

LECTURE 15: MONEY AND BUSINESS
CYCLES I: THE PRICE-MISPERCEPTIONS
MODEL
See Barro Ch. 15

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Spring, 2016

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- ▶ Cool.

INTRODUCTION-II

- ▶ Everything works pretty nicely
- ▶ Recessions are caused by real shocks (productivity shocks)
- ▶ Money doesn't have a huge effect on real variables (Money is neutral)
- ▶ A lot of people think that it does. But how?
- ▶ We'll see two models in which it can: this is the first

PRICE-MISPERCEPTIONS MODEL

- ▶ Maybe people don't fully follow the CPI: misunderstand changes in nominal prices and wages
- ▶ In other words, they have incomplete information
- ▶ Our first non-neutral model can be described as a "Lucas Islands" model

ISLAND IN THE SUN

- ▶ You live on a desert island alone with one coconut tree
- ▶ You hate coconuts, and the tree is hard to climb
- ▶ The only reason you get coconuts is to trade them for cash with ship A when it comes by
- ▶ With cash from ship A, you can buy oranges (which you love) from ship B

TIMING

- ▶ Wake up
- ▶ Ship A comes, tells you the price of coconuts (in cash)
- ▶ You decide how much to climb the tree and get coconuts, trade them for cash
- ▶ Ship B comes and you find out the cost of oranges in dollars
- ▶ Trade cash for oranges, go to sleep

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- ▶ You can't tell which!

TWO POSSIBILITIES



VS.



THE IDEA

- ▶ The point of this story is that you see a **noisy** measure of your wage
- ▶ You just see $\frac{w}{P}$ where P is your guess about what the price will be
- ▶ So when the ship A comes and says they're paying \$5/coconut and Ship B's price is \$1/orange, your wage turns out to be high
- ▶ That could be the case, but it might be that the price is really \$10/orange.
- ▶ You make labor market decisions based on **perceived** wage rate which may be wrong

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NON-NEUTRAL MONEY

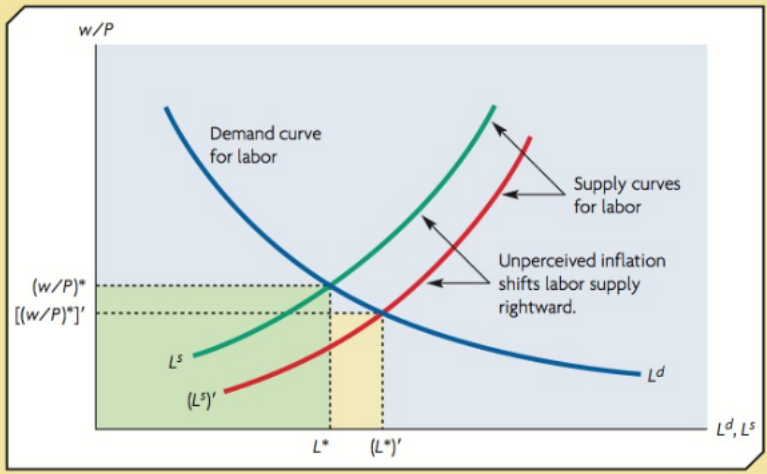
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- ▶ If you notice inflation in wages but not in prices, your supply curve shifts out

UNPERCEIVED INFLATION INCREASES LABOR

Figure 15.2 *Effect of Unperceived Inflation on the Labor Market*

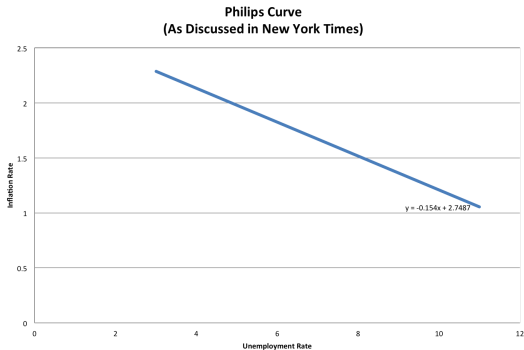


PERCIEVED AND UNPERCIEVED INFLATION

- ▶ If inflation is perceived we're back to neutrality
- ▶ It's only unperceived inflation that will impact behavior
- ▶ When will you fail to notice inflation the most?
 - ▶ When it's unexpected
 - ▶ When you aren't paying attention
 - ▶ When it isn't on your agenda
- ▶ Lucas hypothesis: real effects of a monetary shock are larger the more stable the underlying environment is
- ▶ You can fool some of the people all of the time, or all of the people some of the time, but not both...

