

Economic Watch

US

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Economic Analysis

U.S.

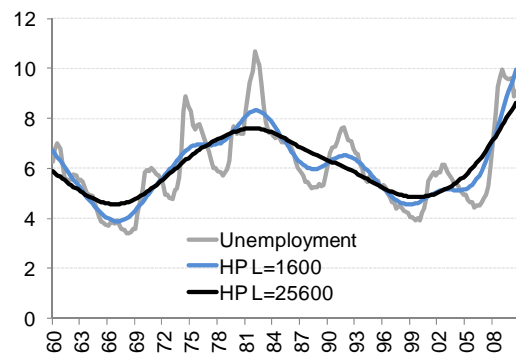
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The NAIRU is Higher

- Dispersion in NAIRU estimates is at a high level, underscoring uncertainty
- FOMC estimates of potential GDP will drift downwards slightly over several quarters
- NAIRU misperception will cause a more forceful mid-term response to inflation
- NAIRU is high enough to cause long-term problems, but low enough to mute wage growth

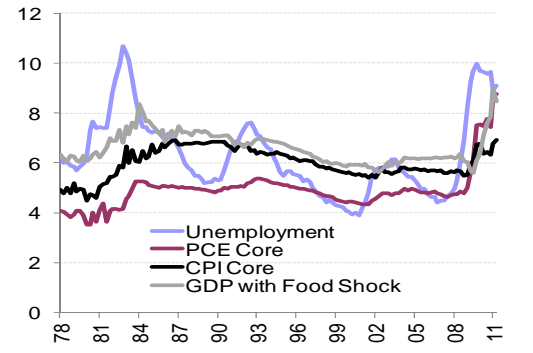
The latest FOMC projections place the central tendency of the non-accelerating inflation rate of unemployment (NAIRU) at 5.2 to 5.6% (with upper and lower bounds of 5.0 and 6.0%). The NAIRU is essential to monetary policy as it is a determinant of when the level of unemployment triggers inflationary pressures and also a component of potential output estimates. While essential to policy, the NAIRU is also subject to uncertainty over its true level. Indeed, some prominent studies suggest that there is a 2% bound on NAIRU estimates. Compounded with intrinsic uncertainty, a number of different methods exist to estimate the NAIRU and the NAIRU estimate itself differs on what inflation measure is chosen (PCE, GDP deflator, CPI, and so on).

Chart 1
Hodrick-Prescott Filter NAIURU Estimates



Source: BBVA Research

Chart 2
Phillips Curve NAIURU Models

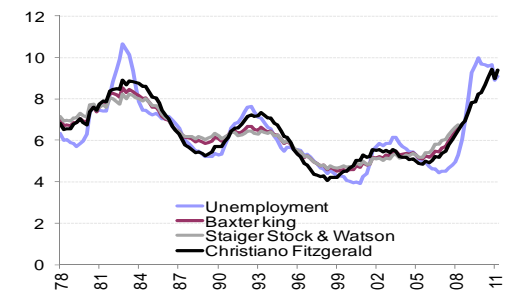


Source: BBVA Research

We have estimated the NAIURU in several ways and have determined that the dispersion in NAIURU estimates is at its highest level since the early 1980s, underscoring the policy challenge and the degree in uncertainty over resource slack in labor markets. We use univariate Hodrick-Prescott and Band-Pass filters with two different settings each. While the HP filter decomposes the trend from the cycle in the data, the band-pass filter suppresses both low and high frequency trend components. Another version of this filtering technique adjusts the data for supply shocks. We

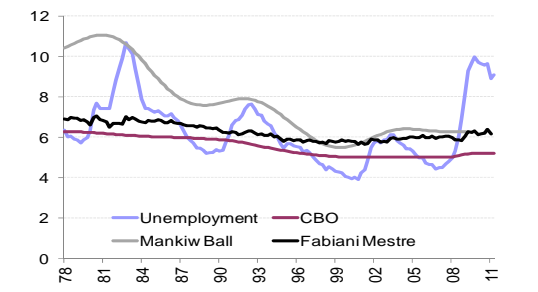
also utilize a simple NAIURU estimate based on the unemployment-inflation tradeoff (Phillips Curve). For the latter, many of our specifications imply that the latest two years' of data is causing serious variation in the traditional slope of the Phillips Curve. We generally found that underlying measures of inflation performed better than headline measures of inflation. Lastly, we examine a Kalman filter estimate of the NAIURU that feeds from estimations of Okun's relationship between unemployment and output and also the unemployment-inflation tradeoff. For robustness, we also estimated some of the above using the unemployment rate for married males in order to avoid demographic shifts over time. We relegate the gritty details to Table 1, but the results of the estimates can be viewed in Charts 1 to 4 for the unemployment rate and Charts 5 to 6 for the married males' unemployment rate. All of the results suggest that the NAIURU has increased, most likely above the upper bound of the Fed's latest NAIURU projections.

