Eco 10350 Principles of Macro

Lecture 8

Detour on current news – Inverted Yield Curve

Inverted Yield Curve

Markets

There's Danger in Misreading the Inverted Yield Curve

It doesn't necessarily signal that a recession is on the way.

By Mohamed A. El-Erian
March 24, 2019, 5:00 PM EDT

Business

Treasuries Buying Wave Triggers First Curve Inversion Since 2007

By Emily Barrett and Katherine Greifeld
March 22, 2019, 9:49 AM EDT *Updated on March 22, 2019, 1:17 PM EDT*

- Gap Between 3-month and 10-year U.S. yields vanishes Friday
- Move follows Fed policy shift, gloomier economic signs

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BUSINESS
Treasuries Buying Wave Triggers Curve Inversion Since 2007

Economics

The Bank of Japan's Never-Ending Crisis Is a Lessons to the World's Central Banks

By Enda Curran and Toru Fujioka
March 13, 2019, 11:01 AM EDT

- Global policy makers will need new tools in the next downturn
- Japan shows them what does (and doesn't) work over long haul

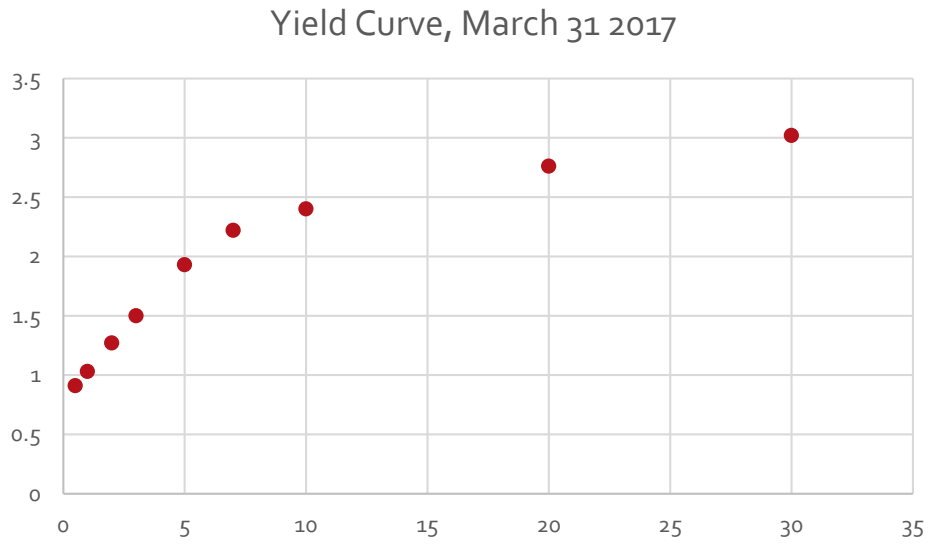
https://www.bloomberg.com/opinion/articles/2019-03-24/inverted-yield-curve-doesn-t-necessarily-mean-recession-is-nigh
https://www.bloomberg.com/news/articles/2019-03-22/u-s-treasury-yield-curve-inverts-for-first-time-since-2007
https://www.bloomberg.com/news/articles/2019-03-13/boj-s-never-ending-crisis-has-lessons-for-world-s-central-banks

Step back to understand

- Recall from Discounting (lecture #1) that the value of money at some future date is lower as the interest rate rises
- An amount of money, W, paid T years in the future, is worth $\frac{W}{(1+R)^T}$ so as R rises, the value falls
- Bonds are generally a series of payments at multiple future dates so would be a more complicated formulation (which you'll get to, in future classes) but still bond values fall as rates rise and vice versa
- There is a tight inverse relation between bond prices and interest rates
- Especially for US government debt that is considered to be very low risk
- Also recall the Fisher equation that nominal interest rate is the sum of real interest rate and inflation (lecture #3)
- $i = r + \pi$

