Discussion of
"The Origins and Effects of Uncertainty Shocks"
Bianchi, Kung and Tirskikh

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Introduction

- Key questions in the uncertainty shock literature

    - "Which" uncertainty shocks?

        - TFP, preference, economic policy, financial . . .

    - Propagation mechanism?

        - Precautionary savings, real options, nominal rigidity . . .

- **This paper**: Tackles both questions by estimating a MS-DSGE model that allows for a tractable decomposition of propagation channels

Introduction

- Uncertainty shock propagates through "expectational wedges"

  - Related to the confidence shock literature (Angeletos et al, Ilut & Schneider, . . .)

    - Difference: wedges are moments of endog. variables $\longrightarrow$ policy variant

- Resulting solution linear $\longrightarrow$ Kalman filter

- Main findings

  - Uncertainty shocks important & recessionary

  - Demand- and supply-side uncertainty shocks have different real & nominal implications

  - Uncertainty shocks co-move before but not after the Great Recession

Simple model without capital

Compared to Bianchi et al,

- No capital, no EZ, no habit, TFP shock in levels
- AR(1) uncertainty shocks
- Solution still linear

$$\tilde{y}_t = E_t[\tilde{y}_{t+1}] - \gamma^{-1}\tilde{\beta}_t - \gamma^{-1}\tilde{r}_{f,t} - \underbrace{\frac{1}{2}\gamma^{-1}Var_t[\tilde{m}_{t+1}]}_{\text{Precautionary motive}}$$
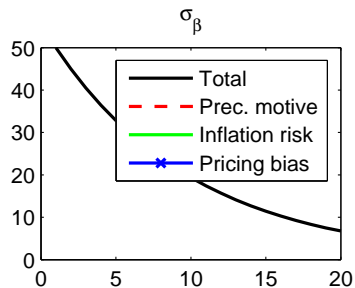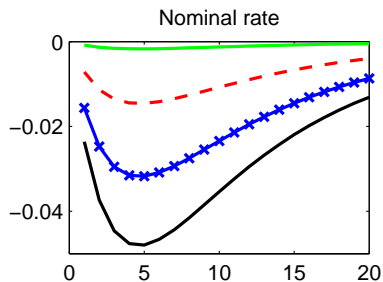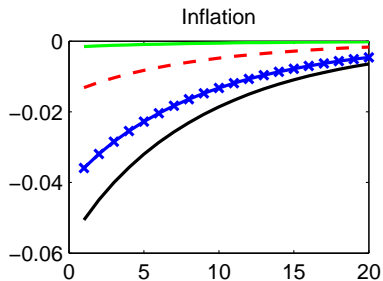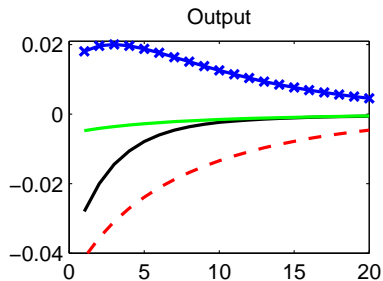
$$\tilde{r}_t = \tilde{r}_{f,t} + E_t[\tilde{\pi}_{t+1}] - \left(\underbrace{\frac{1}{2}Var_t[\tilde{\pi}_{t+1}] - Cov_t[\tilde{m}_{t+1}, \tilde{\pi}_{t+1}]}_{\text{Inflation risk premium}}\right)$$