Chart 3
Band-Pass Filter NAIURU Estimates



Source: BBVA Research

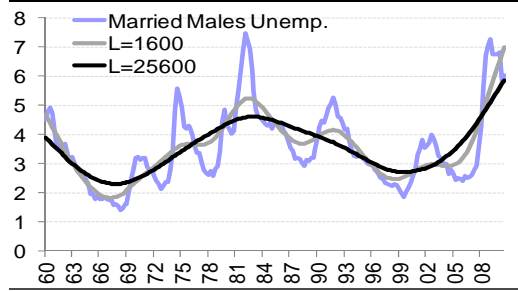
Chart 4
Alternative Approaches to NAIURU Estimation



Source: BBVA Research

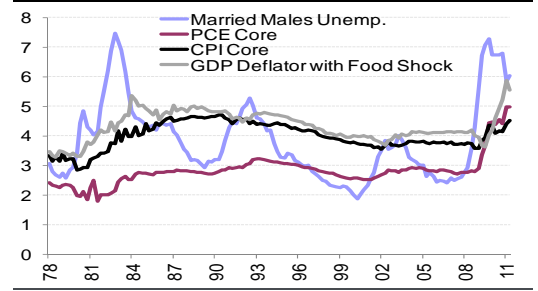
The penalty of a misperceived NAIURU is not very clear and often depends on prevailing circumstances. According to Gordon (1997), if the Fed stabilizes unemployment one percent below the NAIURU, the effect is around a 0.3% increase in the inflation rate per year. Others, like Dickens (2010), do not regard a slight increase in the NAIURU as significant for monetary policy. On the other hand, Orphanides and Williams (2002) regard a 1% misperception of the NAIURU as nontrivial. According to the textbook response of monetary policy, if the central bank knows NAIURU is a noisy indicator, it will have a more muted response to changes in NAIURU. However, the penalty to misperception is asymmetric in the sense that overconfidence in the NAIURU leads to worse policy outcomes than being realistic about uncertainty. This is perhaps why Fed Chairman Ben Bernanke once commented, "...policy actions may be attenuated or augmented relative to the 'no-uncertainty benchmark,' depending on one's judgments about the possible outcomes and the costs associated with those outcomes..." (19 October 2007).

Chart 5
Married Males Filter NAIURU Estimates



Source: BBVA Research

Chart 6
Married Males Phillips Curve NAIURU Estimates



Source: BBVA Research

For example, during the 1970s, the Federal Reserve believed NAIRU rested at 4%, when the true NAIRU was 6%. This misperception resulted in the Federal Reserve not responding forcefully enough to inflation expectations. Another canonical example is during the 1990s, when both the NAIRU and inflation trended downwards. In a shift of behavior, the Federal Reserve at the time determined that the downward drift of the NAIRU was the result of productivity increases rather than an impending need to strongly tighten. However, today's Fed is in a unique position as it faces an unusually large output gap, recently embarked on a massive anti-deflationary program and is faced with unusually high uncertainty over the unemployment forecast. At the same time, the increase in the NAIRU is not as large as to suggest a European-style breakdown in the labor market and wage pressures are contained.

Bottom line: policy in a world of uncertainty

As the Chairman's words suggest, the response of the Fed is rightly to not overreact. The main issue today is timing the cycle correctly. To tighten prematurely would result in choking off the recovery before it builds enough momentum to become self-sustaining. The debilitating effects of a second recession and further ensnarement in the liquidity trap are worse than a misperception of the NAIRU. While this may be the case, we believe that a higher NAIRU entails important medium-term challenges for the Federal Reserve. NAIRU serves as a benchmark in the determination of the output gap. If the NAIRU is higher, then the level of potential output is lower. This affects not only how quickly we close the output gap, but also forecasts for the fiscal disposition of the US. We expect that over several quarters the Federal Reserve's NAIRU estimate will drift higher. With regard to the policy instrument, it is important to note that the first rate hike still leaves policy overall in an accommodative position, with a series of rate increases creating a smooth transition to neutral as commonly preferred by central banks. After the Fed determines the start of its exit strategy, this NAIRU misperception will eventually require the Fed to instigate more frequent interest rate hikes in order to retain its credibility in combating inflation and also mitigate the extremely high liquidity in the financial system.

Table 1
Summary of Methods

NAIRU Estimation Methods		
Name	Type	Comments
HP L=1600	High Frequency Filter	Hodrick-Prešcott filter with tuning set to 1600
HP L=25600	High Frequency Filter	Hodrick-Prešcott filter with tuning set to 25600
Staiger, Stock & Watson	Band-Pass Filter	Band-pass filter with 15-year window
Baxter King	Band-Pass Filter	Band-pass filter with 8-year window
Christiano Fitzgerald	Band-Pass Filter	Random-walk band-pass filter
Mankiw Ball	High Frequency Filter	HP filter adjusted for supply shocks
CBO	Phillips Curve	Congressional Budget Office estimate of NAIRU
PCE Core	Phillips Curve	Phillips curve based on PCE core inflation
CPI Core	Phillips Curve	Phillips curve based on CPI core inflation
GDP Deflator with Shock	Phillips Curve	Phillips curve based on GDP deflator and food shock
Fabiani Mestre	Kalman Filter	Phillips curve and Okun's law system of equations

Source: BBVA Research

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