The NAIRU, explained: why economists don't want unemployment to drop too low

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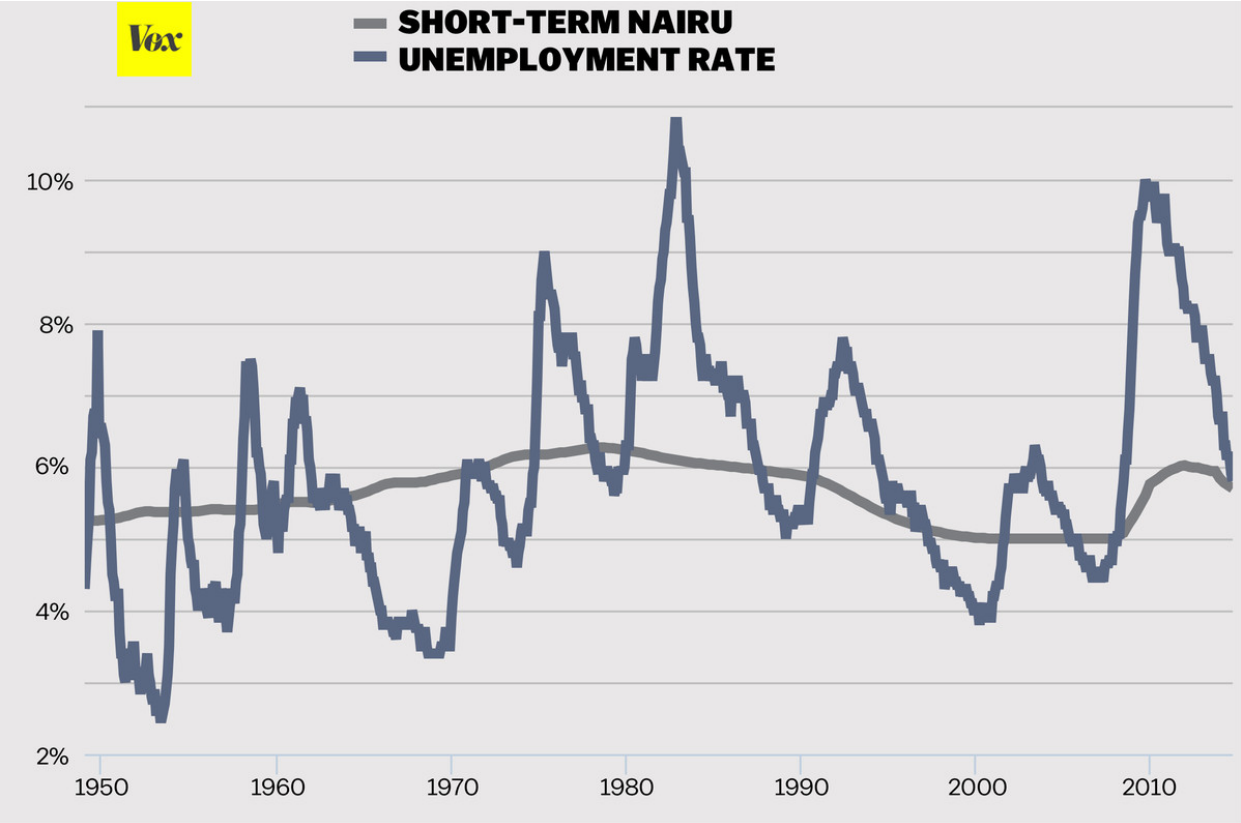
A little-known acronym — NAIRU, which does not stand for and yet is sometimes used interchangeably with the phrase *natural rate of unemployment* — wields a huge amount of influence behind the scenes of economic policymaking. The NAIRU cannot be directly measured, but policymakers believe it is very real. Their guesstimates about whether it's 6 percent or 5 percent or 4 percent determine how many people get jobs and how much money working people get paid.

It's one of the very most important numbers for understanding the economy, and it's not even totally clear that it exists at all.

1) What is the NAIRU?



