Discussion of Emi Nakamura's "Accounting for Incomplete Pass-Through"

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The paper

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- Attempts to disentangle the sources of incomplete pass-through in the coffee industry
- Finds that incomplete (long-run) pass-through is mainly due to local costs, and to a lesser extent, markup adjustment
- Menu costs explain very little of pass-through incompleteness in the long run, but are important to account for the delayed response of prices to costs

Where Does the Paper Stand ?

Two strands in the literature

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- Macro studies
  - general-equilibrium approach
  - incomplete pass-through mainly due to sticky prices
  - little role for desired markup variations
- Emi's paper is an attempt to bridge the gap between these two literatures

Exchange Rate Pass-Through

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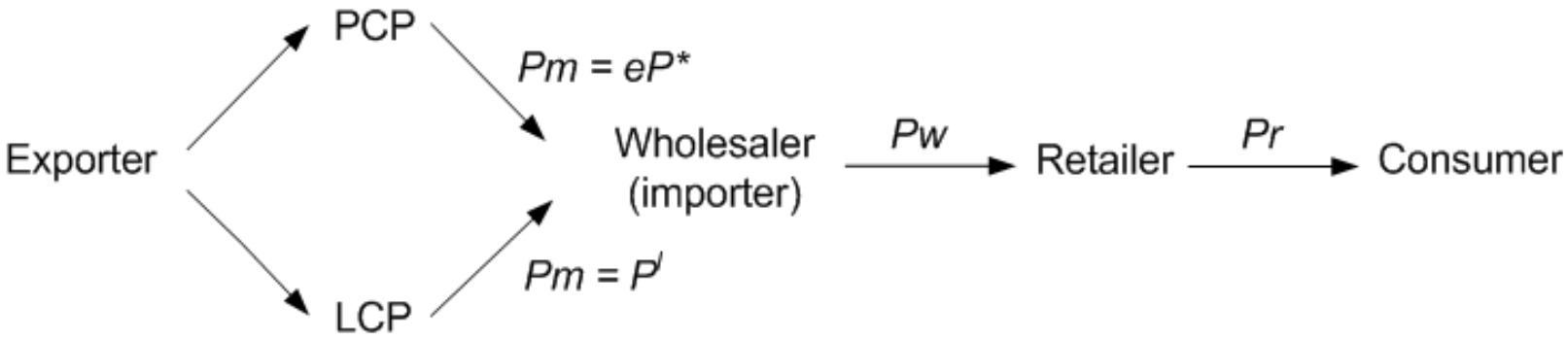
- At the micro level, however, individual firms take the exchange rate (or international commodity prices) as exogenous
- Pass-through regressions are valid in this case

Exchange Rate vs Cost Pass-Through



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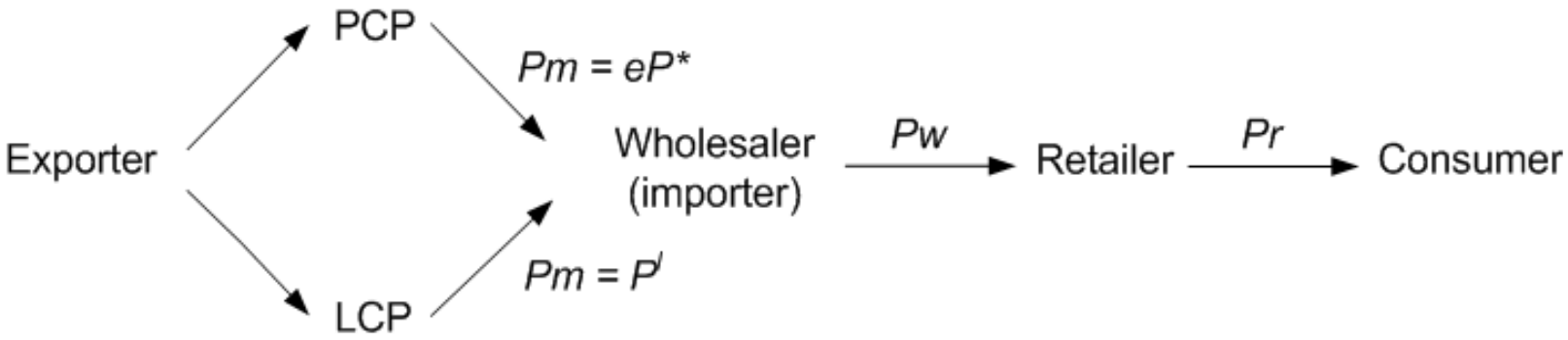

