Discussion of

Oil and macroeconomic (in)stability

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Motivation

- The macroeconomic effects of oil shocks
- Aggregate production function:

$$Y_t = A_t O_t^{\phi} \left(K_t^{\alpha} L_t^{1-\alpha} \right)^{1-\phi},$$

  and expenditure on oil $\phi \approx 4\%$ of GDP

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- Extra question: is great moderation due to small oil shocks?

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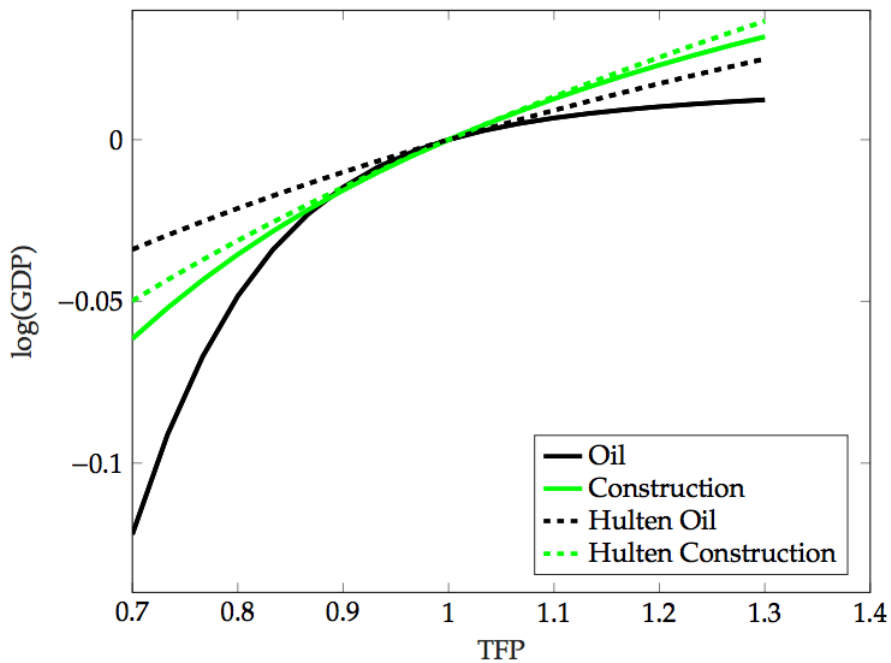

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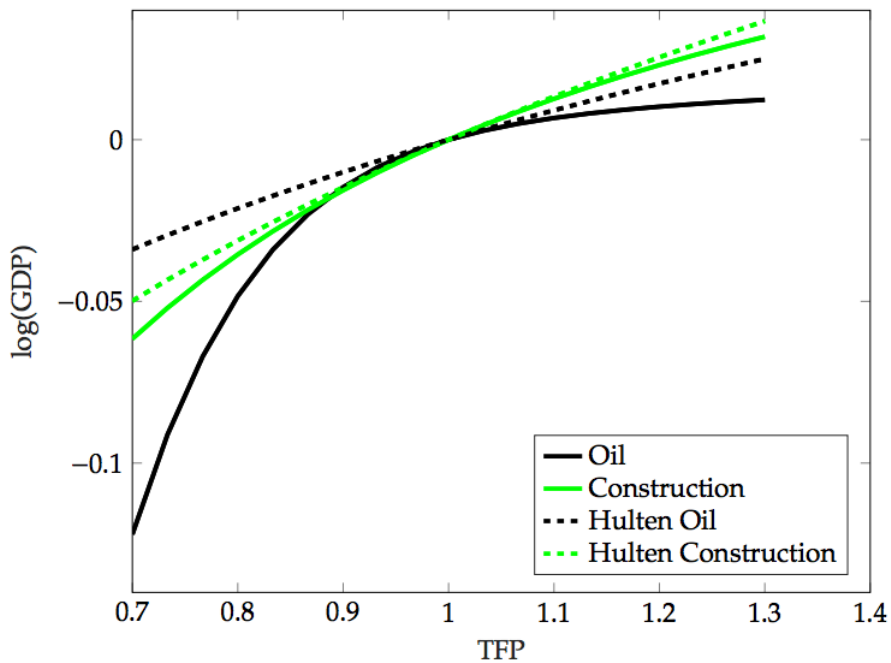

