

Currency Choice and Exchange Rate Pass-Through

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One general comment

- This paper (and BK'05, KK'07, NS'07, GR'07, IPN):
- Careful micro-studies of pricing using good-level data
- Tremendous amount of work
- Offer many useful insights that guide/discipline theory

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- Offer many useful insights that guide/discipline theory

Data comments: data collection

- Standard procedure (GR'07):
 - Survey by BLS
 - Firms enter prices on a sheet provided by BLS
 - Reports are voluntary
 - BLS contacts firms if price hasn't changed for 12 mos.
 - Prices are sticky for 11-13 mos.

- What fraction of price stickiness is accounted for by menu costs of changing prices reported to BLS?

- Why is menu cost of calling up business partner larger than menu cost of reporting to BLS?

- Comparison with unit values?

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Data comments:

- This paper is about menu costs (physical costs of price adjustment)
 - Firms choose whether to post prices in dollars or euro to minimize menu costs paid
 - What role do posted prices play in business-to-business transactions?
 - Fact from GR'07: intra-firm prices as sticky as inter-firm
 - More institutional details would be useful
 - E.g., Zbaracki et. al '04

E.g. from Goldberg-Hellerstein

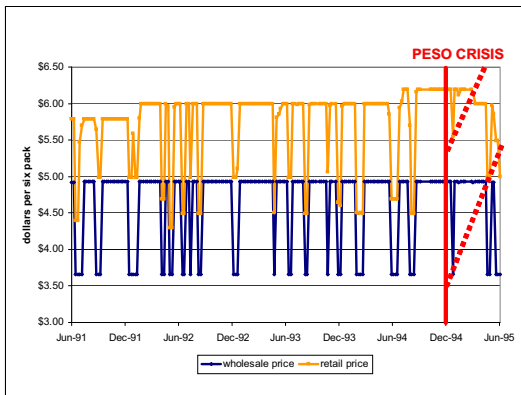


Figure 2: *Weekly retail and wholesale prices for Corona*. Prices are for a single six-pack and are from Zone 1. 202 observations. Source: *Dominick's*.

Data comments

- If prices indeed allocative, and goods storable
- Retailer buys inventory when price low
- Charge $p = \frac{\theta}{\theta-1}\beta EV_s(s')$
- $V_{ss} < 0$
- Retail price shouldn't return when wholesale price does

Data comments:

- Alessandria-Kaboski-Midrigan'07: individual goods traded infrequently
 - weighted: US to Argentina: every 2.5-4 mos. for HS-10
 - unweighted: US to Argentina every 8 mos. for HS-10
- Can one interpret price frequency statistics without reference to frequency of trade statistics?
- Do more frequently traded goods have more flexible prices?

Finding 1: Choice of currency of invoicing endogenous

- What does endogenous/exogenous mean in the data?
 - Institutional restrictions that prevent price quoting in dollars?
- Relevant question: does distinction matter for theory?
 - Are welfare implications different if explicitly model the choice?
 - Use your theory to answer this question

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Finding 1: Choice of currency of invoicing endogenous

- Is endogeneity identified?
 - Suppose invoicing exogenous: sectors 1-9 price in dollars, sector 10 in euro
 - But large contract multiplier within sectors
 - Low pass-through in 1-9, high in 10, even after 24 mos.
- Which firms price in non-dollars: one large sector, or small fraction in each sector
- Useful to relate choice of currency of invoicing to sectoral characteristics

Why narrow focus: PCP vs. LCP?

- PCP: flexible dollar prices
- LCP: sticky dollar prices
- GR '07: lots of heterogeneity in stickiness across LCP goods
- Relationship between pass-through and frequency of adjustment?
 - GR'07: more flexible goods \rightarrow lower pass-through
 - Inconsistent with e accounting for frequency of price changes

Kehoe-Midrigan '07: does stickiness of prices account for sectoral relative price variability?

