How to weigh unemployment relative to inflation in monetary policy?*

Lars E.O. Svensson

Stockholm School of Economics, Stockholm University, CEPR, and NBER.

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Abstract

The monetary policy mandate for the Federal Reserve and of the Riksbank are essentially the same and boil down to stabilizing inflation around the inflation target and employment or unemployment around a long-run sustainable rate. The relative weight on stabilizing unemployment or employment versus stabilizing inflation may be close to one. A positive unemployment-gap forecast normally calls for a positive inflation-gap forecast.

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In these remarks, I will first briefly discuss the mandate for the monetary policy of the Federal Reserve and of the Riksbank. I will argue that they are essentially the same, and that they boil down to stabilizing inflation around the inflation target and employment or unemployment around a long-run sustainable rate. Second, I will discuss the magnitude of the relative weight on stabilizing unemployment or employment versus stabilizing inflation. Finally, I will say something about what inflation and unemployment or employment gaps are optimal and, in the concluding section, relate that to the current situation for the Fed and the Riksbank.

**The mandates of the Federal Reserve and the Riksbank**

According to the Federal Reserve Act, the Federal Reserve’s mandate is to promote maximum employment and stable prices. In the Statement on Longer-Run Goals and Monetary Policy Strategy (FOMC 2014) – first issued by the FOMC in January 2012 and since then reaffirmed or amended at the Committee’s organizational meeting in January each year – the Federal Reserve clarifies how it interprets its mandate. It specifies the price-stability objective as an inflation target of 2 percent for the PCE price index. It also clarifies that the maximum level of employment is largely determined by nonmonetary factors that affect the structure and the dynamics of the labor market. These factors may change over time and are not directly measurable. Therefore it is not appropriate to specify a fixed goal for employment; instead the maximum level has to be assessed from a wide range of indicators, and the assessment may change over time. The statement reports that the FOMC participants’ estimates of the longer-run normal rate of unemployment have a central tendency of 5.2 to 5.8 percent.

In particular, that statement clarifies that, under circumstances when the price-stability and maximum-employment objectives are not complementary, that is, when there is a tradeoff between the objectives, the Committee will follow a “balanced approach” in promoting them.

The Sveriges Riksbank Act states that the objective of the Riksbank’s monetary policy shall be to maintain price stability. The Government Bill that introduced the Act to the riksdag (the Swedish parliament) further states that:¹

¹ See Svensson (2013) for a more detailed discussion.
As an authority under the riksdag, the Riksbank shall also, without prejudice to the price-stability objective, support the objectives of the general economic policy with the aim to achieve sustainable growth and high employment.

The Riksbank has specified the prices-stability objective as an inflation target of 2 percent for the CPI. In the beginning of each Monetary Policy Report, it also clarifies its interpretation the above statement in the Government Bill:

This is achieved through the Riksbank, in addition to stabilising inflation around the inflation target, also striving to stabilise production and employment around long-term sustainable paths. The Riksbank therefore conducts what is generally referred to as flexible inflation targeting.

Thus, the mandates of the Federal Reserve and the Riksbank both boil down to stabilizing inflation around an inflation target and employment around a long-run sustainable rate. Furthermore, in situations when the labor-market participation rate is exogenous to monetary policy, stabilizing employment around a long-run sustainable rate is the same thing as stabilizing unemployment around a long-run sustainable unemployment rate.

The relative weight on unemployment gap stabilization

Thus, under the assumption that the labor-market participation rate is exogenous, a mandate-consistent loss function for monetary policy can be written as the standard quadratic loss function,

\[ L_t = (\pi_t - \pi^*)^2 + \lambda (u_t - u^*)^2, \]  

where \( \pi_t \) and \( \pi^* \) denote the inflation rate and the inflation target, respectively, \( u_t \) and \( u^* \) denote the unemployment rate and the long-run sustainable unemployment rate, and \( \lambda \) is the weight on unemployment-gap stabilization relative to that on inflation-gap stabilization.

What is the value of the relative weight, \( \lambda \)? My own view, so far, is that a relative weight equal to one, that is, equal weight on stabilizing inflation and unemployment,

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2 The employment gap between the rate of employment and a long-run sustainable rate of employment equals the labor-market participation gap less the unemployment gap, where the participation gap is the gap between the actual rate of labor-market participation and a long-run sustainable rate. In Sweden, the participation gap is currently considered to be small and stable. For the U.S., Erceg and Levin (2013) argue that the participation gap is significant and endogenous and has fallen in response to the recession. Then the unemployment gap needs to be adjusted for the participation gap in order to be consistent with the employment gap.
is appropriate. As discussed in Svensson (2013), the Riksbank has not been clear on the relative weight. The Federal Reserve has been more transparent. Its reference to a “balanced approach” in FOMC (2012) indicates that the relative weight should not be far from one. Bernanke (2012) and Yellen (2012) refer to maximum employment standing on an “equal footing” with price stability, reinforcing the view that the relative weight is one or close to one. Evans (2012) has previously clarified that his own relative weight is one, and discusses this in more detail in Evans (2014). 3

**What inflation and unemployment gaps are optimal?**

Suppose the loss function is given by (1) and suppose that there is a simple Phillips curve of the form

\[ \pi_t = \pi_t^e - \gamma (u_t - \tilde{u}_t) + \varepsilon_t, \]  

where \( \pi_t^e \) denotes inflation expectations, \( \tilde{u}_t \) denotes a short-run natural rate of unemployment (which in the short-run may differ from the long-run sustainable unemployment rate \( u^* \)), \( \varepsilon_t \) is an exogenous shock, and \( \gamma \) is a positive constant.

