

Throughout the exercise, I ran regressions to estimate the slope of the Phillips Curve using either the Unemployment gap, as defined by the difference between the actual unemployment rate and the FED NROU, or the logarithm of the unemployment over vacancies, taken as the inverse of the JTSJOL from the FED. When using unemployment over vacancies, the equations also include a dummy taking a value of one when the logarithm of unemployment over vacancies is below 0 interacted with the mentioned logarithm of unemployment over vacancies.

To these variables, MICH expected median inflation and standard deviation were first added. Finally, the price of a gallon of gas and the GSCPI were added as well.

Both the original Excel file and the transformed dta file are called phillips_curve.

CPI Headline

For the first two plots, I graph the Headline CPI on the unemployment gap or the log of Unemployment over Vacancies. The β , γ and se estimates in plot B are from the equation (q stands for quarter): $CPI_q = \alpha + \beta \cdot \log(U/V)_q + \gamma(\log(U/V)_q \cdot Dummy_q)$

Controlling for MICH median and std

For the next row of plots, I run the following regressions:

$$CPI_q = \alpha + \beta \cdot UnemploymentGap_q + \delta \cdot Median(MICH)_q + \epsilon \cdot Std(MICH)_q \quad (1)$$

$$CPI_q = \alpha + \beta \cdot \log(U/V)_q + \gamma(\log(U/V)_q \cdot Dummy_q) + \delta \cdot Median(MICH)_q + \epsilon \cdot Std(MICH)_q \quad (2)$$

The y-axis of the graphs now becomes, depending on the specification:

$$CPI(adjusted)_q = CPI_q - \hat{\delta} \cdot Median(MICH)_q - \hat{\epsilon} \cdot Std(MICH)_q$$

Controlling for MICH median and std, and supply side factors

For the last row of plots, I ran:

$$CPI_q = \alpha + \beta \cdot UnemploymentGap_q + \delta \cdot Median(MICH)_q + \epsilon \cdot Std(MICH)_q + \phi \cdot GasPrice_q + \theta \cdot GSCPI_q \quad (3)$$

$$CPI_q = \alpha + \beta \cdot \log(U/V)_q + \gamma(\log(U/V)_q \cdot Dummy_q) + \delta \cdot Median(MICH)_q + \epsilon \cdot Std(MICH)_q + \phi \cdot GasPrice_q + \theta \cdot GSCPI_q \quad (4)$$

The y-axis of the graphs now becomes, depending on the specification:

$$CPI(adjusted)_q = CPI_q - \hat{\delta} \cdot Median(MICH)_q - \hat{\epsilon} \cdot Std(MICH)_q - \hat{\phi} \cdot GasPrice_q - \hat{\theta} \cdot GSCPI_q$$

The combined plots are in the pdf called Combined_A-F