With U.S. unemployment low, Bullard discussed whether that means that inflation is about to increase substantially. Given current estimates of the relationship between unemployment and inflation, he indicated that he doesn't expect a meaningful increase in inflation.

"Even if the U.S. unemployment rate declines substantially further, the effects on inflation are likely to be small," he said.

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May 8, 2017. Presentation. "An Illustrative Calculation of $r^{\dagger}$," Federal Reserve Bank of Atlanta 22nd Annual Financial Markets Conference, Amelia Island, Fla.
Presentation (pdf) (bullard_amelia_island_8_may_2017pdf) | Press Release.

An Illustrative Calculation of r†

May 8, 2017

[Presentation (pdf)](https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/pdfs/bullard/remarks/2017/bullard_amelia_island_8_may_2017.pdf)| [Press Release](https://www.stlouisfed.org/news-releases/2017/05/08/bullard-discusses-decline)

Speaking at an Atlanta Fed conference on Amelia Island, Fla., St. Louis Fed President James Bullard discussed the downward trend in the natural real rate of interest, r †, in a regime-switching context. He looked at three factors that can influence the natural rate—the labor productivity growth rate, the labor force growth rate and an investor desire for safe assets. He noted that the U.S. is currently in a regime (or state) of low productivity growth and a regime of a high desire for safe assets, and those do not appear to be shifting. He also discussed the implications of the low natural rate for the

Fed’s policy rate and concluded that the natural rate of interest, and hence the appropriate policy rate, is low and unlikely to change very much over the forecast horizon.

St. Louis Fed's Bullard Discusses the Decline in the Natural Real Rate of Interest

AMELIA ISLAND, Fla. – Federal Reserve Bank of St. Louis President James Bullard discussed reasons for the downward trend in the natural real rate of interest during a presentation Monday at the Federal Reserve Bank of Atlanta’s 22nd Annual Financial Markets Conference.

He examined this downward trend in a regime-switching context. He also discussed implications of the low natural rate for the Fed’s policy rate (i.e., the federal funds rate target). “According to the analysis presented here, the natural rate of interest, and hence the appropriate policy rate, is low and unlikely to change very much over the forecast horizon,” Bullard said.

An Illustrative Calculation of r†
In his presentation, “An Illustrative Calculation of r†,” Bullard noted that r† is often referred to as “the natural real rate of interest.” Using U.S. data from 1984 to the present, he constructed an ex-post measure of the real rate of return on short-term government debt by subtracting the Dallas Fed trimmed-mean PCE inflation rate from the 1-year Treasury rate. “These raw data show a clear downward trend,” he said. “Macroeconomic theory does not like this downward trend—it wants a constant mean.”

He looked at three factors that can influence the natural rate: 1) the labor productivity growth rate, 2) the labor force growth rate, and 3) an investor desire for safe assets. He included the third factor because the declining trend appears to be on real returns to holding government paper, not on capital.

He noted that these types of factors generally have constant means but that there can be infrequent shifts in those means. Therefore, for each factor, he looked at two possible mean values, called “regimes.” He then delved into which of the three factors is the most important in accounting for the downward trend in r†.

The labor productivity growth rate

U.S. labor productivity appears to be in the low-growth regime, Bullard noted, citing a 2006 statistical model by James Kahn and Robert Rich that estimates the probability that the U.S. economy is in a low-productivity-growth regime.

In terms of values in the two regimes, he noted that the most recent estimates from the Kahn and Rich model are for a growth rate of 1.26 percent in the low state and a growth rate of 3 percent in the high state.

The labor force growth rate

Regarding the regimes for U.S. labor force growth, he noted that since the Great Recession, the growth rate has been 0.45 percent. This compares with a higher growth rate of 1.33 percent before the Great Recession.

"It looks like the U.S. is in a low-growth state, but a case could be made that some recent observations have been more consistent with the high-growth state," he said.

The desirability of safe assets

In regard to the third factor, Bullard noted that the U.S. is currently in a regime with a high desire for safe assets as opposed to a regime with a more normal desire.

He noted that the estimated values for this factor are -3.04 percent in the high-desire-for-safe-assets regime and 0.63 percent in the normal-desire-for-safe-assets regime. "The difference between the two regimes is largest for this factor; it is in some sense the 'most important' of the three," he said.

The Implication for the Natural Real Rate of Interest

To summarize, he noted that labor productivity appears to be in the low-growth regime, which would set that factor at 1.26 percent. He said that the labor force also appears to be in the low-growth regime, which would set that factor at 0.45 percent; however, labor force could plausibly be interpreted as switching to the high-growth regime, which would set that factor at 1.33 percent. Finally, he said that there appears to be a high desire for safe assets, which would set that factor at -3.04 percent.

He then calculated the natural real rate of interest by adding the factors together. According to this analysis, r† is either -133 basis points or -45 basis points, depending on whether one views the labor force as being in the low-growth regime or high-growth regime, respectively.

Implications for the Policy Rate
Turning to monetary policy implications, Bullard noted that with the U.S. unemployment gap and inflation gap near zero, a Taylor-type rule simply recommends setting the policy rate equal to the value of r† plus 2 percent, which is the FOMC's inflation target. Thus, he obtained an appropriate policy rate setting of either 67 basis points or 155 basis points (again, depending on whether the labor force is in the low-growth or high-growth regime).

He noted the actual current policy rate is about 88 basis points. "The policy rate is approximately at an appropriate setting today according to this analysis and with gap variables assumed to be zero," he said.

Related Literature and Regime Changing
"There is a fairly large and growing literature trying to understand the downward trend in the natural rate of interest. The literature tends to be quite a bit more sophisticated than the analysis presented here," Bullard said. "This analysis has provided some background on how one might begin to think about recent trends in the natural safe rate of interest in a regime-switching context."

- **May 5, 2017**. Policy Panel at The Structural Foundations of Monetary Policy: A Policy Conference, Hoover Institution at Stanford University, Stanford, Calif.
  Event Video.

  President Bullard at Hoover Institution Conference