

# “Credit and the Natural Rate of Interest”

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Discussion by

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# Summary

Are financial frictions important for policy?

A rich model

- BGG style agency problem
- cost channel
- real balance effects

Do these affect the definition of the natural rate?

Does it matter if the definition ignores them?

How are the dynamic responses of the model changed?

# This discussion

1. The cost channel
2. Defining the natural rate of interest
3. The model's dynamic responses

# **1. The cost channel**

# The cost channel - nominal debt

The key equation is (19) on p11

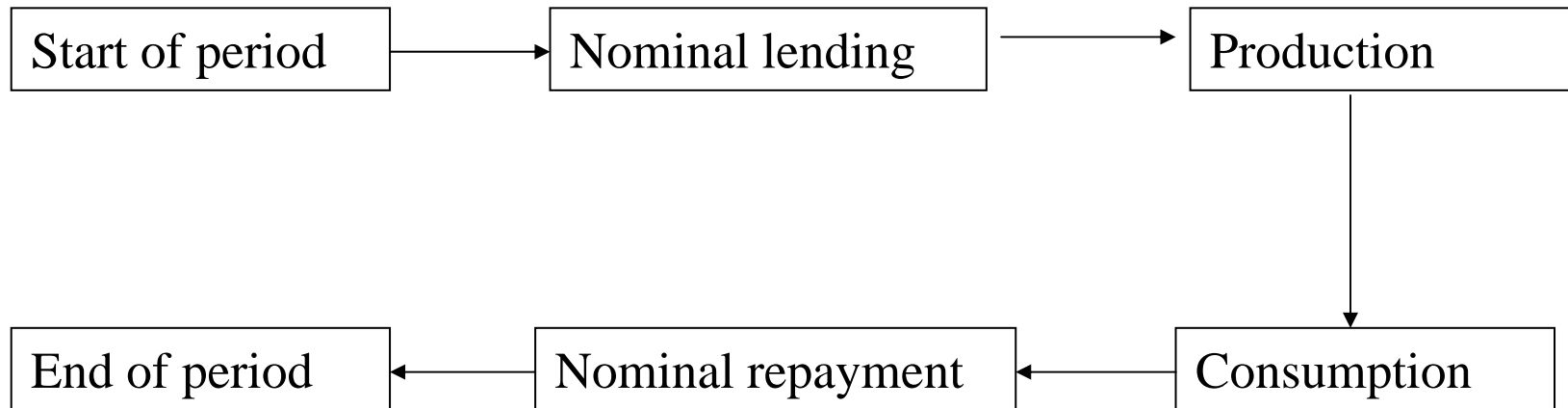
$$q_t g(\bar{\omega}_{i,t}) I_{i,t} \geq \frac{1+i_t}{\Omega_t} (I_{i,t} - n_{i,t})$$

Expected  
return to the  
lender

Gross return  
paid to  
households

Which nominal interest rate?

# The cost channel - nominal debt



So expected inflation (inter-period) affects the return  
households demand

# The cost channel - nominal debt

Nominal debt in this model means the return on debt is in nominal terms, the face value makes no difference....

...but what if changing the nominal value of debt was costly?

## **2. Defining the natural rate of interest**



# The natural rate of interest

“the interest rate consistent with a medium run equilibrium at which inflation is stable and output at its natural rate”

For Woodford, this means flexible prices, so the paper extends Woodford’s definition to say that the natural rate of interest is that

- With flexible prices
- If debt is in real terms
- If the spread on money is constant

