

Outline:

- I. Introduction
- II. Motivation
- III. Baseline Model
- IV. Extensions
- V. Conclusion

## II. Motivation

### **Empirically:**

Positive response of (i) private consumption and (ii) real wages to government expenditure shocks

With traditional (e.g. King-Plosser-Rebelo) consumer preferences:

- a) RBC model cannot explain (i) and (ii)
- b) New Keynesian model cannot explain (i) + has difficulty matching empirical magnitude of (ii)

### III. Baseline Model

- **Period Utility Function:**

$$U(C_t, N_t) = \frac{(C_t - \psi N_t^\zeta X_t)^{1-\sigma}}{1-\sigma} \quad \text{with} \quad X_t = C_t^\gamma X_{t-1}^{1-\gamma}$$

Key parameter here:  $\gamma$  [0,1]

- Measure for substitutability between consumption and leisure
- To illustrate implications for intratemporal decision, consider two polar cases:
  - $\gamma = 1$  King-Plosser-Rebelo (KPR) preferences
  - $\gamma = 0$  Greenwood-Hercowitz-Huffmann (GHH) preferences

## III. Baseline Model

### A.) Flexible Prices

How do households react to a shock in government expenditure?

(Focus on the negative wealth shock, SE by changes in real wages are eliminated by assumption)

#### KPR Preferences ( $\gamma = 1$ ):

- Decline in consumption and leisure
  - Consumption smoothing leads to increase in labour supply (wealth effect)
- ➡ Feedback effects between consumption and labour (leisure) that reinforce each other

#### GHH preferences ( $\gamma = 0$ ):

- No wealth effect on labour
- Consumption absorbs the negative wealth effect (falls by exactly the same as G increases)

### III. Baseline Model

#### B.) Sticky Prices

With sticky prices degree of complementarity between C and L is crucial for the response of consumption to the negative wealth shock

#### KPR Preferences ( $\gamma = 1$ ):

- Reaction of consumption depends on the size of  $\sigma$
- Labour supply increases

#### GHH preferences ( $\gamma = 0$ ):

- Increase of labour supply because real wage increases (monop. competition)
- Consumption *always* increases after the shock (labour multiplier  $>1$ )

Why do real wages increase? Firms change quantity because of sticky prices and hence reduce their markup in both cases to satisfy the demand!

## IV. Extensions

### **Infinite horizon**

Assumption: AR(1) process for the evolution of  $g_t$

#### **a) flexible prices:**

Reaction of consumption and leisure are for both cases – (GHH) and (KPR) preferences – as in the baseline model

#### **b) sticky prices:**

In the case of KPR preferences consumption increases only if  $\sigma > 1$  and prices are enough sticky

### **Consumption multiplier:**

- decreases in the intertemporal elasticity of substitution (IES)
- positive function of the elasticity of labor supply
- positively related to price-stickiness
- decreases in  $\rho$  (persistence of the shock)

## IV. Extensions

### Habit persistence

#### a) flexible prices:

#### *GHH*:

habit formation generates  
positive response of C and L  
why?