THE PHILLIPS CURVE

- ▶ There might be a tradeoff between (unexpected) inflation and unemployment
- ▶ But maybe people don't learn very much...then we'd have something like:



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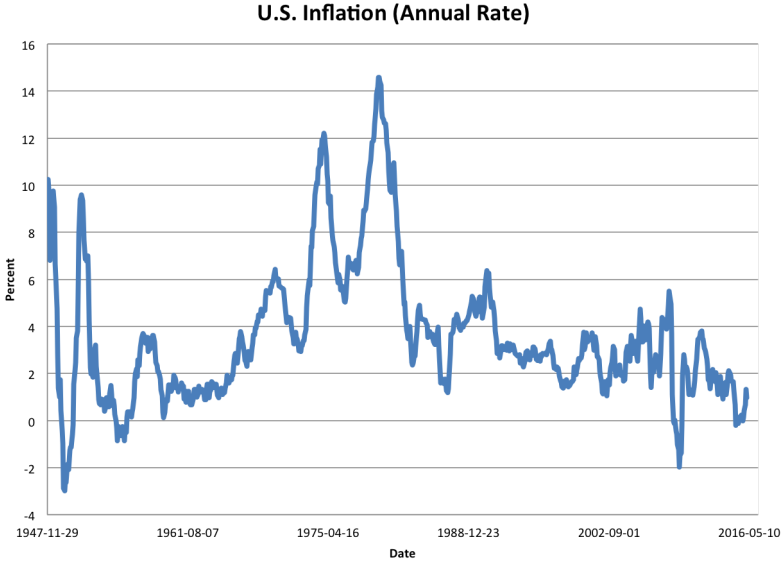
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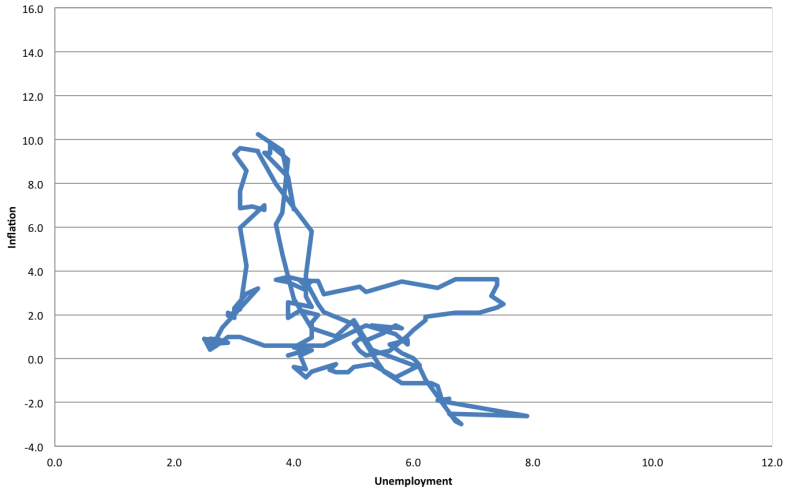
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- ▶ Go to 4% surprise!
- ▶ This is way too crazy a game to actually happen, right?