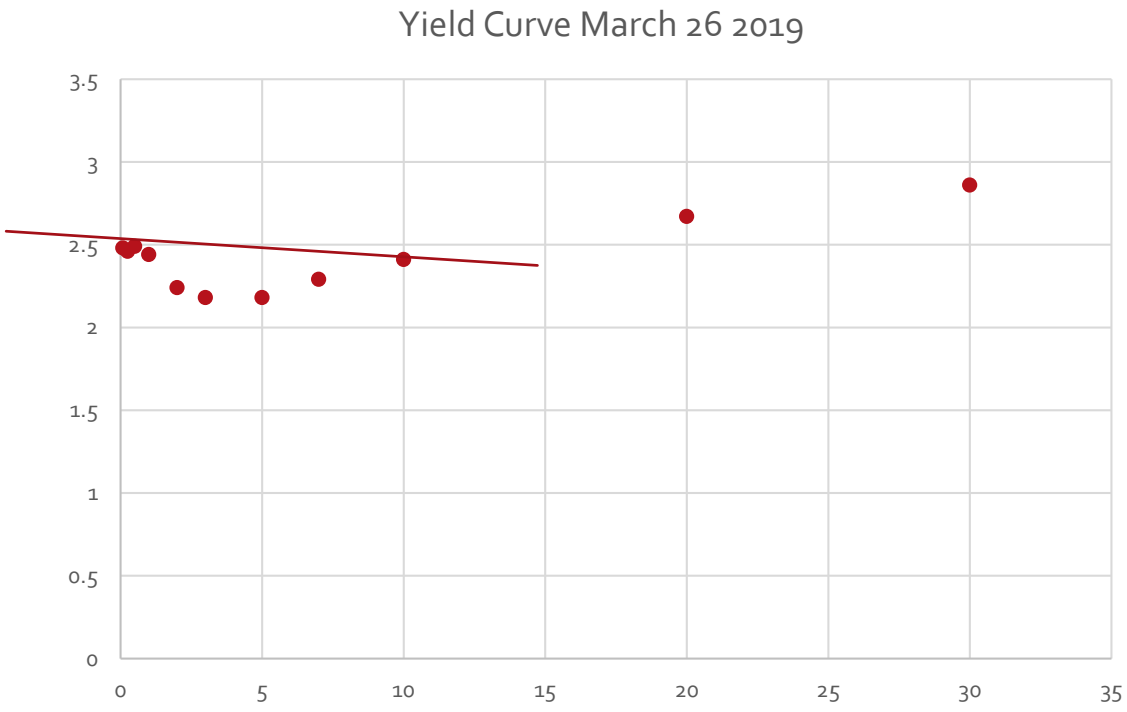
Yield Curve shows Term Structure of Interest Rates

- Usually, if we look at interest rates over longer and longer time horizons, the rate rises
- If you go to a bank and shop for CDs, you would find this – the longer you are willing to lock up your funds, the better the rate
- This is called the "yield curve" and shows the market interest rate at different maturities
- This is yield curve from about 2 years ago
- Maturities of 1 mo, 3 mo, 6 mo, then 1, 2, 3, 5, 7, 10, 20 & 30 years
- Graph shows more "normal" upward slope
- Fuller analytics might see this as part of a parabola so look at intercept, slope and curvature