(Source: Congressional Budget Office, Bureau of Labor Statistics)

NAIRU stands for the Non-Accelerating Inflation Rate of Unemployment, and the idea is that inflation will accelerate if the unemployment rate falls below the NAIRU level. In some sense, the basic idea is very old, but this particular formulation is owed to Milton Friedman.

Nothing about macroeconomics is uncontroversial, and the idea of NAIRU and its current use in policymaking is contested. But the concept is sufficiently mainstream that the Congressional Budget Office publishes regular calculations of where it thinks the NAIRU is

and where it's been historically.

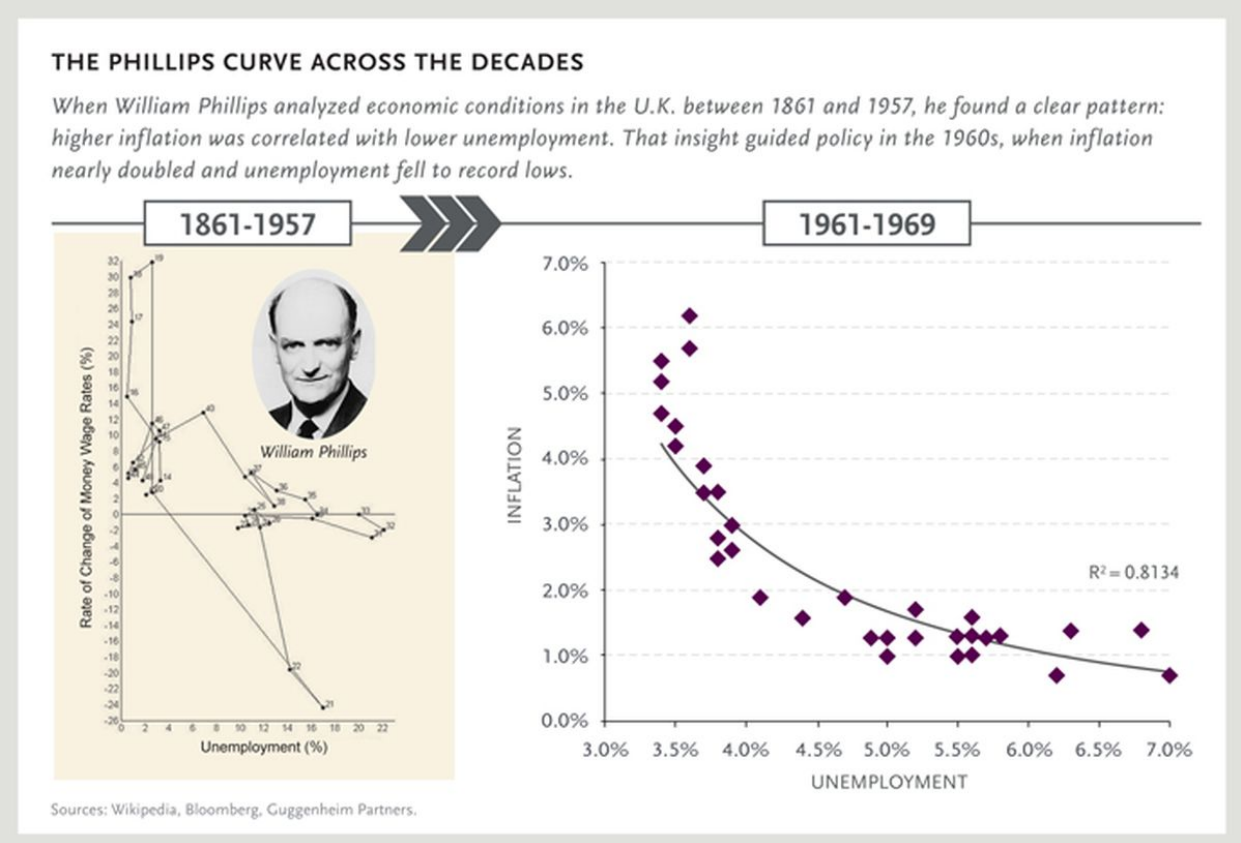
The chart above compares the actual unemployment rate to the CBO-estimated NAIRU. Friedman's view, roughly, was that when unemployment was higher than the NAIRU, the Federal Reserve could lower it through more stimulative monetary policy. But when unemployment was at or below the NAIRU, monetary stimulus would create dangerous inflation. Only "supply-side" reforms to increase the structural efficiency of the economy can create jobs. In policy circles, this viewpoint largely displaced an earlier view of the relationship between unemployment and inflation that was focused on the *Phillips Curve* (more on that in question 3).

