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The Macroeconomic Effects of the Federal Reserve's Unconventional Monetary Policies

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Two Questions

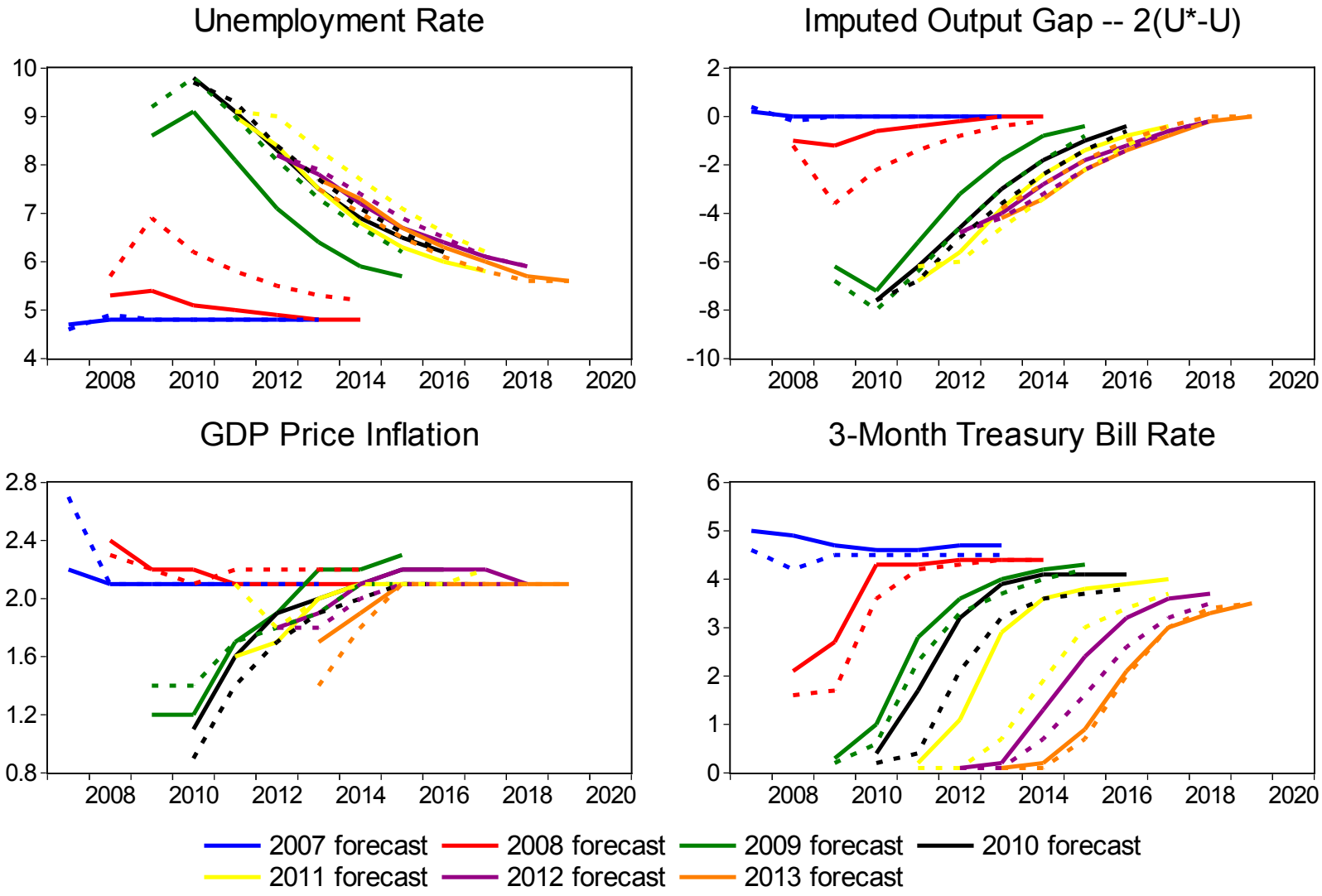
1. Did the Fed's unconventional policy actions alter beliefs about its implicit policy rule?
   - Use Blue Chip forecasts to infer changes in perceived policy rule
   - Finding – marked shifts in rule after explicit FG and QE expansion
2. Did changes in the perceived policy rule plus QE-related term premium effects provide much stimulus?
   - Use FRB/US to simulate outcomes w/o unconventional policy
   - Finding – moderate support to real activity and inflation

