

The Global Decline of the Natural Rate of Interest and Implications for Monetary Policy

Sungki Hong, Economist
Hannah G. Shell, Senior Research Associate

The natural rate of interest is a real short-term rate that occurs when the economy has reached maximum employment and has stable inflation (i.e., the interest rate that occurs when the economy is in equilibrium). We define monetary policy to be accommodative, restrictive, or neutral if the policy rate is less than, greater than, or equal to the natural rate, respectively.

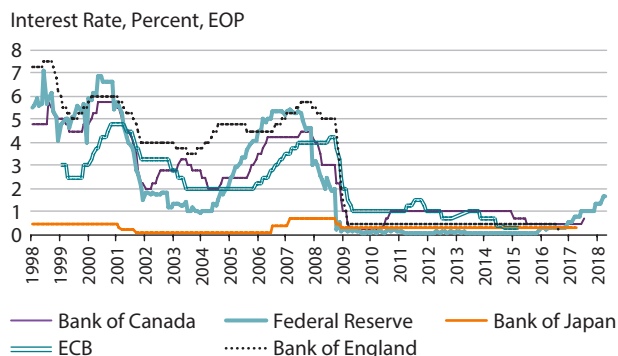
Congress has mandated the Federal Reserve to stabilize inflation and attain maximum employment.¹ In the 1980s, the Federal Reserve began to target the federal funds rate—an interbank lending rate—to achieve these goals. The “Taylor rule” describes how economic conditions influence the Fed’s policy rate to allow it to achieve the mandate. According to the Taylor rule, the Fed should increase the federal funds rate if inflation is higher than its target level or if unemployment is lower than the natural rate.² The Fed should decrease the federal funds rate if the opposite occurs. If inflation and the unemployment rate are both higher or lower than their respective target/natural levels, then the Fed must weigh how far each is from its desired level. However, if the economy is in equilibrium, with stable inflation and unemployment at the natural rate, the Taylor rule prescribes that the Fed should set rates equal to the natural rate of interest.

Panel A of the figure plots the policy rates for five major central banks: the Bank of Canada, the Federal Reserve, the Bank of Japan, the European Central Bank (ECB), and the Bank of England. The policy rates rise and fall with the state of the business cycle. Also, although recent episodes of near-zero interest rates have been driven by aggressive responses from central banks to the Financial Crisis of 2008-09, policy rates declined persistently from 1998 to 2018.³ For example, the Federal Reserve’s target interest rate was around 6 percent in the early 2000s, but dropped to near zero from 2008-15 and remains fairly low.

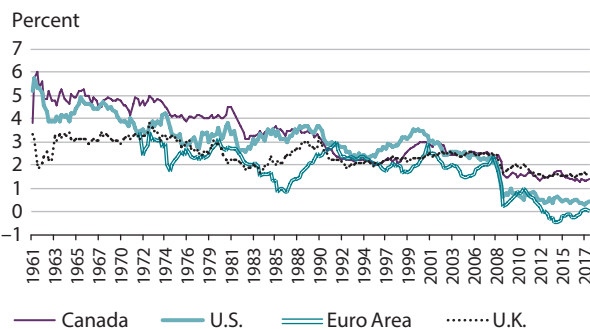
Some economists argue that the natural rate of interest has driven the decline, but the natural rate of interest can’t be directly observed. One can, however, use quantitative macroeconomic models to estimate it. Panel B of the figure plots one such estimate by Holston, Laubach, and Williams (2017) for Canada, the United States, the euro area, and the United Kingdom. All four economies exhibit a similar pattern: The estimated natural rates of interest steadily declined from 1961 until 2016, with the euro area’s rate even negative between 2013 and 2016.

A declining natural rate of interest poses real challenges for a central bank because it limits the bank’s ability to respond to recessions. When an economy enters recession,

A. Central Bank Policy Rates



B. Natural Rate of Interest Estimates



NOTE: EOP, end of period.

SOURCE: Haver Analytics, the Federal Reserve, and the International Monetary Fund. R^* estimated by Holston, Laubach, and Williams (2017).

policymakers decrease policy interest rates but increase them back to “normal” when the economy starts growing. If natural rates are as low as the estimates presented here, central banks, including the Federal Reserve, won’t be able to raise the nominal rate far above the zero lower bound in normal times without policy becoming restrictive. That is, with a low natural rate of interest even in normal times, central banks won’t be able to respond effectively to recessions, because there won’t be much scope to lower interest rates.

A low natural rate of interest in normal times may call for unconventional policy in recessions.

Instead of using conventional monetary policy to influence short-term interest rates, central banks might have to rely on unconventional monetary policy for unconventional times. For example, during the Financial Crisis of 2008-09, with the federal funds rate already cut close to zero, the Federal Reserve stimulated the economy with quantitative easing, which entailed purchases of pre-specified amounts of bonds and financial assets, and with forward guidance, which reduced the expected future path of policy rates.

Internationally, a number of central banks have used negative interest rates on commercial bank deposits with the central bank. For example, Switzerland, Sweden, Denmark, the euro area, and Japan have done so in the past few years. In 2015, the Swiss National Bank slashed its main interest rate to -0.75 percent to deter external capital flows and the franc’s appreciation; the rate remained negative through the end of 2018.

Conclusion

The policy interest rates set by central banks have been declining in many countries over the past 20 years as the natural rate of interest in those countries has fallen. A declining natural rate of interest reduces the ability of a central bank to respond to recessions with conventional monetary policy. Understanding the future direction of that rate and the cause of the decline is important for designing effective monetary policy. ■

Notes

¹ The mandate comes from the Federal Reserve Reform Act of 1977; <https://fraser.stlouisfed.org/title/1040>.

² The natural rate of unemployment is the share of workers that are unemployed when the economy is at maximum employment.

³ Japan is a well-known exception. Its policy rate was already close to zero in response to the asset-price collapse in the 1990s.

Reference

Holston, Kathryn; Laubach, Thomas and Williams, John C. “Measuring the Natural Rate of Interest: International Trends and Determinants.” *Journal of International Economics*, 2017, 108, S59-S75.