- Sector (e.g. food) i 's real exchange rate (e.g. US-AUS)

$$q_{it} = e_t + P_{it}^* - P_{it}$$

- Calvo model w stickiness λ_i predicts

$$q_{it} = \lambda_i q_{it-1} + \lambda_i \Delta e_t$$

where λ_i = infrequency of price adjustment

Implications of theory

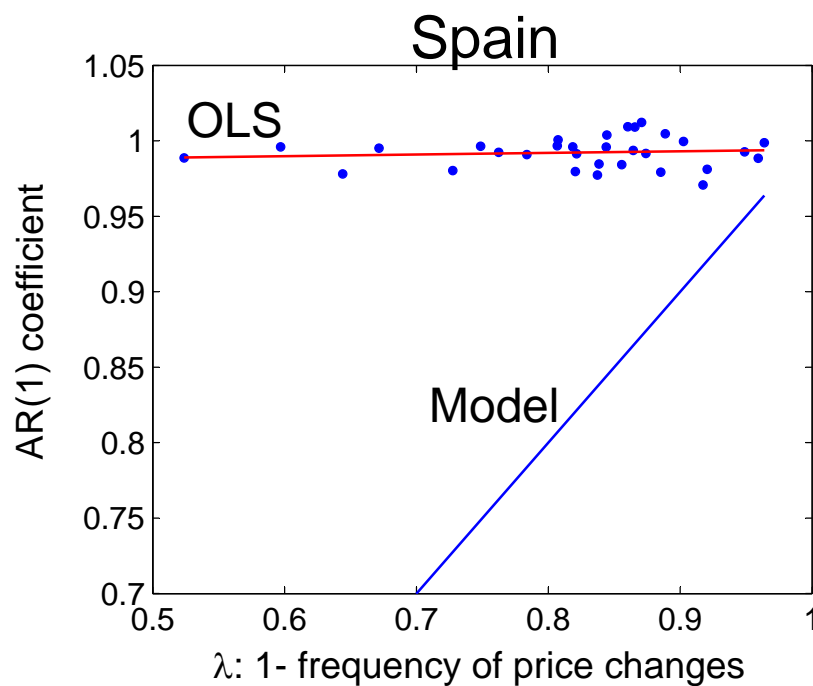
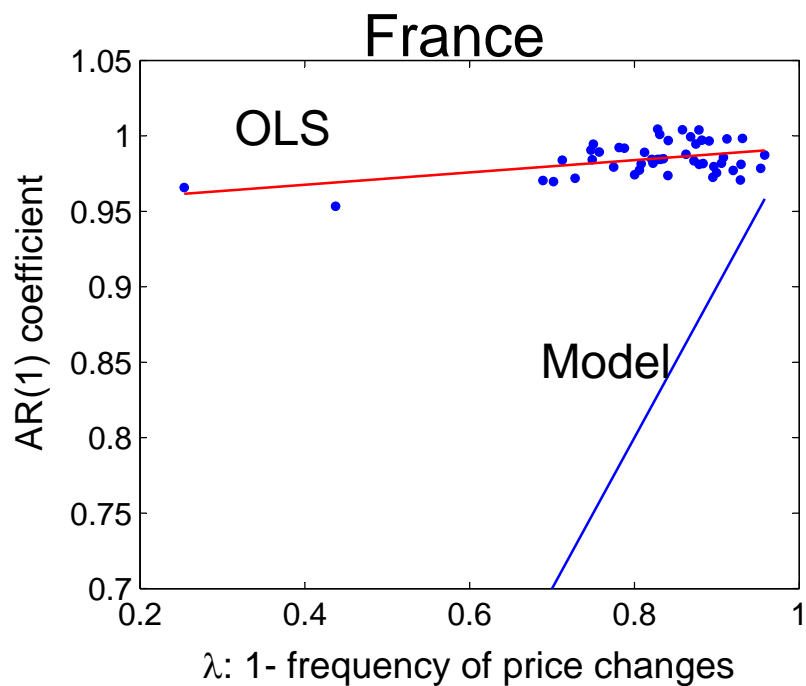
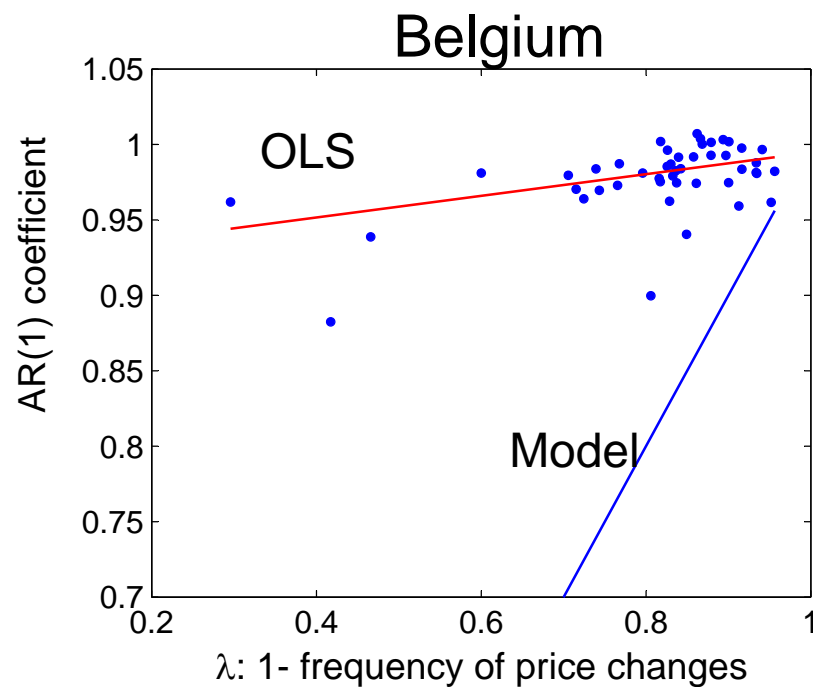
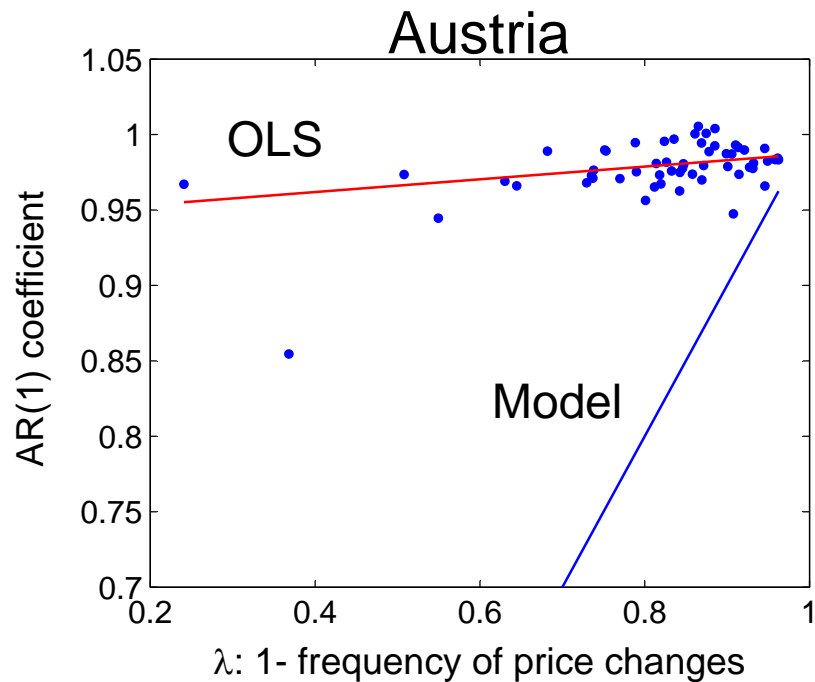
$$q_{it} = \lambda_i q_{it-1} + \lambda_i \Delta e_t$$