Review of Unconventional Policy Actions

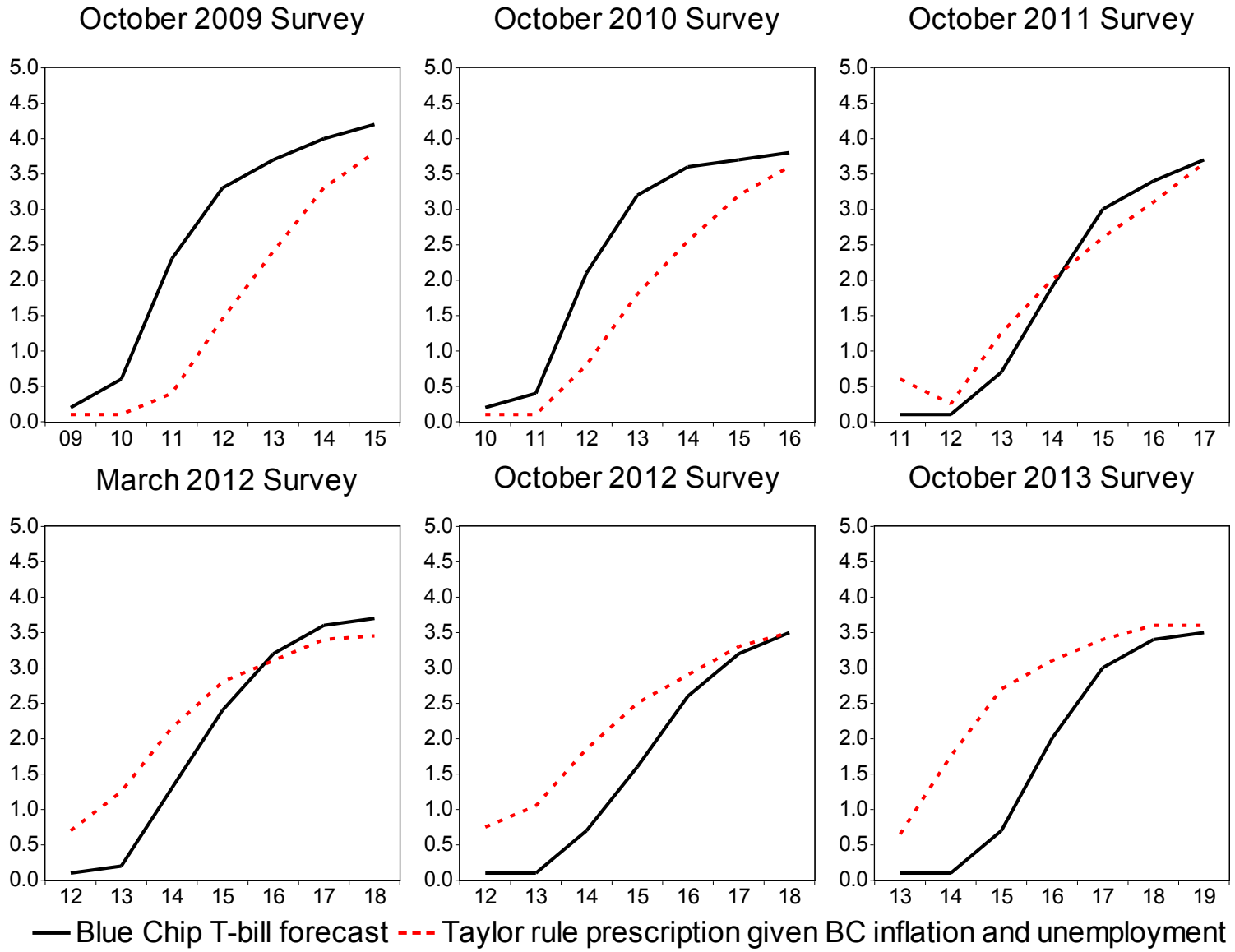
1. Asset purchases and other QE programs
   - $3.8 trillion in purchases (Treasuries and MBS, three phases)
   - Other actions – reinvestment, maturity extension program

2. Forward guidance
   - Qualitative (Dec 2008 through June 2011)
   - Calendar-based and explicit (Aug 2011 through Oct 2012)
   - Threshold conditions (Dec 2012 through Jan 2014)

