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Discussion of  
“Price plans and the real effects of monetary  
policy” by Alvarez and Lippi

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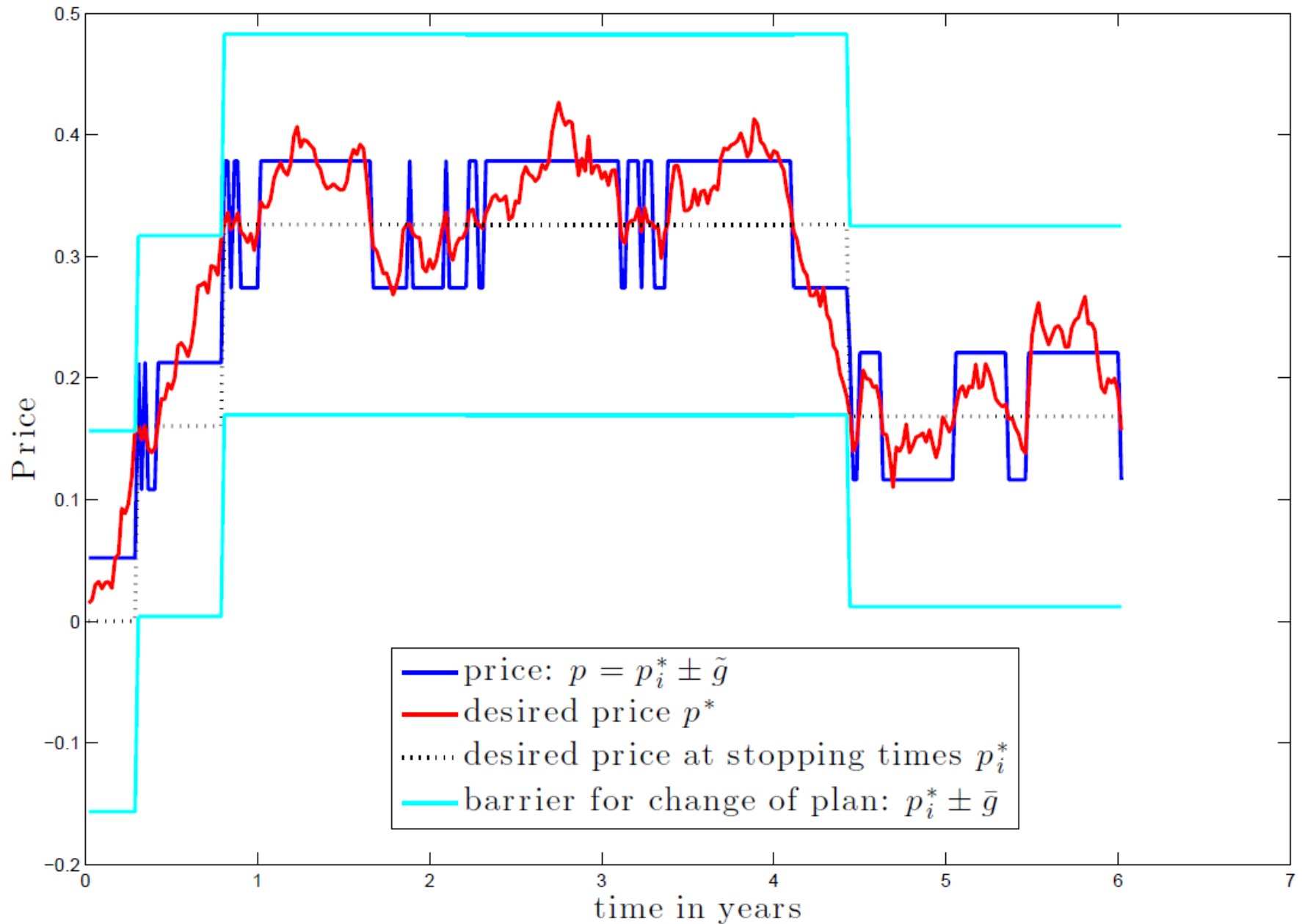
Banque de France, Paris, 18 December 2015

*The views expressed here are ours, and they do not necessarily reflect the views of the Bank of Canada.*