PERCIEVED AND UNPERCIEVED INFLATION: EXAMPLE



PHILLIPS CURVE-I

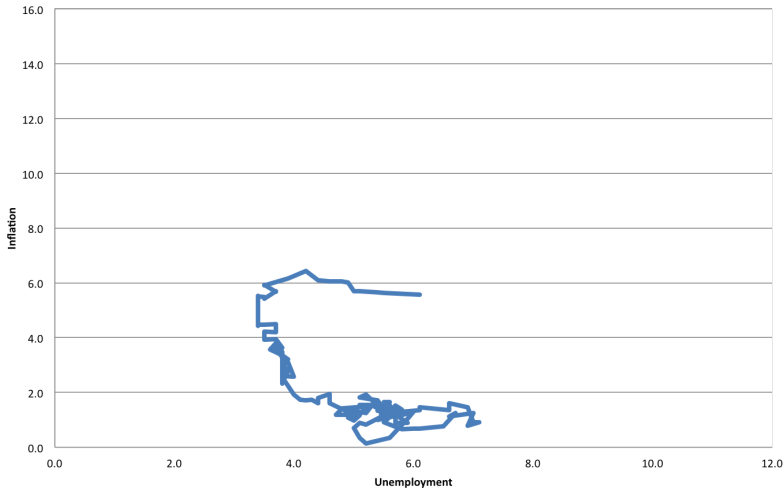
Phillips Curve, 1948-1959



Tradeoff between inflation and unemployment?

PHILLIPS CURVE-II

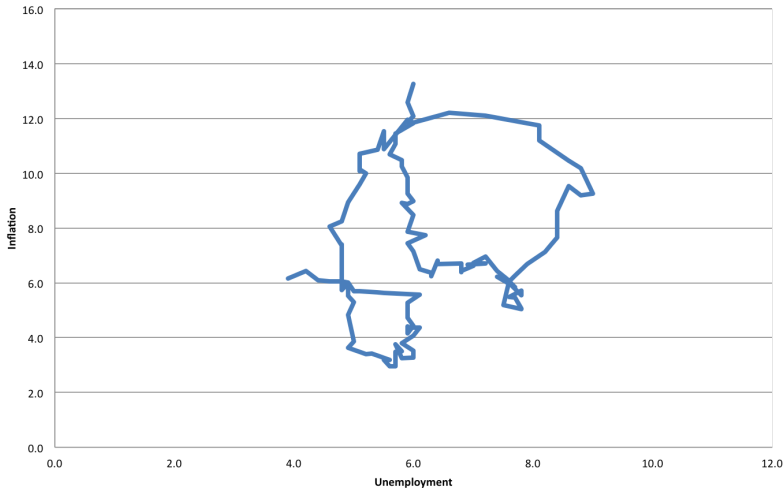
Phillips Curve, 1959-1970



Tradeoff between inflation and unemployment! Let's use it!

PHILLIPS CURVE-III

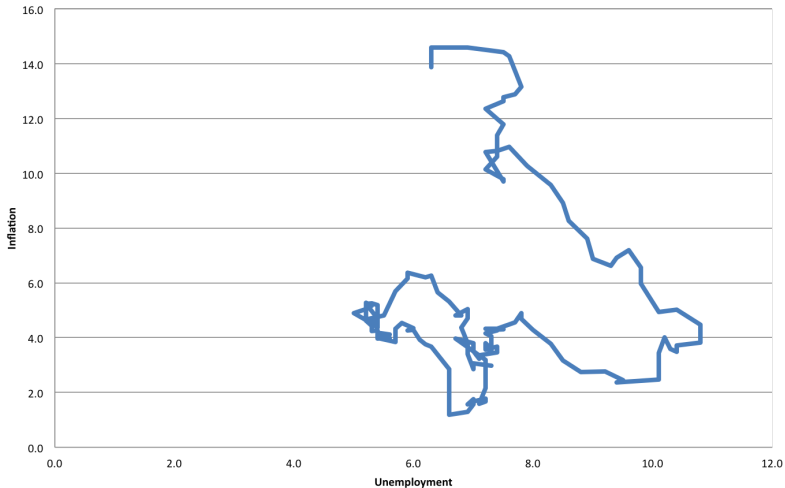
Phillips Curve, 1970-1980



Can't fool all of the people all of the time!