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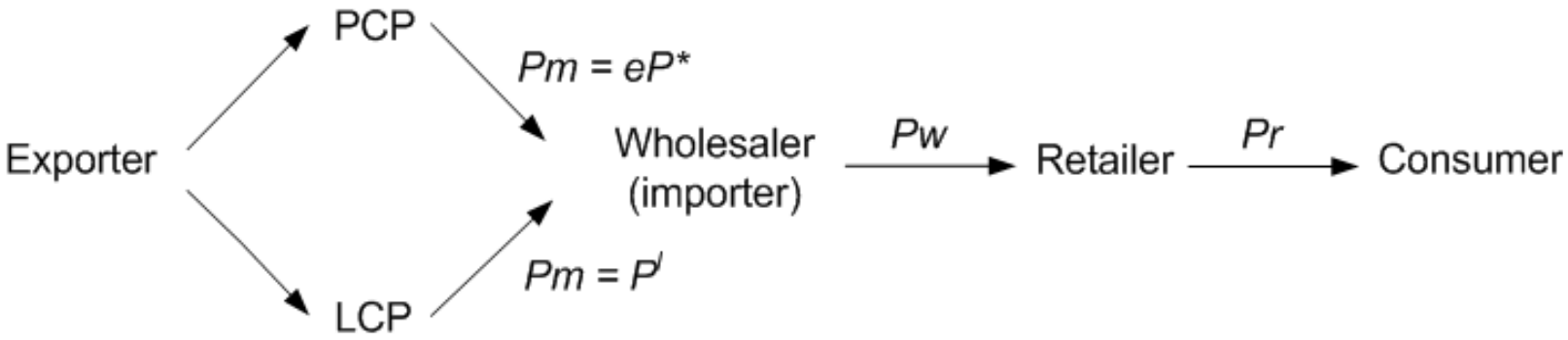
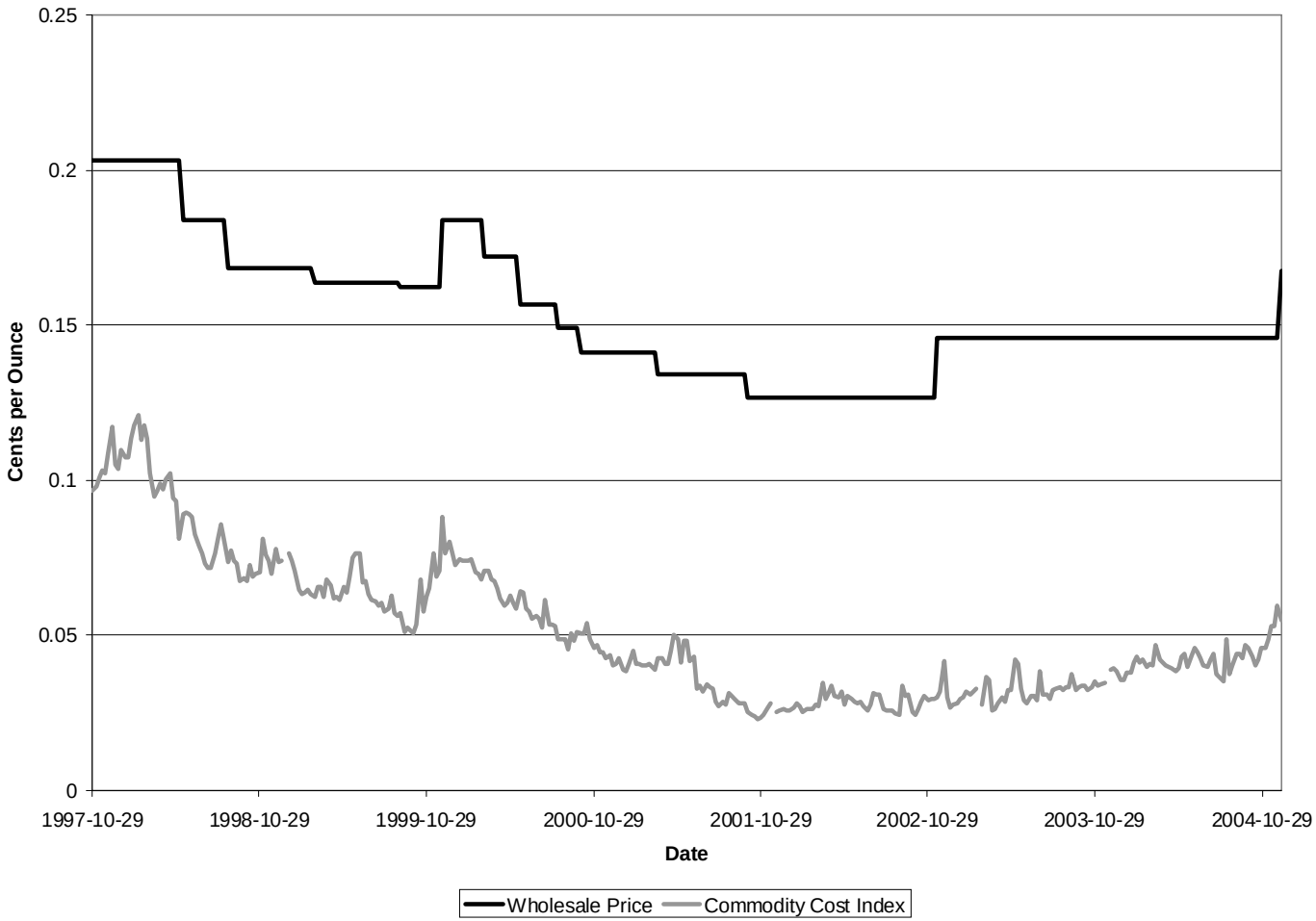