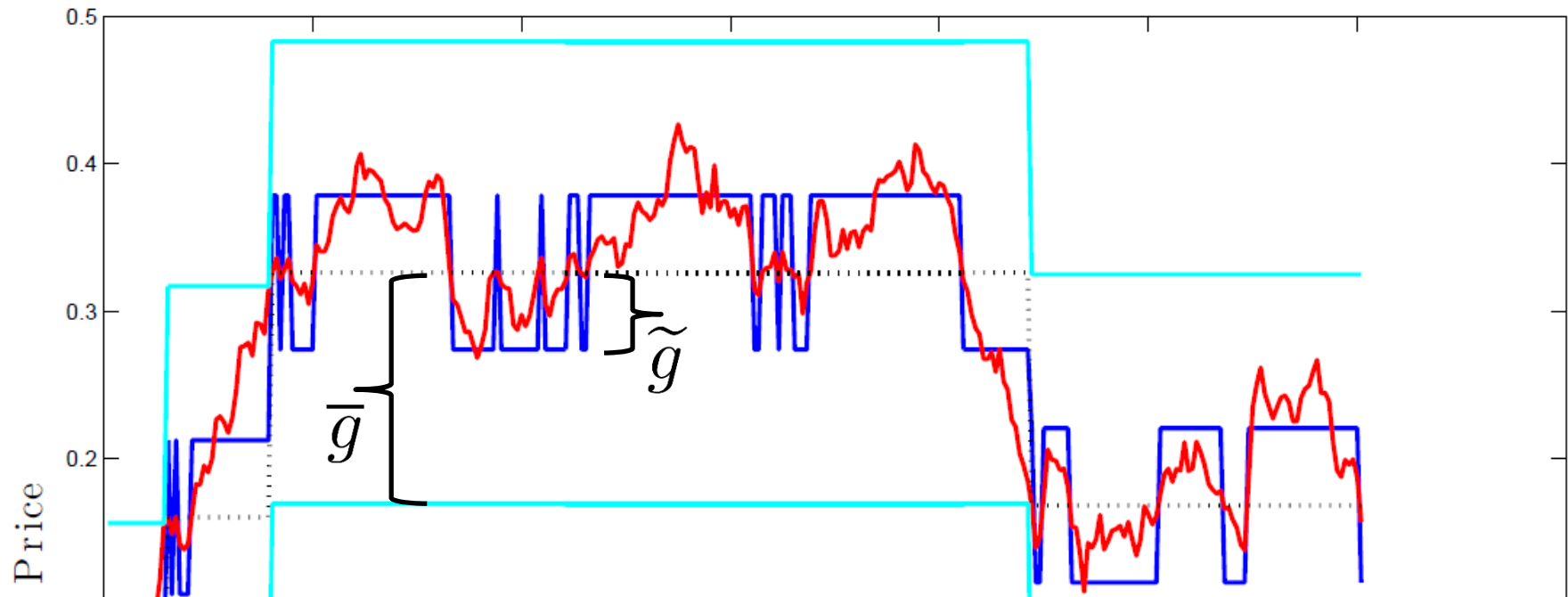
# This paper

- ▶ Studies the role of temporary price changes for price adjustment and micro and macro levels
- ▶ Generalizes standard menu cost price adjustment model
  - ▶ Menu cost of changing a price plan, set new price optimally
  - ▶ Price plan is a set of two price points  $\{P^L, P^H\}$
  - ▶ No cost of changing price within the same plan
- ▶ Retailer maximizes quadratic objective and chooses
  - ▶ Timing of resetting the plan (and set new price)
  - ▶ Price points for the new plan
  - ▶ Timing of switching between price points within the plan