Blue Chip Forecasts of Average Annual Conditions



Blue Chip T-Bill Forecasts and Taylor Rule Prescriptions



Identifying Shifts in BC-Consistent Policy Rules

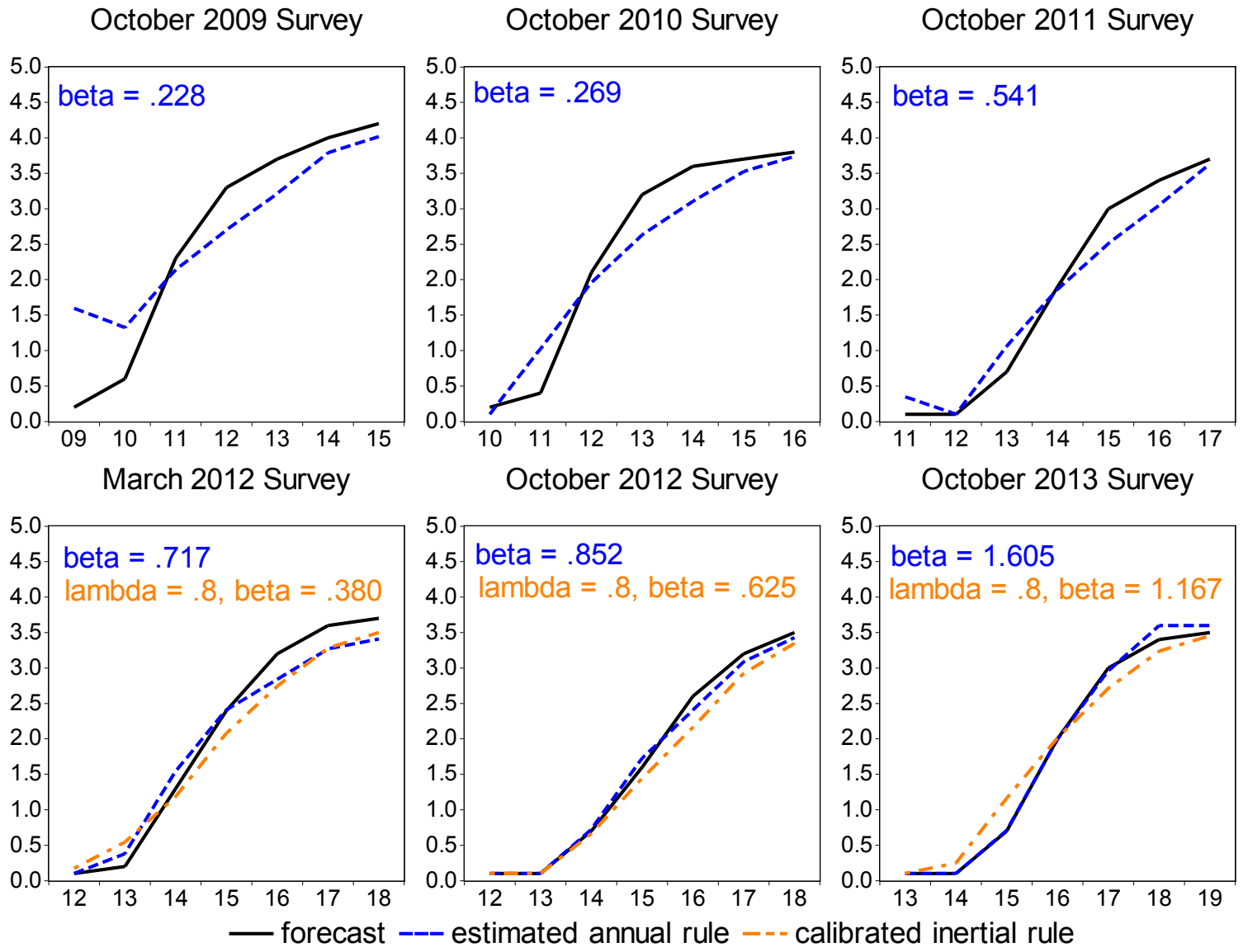
- Assume forecasters always expect the same general rule but may update its perceived parameters over time

$$i_t = r^* + \pi_t + \alpha(\pi_t - \pi^*) + \beta\, gap_t$$

- March/October surveys provide forecasts for $i_t,\ \pi_t$ and gap_t for years 0 to 6, plus r^* and π^*
  - Estimate separate β for each survey
  - Assume $\alpha = 0.5$ (projected inflation gaps uninformative)