$$\tilde{\pi}_t = \beta E_t[\tilde{\pi}_{t+1}] + \kappa \tilde{mc}_t + \underbrace{\frac{1}{2}\beta\left(2Cov_t[\tilde{m}_{t+1} + \tilde{y}_{t+1}, \tilde{\pi}_{t+1}] + 3Var_t[\tilde{\pi}_{t+1}]\right)}_{\text{Nominal pricing bias}}$$
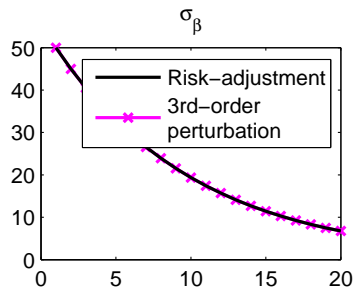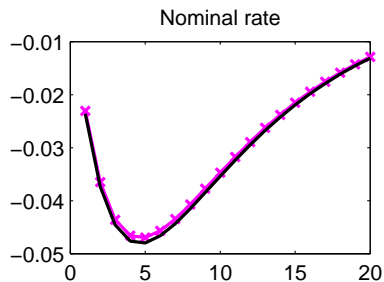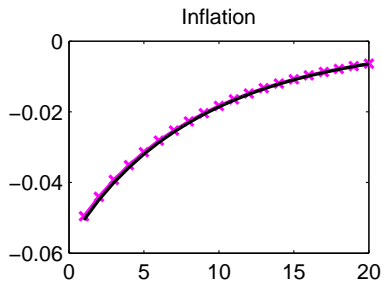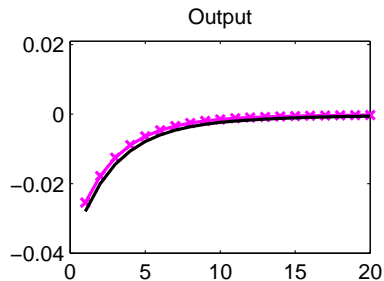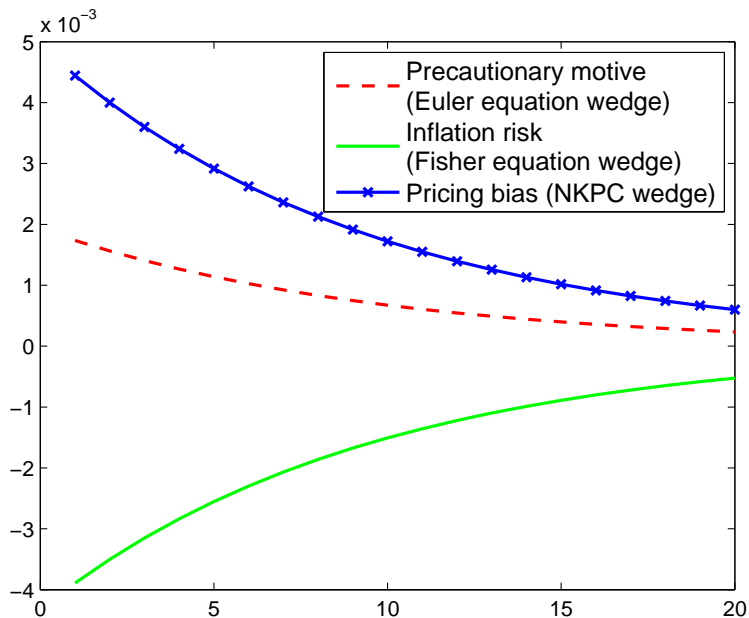
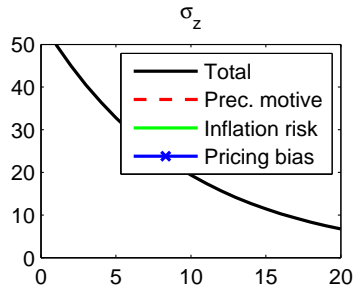# Discount factor uncertainty shock: wedges
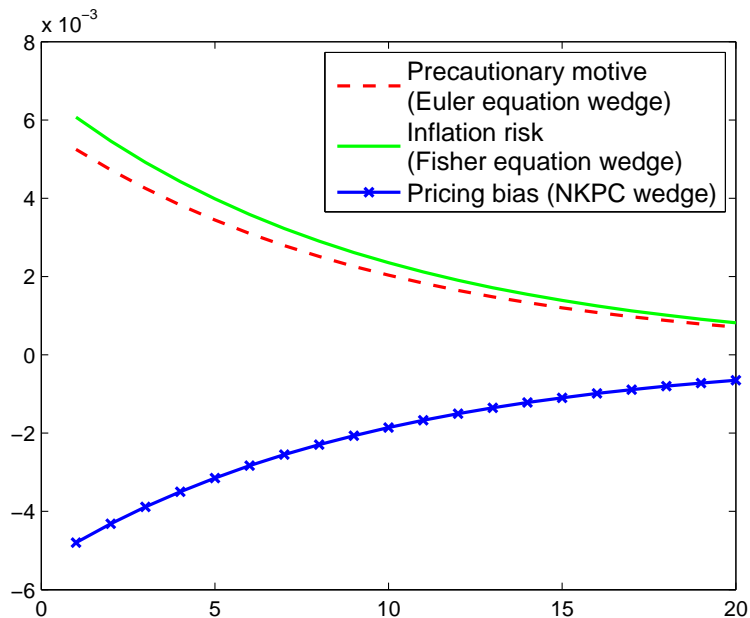
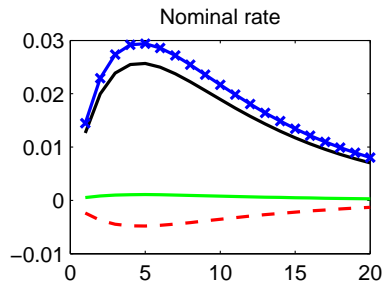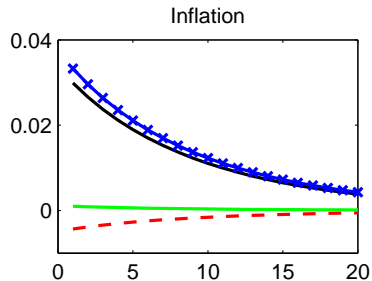# Discount factor uncertainty shock: decomposition

