots of people in construction because of the housing bubble.
  - Bubble bursts and people lose jobs.

Price Level


Store Opens 8:30 Sharp
ZELLERS
A CANADIAN CHAIN OF THRIFT STORES
Extra Trained Salespeople for Your Convenience
A New Canadian Organization
Specializing In Canadian-Made Goods
GRAND OPENING TOMORROW!
Compelling Values! Adorable Styles! New Silk Dresses
$2.98
Exquisite Evening Dresses
Charming Sunday-Nite Dresses
$6.97
$4.98
Smart Jersey Dresses
$1.98
Chiffon Hosiery
69c
Full Fashioned Hose
49c
Dull Finish Rayon Hose
25c
Hats! Hats! Hats!
69c
Be Sure to See These! $49.50 to $69.50
New Winter Coats
Offered Tomorrow at
$24.50
Our Lay-Away Plan
Cushions of Uncrackable Taffeta 97c
Ruffled Scrim Curtaining, Yard 6c
Ladies' Slip-on Gloves
$1.44
Handbags
85c
Costume Jewelry
37c
Foulard Dresses
69c
ZELLERS
Yonge at Albert St.
Opening Specials In Lovely Lingerie
Rayon Pyjamas Nightgowns
93c
Vest and Bloomer Sets
59c
Ladies' Flannelette Gowns
49c
Special Footwear Values for the Opening
Ladies' SHOES
$1.89 and $2.93
Ladies' Boudoir Slippers
29c
Curtains
47c
Turkish Towels
27c
Children's Pantie Dresses
77c
59c
Elastic Girdles
94c
SOAP – 5 bars for 25c
Men's Hose
44c
Men's Combinations
98c
Sweaters, Pullovers for Boys
97c
SHIRTS! SHIRTS!
Men's Broadcloth Shirts
69c
Men's Cape Gloves
98c
Men's TIES
44c
Work Pants
79c
ZELLERS
Yonge at Albert St.

Inflation

- You may like those prices but you made less than 2K per year.
- Tricked you. This is Canada, 1 CAD $=$ 1.31 USD, in 1931.
- Price level doesn't mater but the rate of change does.
  - If your wages increase at a higher rate than inflation – you win.
  - If your wages don't ...

Costs of Inflation

Inflation, or the changing prices in general, imposes some costs on society. Some of these are/have been reduced by technology.

- Shoe-leather: Increasing cost of a transaction
- Menu: The cost of relabeling product
- Unit of account: Costs because rules, often tax rules, assume stable price levels.

Shoe Leather

Money is worth less every moment. In high inflation the reduction in values is noticeable over shorter periods of time.

- Low inflation activity
  - Send cash from till into bank *once* a day.
  - Pick up pocket cash *once a week*.
  - Get *monthly* paycheck.
- High inflation activity (100% per year)
  - Send cash from till to bank *three times* a day.
  - Pick up cash *just before* you need it.
  - Get *daily* paycheck.

There is a lot more activity. Banks, which are in the middle of non-electronic transactions, grow in hyper-inflationary environments.

But is it important?

https://www.cia.gov/library/publications/the-world-factbook/rankorder/2092rank.html

BTW: South Sudan is about 100% and Venezuela is about 500,000%

If you still have a lot of cash transactions, it is important. If everything is by card – not really.

Menu

- Imagine having to reprice every item in a grocery store every night.
  - We don't do can by can any more.
  - Electronic shelf tags make this easy
- Somethings are hand relabeled
  - Clothing
  - Meat
- Sometimes it is just a database change, like everything you buy online.

Oftentimes you give up

Figure 3:

Unit of account

- Many rules and contracts assume some price stability.
- We learned about this in the 70s and have indexed a lot of things to account for this.
- Taxes still don't adapt

Quick Tax Example

- In year 1
  - Buy 1,000 land.
  - Price level is 100.
  - Real price of land is $\frac{1000}{100}100 = 1000$
- In year 2
  - Sell land for 1,500.
  - Price level is 200.
  - Real price of land is $\frac{1500}{200}100 = 750$
  - Government says you "gained" on the deal (1500 -1000 = 500), pay tax of 250.
  - After tax real value at sale $\frac{1500-250}{200}100 = 625$

Winner and Losers

The big reallocations are through borrowing and lending

- Every interest rate has an inflation expectation built into it as well as an adjustment for risk.
  - Note the $\approx$. These ignore interaction of the components.
  - $\textit{Nominal} \approx \textit{Real} + \textit{Inflation Expectation} + \textit{Risk Factor}$
  - $6\% \approx 2\% + 3\% + 1\%$
- If you borrow, and are just indifferent from borrowing and not, your inflation exception must match the lenders, ignoring risk factor.
  - $5\% = 2\%(\textit{Real}) + 3\%(\textit{Inflation Expectation})$
  - This is the real rate you agreed on.
    $2\%(\textit{Real}) = 5\%(\textit{Nominal}) - 3\%(\textit{Inflation Expectation})$
- What if inflation is higher than expected?
  - $-3\%(\textit{Real}) = 5\%(\textit{Nominal}) - 8\%(\textit{Inflation Expectation})$