- Response of Pm to changes in the exchange rate e = exchange rate pass-through
- Response of Pw to changes in Pm: cost pass-through (at the wholesale level)
- Emi's paper is about **cost** pass-through

Quick Look at the Data



Low Pass-Through ?

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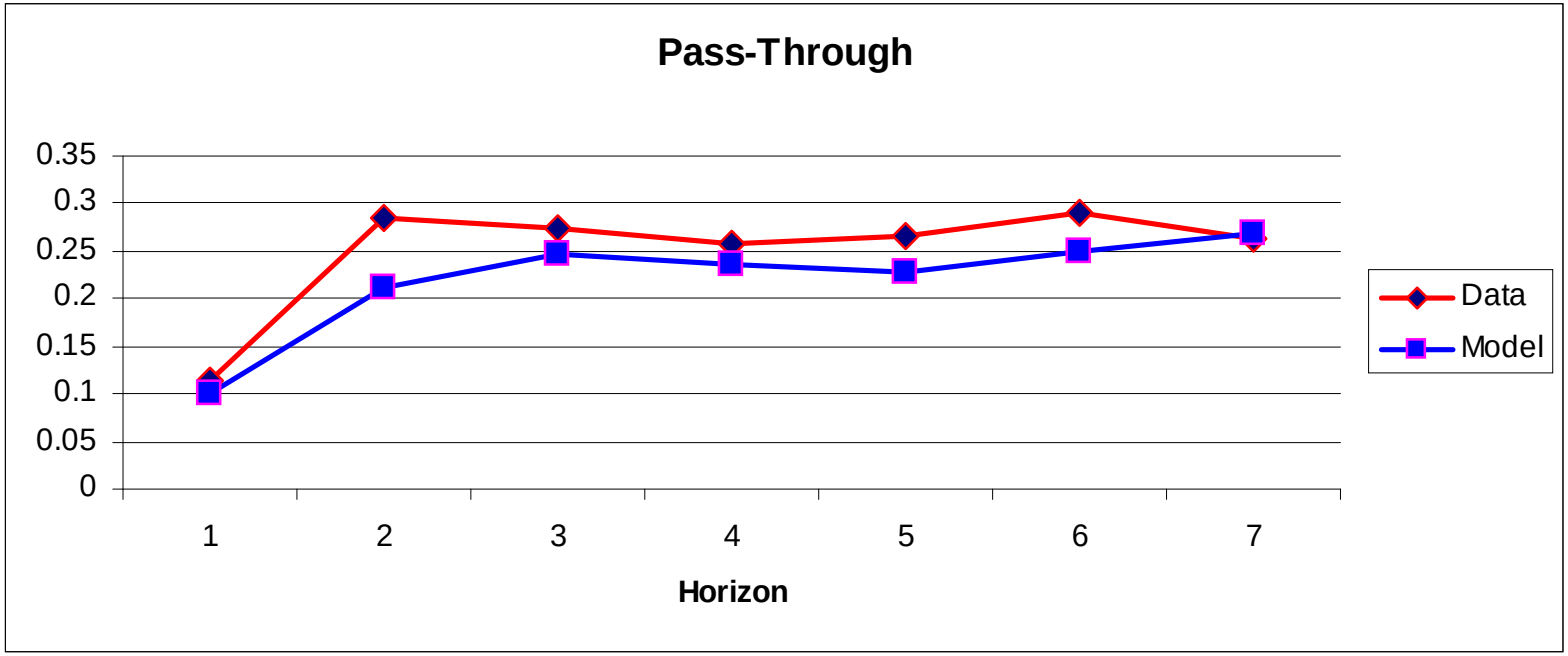
- Not necessarily! Depends on how pass-through is measured
- The paper measures pass-through as an elasticity (i.e., in terms of percentage, rather than absolute, variations)

