ธนาคารแห่งประเทศไทย
BANK OF THAILAND

ลับ

Understanding the dynamics of central bank's credibility via heterogenous new Keynesian framework

PIER Research Workshop

ลับ

Motivation

Wide agreement on a crucial issue for the next generation of policy models for central banks: need to allow for much more heterogeneity among the decision-making units (households, firms) in the economy — unlike the representative-agent structure of first-generation DSGE models (e.g., Smets and Wouters, 2007)

Michael Woodford (2021, Conference on Heterogeneity in Macroeconomics)

Methodology

We develop a heterogeneous agent new Keynesian model in which representative agents have distinct risk-aversion coefficient ...

$$\tilde{c}_{h,t} = \mathbb{E}[\tilde{c}_{h,t+1}] - \frac{1}{\sigma'}(\tilde{r}_t - \mathbb{E}[\pi_{t+1}]) + \epsilon_{h,t}$$

The level of risk-aversion can roughly represent the perception of how credible the central bank is.

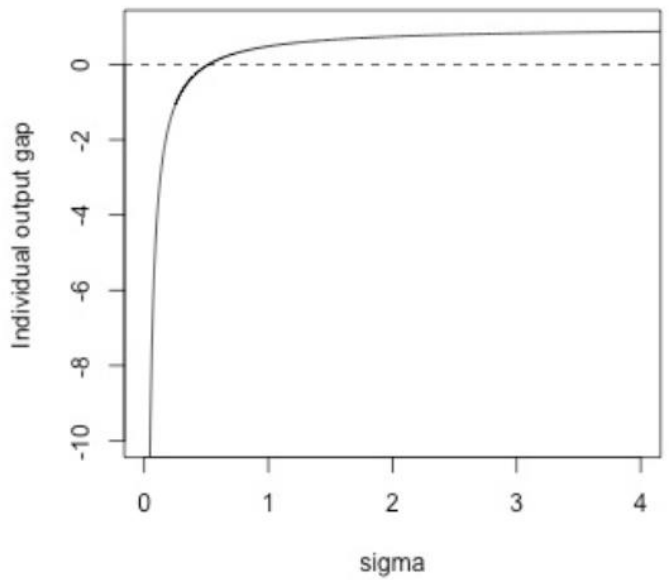
... and update their belief on the distribution of population across level of risk aversions.

$$f_t(\sigma \mid Y = y_t, P = \pi_t) = \frac{f_t(Y = y_t, P = \pi_t \mid \sigma) f_t(\sigma)}{f_t(Y = y_y, P = \pi_t)}$$

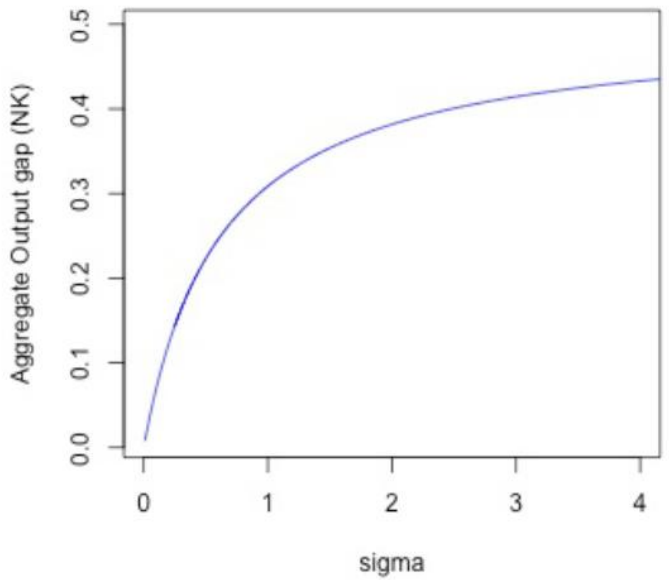
Understanding the dynamics of the distribution of risk-aversion coefficient can help policymaker investigate policy options and trade-offs.

