Incomplete Cost Pass-Through under Deep Habits

Gianluca Benigno,

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Overview of the paper

• Implications of a particular form of habit formation for pass-through

• Mechanism to explain the incomplete pass-through and higher variability of costs with respect to prices

Features of the model:

i) imperfect competition

ii) product differentiation

iii) proposed habit formation mechanism: agents form habits from the consumption of individual goods;
Results

- Endogenous time varying markups;
- Provide support for model of customer market pricing (Phelps and Winter, 1970);
- Incomplete pass-through of costs into prices;
Deep Habits

Ravn, Schimitt-Grohe and Uribe have worked on general theory of deep habits.

They apply it to the issue of pass-through: is deep habits capable of generating incomplete pass-through?

Variety of deep habits formulations:

internal/external

Relative/additive

Which one to choose?
Why Relative Deep Habits?

Consider agent $j$ and good $i$. Compare consumption at time $t$ of good $i$ by agent $j$ with aggregate consumption of good $i$ but at time $t - 1$.

$$x^j_t \equiv \left[ \int_0^1 \left( \frac{c^j_{i,t}}{c^\theta_{i,t-1}} \right)^{1 - \frac{1}{\eta}} \, di \right]^{1/(1 - 1/\eta)}$$

[additive habits $c^j_{i,t} - \theta c^\theta_{i,t-1}$]

Firm $i'$s demand:

$$c_{it} = \left( \frac{P_{it}}{P} \right)^{-\eta} (c_{it-1})^{\theta(1-\eta)} x_t$$
\[ \eta = \text{short run price elasticity of demand} \]

\[ \theta(1 - \eta) = \text{habit elasticity of demand} \]

\[ \eta/(1 - \theta(1 - \eta)) = \text{long run price elasticity} \]

price elasticity effect (static) and habit elasticity effect (inter-temporal)

What determines pass-through?

Under additive habit price elasticity effect dominates
Quantitative analysis

Key parameters in the analysis:

\( \theta \) is the degree of time non separability;

\( \eta \) is the elasticity of substitution across different varieties;

How do we choose the parameters? What are the implications for pass-through?
Calibration

What are the values for \( \eta \)? In their calibration \( \eta = 6 \)

a) Broda and Weinstein (2007) provides distribution of estimates for \( \eta \)

(“Typical within brand module elasticity is 11.5”)


b) Choose it in such a way to match mark-up (Basu and Fernald, 9%)

\[
\mu^{SS} = \frac{1}{1 - \frac{1}{\eta} + \beta \theta^{1-\eta} / \eta}
\]
Calibration

What are the values for $\theta$? In their calibration $\theta = -0.1$

In previous work Ravn et al. (2006) estimate $\theta = 0.86$ for additive deep habit

Estimation for relative habit?

Sensitivity analysis on $\theta$, $\eta$?
Summary

Paper provides a novel mechanism for incomplete pass-through

Two issues

Importance of habit: in which markets do deep habit play a role? (there are different models that generate incomplete pass-through)

In which cases should we use this model? (provide a guide for quantitative analysis)