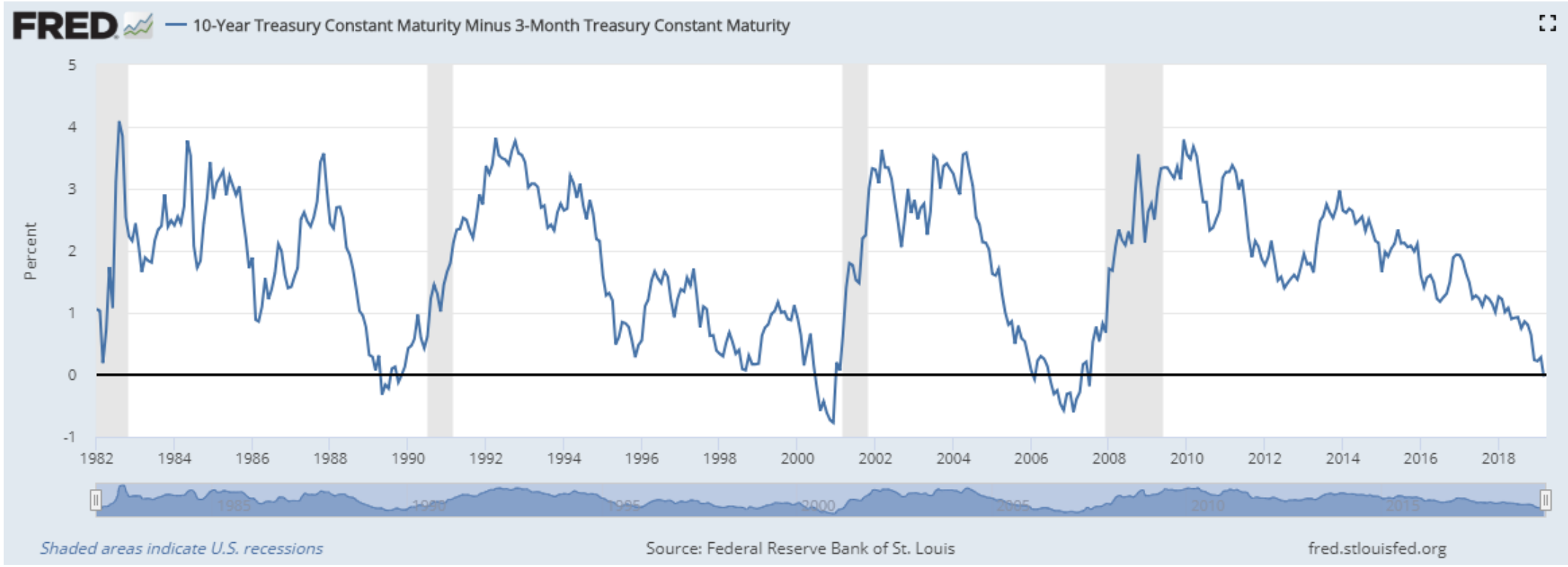


Yield Curve Inversion

- When short term rates are higher than long term rates, this is described as a **yield curve inversion**
- This is concerning since it's unusual and it often happens before a recession
- In this case, mostly due to rise in short rates
- Why does it raise the forecast of a recession? (with long & variable lag) Not because of anything particularly scary about this inversion but it shows expectations



Yield Curve data from FRED



Yield Curve Inversion

- Term Structure of interest rates shows market expectations of rates over a longer horizon
  - and by "market" we mean a small number of sophisticated and well capitalized professionals
- Inversion shows that the market expects rates over next 10 years will be quite low, but Fed raised short rates quite high
- Fisher equation says $i = r + \pi$ so this means some combination of long real interest rates are expected to be low and inflation rates are expected to be low
- Both of these might be low if there is a recession in the future
- Inverted yield curve doesn't cause recession any more than rooster causes dawn
- Signals that market is worried about a recession