- Persistence
 - Persistence of q_i = infrequency of price adjustment
- Volatility
 - $\frac{\text{Volatility of } q_i \text{ innovations}}{\text{Volatility of } \Delta e} = \text{infrequency of price adjustment}$

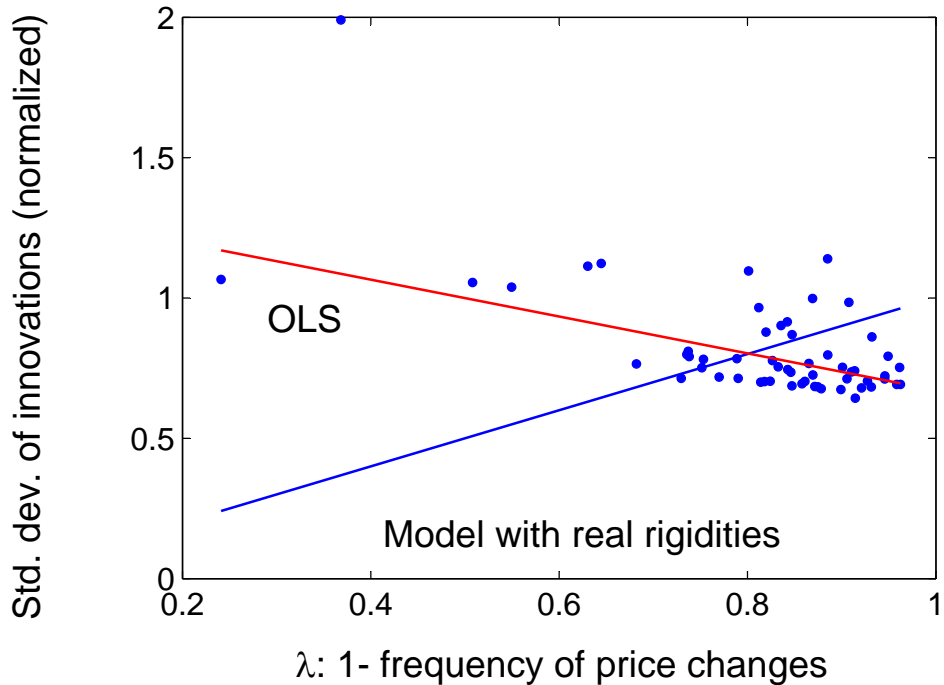
Data

- Infrequency of price adjustment for 66 consumption goods
 - Austria, Belgium, France, Spain, US
 - Example of goods: Meat, Beer, Dental Services, Books, ...
 - Primitive data: store-level on prices of specific items
- Good-level real exchange rates against US:
 - Source of price data: Eurostat & BLS, monthly (1996-2006)