2) So is this supply-side economics?

Sort of. The supply-side term is closely associated with Ronald Reagan and the economic policy disputes of the 1970s and 80s. The idea was that the stagflation of the 1970s was caused by a structural rise in the NAIRU. Rather than fight high unemployment with demand-side policies like monetary or fiscal stimulus, Reagan would pursue supply-side policies and push the NAIRU down. And as you can see in the chart, the official estimate of the NAIRU did indeed fall during Reagan's administration.

That said, the NAIRU drop from 6.2 percent to 5.9 percent during Reagan's eight years in office was relatively small compared to the fall in the actual unemployment rate from 7.5 percent to 5.4 percent. The unemployment rate fell substantially during Reagan's tenure, but this was mostly due to demand-side policy rather than supply-side reforms.

3) What is (or was) the Phillips Curve?



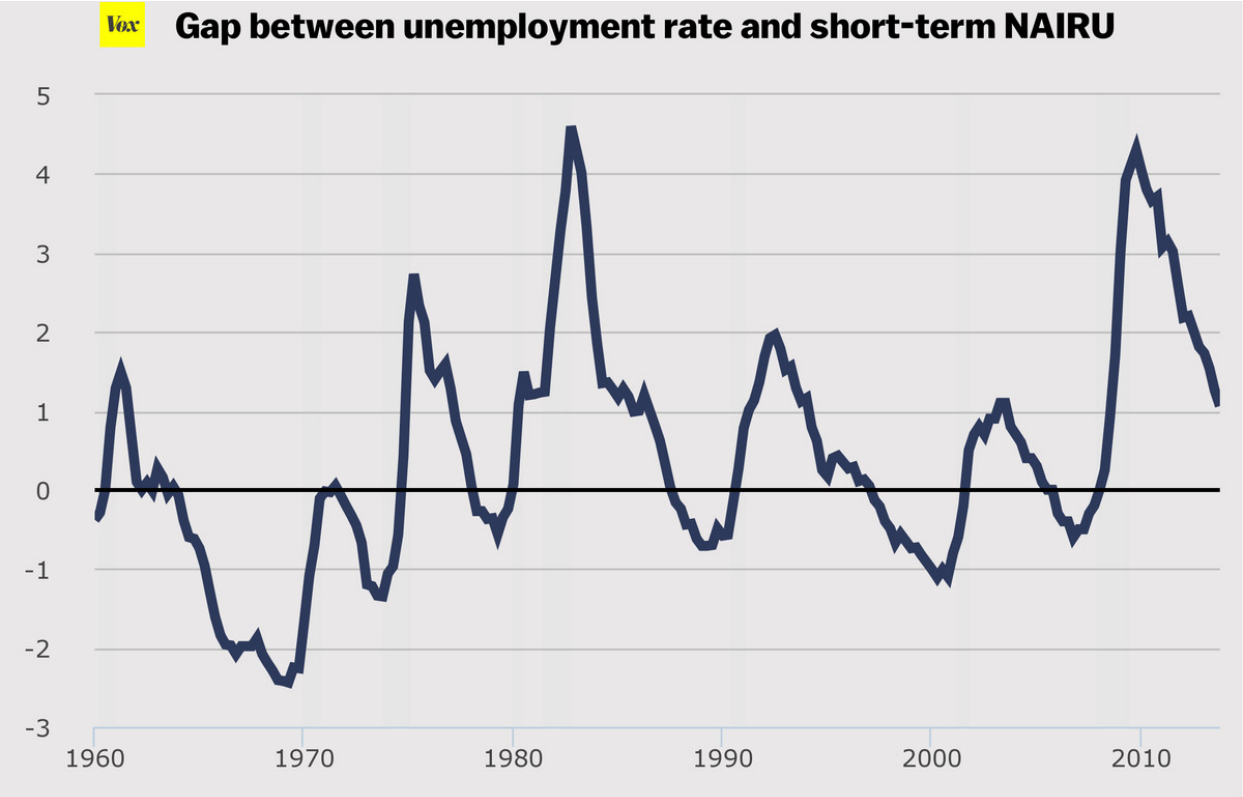
(Guggenheim Partners)