- For pooled 1992-2007 surveys, α and β close to 0.5

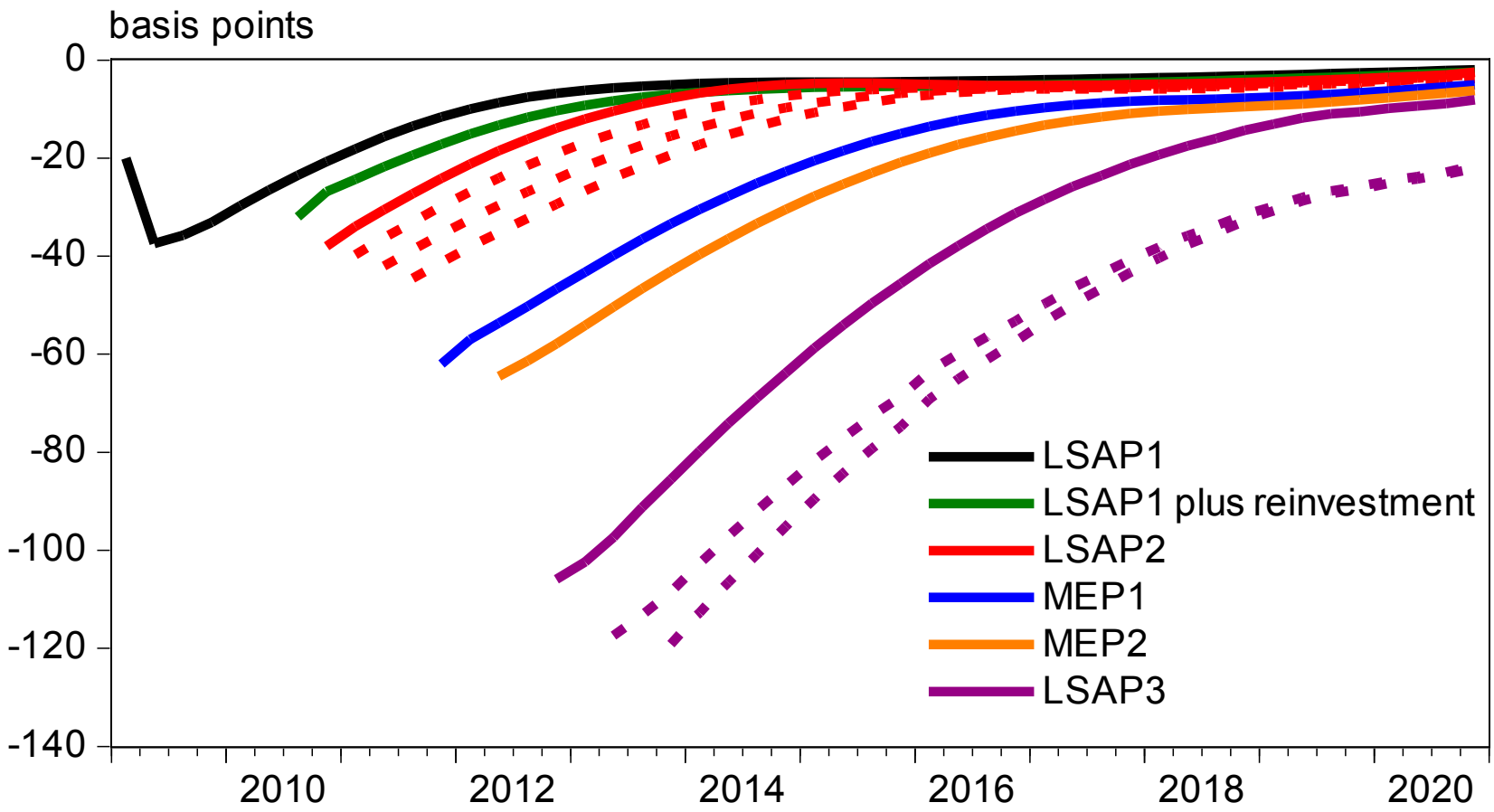
Blue Chip T-Bill Forecasts and Fitted Policy Rules



What Were the Macro Effects of Unconventional Policy?