PHILLIPS CURVE-IV

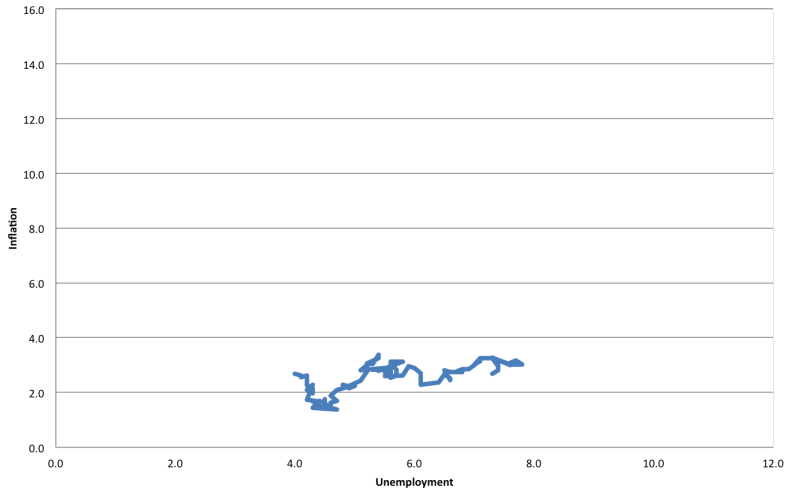
Phillips Curve, 1980-1992



Perhaps spiraling downwards to a new stable line?

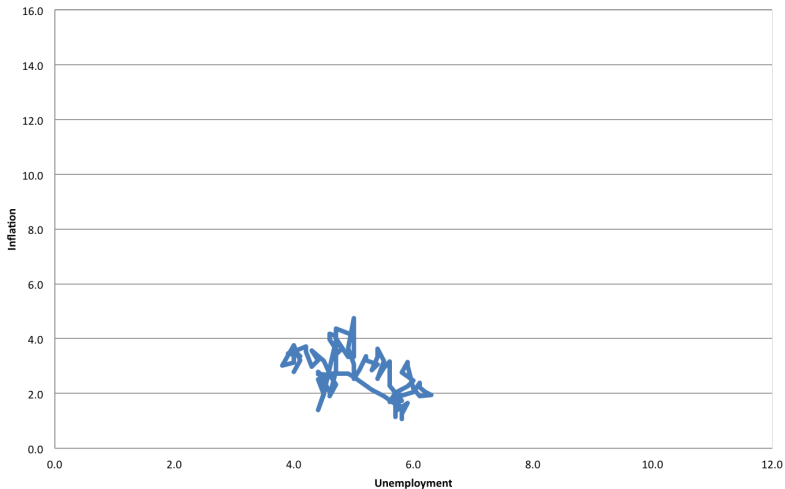
PHILLIPS CURVE-V

Phillips Curve, 1992-2000



PHILLIPS CURVE-VI

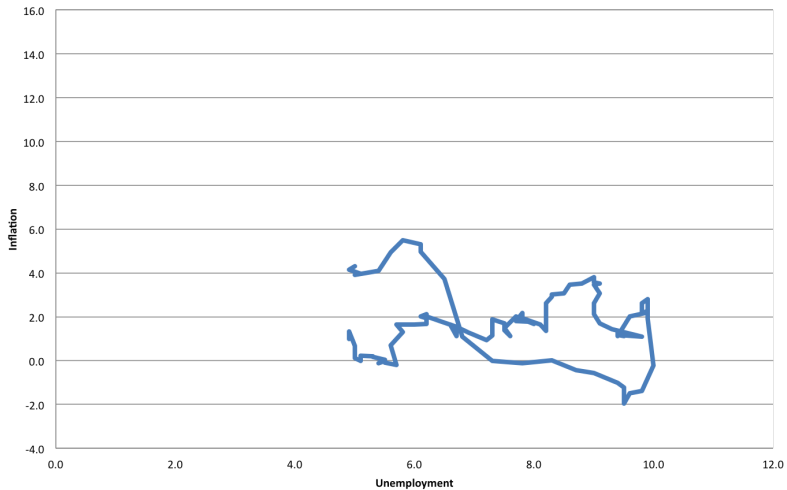
Phillips Curve, 2000-2008



Pack it up!