Another Empirical Relationship

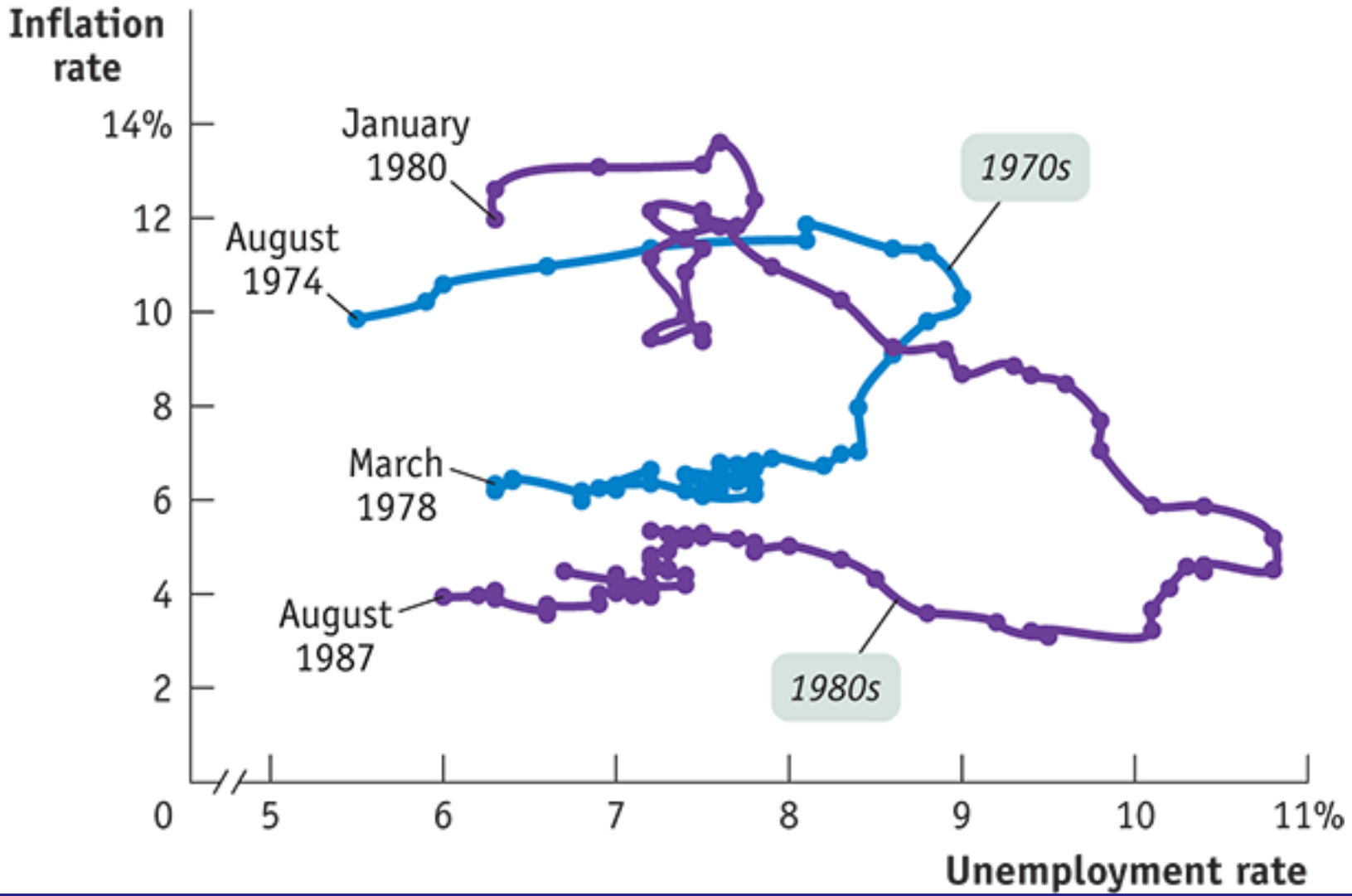
There is/was an empirical relationship between inflation and unemployment – The Phillips curve.

https://www.economist.com/graphic-detail/2017/11/01/the-phillips-curve-may-be-broken-for-good

- There is a good reason for it to exist, you expect it from Okun's Law.
- But, in the 1970s, something odd happened, inflation and unemployment increased.
- The usual story, because we expected inflation, we built in to our behavior, which caused more inflation.

How do you stop an idea?

Phillips curve



What happened?

Well, 1979, the Fed decided to crash the economy (overly dramatic)

- They brought real interest rates to record levels.
- We had two recessions.
- But, people believed that inflation would not go above 3% now.