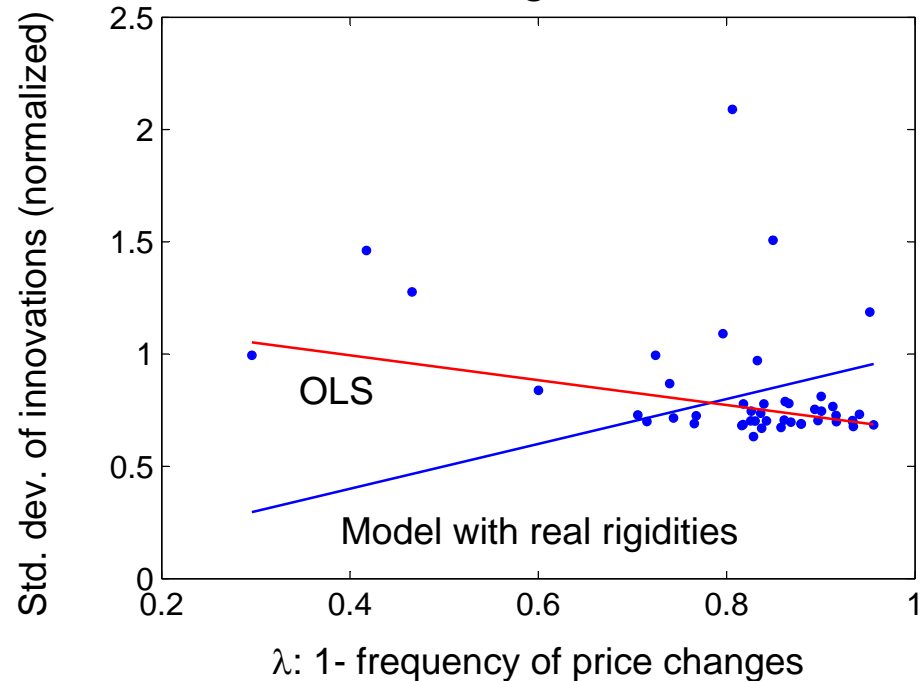
Stickiness vs. Persistence: 1996-2006



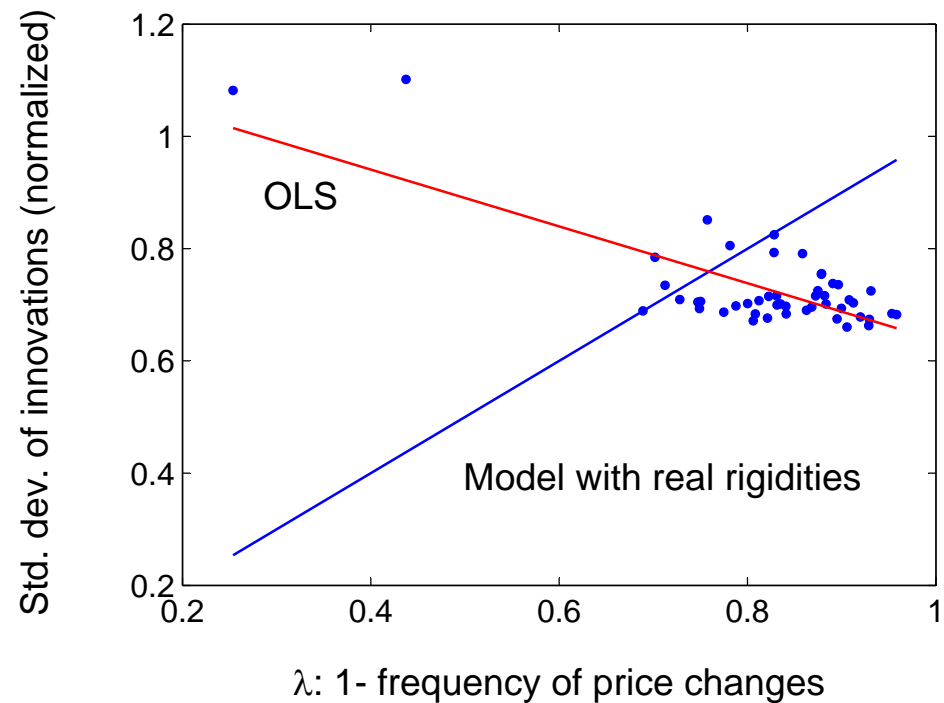