# Solve optimal price adjustment

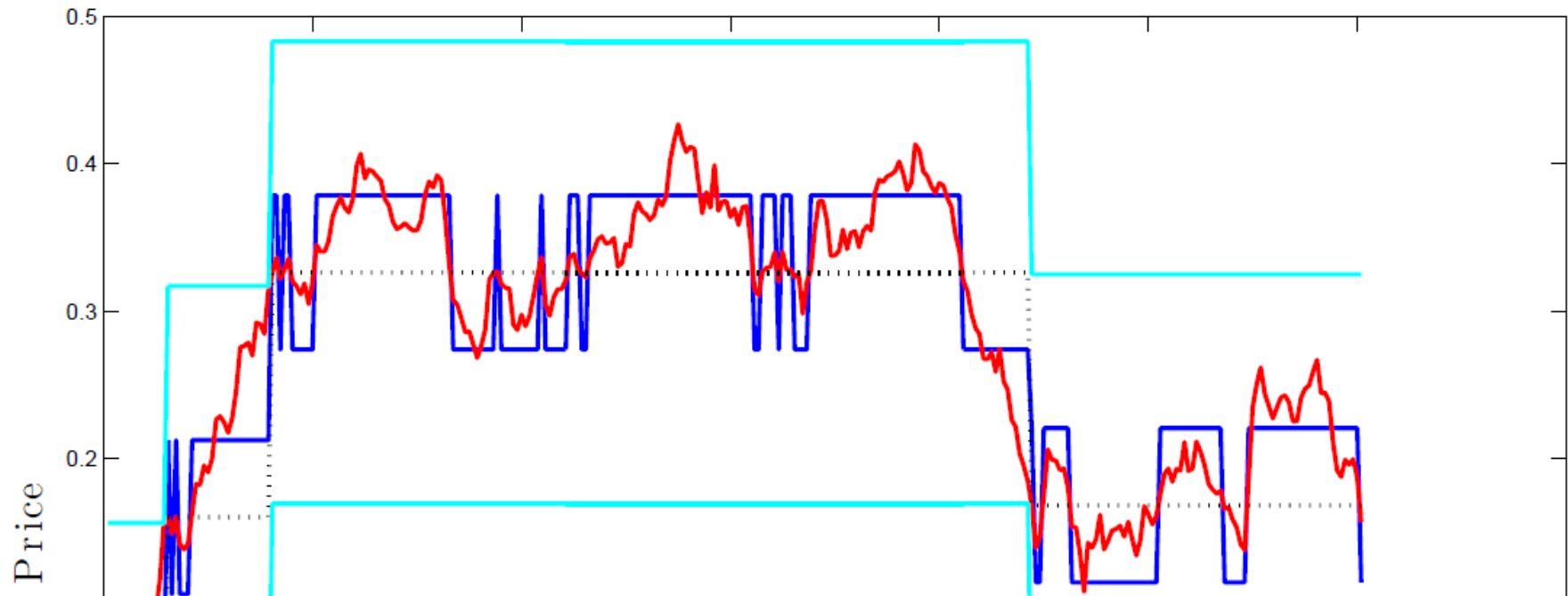


# Solve optimal price adjustment



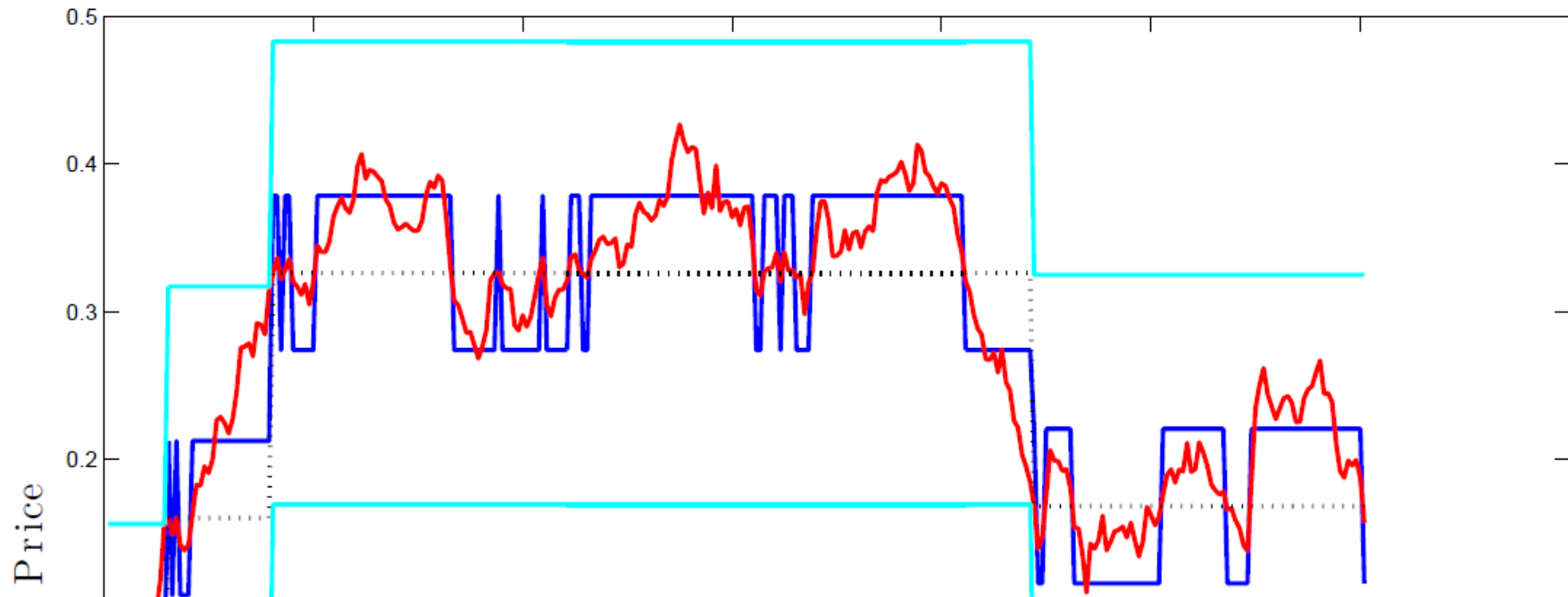
- Reduce problem to two variables, price gaps  $\bar{g}$ ,  $\tilde{g}$ 
  - Reset price = desired price
  - Symmetry of the objective
- Solve for price gaps and show  $\bar{g} = 3\tilde{g}$