Hetereogenous belief and (contingent) decisions when there is 1-unit demand shock

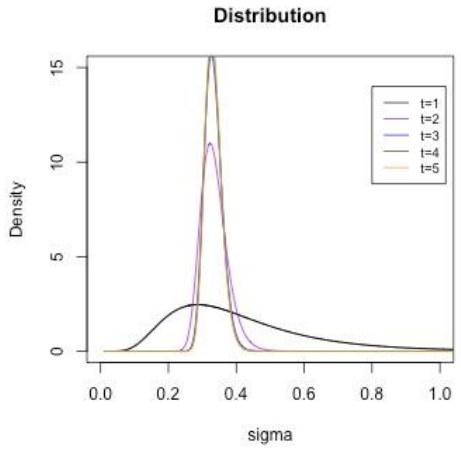
Individual consumption decision differs greatly



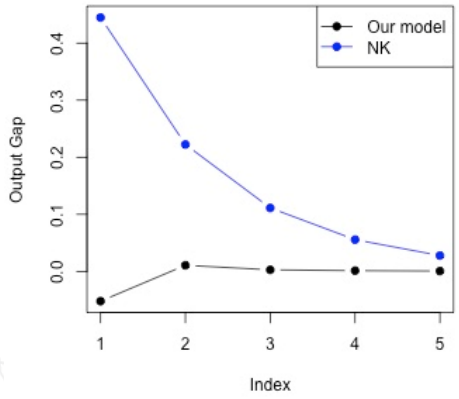
Compared to result from standard NK Model



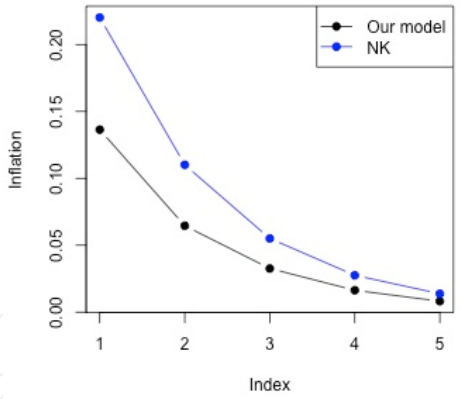
Monetary policy implications when when there is 1-unit demand shock and the majority of housholds have low risk-aversion coefficients



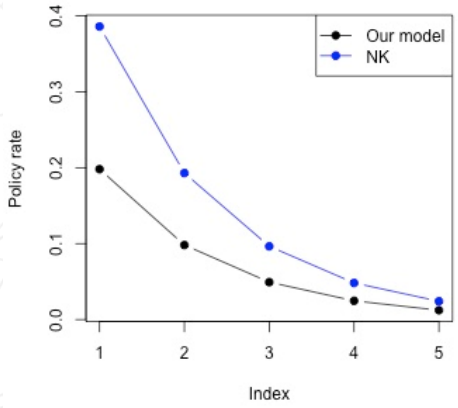
The household readjusts their risk-aversion coefficient and the value tends to converge



Output gap closes very quickly

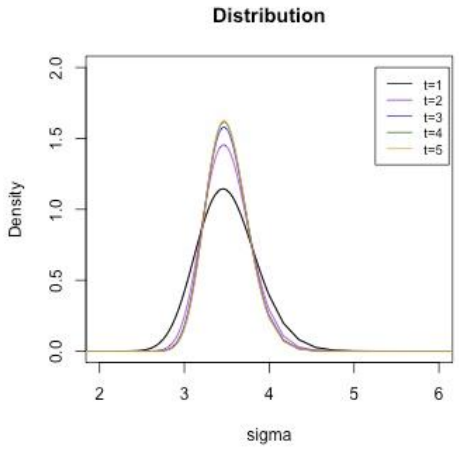


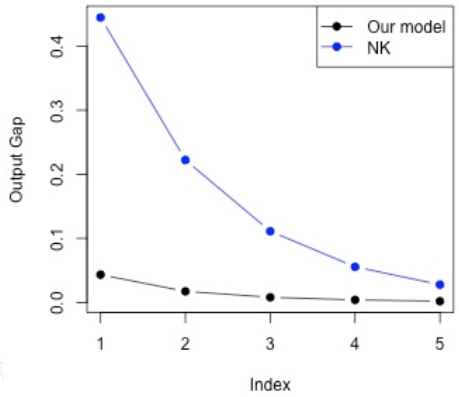
Inflation converges quicker and has less magnitude

