Incomplete Cost Pass-Through under Deep Habits

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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 $t-1$.

$$x_t^j \equiv \left[\int_0^1 \left(\frac{c_{i,t}^j}{c_{i,t-1}^{\theta}} \right)^{1-\frac{-1}{\eta}} di \right]^{1/(1-1/\eta)}$$

[additive habits $c_{i,t}^j - \theta c_{i,t-1}$]

Firm $i's$ demand:

$$c_{it} = \left(\frac{P_{it}}{P} \right)^{-\eta} \left(c_{it-1} \right)^{\theta(1-\eta)} x_t$$

$\eta =$ short run price elasticity of demand

$\theta(1-\eta) =$ habit elasticity of demand

$\eta/(1-\theta(1-\eta)) =$ long run price elasticity

price elasticity effect (static) and habit elasticity effect (intertemporal)

What determines pass-through?

Under additive habit price elasticity effect dominates

Quantitative analysis

Key parameters in the analysis:

θ is the degree of time non separability;

η 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 η? In their calibration $\eta = 6$

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

("Typical within brand module elasticity is 11.5")

Broda and Weinstein (2006) for US imports η between 3 and 4.

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

$$\mu^{SS} = \frac{1}{1 - \frac{1}{\eta} + \beta\theta\frac{1-\eta}{\eta}}$$

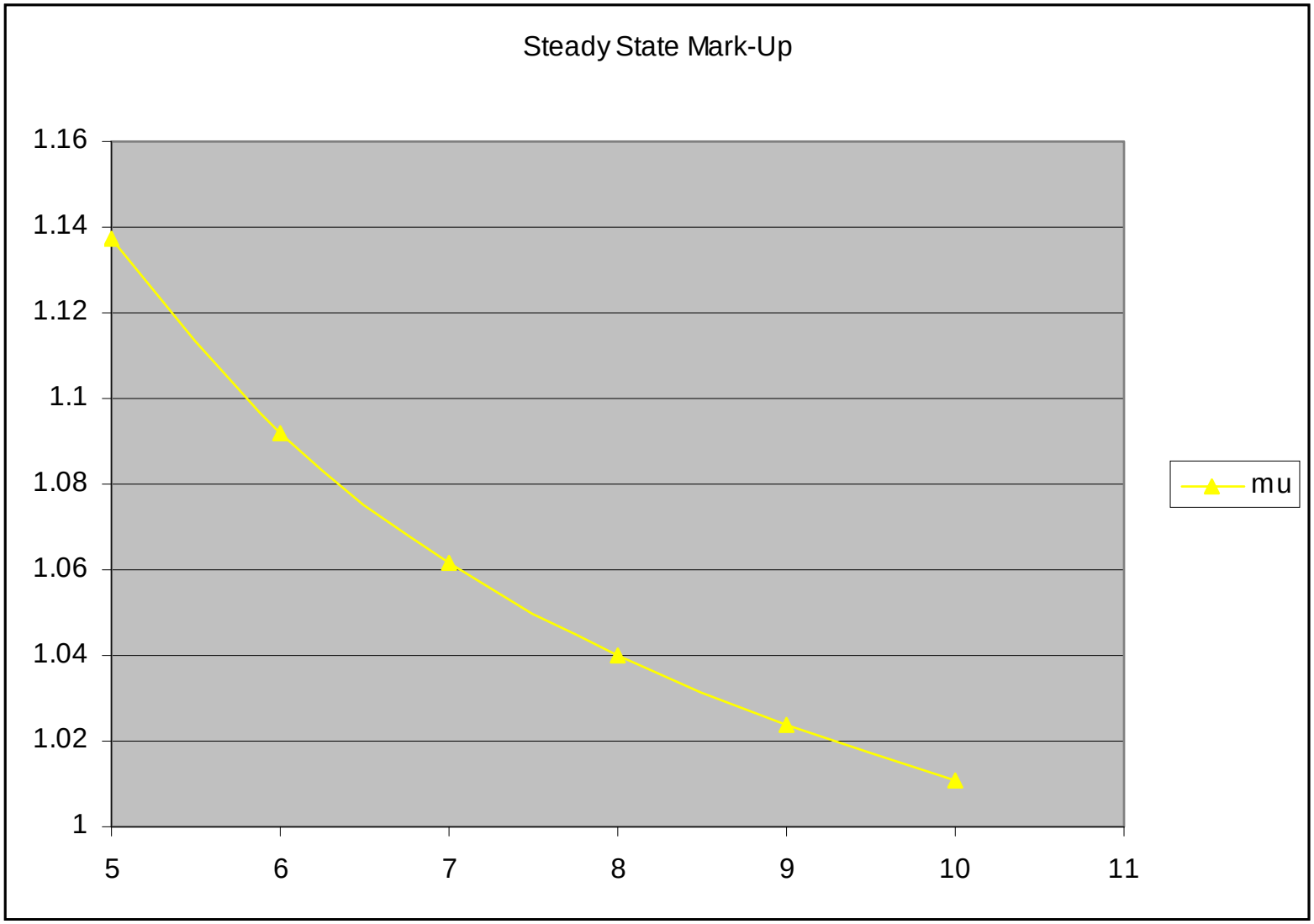
Calibration

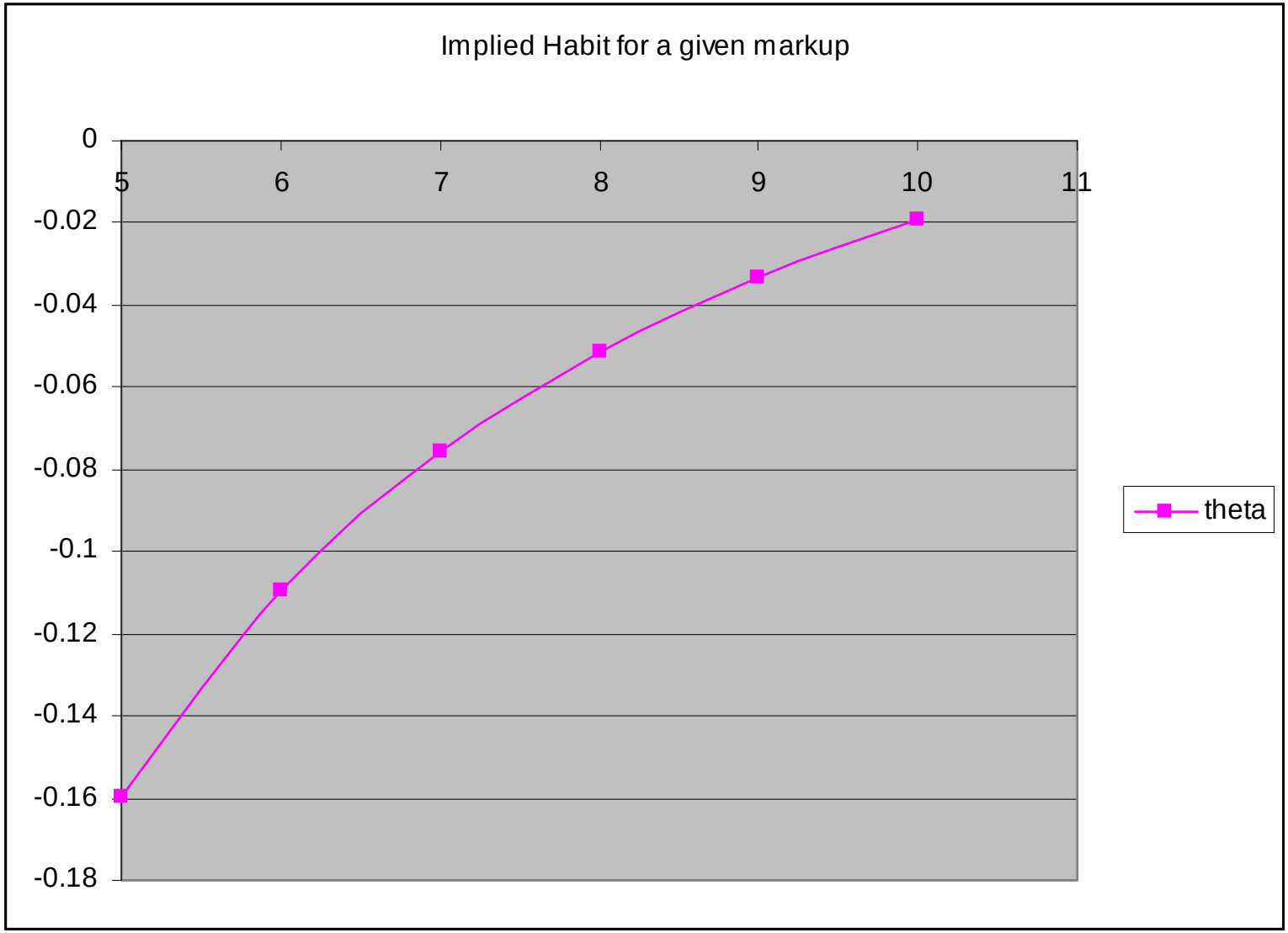
What are the values for θ? In their calibration $\theta = -0.1$

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

Estimation for relative habit?

Sensitivity analysis on θ, η?


Steady State Mark-Up
1.16
1.14
1.12
1.1
1.08
1.06
1.04
1.02
1
5
6
7
8
9
10
11
mu


Implied Habit for a given markup
0
-0.02
-0.04
-0.06
-0.08
-0.1
-0.12
-0.14
-0.16
-0.18
5
6
7
8
9
10
11
theta

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)