Austria



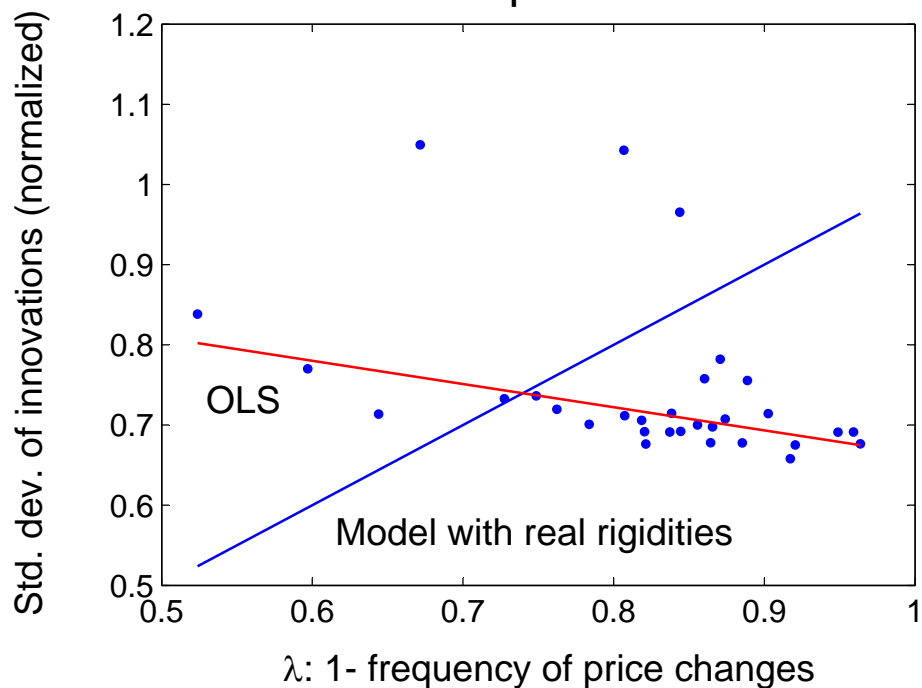
Belgium



France

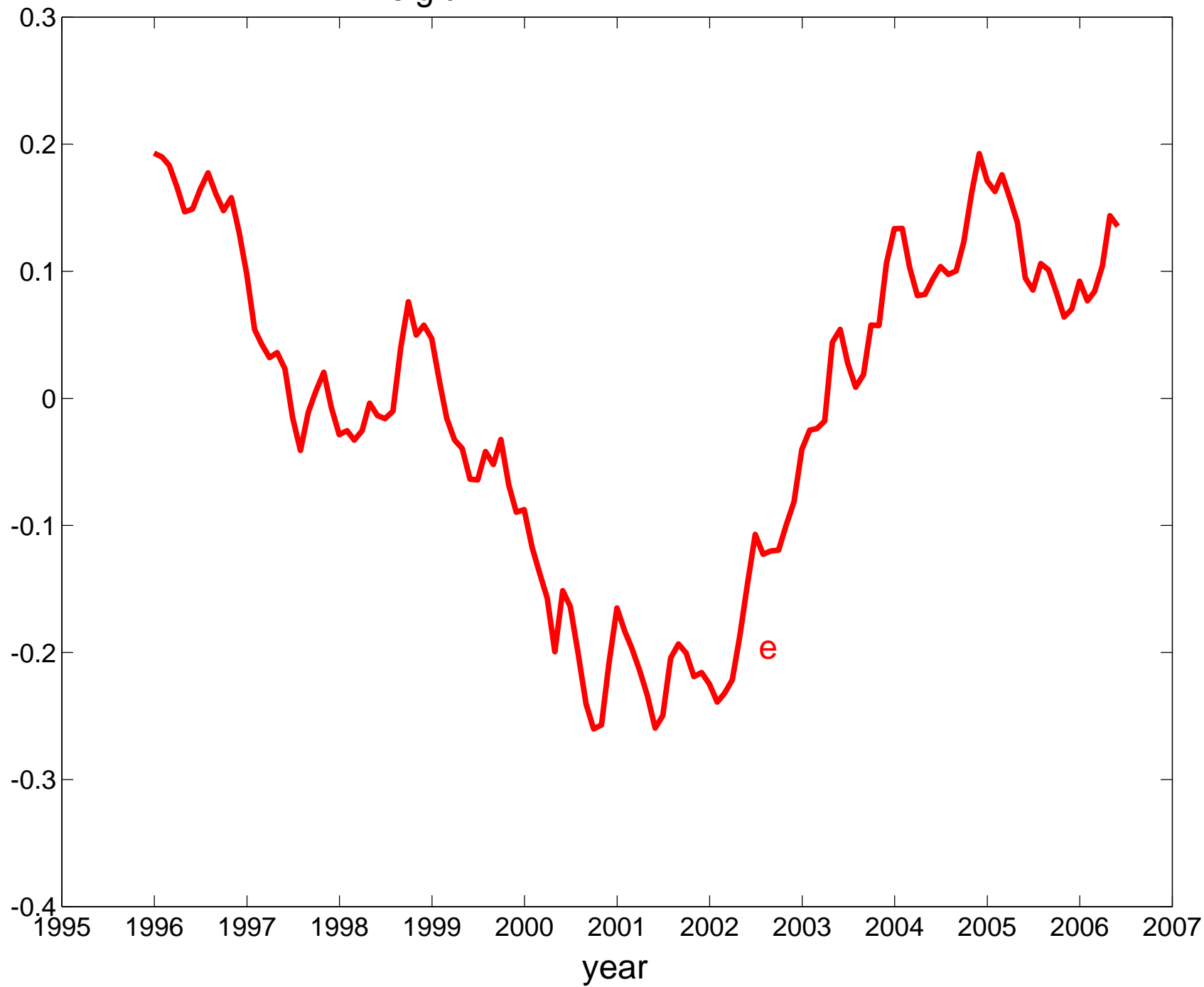