1. Difficult question
   - Did others also perceive a shift in the policy rule?
   - Not obvious how to embed changes in perceived rule in a VAR
   - Structural models may not account for term premium effects
2. Use FRB/US model
   - Structural model with rational expectations
     - but simulations incorporate gradual learning
   - Model incorporates role for term premiums
   - Has dynamics similar to range generated by other models
3. Address uncertainty using alternative versions of the model (e.g., lower interest elasticity of demand)

Evolution of QE-Related Term Premium Effects

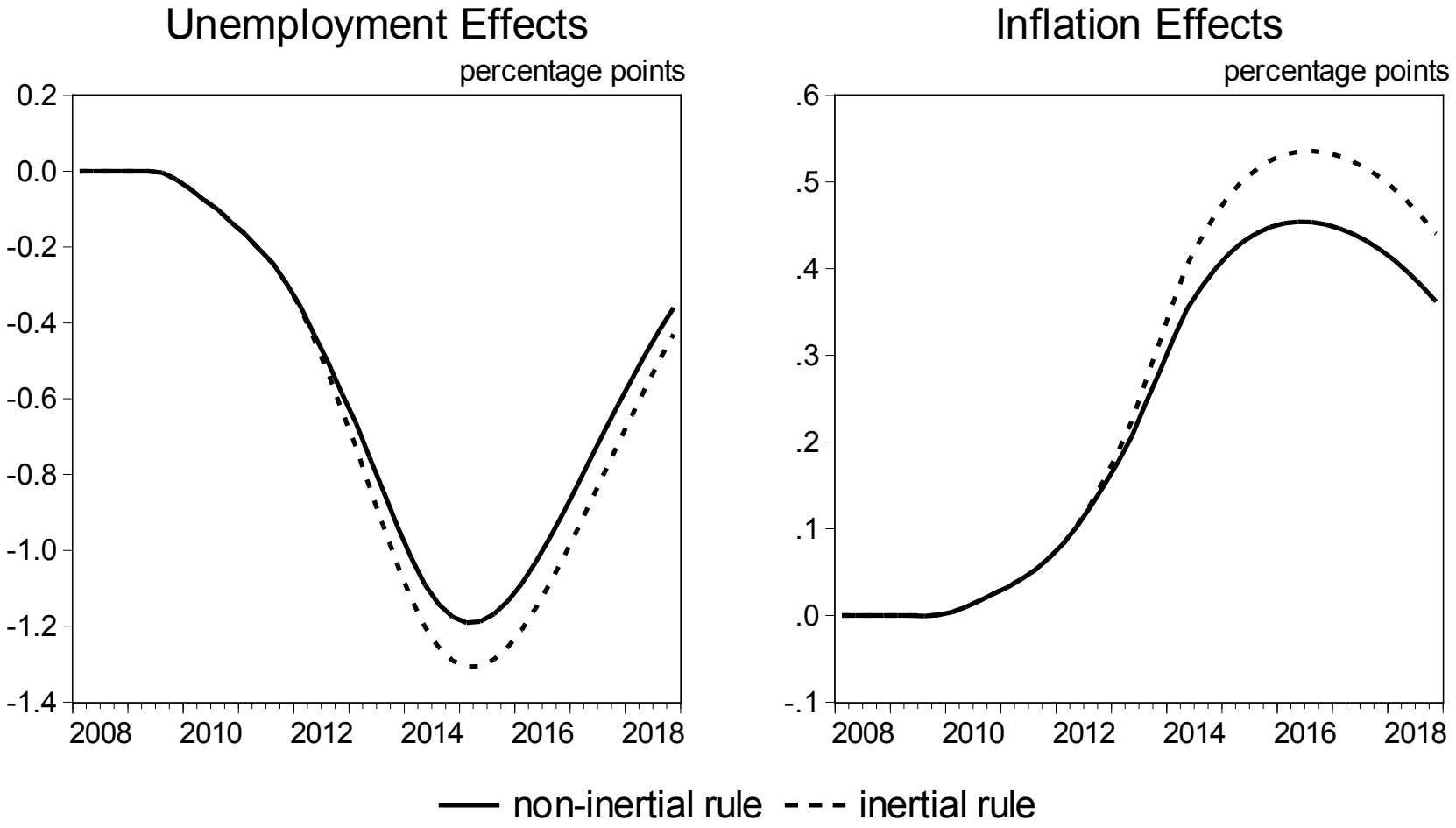


Source: Ihrig et al. (2012), Li and Wei (2013), and authors' calculations

Simulation Procedure

1. Create set of overlapping baselines consistent with BC surveys
   - Solve for past/future shocks to policy and economy consistent with Mar 2009 real-time data, Blue Chip forecasts, estimated β, and expected QE term premium effects
   - Repeat parsing exercise for October 2009, March 2010, … , October 2013
   - Simulating this sequence of past/expected shocks replicates evolution of the economy from early 2009 to late 2013
2. Re-simulate model eliminating shifts in β and QE-related reductions in term premiums
3. Difference between history and counterfactual simulation measures effective stimulus

Baseline Estimates of Macro Effects



Alternative Estimates of Macro Effects