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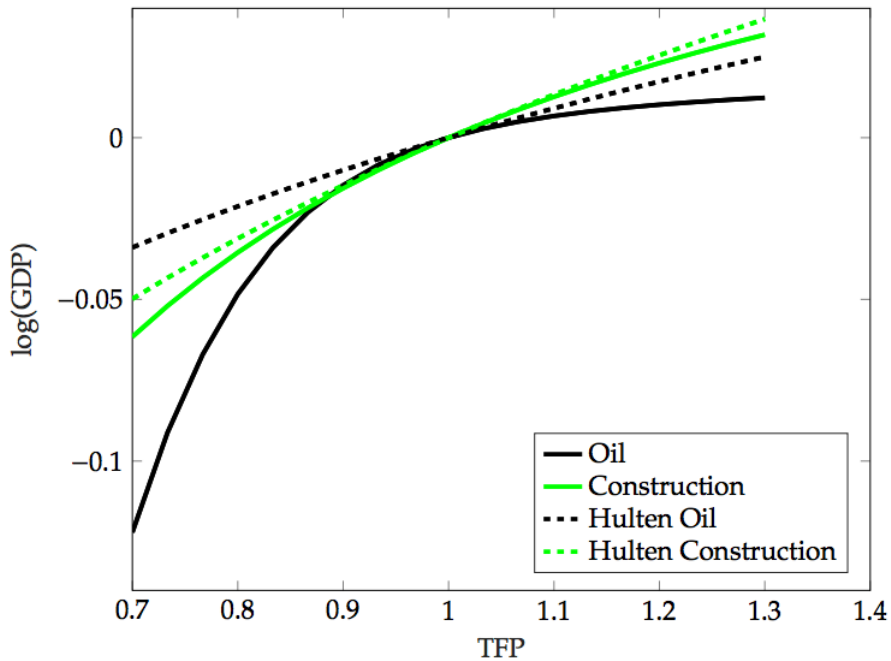

- And elasticity of substitution has increased over time
- Issue: oil expenditure share in 1970s should have been $> 30\%$

Possible Explanation 2

- Oil shocks are not "exogenous":
  1. Price of oil decreases due to demand and supply factors, and the response of the economy can be different
  2. Even for supply shocks, the macro policy response can be very different
  3. Also volatility of the oil shocks can be endogenous
- Was the nature of the oil shock different in 2000s?
- Was the monetary policy response to the oil shocks different in 2000s?

Regime-switching Model

1. Productivity process:

$$a_t = a_{t-1} + g_a + \overbrace{\sigma_a(\mathbf{s}_t)}^{0.7\% \nearrow 1.5\%} \varepsilon_t^a$$

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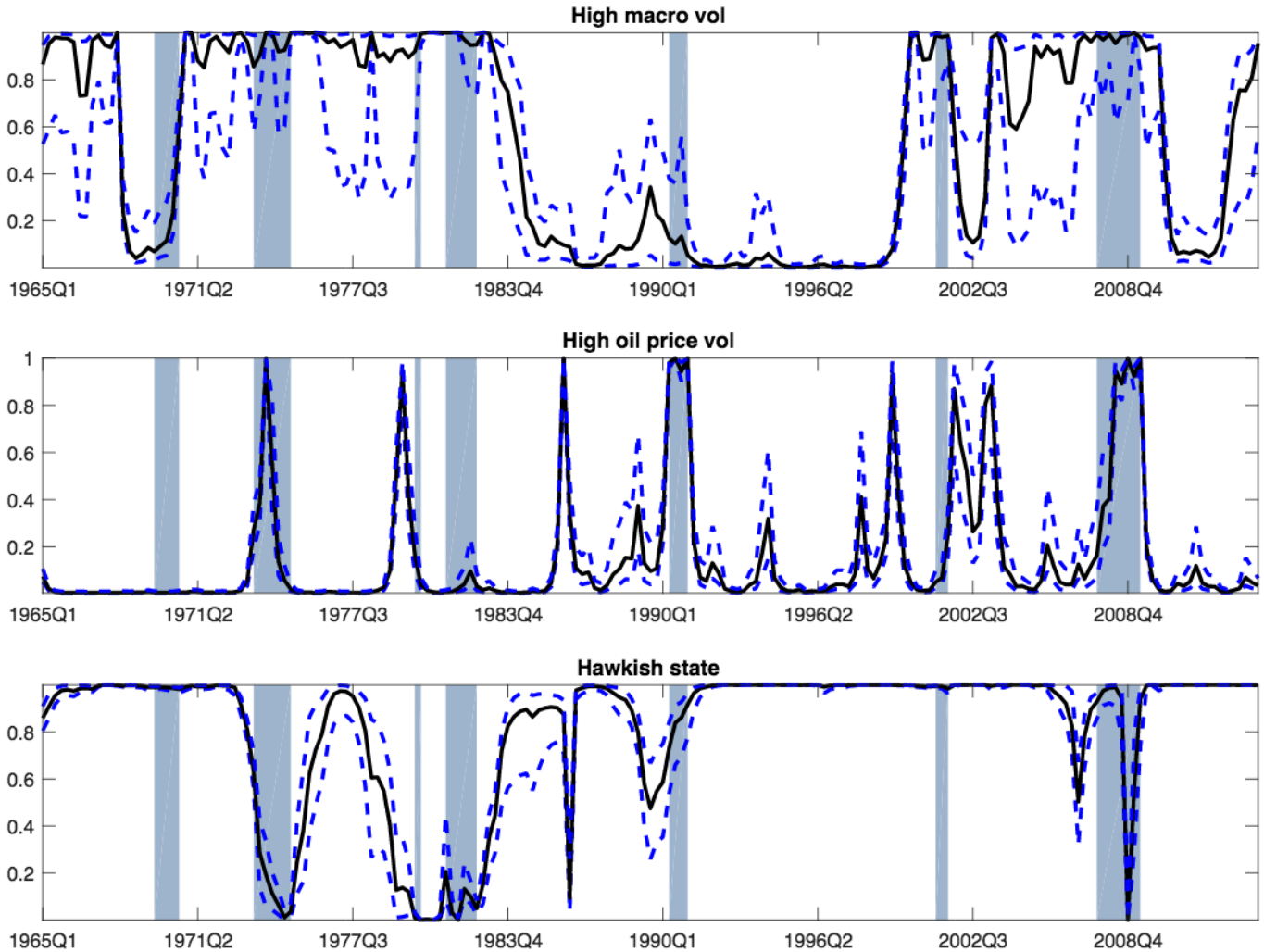
3. Taylor rule:

$$i_t = \rho_i i_{t-1} + (1-\rho_i)[\overbrace{\kappa_\pi(\mathbf{s}_t)}^{0.6 \nearrow 2.3} \pi_t + \overbrace{\kappa_y(\mathbf{s}_t)}^{\approx 0} y_t] + \varepsilon_t$$

Estimated Regimes



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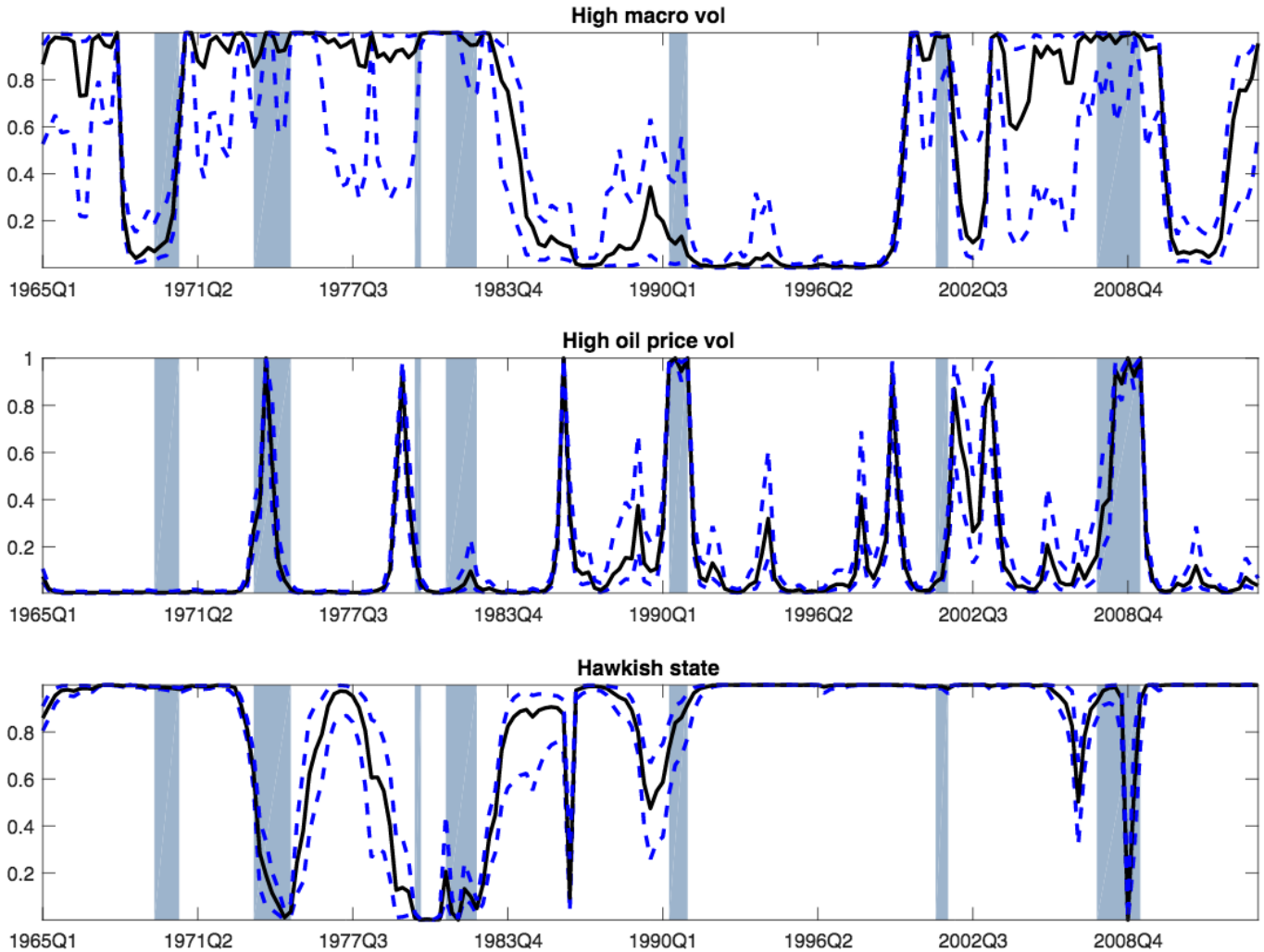
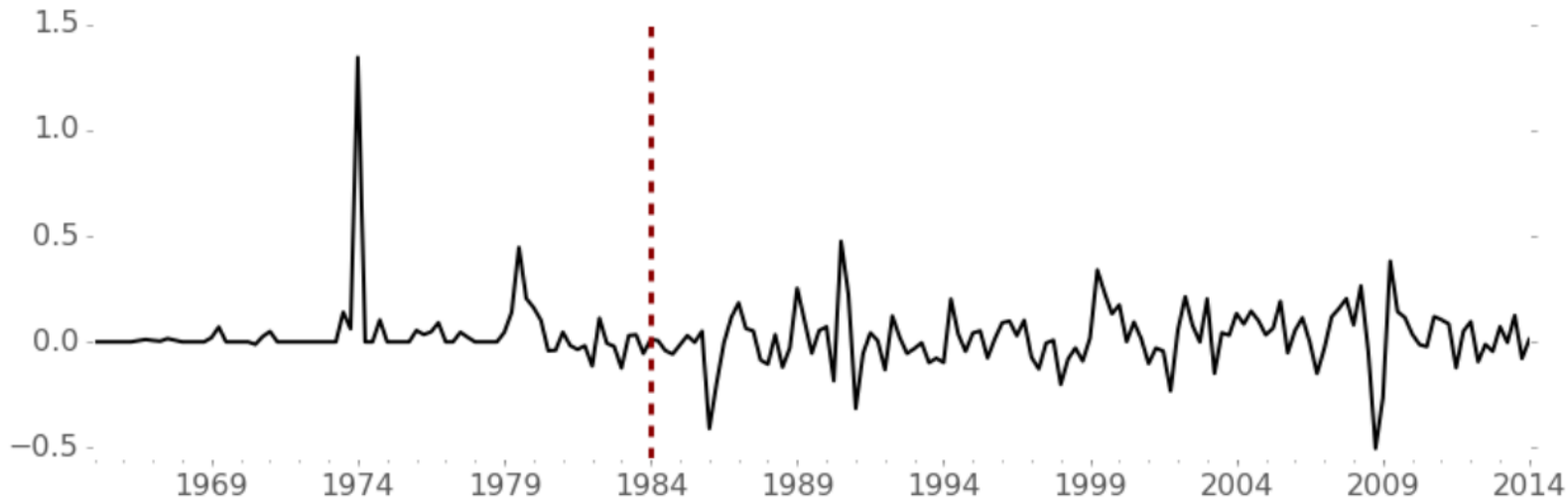


- Identification issue: Does the high volatility regime capture the breakdown of the model structural relationships?

Are Oil Shocks about Second Moments?

Figure 1. Percentage change in the real price of oil (WTI)



Second moment oil shocks versus. . .

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Figure: Log real oil price