For a New Keynesian Phillips curve, the inflation expectations are expectations in the current period of future inflation; for a New Classical Phillips curve, they are lagged expectations of current inflation. For optimization under discretion and a simple New Keynesian or New Classical model with rational expectations, the first-order condition for the central bank can be written

\[ \pi_t - u^* = \frac{\lambda}{\gamma} (u_t - u^*). \]  

With “near rational” and sticky inflation expectations that are anchored at the inflation target (Svensson 2014b), the first-order condition for the central bank can also be approximated as (3).

This suggest an approximate forecast targeting rule,

\[ \pi_{t+\tau} - \pi^* = \frac{\lambda}{\gamma} (u_{t+\tau} - u^*), \quad \tau \geq 0, \]  

\(^3\) As Evans (2012, 2014), clarifies that, if the Okun coefficient is two, so a one-percentage-point increase in unemployment is associated with a two-percent fall in output, a relative weight on unemployment-gap stabilization equal to one corresponds to a relative weight on output-gap stabilization equal to 0.25.
where $\pi_{t+\tau,t}$ and $u_{t+\tau,t}$ denote the forecast in period $t$ for inflation and unemployment in period $t+\tau$ for $\tau \geq 0$. If the unemployment forecast is above (below) the long-run sustainable rate, the inflation forecast should be above (below) inflation target. Thus, the forecast of the unemployment gap should normally have the same sign as the forecast of the inflation gap; a variant of the so-called Qvigstad rule, of the former Norges Bank Deputy Governor Jan Qvigstad (2005).

Thus, according to this, the central bank should let inflation overshoot the target, when the unemployment forecast is above a long-run sustainable rate. Furthermore, estimates of Phillips curves indicate that the slope, $\gamma$, is less than one (Fuhrer 2011, IMF 2013, Svensson 2014b). With $\lambda$ equal to one, this means that the coefficient $\lambda / \gamma$ in (3) and (4) is larger than one. That means that forecasted inflation gap forecast should be larger than the forecasted unemployment gap,

$$\left|\pi_{t+\tau,t} - \pi^a\right| > \left|u_{t+\tau,t} - u^a\right|, \quad \tau \geq 0. \quad (5)$$

With a more complicated model, the first-order condition is more complicated. Still, the result that optimal policy when unemployment is above a long-run sustainable rate involves inflation overshooting the target is very intuitive. Yellen (2012) provides simulations with the model FRB/US of optimal policy for the Federal Reserve, where inflation overshoots the target. Kocherlakota (2014) also emphasizes this property of optimal policy.

**Conclusion**

I have compared the mandates of the Federal Reserve and the Riksbank and concluded that they are for practical purposes the same. They boil down to stabilizing inflation around the inflation target and employment around a long-run sustainable rate. When the labor-market participation rate is exogenous to monetary policy, stabilizing employment around a long-run sustainable rate is the same as stabilizing unemployment around a long-run sustainable rate.

The Federal Reserve’s statement on longer-run goals and monetary-policy strategy, in particular the wording about a “balance approach,” may be interpreted as the relative weight on employment and unemployment stabilization not very far from one. Statements from several FOMC participants supports this interpretation.
For a quadratic loss function and a simple Phillips curve, a first-order condition for the central bank suggests an approximate forecast targeting rule, such that the forecast of the inflation gap should have the same sign as and be proportional to the forecast of the unemployment gap. Furthermore, with a relative weight on unemployment stabilization equal to one and estimated slopes of Phillips curves less than one, an optimal inflation gap may need to be larger than the unemployment gap.

Inflation overshooting the target, when the unemployment gap is positive, is not, however, what we have seen in a number of countries since the financial crisis. In the U.S., inflation has been low at the same time that unemployment has been high. On the other hand, the Federal Reserve is facing a binding lower bound for the policy rate and has used forward guidance and balance-sheet policies extensively in order to implement a more expansionary monetary policy. The U.K. is an exception, where inflation has overshot the target substantially except very recently (Miles 2014).

Sweden is, unfortunately, an extreme example. Unemployment is high, far above a reasonable long-run sustainable rate. CPI inflation is very low, far below the target of 2 percent, about zero during the last few years, and negative during the first three months of 2014. Furthermore, this is arguably the result of a dramatic and mistaken policy tightening in the summer of 2010, together with a reluctance to later loosen policy, as further discussed in Svensson (2011, 2013, 2014a).
References


