

FORECASTING PC

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Specification. We estimate a linear model of quarterly PCE inflation (all items) on a small set of macro predictors:

$$\pi_t = \alpha + \beta_1 rr_t^{\text{median}} + \beta_2 rr_t^{\text{std}} + \beta_3 ugap_t + \beta_4 pceEnergy_rate_t + \varepsilon_t, \quad (1)$$

where π_t denotes the quarterly PCE inflation rate (variable `pceall_rate`), rr_t^{median} and rr_t^{std} summarize the level and dispersion of the real rate, $ugap_t$ is the unemployment gap, and $pceEnergy_rate_t$ captures energy price inflation. We include an intercept and estimate (1) by OLS with missing observations dropped.

Sample split and estimation. Dates are constructed from `year_quarter` via a quarterly period index mapped to the start of each quarter. We estimate (1) on the training sample starting in 1984Q1 up to and including 2020Q2 (i.e., dates $\leq 2020-04-01$). After estimation, we predict $\hat{\pi}_t$ on the full sample to enable a continuous plot of actual versus fitted values.

Contributions (ex post decomposition). Given the fitted coefficients $(\hat{\alpha}, \hat{\beta}_1, \dots, \hat{\beta}_4)$, we decompose the fitted value additively as

$$\hat{\pi}_t = \underbrace{\hat{\alpha}}_{\text{Constant}} + \underbrace{\hat{\beta}_1 rr_t^{\text{median}} + \hat{\beta}_2 rr_t^{\text{std}}}_{\text{Inflation expectations block}} + \underbrace{\hat{\beta}_3 ugap_t}_{\text{Labor market}} + \underbrace{\hat{\beta}_4 pceEnergy_rate_t}_{\text{Supply side}}.$$