# Comments



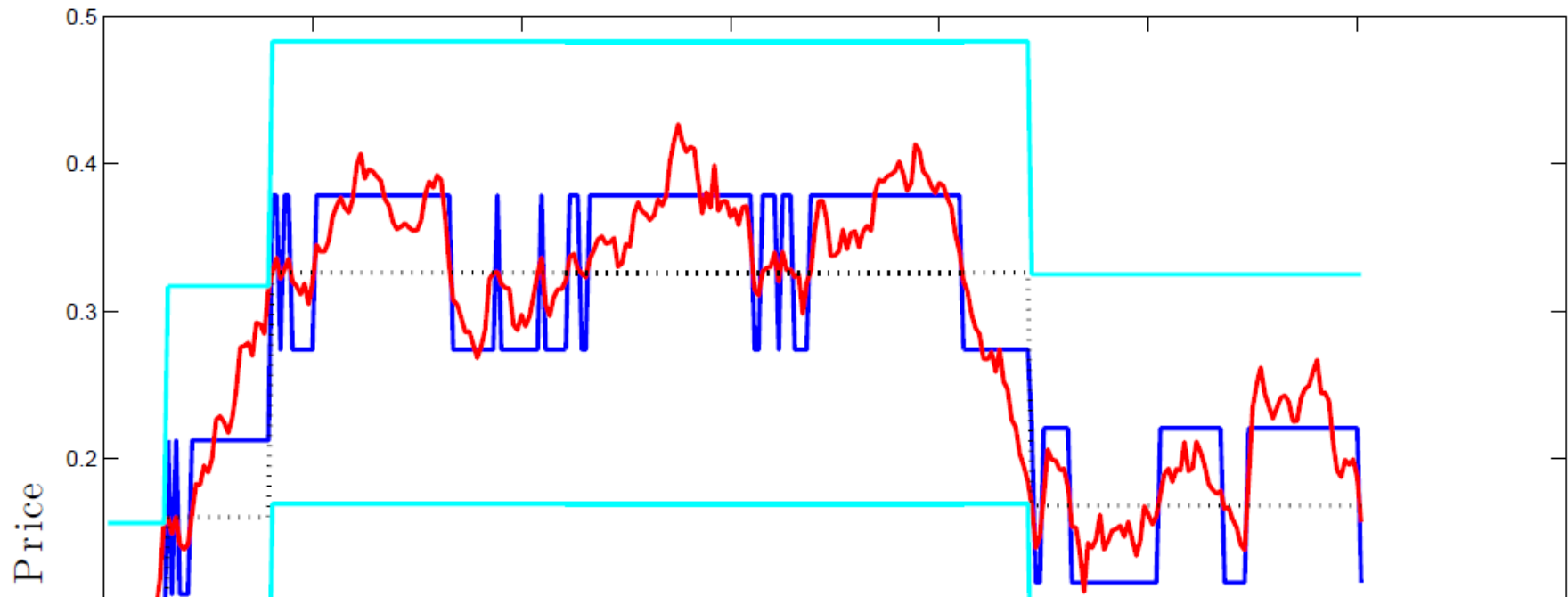
1. No intrinsic “temporariness,” except right after plan reset
  - E.g., no V-shapes (prevalent in scanner data, theories of intertemporal price discrimination)
  - ... though Klenow-Kryvtsov (2008) find equal sale prices are equally sticky

# Comments



2. Temporary increases/decreases equally likely
  - Similar to Kehoe-Midrigan (2015)
  - Is it high-regular vs low-regular (not regular vs sale) prices?
  - Hard to think of reference price in Eichenbaum-Jaimovich-Rebelo sense