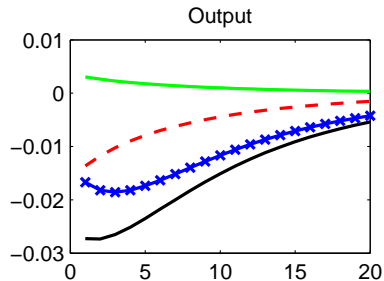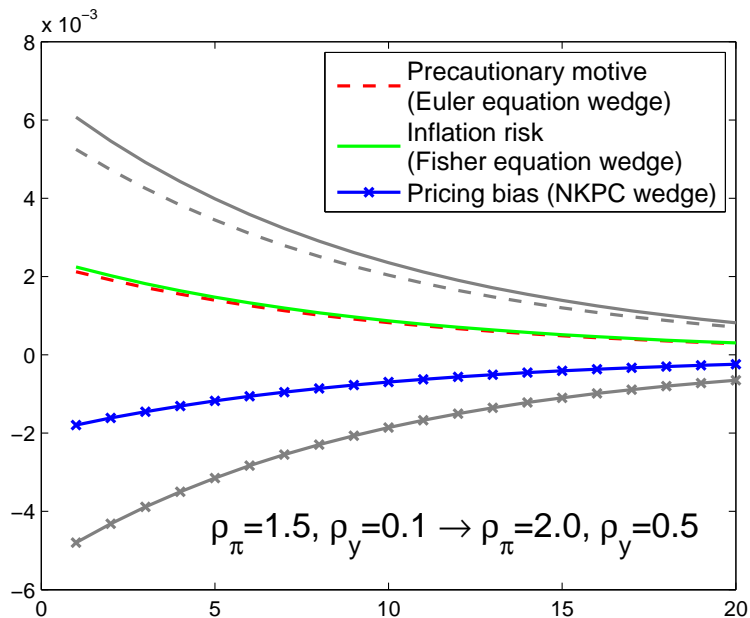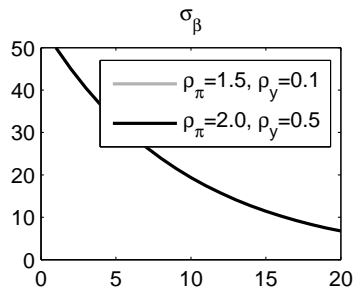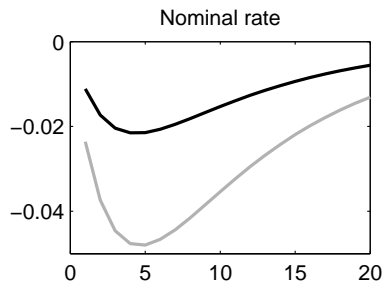# Comparison with 3rd-order perturbation
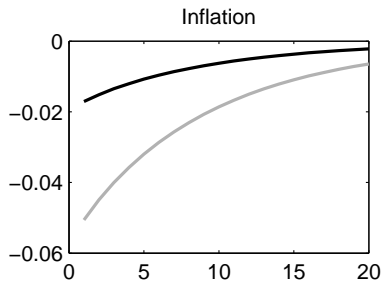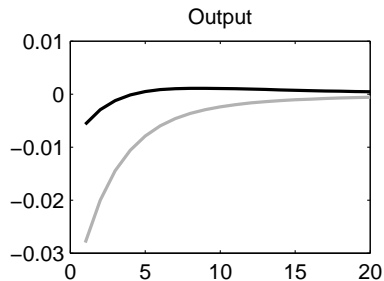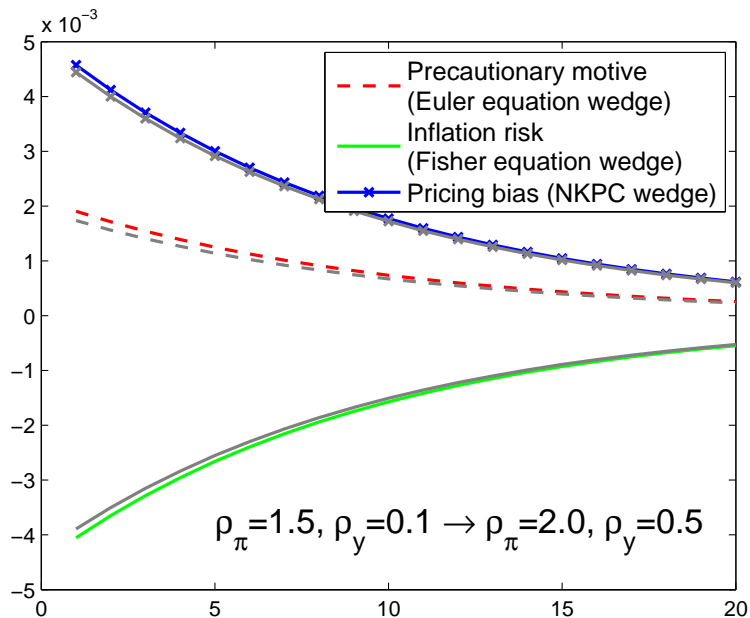
TFP uncertainty shock: wedges