Spain



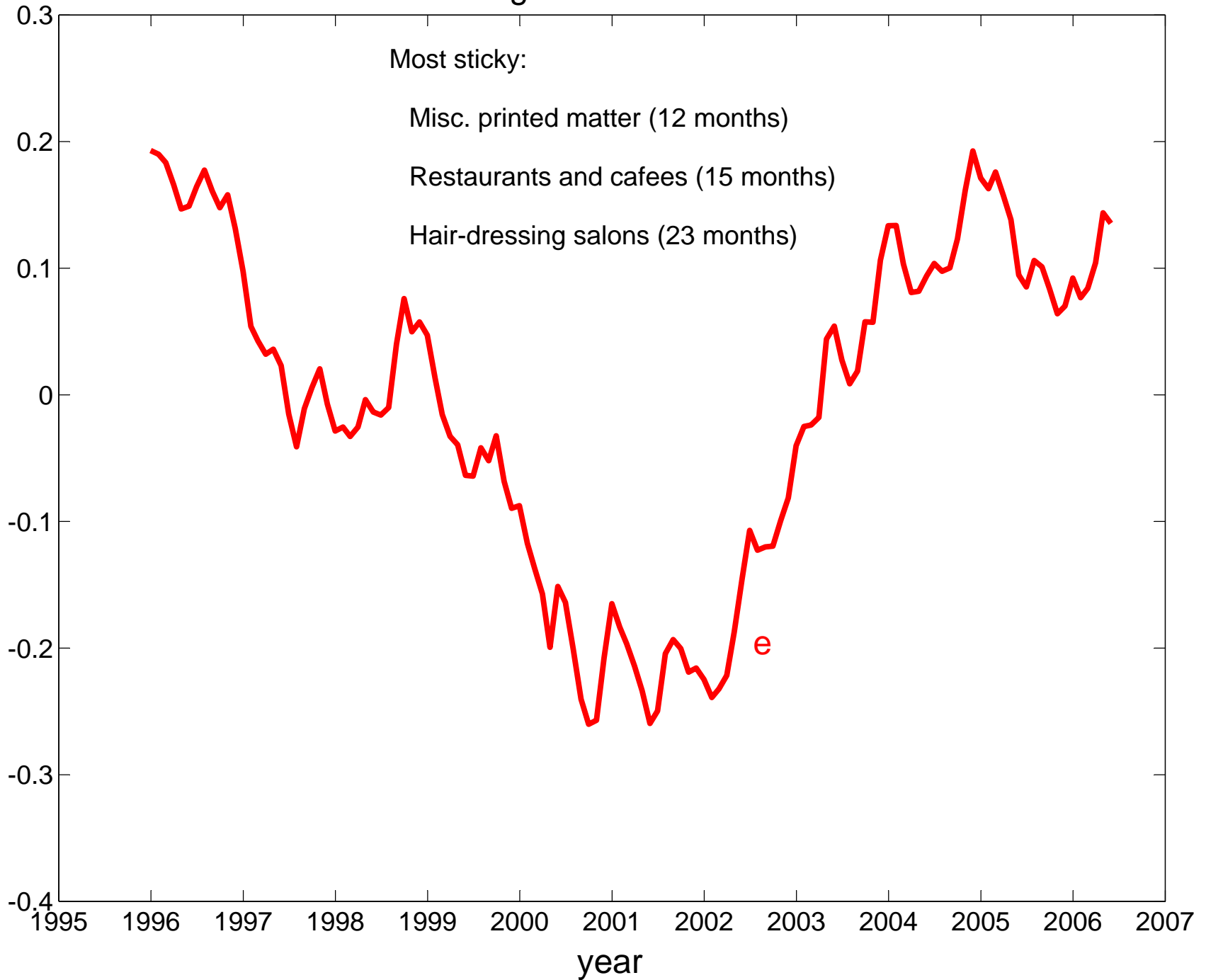
Sectoral real exchange rates: most and least sticky sectors