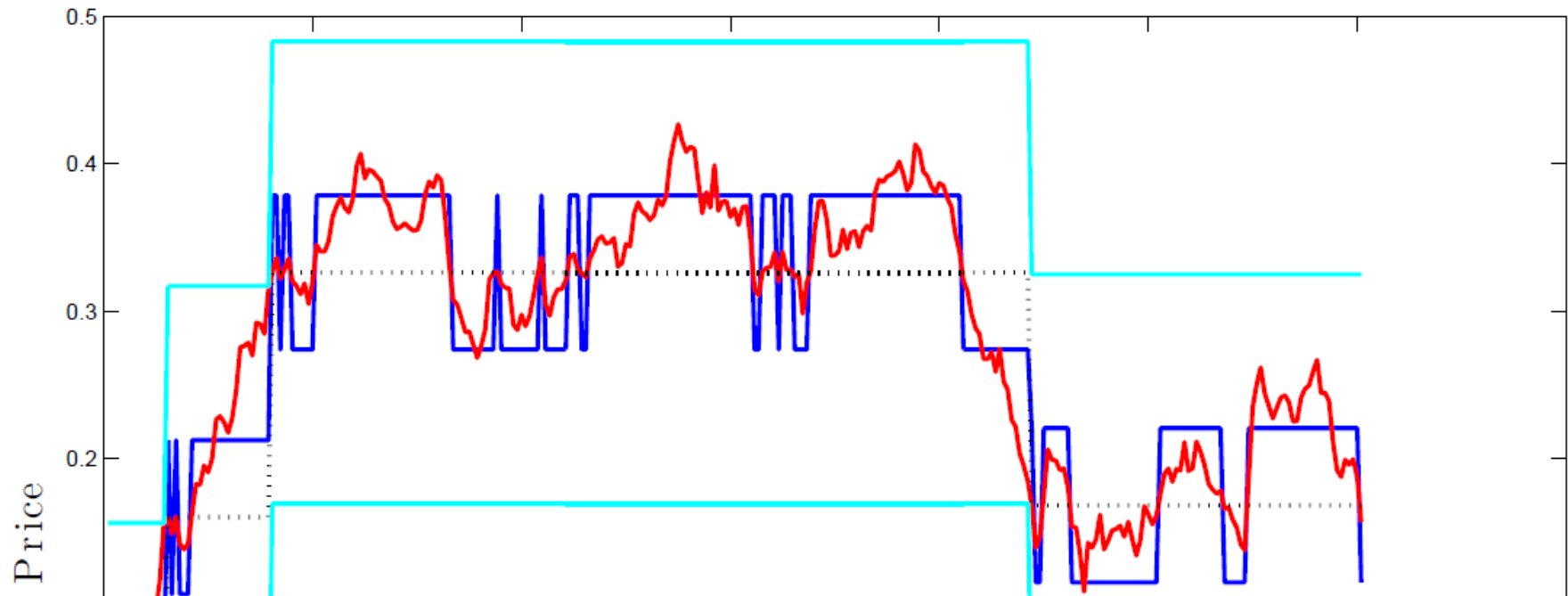
# Comments



### 3. How do these particular price plans arise?

- Alternative 1: choose entire price path, Burstein (2006)
- Alternative 2: price plan for sale price, Anderson et al. (2015)
- Alternative 3: strategic sale plans, Chevalier and Kashyap (2012)

# Comments



4. How to distinguish these price changes from price promotions prevalent in retail competition?
  - Warner and Barsky (1995), Chavalier, Kashyap, Rossi (2003)