Assume:

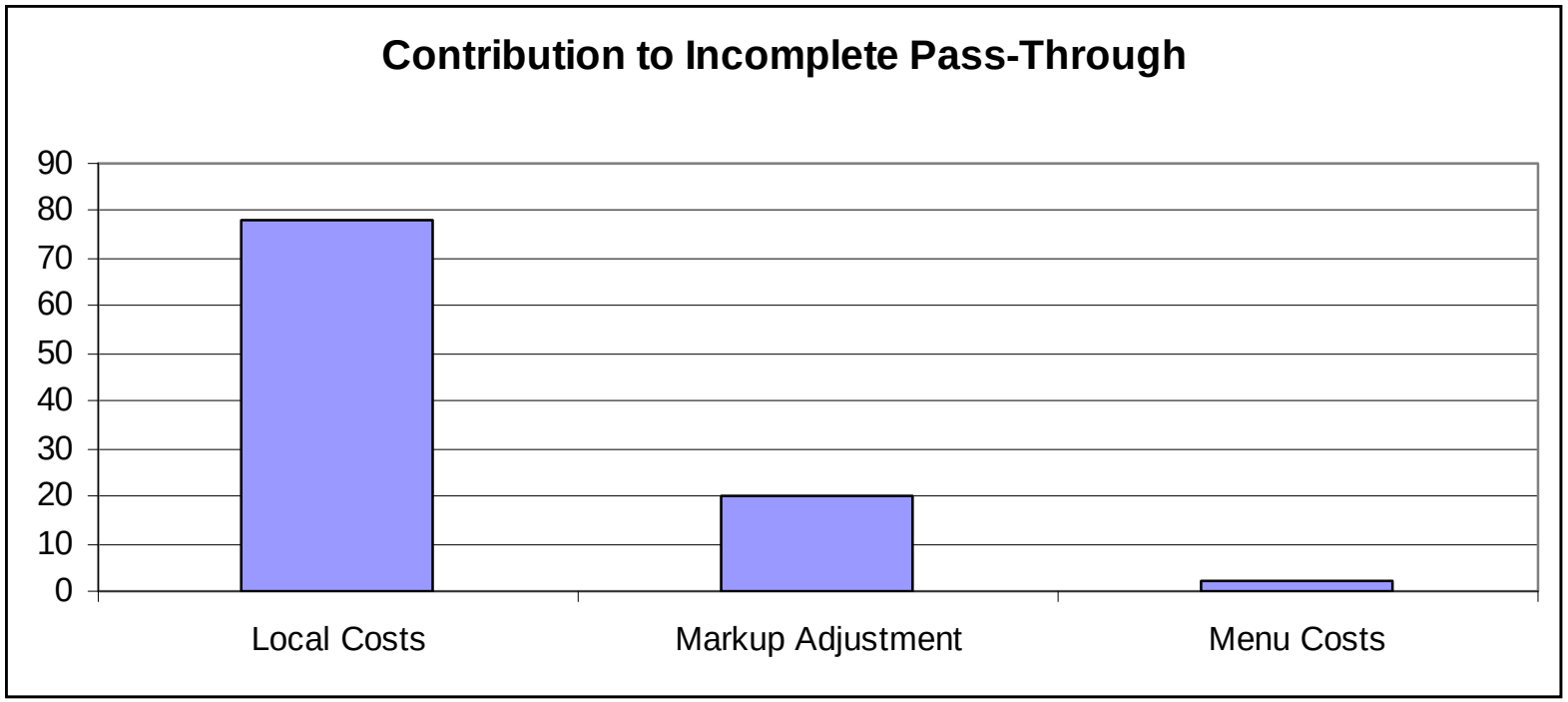
$$p_t = constant + c_t$$

$\frac{\Delta p_t}{\Delta c_t} = 1$ **BUT** $\frac{\Delta \ln p_t}{\Delta \ln c_t}$ will be much lower than 1 if the constant is large