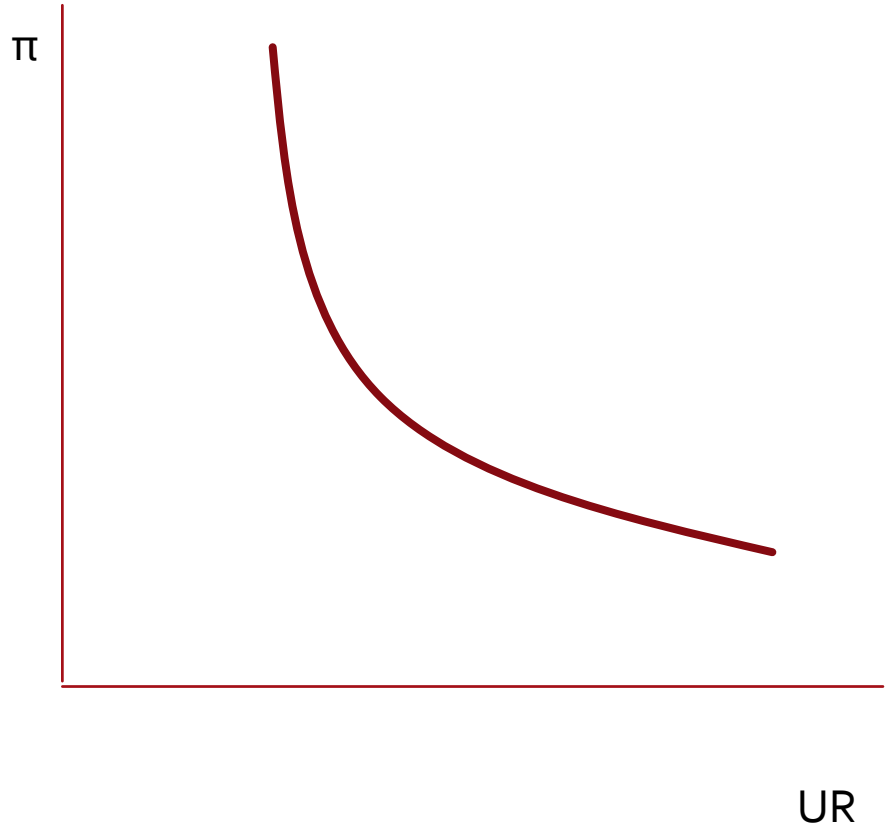
Back to regular

Sticky wages & prices

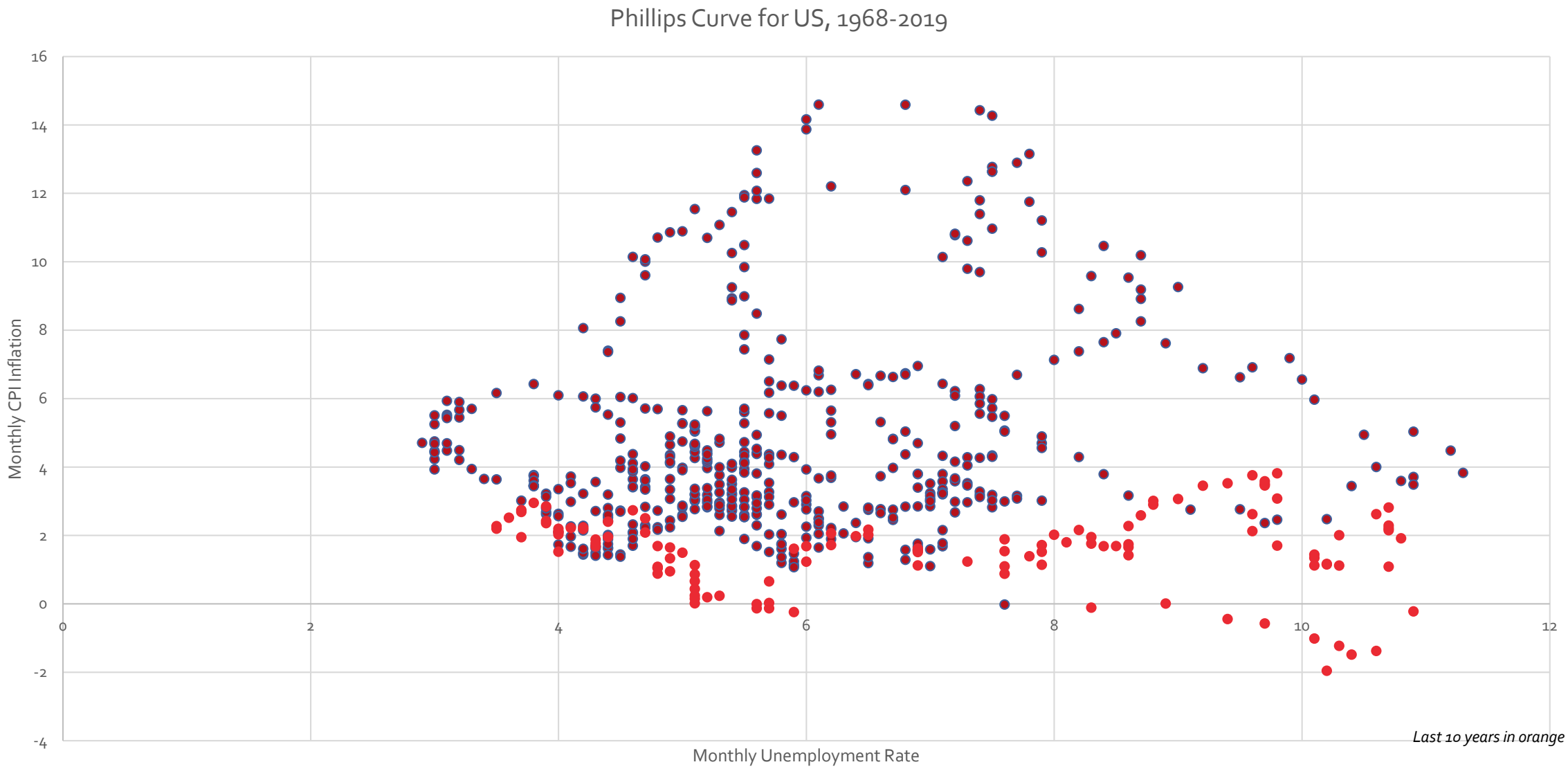
- Recall that earlier (lecture 2) we discussed the fact that labor markets are not ideal markets
- So there's unemployment
- A commodity doesn't face such under-use, its price just falls enough that quantity demanded equals quantity supplied
- Although other markets are not "ideal", eg real estate even in tight market still has vacant storefronts as one store leaves & another starts up
- Wages are "sticky" – firms don't want to cut wages but will instead fire workers
- Other prices are also "sticky" – any dollar store bases a ton of marketing around this! Rent. Restaurants.
- This stickiness can flatten the SRAS curve

Phillips Curve

- Phillips* proposed that there might be a tradeoff between unemployment and inflation
- UR cannot go too low and attempts to push it down would cause inflation (π)
- Can derive from AS/AD model, that as Y gets close to potential output, increases in AD will raise P more and more
- Does the US Phillips Curve actually look like that?