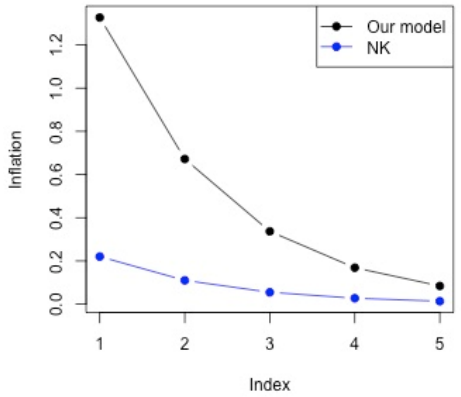


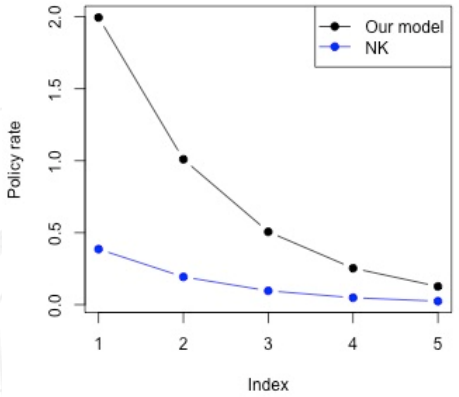
Central bank need less policy adjustment

Monetary policy implications when when there is 1-unit demand shock and the majority of housholds have high risk-aversion coefficients





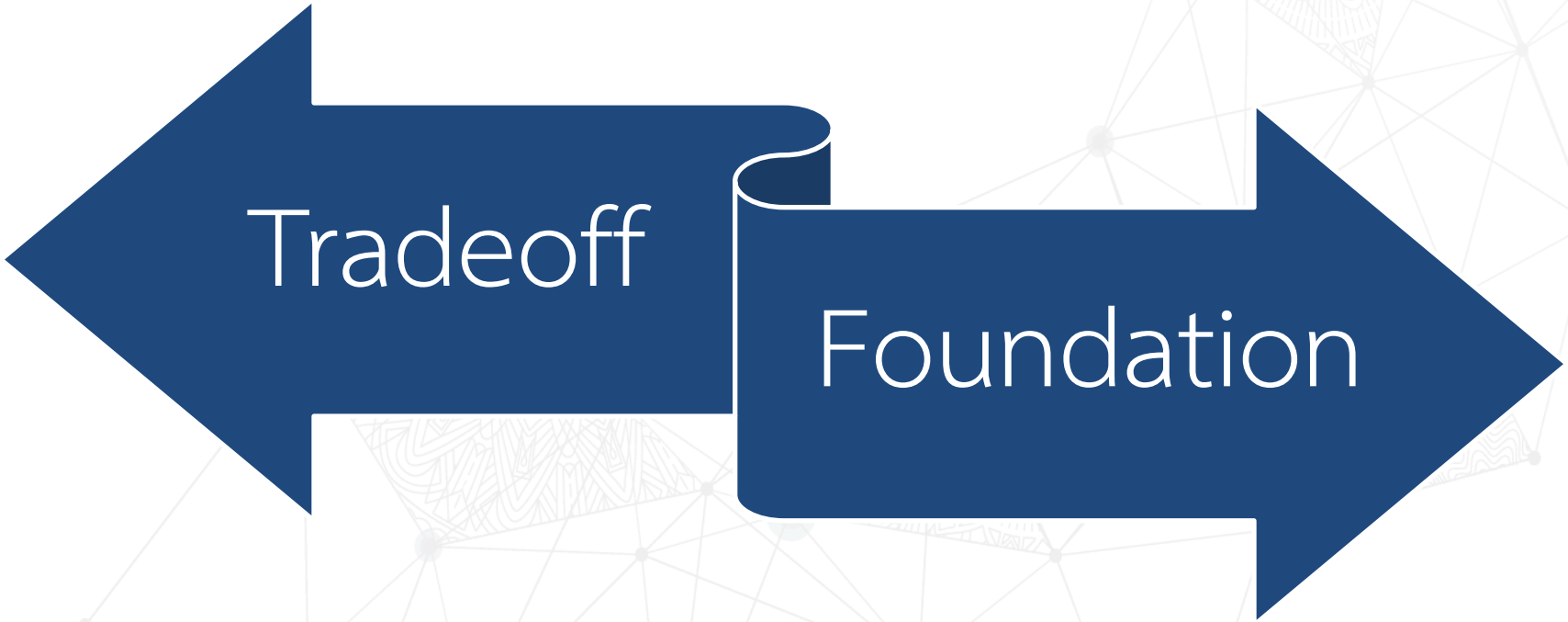




The household readjusts their risk-aversion coefficient and the value tends to converge (again but to different value/distribution)

Output gap still closes very quickly

Inflation converges slower and has higher magnitude

Central bank need more policy adjustment

Next Step