TFP uncertainty shock: decomposition

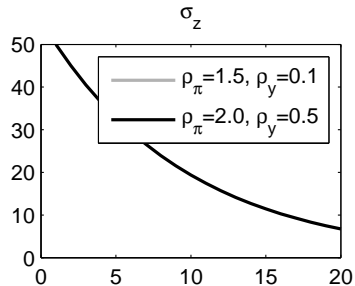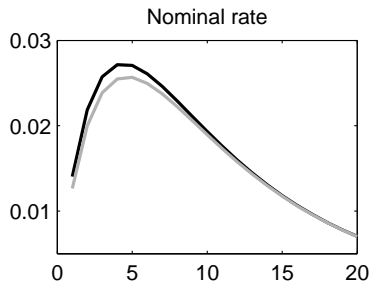# Discount factor uncertainty shock: policy change

Discount factor uncertainty shock: policy change

TFP uncertainty shock: policy change

Legend:
- Precautionary motive (Euler equation wedge)
- Inflation risk (Fisher equation wedge)
- Pricing bias (NKPC wedge)

$\rho_\pi = 1.5$, $\rho_y = 0.1 \rightarrow \rho_\pi = 2.0$, $\rho_y = 0.5$

TFP uncertainty shock: policy change

Output

Inflation

Nominal rate

σ_z

$\rho_\pi=1.5$, $\rho_y=0.1$
$\rho_\pi=2.0$, $\rho_y=0.5$
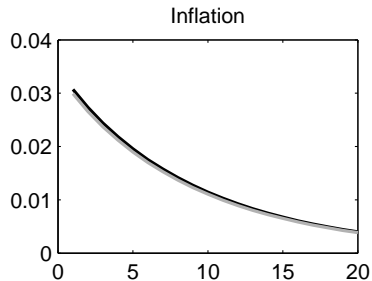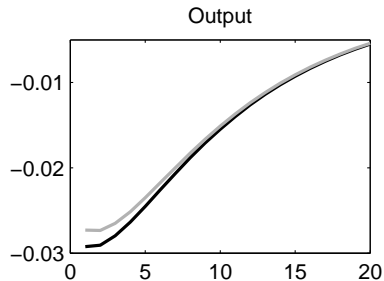
Conclusion

- Exciting and ambitious paper that furthers our understanding on the role of time-varying uncertainty in business cycles

- Attractive alternative to higher-order methods

- Uncertainty shocks propagates through expectation wedges that are policy variant

    - ✓ Precautionary motive effect contractionary & deflationary

    - ✓ Inflation risk channel has little impact

    - Nominal pricing bias likely depends on the details of the model, parameters and shocks