

## Estimated federal funds rate rule - Technical Appendix

The Taylor rule states:

$$i = r^* + \pi + 0.5(y - y^*) + 0.5(\pi - \text{inflation target})$$

where  $i$  is the Federal funds rate,  $r^*$  is the equilibrium real rate,  $\pi$  is the inflation rate,  $(y - y^*)$  is the output gap, and inflation target is the central bank's inflation target. The monetary policy rule used in the chart above is a variant on this Taylor rule and takes the following form:

$$i_t = C_1 + C_2 i_{t-1} + C_3 (y_t - y_t^*) + C_4 \pi_t$$

$i_t =$  Fed Funds Rate at quarter  $t$

$C =$  Coefficients

$i_{t-1} =$  Fed Funds Rate Lagged 1 quarter

$(y_t - y_t^*) =$  output gap (potential measured by CBO) at quarter  $t$

$\pi_t =$  4 quarter core PCE inflation rate at quarter  $t$

The equation was estimated using the least squares regression technique with a sample period from Q1 1988 to Q1 2009 using quarterly data. This monetary policy rule says that the Federal funds target rate is determined by the lagged federal funds target rate, the output gap (the log of the ratio of real GDP to real Potential GDP where potential is measured by the [Congressional Budget Office](#)), and the inflation rate. The primary difference from the original Taylor rule is the inclusion of the lagged Federal funds rate, which allows for policy inertia or interest rate smoothing behavior by the FOMC.

The estimated equation is as follows and the standard errors are reported in parentheses.

$$i_t = -0.06 + 0.82i_{t-1} + 0.21(y_t - y_t^*) + 0.37\pi_t$$

(0.16)    (0.05)    (0.04)    (0.10)