Intratemoral condition is no  
longer independent of C

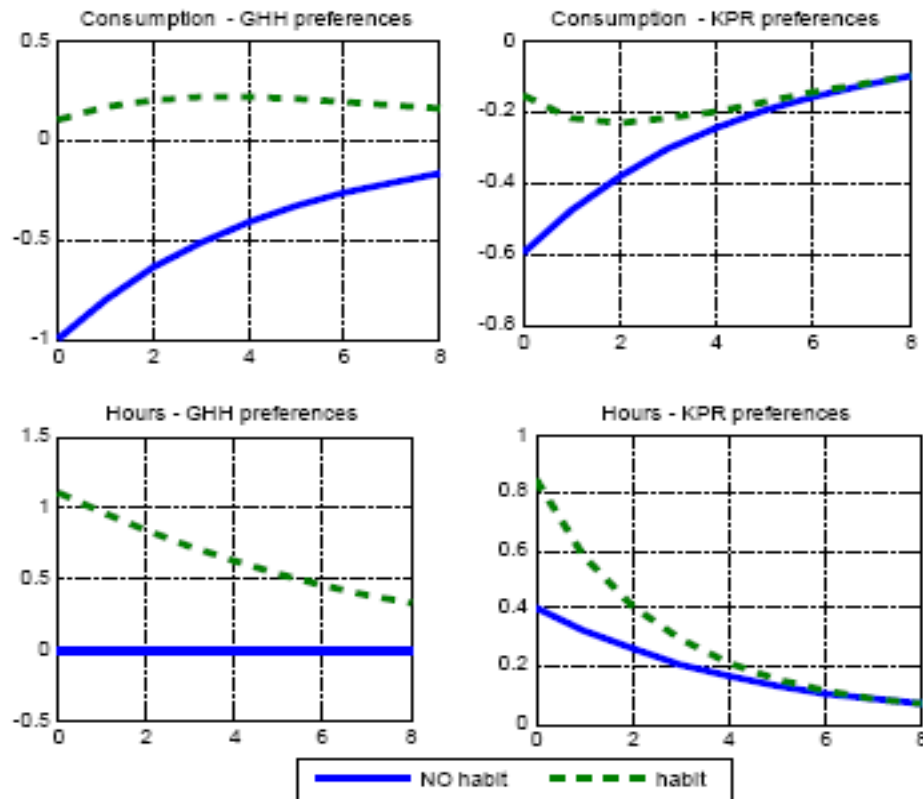


Figure 2: No capital, flexible prices

## IV. Extensions

### Habit persistence

#### b) sticky prices

#### GHH:

Habit formation dampens the responses of C and L in the model with sticky prices

➔ Markup reacts less

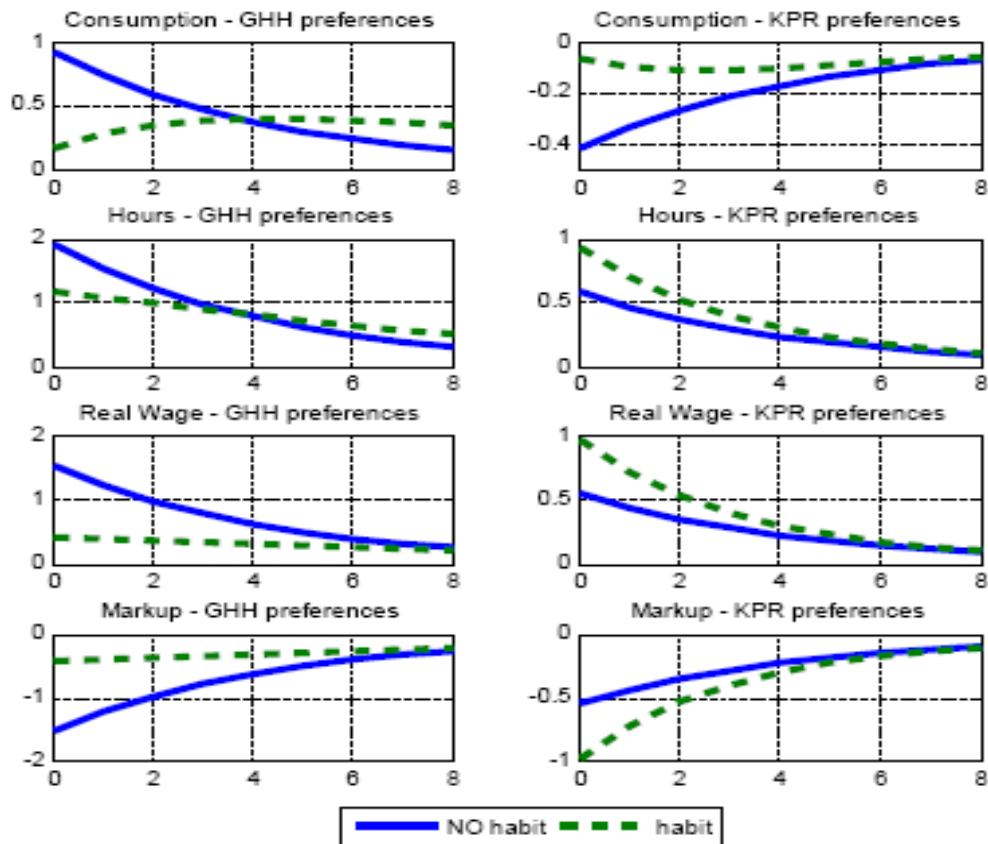


Figure 3: No capital, sticky prices

## IV. Extensions

### Capital accumulation

Two types of adjustment costs

a) proportional to the investment rate

b) proportional to the I/K ratio

→ Reaction depends which shift in the labour demand prevails:  
 - leftwards: drop in I  
 - rightwards: fall in the markup