Literally speaking, the Phillips Curve is a chart that economist Williams Phillips made plotting inflation against unemployment for several years in the United Kingdom. Paul Samuelson and Robert Solow later drew a chart of the same relationship for the United States, and it turned out even more curve-like.

According to their critics, economists and policymakers in the 1960s believed that these empirical relationships implied that policymakers could simply choose to reduce joblessness by increasing inflation whenever they wanted. The critics argued that this tradeoff could only be achieved by tricking people and thus could only work in the very short term. New economic models needed to be built that assumed "rational expectations" on the part of the public, and the superiority of those models meant that the NAIRU way of looking at unemployment and inflation replaced the tradeoff view. This change became known as the "rational expectations revolution."

James Forder argues that this version of the rational expectations revolution is a myth, and in fact nobody ever believed in the version of the Philips Curve that was allegedly debunked. Similarly, Robert Gordon argues that only minor modifications needed to be made to actual 1960s macroeconomic models to make sense of the 1970s.

4) Why is actual unemployment usually higher than the NAIRU?



That is a great question. You should ask the people who've been running American politics for the past generation. As you can see above, since 1980, periods of sub-NAIRU joblessness have been much shallower and briefer than periods of above-NAIRU joblessness. The big exception here is the late 1990s.

Not coincidentally, the late 1990s are the only time during this period when we have seen sustained growth in wages and median household incomes. The big story of the NAIRU era is that policymakers have done a much better job of preventing the unemployment rate

from getting too low (or "too low") than they have of preventing it from becoming too high. That's been associated with sluggish growth in wages.

5) Enough macro theory. Can we take a break?

Fundamentally, NAIRU theory rose to prominence due to the economic problems of the 1970s, problems well-dramatized in The Clash's 1977 song "Career Opportunities":

6) How is the NAIRU calculated?

One big problem with the central role of the NAIRU in policymaking is that there's no way to directly observe or quantify it. Instead, it is indirectly inferred through a number of statistical methods. The Congressional Budget Office "estimates the NAIRU using the historical relationship between the unemployment rate and changes in the rate of inflation." In other words, they look backwards at past changes in inflation and changes in unemployment to estimate how *future* falls in unemployment would influence inflation. Ambiguity is introduced by the fact that there are several different inflation indexes, and it's not clear which is the right one to use for this purpose.

A further issue is that it's broadly agreed that the NAIRU can change over time. For example, younger workers almost always have a higher unemployment rate than older workers. Similarly, college graduates have a lower unemployment rate than less-educated workers. So changes in the age and educational profiles of the population can shift the NAIRU. CBO research papers have shown that including such factors can make NAIRU estimates better. But the more factors you try to include, the more things there are to disagree about.

The Federal Reserve staff also makes its own NAIRU estimates using similar methods. But each member of the Fed's Board of Governors and each regional Federal Reserve Bank President is free to make up his or her own mind. Right now, most Fed actors peg the NAIRU somewhere between 5-6 percent, so disagreement among them is likely to begin to play a serious role in debates as unemployment starts to fall into that range.

The central Fed staff in Washington has it in the 5.2 to 5.5 percent range. Back in the late 1990s, many Fed players — including current Chair Janet Yellen — thought the unemployment rate was getting dangerously low. Then-Chair Alan Greenspan disagreed, taking the somewhat subjective stance that the internet revolution was structurally reducing the NAIRU. That call he made played a key role in the era's booming economy.