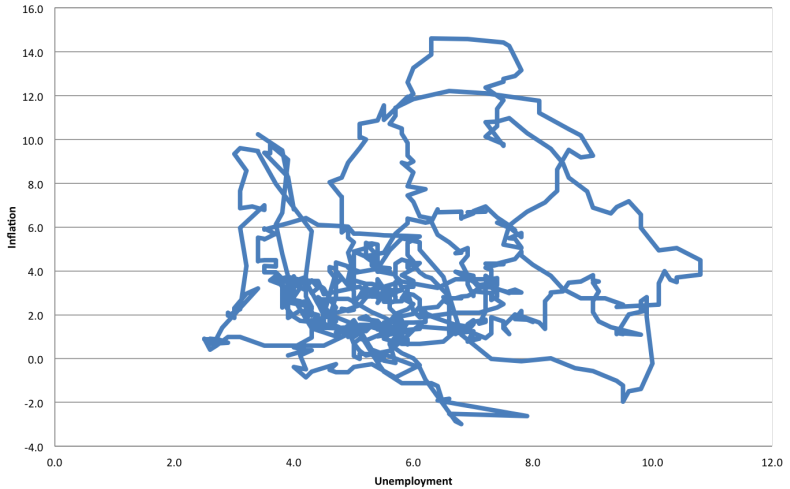
PHILLIPS CURVE-VII

Phillips Curve, 2008-2016



PHILLIPS CURVE-VIII

Phillips Curve 1948-2016



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 - ▶ Price level?

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 - ▶ Real wage rate? **countercyclical**
 - ▶ Average product of labor? **countercyclical**

CYCLICAL PATTERNS OF MACROECONOMIC SUMMARY

Variable	Data	Equilibrium business-cycle model	Price- misperceptions
Nominal quantity of money	pro*	pro	pro
Price level	counter	counter	pro
Labor	pro	pro	pro
Real wage rate	pro	pro	counter
Average product of labor	pro*	pro	counter

EMPIRICAL EVIDENCE-I

- ▶ Friedman and Schwartz (1963):
 - ▶ Changes in money stock have been closely associated with changes in economic activity, money income, and prices
 - ▶ The interrelation between monetary and economic change has been highly stable
 - ▶ Monetary changes have often had an independent origin: they have not been simply a reflection of changes in economic activity

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 - ▶ Monetary changes have often had an independent origin: they have not been simply a reflection of changes in economic activity
- ▶ Exogenous changes to the money stock, like gold discoveries, were related to real changes in the economy

EMPIRICAL EVIDENCE-II

- ▶ Broadbent (1996):
 - ▶ Unanticipated changes in the money stock caused real increases in GDP
- ▶ Though if the Federal Reserve is increasing M in response to future Y then we have reverse causality

EMPIRICAL EVIDENCE-III

- ▶ Romer & Romer look at transcripts of open market committee
- ▶ Try to find “shocks” in money supply
- ▶ Find that unanticipated increases in the Federal Funds Rate tended to decrease economic activity (consistent with our model)
- ▶ Con: How good are the measure of “shocks?”

PRODUCTIVITY SHOCKS IN PRICE MISPERCEPTIONS

- ▶ How do people respond when A , the technology level, is changed?
- ▶ Recall that a positive shock to A reduces prices
- ▶ If people are getting slow information, then they don't realize how much their real wage goes up
- ▶ Consequently, their labor supply doesn't shift out as much
- ▶ **Note:** This is terrible!

PROBLEMS WITH DISCRETION

- ▶ The government can trick people into working more by having unanticipated inflation
- ▶ Whatever your expectations of inflation, government can get you to work more
- ▶ The natural tendency is to keep amping it up
 1. If you expect 1% inflation, I give you 2%
 2. Then, when you learn and expect 2%, I give you 3%
- ▶ It's easy for things to get out of hand...this may be a good explanation of the 1970's inflation
- ▶ Some push for rules-based monetary policy to neutralize this desire