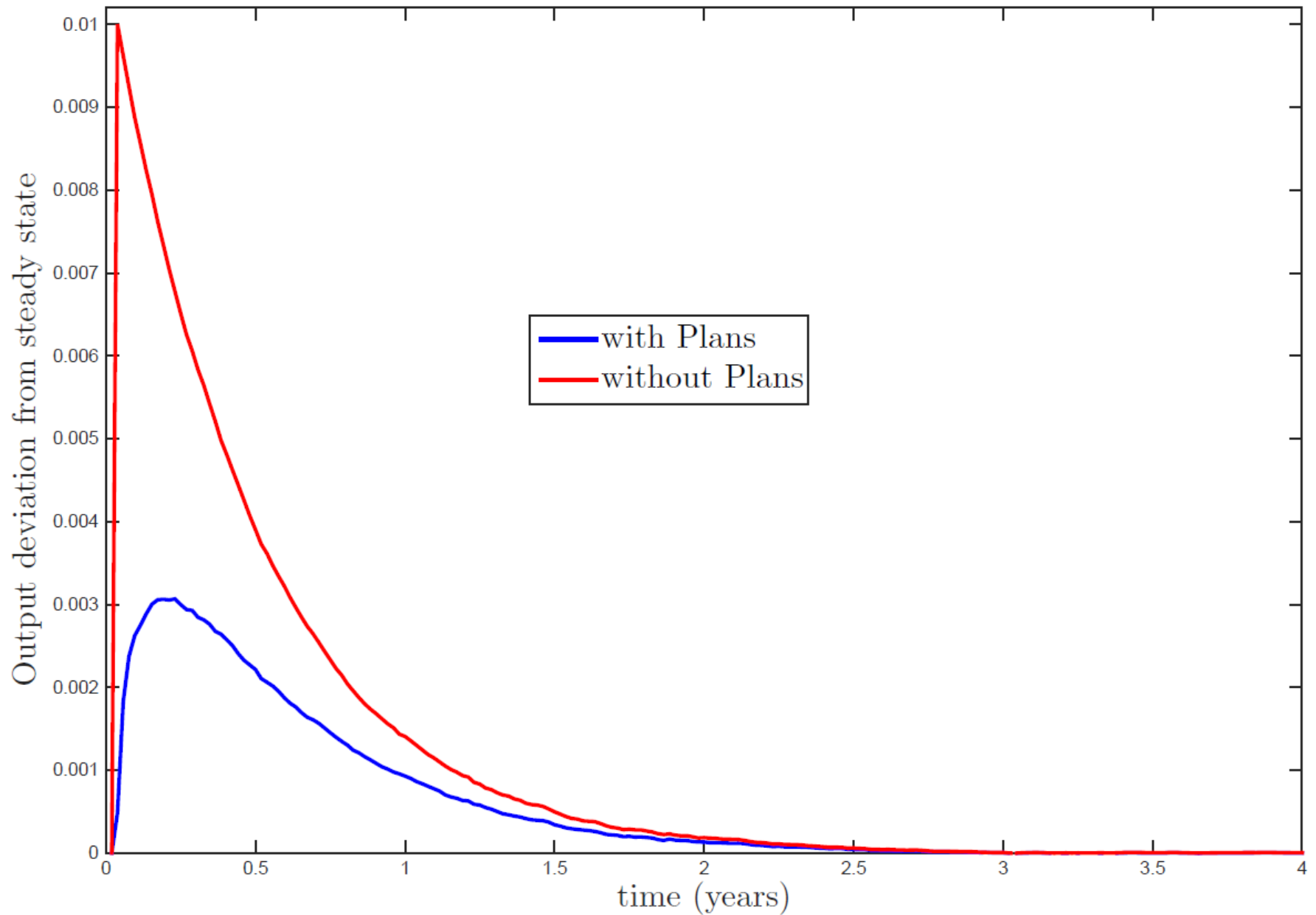
# Size of monetary non-neutrality

“Menu cost model”		“Calvo model”	
Without Price Plans	With Price Plans	Without Price Plans	With Price Plans
$\frac{1}{6N}$	$\frac{1}{18N_p}$	$\frac{1}{N}$	$\frac{1}{2N_p}$

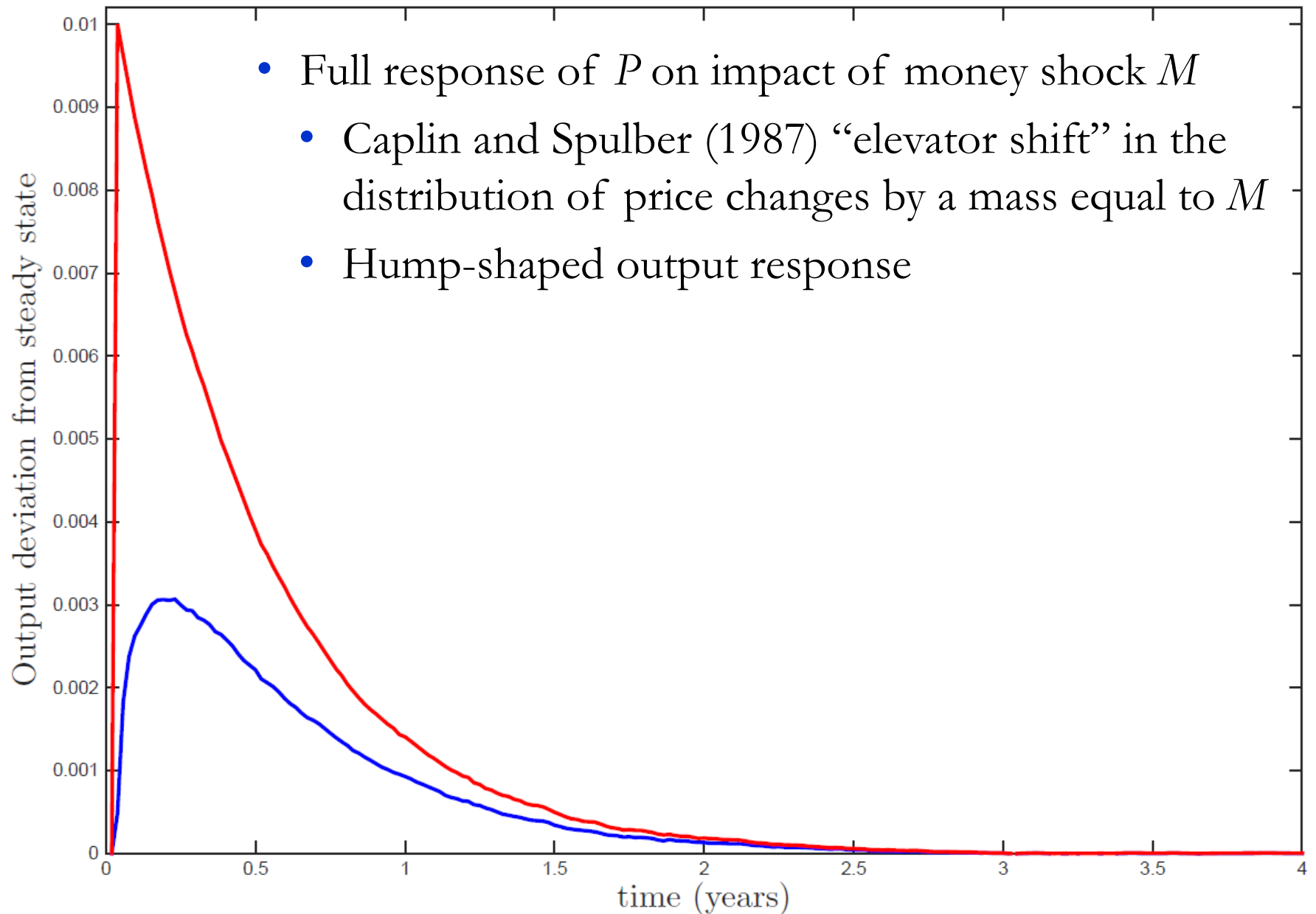
Note:  $N$  denotes the total number of price changes,  $N_p$  denotes the total number of plan changes.