7) Why would 5.2% unemployment really cause inflation to accelerate?

The theory is that a prolonged spell of low unemployment would lead to a*wage-price spiral*. Here's how it works:

1. Because workers are scarce, companies need to start raising pay in order to recruit new workers.
2. That higher pay is partially passed through in the form of higher prices.
3. Rising prices lead workers to increase their demand for higher wages.
4. Because workers are scarce, companies largely need to give in to these demands for

higher pay.
5. That higher pay leads to further price increases, which lead to further demands for wage increases.
6. Lather, rinse, and repeat until inflation is out of control.

Policymakers take this story *very* seriously. Indeed, since the 1970s they appear to take it *so* seriously that they would rather have unemployment be "too high" on average than "too low" on average.

8) Do wage-price spirals actually happen?

It is very hard to say. Because one of the tenets of NAIRU theory is that the NAIRU can shift over time, it is impossible for any given historical episode to debunk the NAIRU. In the 1990s, for example, unemployment fell below the then-forecast NAIRU level without inflation accelerating dangerously. Scholarshave generally responded by arguing that this shows the NAIRU fell in the 1990s due to a mix of demographic factors, technological change, and greater openness to trade. When the actual unemployment rate began to shoot up in 2008, conventional estimates of the NAIRU also rose with it, as a partial explanation for why we didn't see economy-wide deflation.

Of course, another interpretation would be that NAIRU-based predictions fail because the underlying theory is wrong. As far back as 1987, economist (and, later, Federal Reserve Vice Chair) Alan Blinder was arguing that "it may well be that Keynesians caved in too readily to the natural rate hypothesis" and pointed out that the Phillips Curve's predictive problems can be fixed by allowing for ad hoc supply shocks — the exact same thing needed to make the NAIRU work. A later paper by Robert Gordon, similarly, takes the view that you just need to add oil price shocks to 1960s-style Keynesian models to make things work.

A middle ground would be to argue that perhaps the NAIRU did correctly characterize the economy of the 1970s. Back then, after all, a large share of the American workforce was represented by labor unions. Union contracts often included clauses that provided for automatic raises in the case of inflation. It's easy to see why any particular person would love to have such a clause in his contract. But it's also easy to see how widespread use of such clauses could inadvertently set off a spiral. Whether or not this was the case three or four decades ago, it's not a major issue in the American economy today, when many fewer workers have such contracts.

9) If NAIRU doubters are right, what does that mean?

Well, for starters, it doesn't mean that we can eliminate unemployment altogether. There's no doubt that if the Federal Reserve just kept pursuing easier money, no matter what the unemployment rate was, inflation would result. Unemployment is unpleasant, but because looking for jobs and looking to fill jobs can't happen instantaneously, there is always going to be some. The bigger question is if it's really true that getting joblessness down to 4.5 percent and holding it there would create run-amok inflation.

Imagine that instead of a wage-price spiral, we see something like this: because workers are scarce, employers need to raise pay to keep and retain workers. Some of those

additional costs are passed through in the form of higher prices. But instead of that setting off a wage-price spiral, maybe the combination of higher wages and higher prices induces more people to look for jobs. Everyone — from college students to stay-at-home moms to sixty-somethings to low-level drug dealers — becomes somewhat more inclined to seek formal employment. That lets veteran workers get higher pay, even as companies are able to maintain some lower-pay work thanks to the growing labor force.

This is essentially what we saw happen during the boom years of 1998 and 1999. Wages did rise, but the labor force also grew quite rapidly, and inflation remained under control. The mainstream story is that's because the NAIRU was in fact lower than people had previously thought, and Alan Greenspan wisely saw that. Another possibility is that NAIRU theory is simply mistaken. Either way, Greenspan aimed for a level of unemployment that was lower than conventional estimates of the NAIRU, and society benefitted from it.