** Although AW Phillips in 1958 got cred, Irving Fisher in 1926 proposed same idea*


Phillips Curve for US, 1968-2019
Monthly CPI Inflation
16
14
12
10
8
6
4
2
0
-2
-4
0
2
4
6
8
10
12
Monthly Unemployment Rate
Last 10 years in orange

Japan's Phillips Curve Looks Like Japan, by Gregor Smith

Figure 1: Japan's Inflation and Unemployment Rates
January 1980 to August 2005

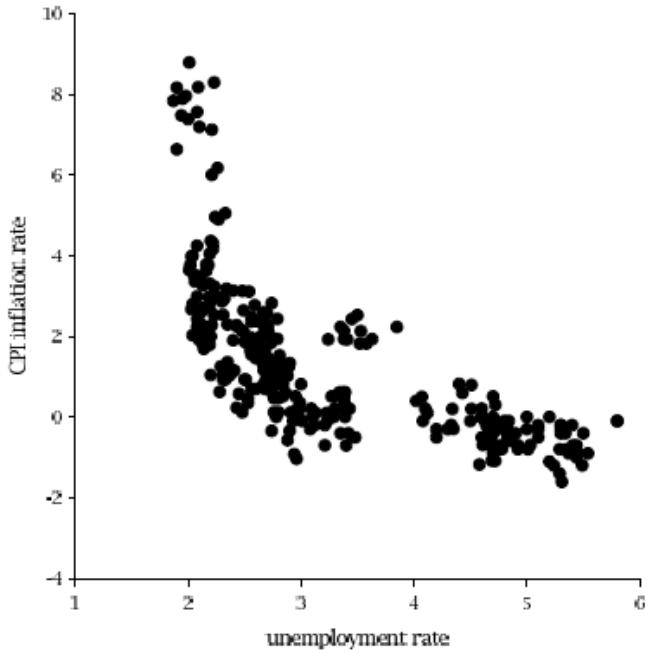
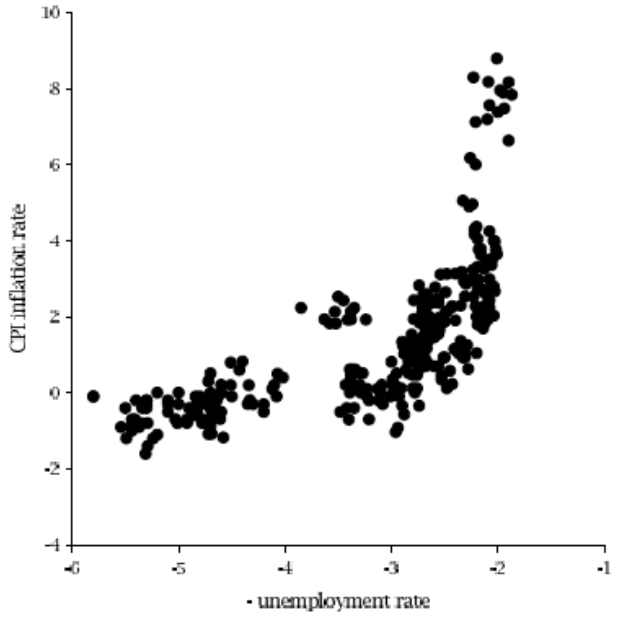


Figure 2: Japan's Inflation Rate and (Minus) Unemployment Rate
January 1980 to August 2005



Potential GDP

- In long run, economies gravitate toward potential GDP
  - potential GDP is that level where all resources are fully employed
  - from Solow Growth Model [simple version Y=Af(K,L)] "all resources" principally means L, K, and A
  - L fully employed means zero cyclical unemployment although there may still be frictional & structural
  - neither K nor L are easily measured since include quality changes
    - (eg more education raises human capital so effective L rises)
- Can make a plausible argument that much policy ought to concern the long run
  - since slow steady improvements of productivity generate transformative wealth
  - recall Rule of 70 so even 1.5% productivity growth means double in 47 years

How long is the "long run"?