5. How to calibrate the model with price plans (vs no plans)?
  - ▶ “Ignore temps” ( $N=N_p$ ) → non-neutrality is **3 times smaller** than in no-plans model
  - ▶ “Include temps” ( $N>N_p$ ) → non-neutrality is **1.7 times larger**
    - ⌚ Midrigan (2011): adjustment of price menus weakens agg  $P$  response
  - ▶ Freq of temporary price changes is too high? (2—11% in monthly data)
  - ▶ Size of temporary price changes is too low? (15-25% in monthly data)

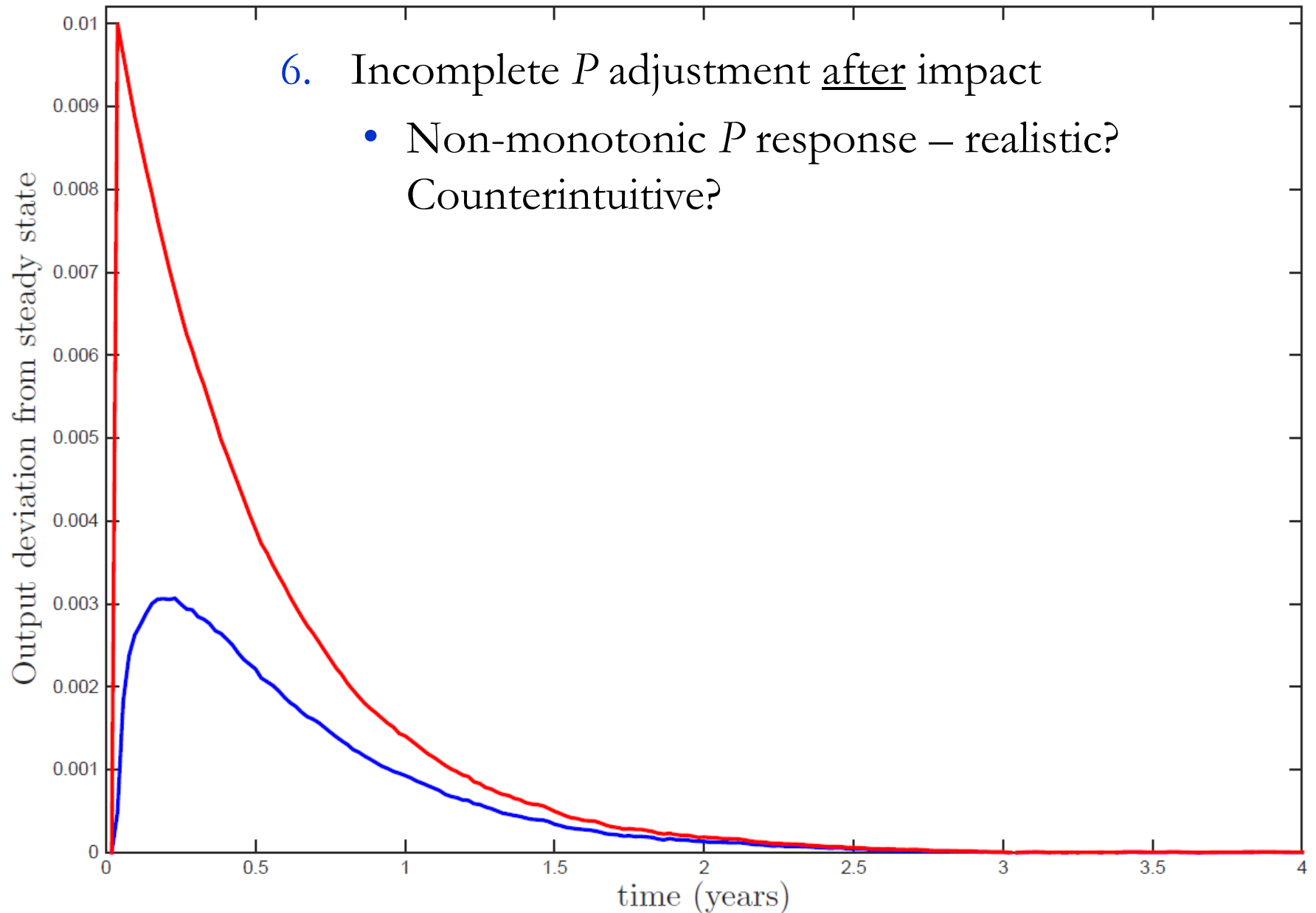
# Output response to +1% perm increase in M