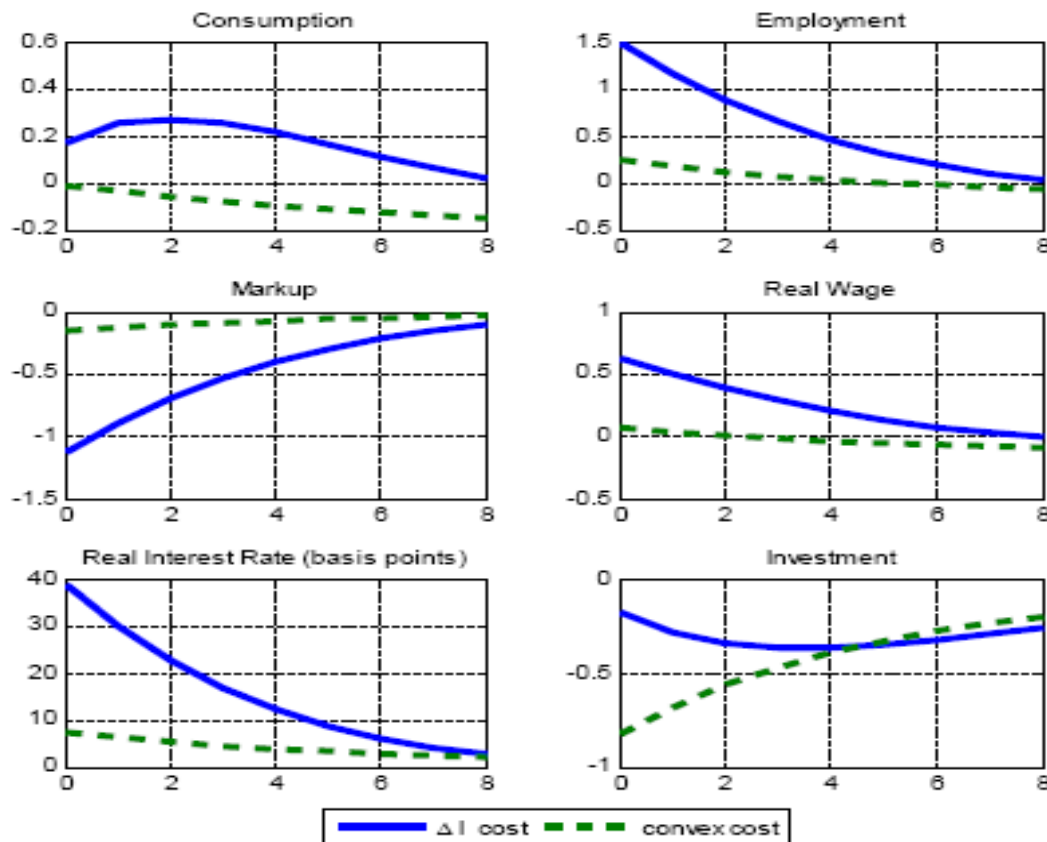
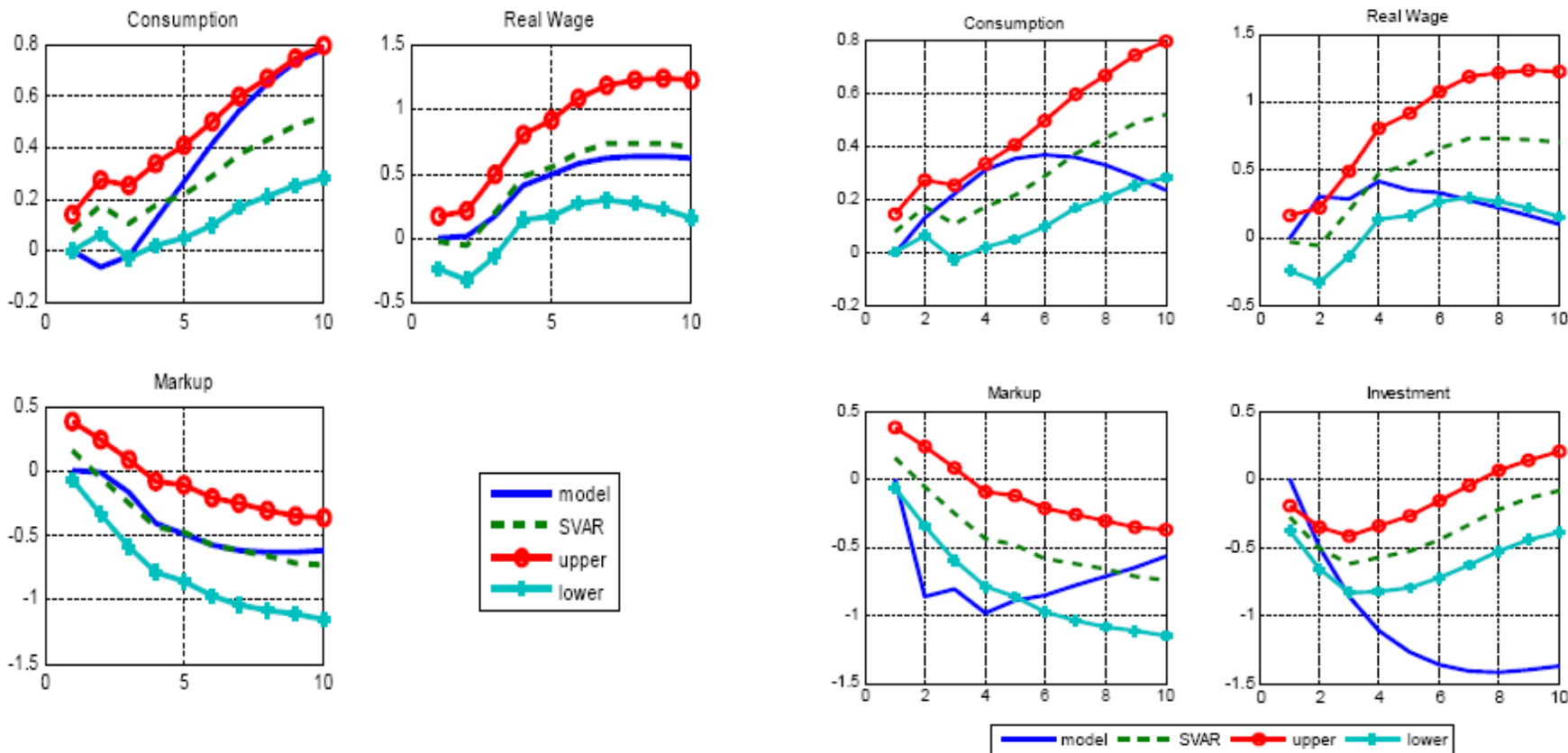


Figure 7: Capital, sticky prices, habit persistence

## IV. Extensions

### Matching the SVAR impulses



only habit & sticky prices: matching is ok

with investment: matching :(

## V. Conclusion

### **Conclusion:**

- 1) Reducing (killing) the wealth effect on labour supply allows the NKM to better fit the data (consumption)
- 2) Model matches poorly the data if we take investment into account
- 3) Preferences approach is difficult to verify empirically