- ¯_(ツ)_/¯
- Economies can seem to stabilize at GDP levels below potential GDP for long stretches of time (decades!)
- Why?
- Is that due to policy mistakes?
- Frictions?
- If prices were more flexible, would economy get to potential quicker?
- Can long stretches at below-potential actually reduce potential?
  - fancy name for this is "hysteresis" – that GDP can get stuck too low
  - for instance if people who are unemployed for too long eventually have skills depreciate so cyclical unemployment can become structural unemployment
- European economies currently face this issue – for last decade many EU economies have had low growth

How are prices set?

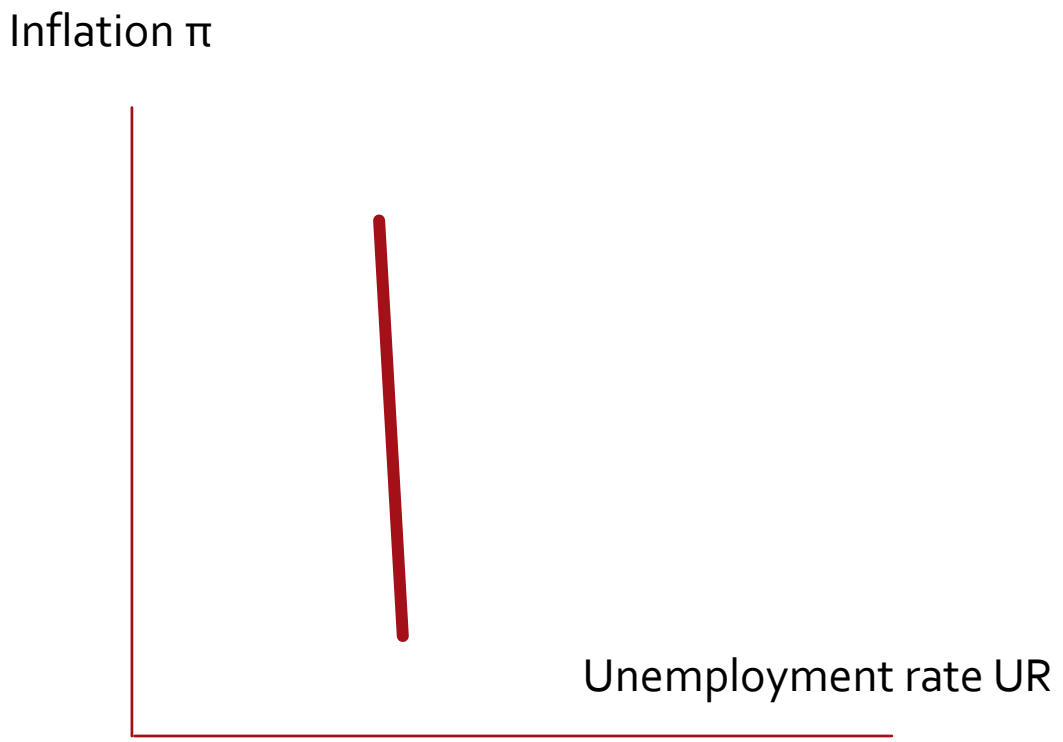
- People look to past to forecast about future
- Rational Expectations is hypothesis that people use all available information and don't make systematic errors
- Of course everybody makes errors but if rational then these are not systematic
- eg Penalty Kicks in football (soccer)
- This describes some people better than others (!) or some people in some aspects of their decisions
- Behavioral Economics shows some cases of systematic errors even by sophisticated and well informed

Some policy works by fooling people

- If government prints extra money while economy is already above potential, then the people who get this money think it represents extra resources – their demand for goods shifts outward
- Some sellers make more items to meet the increased demand
- Eventually prices all rise and buyers and sellers realize that they had been fooled
- can we fool all of the people all of the time? some of the people some of the time?

Long Run Phillips Curve

- Would expect that in long run the Phillips Curve is very steep & nearly vertical
- If economy stabilizes toward potential GDP then unemployment stabilizes toward natural rate
- Inflation might be higher or lower



Fed & other Central Banks (kinda) work this way

- Central banks worry about raising inflation as unemployment falls
- Is unemployment a good measure of distance from potential GDP? Maybe LFP better?