# The natural rate of interest

But in this model policy affects the medium-run equilibrium

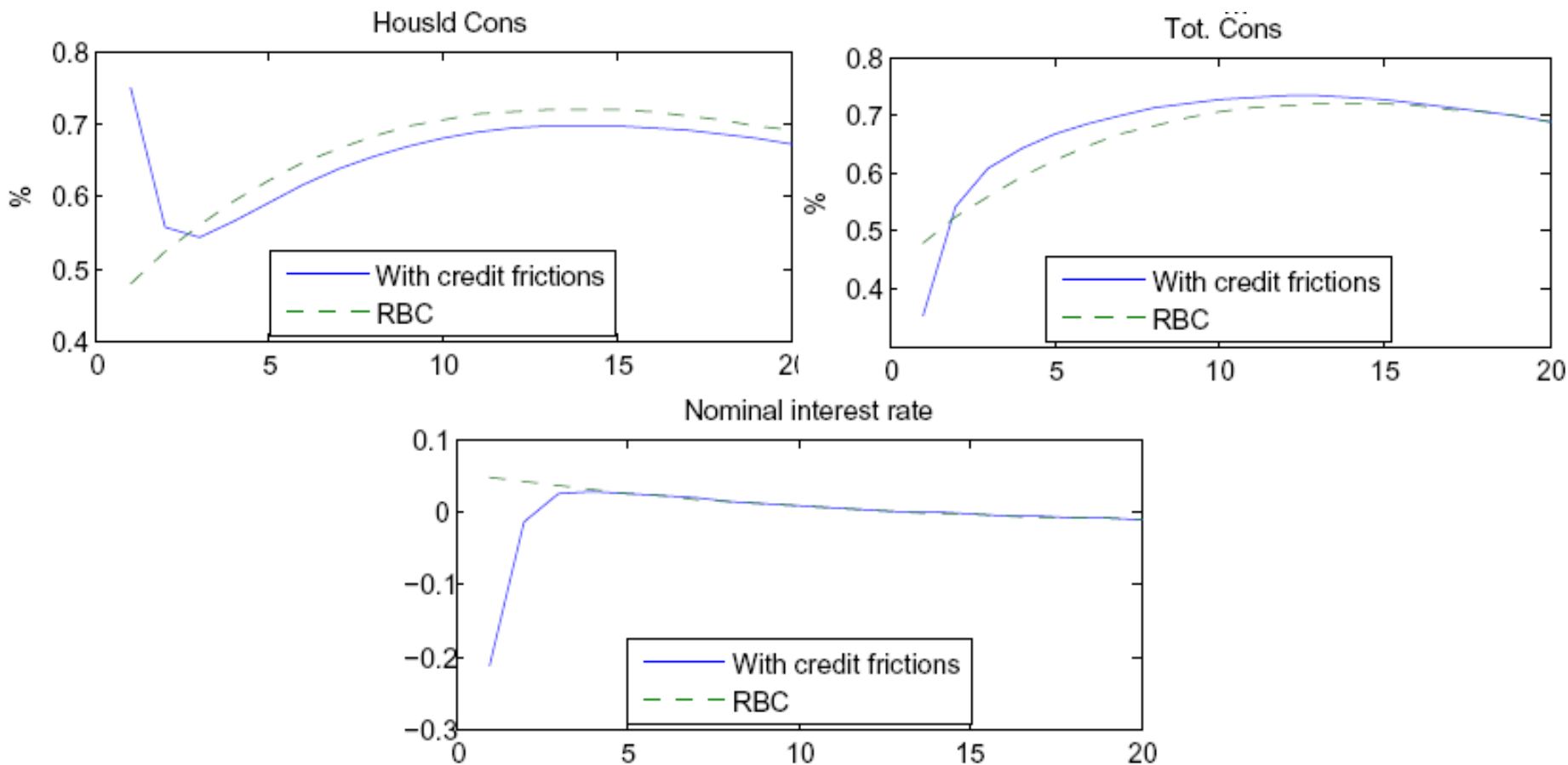
- Steady state inflation changes it through both frictions
- The spread on money changes it by affecting real balances

so rather than "switching frictions off", is it better to think directly in terms of the medium-run equilibrium

A formal metric for how much difference the redefinition makes?

### **3. The model's dynamic responses**

# Dynamic behaviour of the model, constant spread



**Taken from figures 1 and 2 in the paper**

# What generates the hump?

- Entrepreneurial net worth is fixed on impact
- High return on internal funds
- Entrepreneurs are risk-neutral so their marginal utility of consumption is constant
- so they dramatically reduce their consumption (50% on impact)

How sensitive is this to

- the share of entrepreneurs?
- their preferences?