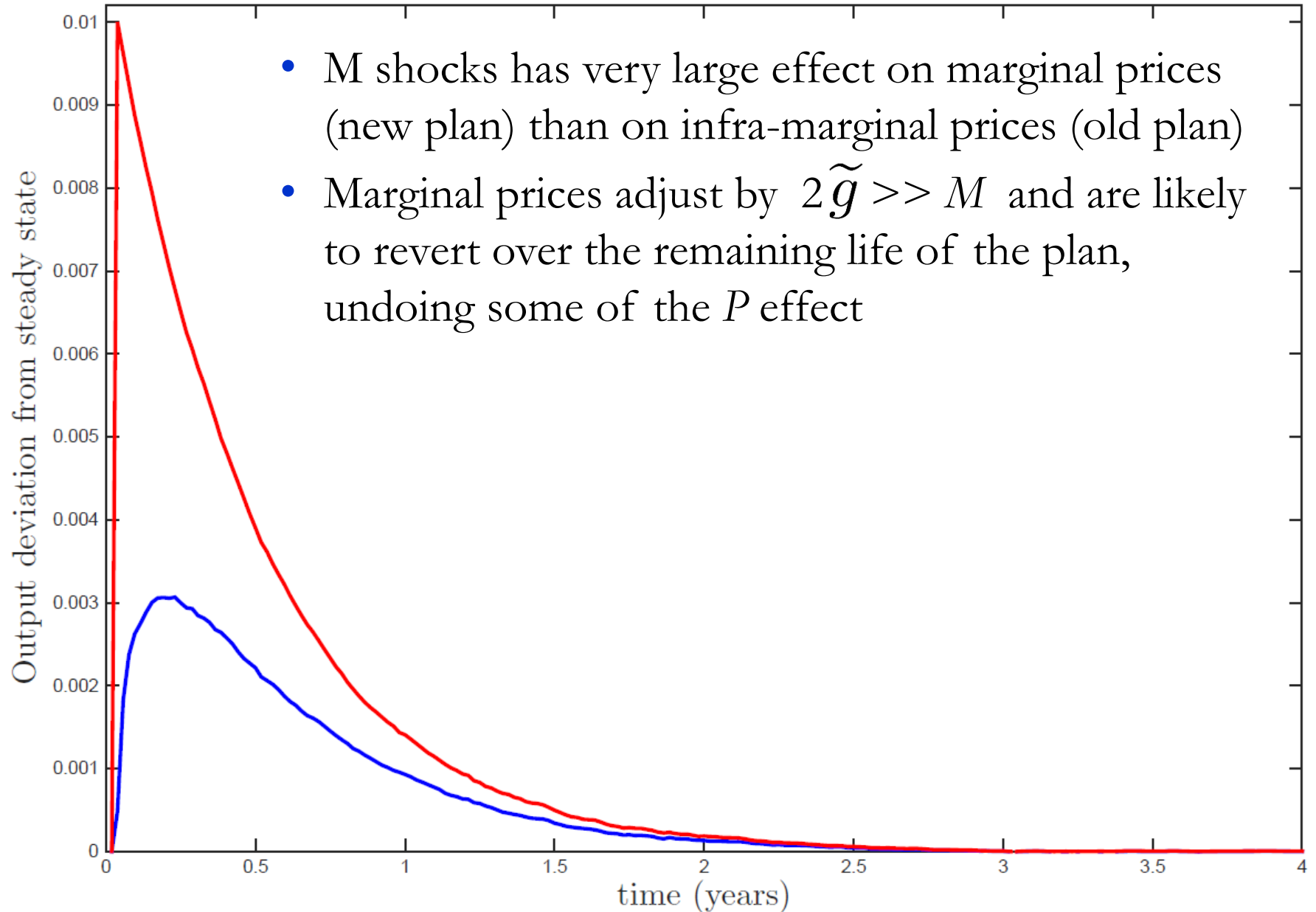
# Output response to +1% perm increase in $M$



# Output response to +1% perm increase in $M$



# Non-monotonic price response



# Non-monotonic price response