Results


Pass-Through
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1
2
3
4
5
6
7
Horizon
Data
Model

Results


Contribution to Incomplete Pass-Through
90
80
70
60
50
40
30
20
10
0
Local Costs
Markup Adjustment
Menu Costs

Understanding the Results

- Consider the following "toy" model:

$$p_t = \beta\varphi E_t p_{t+1} + \frac{1-\beta\varphi}{1+\alpha} mc_t$$

φ = Calvo probability of not changing price
α = Elasticity that captures markup adjustment

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- Let $\delta = \frac{\mu}{MC}$: share of local costs in total marginal costs. Then:

$$p_t = \beta\varphi E_t p_{t+1} + (1-\delta)\left(\frac{1-\beta\varphi}{1+\alpha}\right) c_t$$

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- Iterating forward yields:

$$p_t = (1-\delta)\left(\frac{1-\beta\varphi}{1+\alpha}\right)\sum_{j=0}^{\infty}(\beta\varphi)^j E_t c_{t+j}$$

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- Then:

$$p_t = \underbrace{(1-\delta)\left(\frac{1-\beta\varphi}{1+\alpha}\right)\left(\sum_{j=0}^{\mathbf{6}}(\beta\varphi\rho)^j\right)}_{pass-through} c_t$$

Understanding the Results

Cost Pass-Through

Pass-Through resulting from:	Toy Model	Emi's Model
Local Costs	0.447	0.426
Local Costs + Markup Adjustment	0.284	0.284
Local Costs + Markup Adjustment + Price Rigidity	0.268	0.269

Decomposition

Contribution to incomplete Pass-Through:	Toy Model	Emi's Model
Local Costs	76%	78%
Markup Adjustment	22%	20%
Price Rigidity	2%	2%

Questions

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2. Which implications do these results have for macroeconomic models

Sensitivity Analysis

Decreasing the Persistence of the Cost Shock

Pass-Through resulting from:	$\rho = 1$	$\rho = 0.5$	$\rho = 0$
Local Costs	0.447	0.447	0.447
Local Costs + Markup Adjustment	0.284	0.284	0.284
Local Costs + Markup Adjustment + Price Rigidity	0.268	0.142	0.094

Decomposition

Contribution to incomplete Pass-Through:	$\rho = 1$	$\rho = 0.5$	$\rho = 0$
Local Costs	76%	64%	61%
Markup Adjustment	22%	19%	18%
Price Rigidity	2%	17%	21%

Sensitivity Analysis

Decreasing the importance of local costs

Pass-Through resulting from:	$\delta = 0.55$	$\delta = 0.3$	$\delta = 0.1$
Local Costs	0.447	0.7	0.9
Local Costs + Markup Adjust.	0.284	0.445	0.573
Local Costs + Markup Adjust. + Price Rigidity	0.268	0.419	0.539

Decomposition

Contribution to incomplete Pass-Through:	$\delta = 0.55$	$\delta = 0.3$	$\delta = 0.1$
Local Costs	76%	51%	22%
Markup Adjustment	22%	44%	71%
Price Rigidity	2%	5%	7%

Sensitivity Analysis

Short-run vs Long run

Pass-Through resulting from:	Short-run	Long-run
Local Costs	0.447	0.447
Local Costs + Markup Adjustment	0.284	0.284
Local Costs + Markup Adjustment + Price Rigidity	0.157	0.268

Decomposition

Contribution to incomplete Pass-Through:	Short-run	Long-run
Local Costs	66%	78%
Markup Adjustment	19%	20%
Price Rigidity	15%	2%

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1. The conclusion that menu costs explain little of incomplete pass-through seems robust

2. The relative importance of local costs and markup adjustment in explaining incomplete pass-through is likely to be industry specific
   - Local costs are likely to be less important for imported finished goods (machinery and equipment, durables, etc...)

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- Suggests that macroeconomic models should be refined in a way that allows for endogenous markup variations
- This feature could be important in explaining the observed decline in exchange rate pass-through to consumer prices