What’s up with Inflation and the Phillips Curve?

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The Phillips Curve

- The Phillips Curve has flattened (or disappeared). E.g.,

- Inflation follows an exogenous process, unrelated to measures of slack. E.g.,

- This disconnect between inflation and slack poses a challenge to Monetary Policy Framework
  - Hall (2013), Uhlig (2018)
  
  Does the disconnect pose a challenge to framework? McLeay and Tenreyro (2019)
A simple model

Dual Mandate:
\[ \text{min } \pi_t^2 + \lambda x_t^2 \]

s.t.:
\[ \pi_t = \beta E_t \pi_{t+1} + \kappa x_t + u_t \quad \text{(PC)} \]

Solution: Targeting rule
\[ \pi_t = -\frac{\lambda}{\kappa} x_t \quad \text{(TR)} \]
If monetary policy successfully offsets all other shocks, the data only show the response to the cost shocks, tracing out the wrong slope.

Inflation inherits the properties of the exogenous process.
Identification: solution

If monetary policy follows a dual mandate, then it will always exert some negative bias following cost/supply shocks, even if $\text{Var}(e_t)$ is large.
Regional Pooled OLS suggests flat Phillips curve.

**Table 3: US Metro area Phillips curve: 1990-2017**

<table>
<thead>
<tr>
<th></th>
<th>(1) Pooled OLS</th>
<th>(2) Metro area FE only</th>
<th>(3) Year FE only</th>
<th>(4) Year and Metro area FE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unemployment rate</strong></td>
<td>-0.150*** [0.016]</td>
<td>-0.162*** [0.019]</td>
<td>-0.272*** [0.036]</td>
<td>-0.379*** [0.052]</td>
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<tr>
<td><strong>Inflation expectations</strong></td>
<td>0.598*** [0.058]</td>
<td>0.589*** [0.059]</td>
<td>0.259* [0.147]</td>
<td>0.225 [0.141]</td>
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<tr>
<td><strong>Core CPI inflation</strong></td>
<td>0.362*** [0.035]</td>
<td>0.371*** [0.036]</td>
<td>0.122*** [0.035]</td>
<td>0.105*** [0.034]</td>
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<tr>
<td></td>
<td><strong>First lag</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>1,525</td>
<td>1,525</td>
<td>1,525</td>
<td>1,525</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.321</td>
<td>0.350</td>
<td>0.450</td>
<td>0.487</td>
</tr>
<tr>
<td><strong>Metro area FE</strong></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Year FE</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Seasonal dummies</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Robust standard errors (clustered by metro area) in brackets

*** p<0.01, ** p<0.05, * p<0.1
2.5 times the naïve slope once area and time FE are included.
The relation between inflation and slack has flattened. Much of the debate suggests this poses a challenge to monetary framework used by central banks. But: this is exactly what should be expected with flexible inflation targeting/dual mandate.

A more careful identification suggests the structural PC is still alive. (E.g., US regional data.)

The reduced form PC is a mix of supply and demand factors. For individual episodes of ‘missing’ inflations/disinflations such as the Great Recession, the theory and data are consistent with either:

- Large cost-push or supply shocks. E.g. financial frictions and lower productivity increased costs and unemployment (Christiano, Eichenbaum and Trabandt, 2015).

- Smaller changes in demand than suggested by the unemployment rate: alternative measures of slack (Ball and Mazumder, 2018); changes in the natural rate of unemployment, U*. 