Belgium

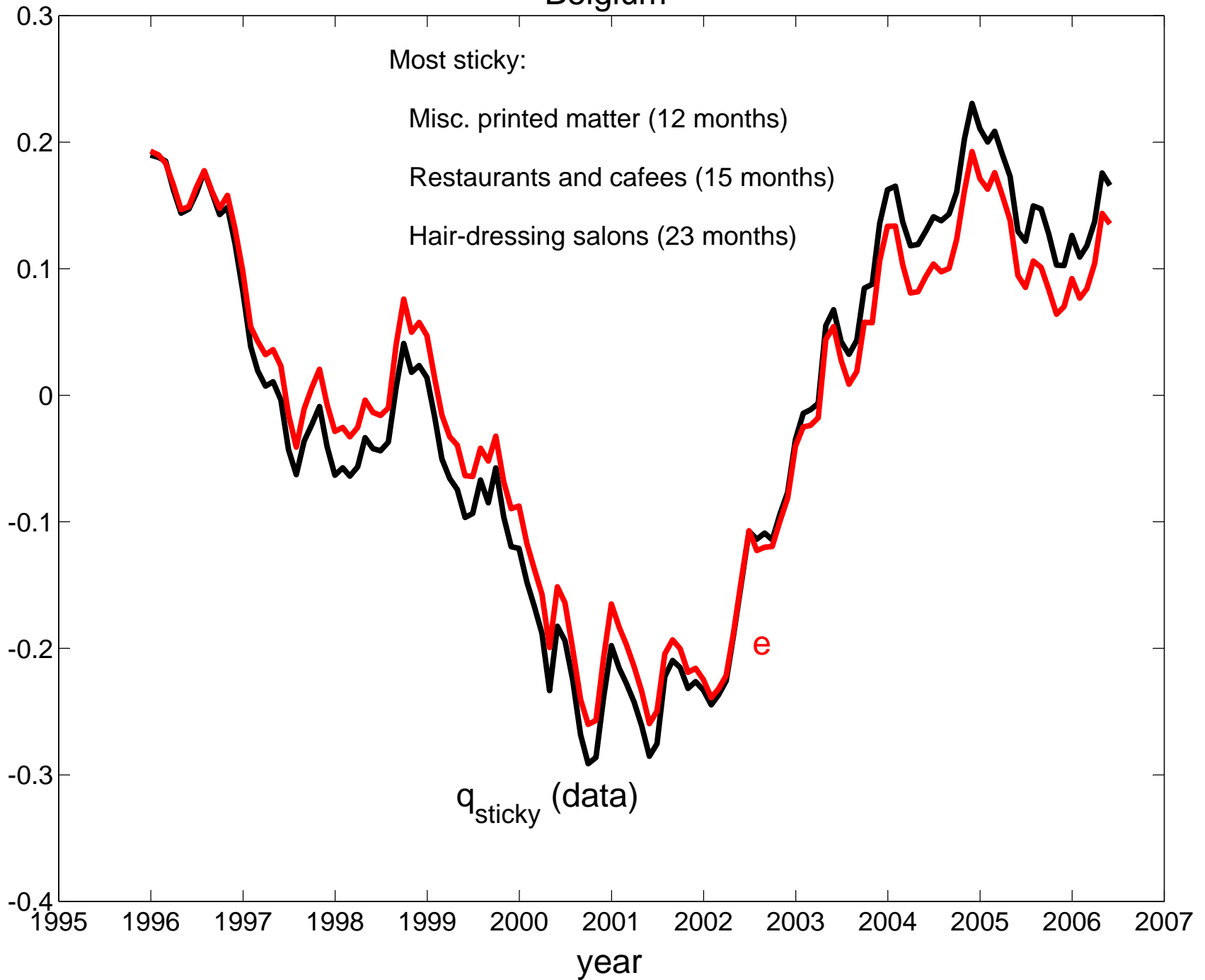


Sectoral real exchange rates: most and least sticky sectors

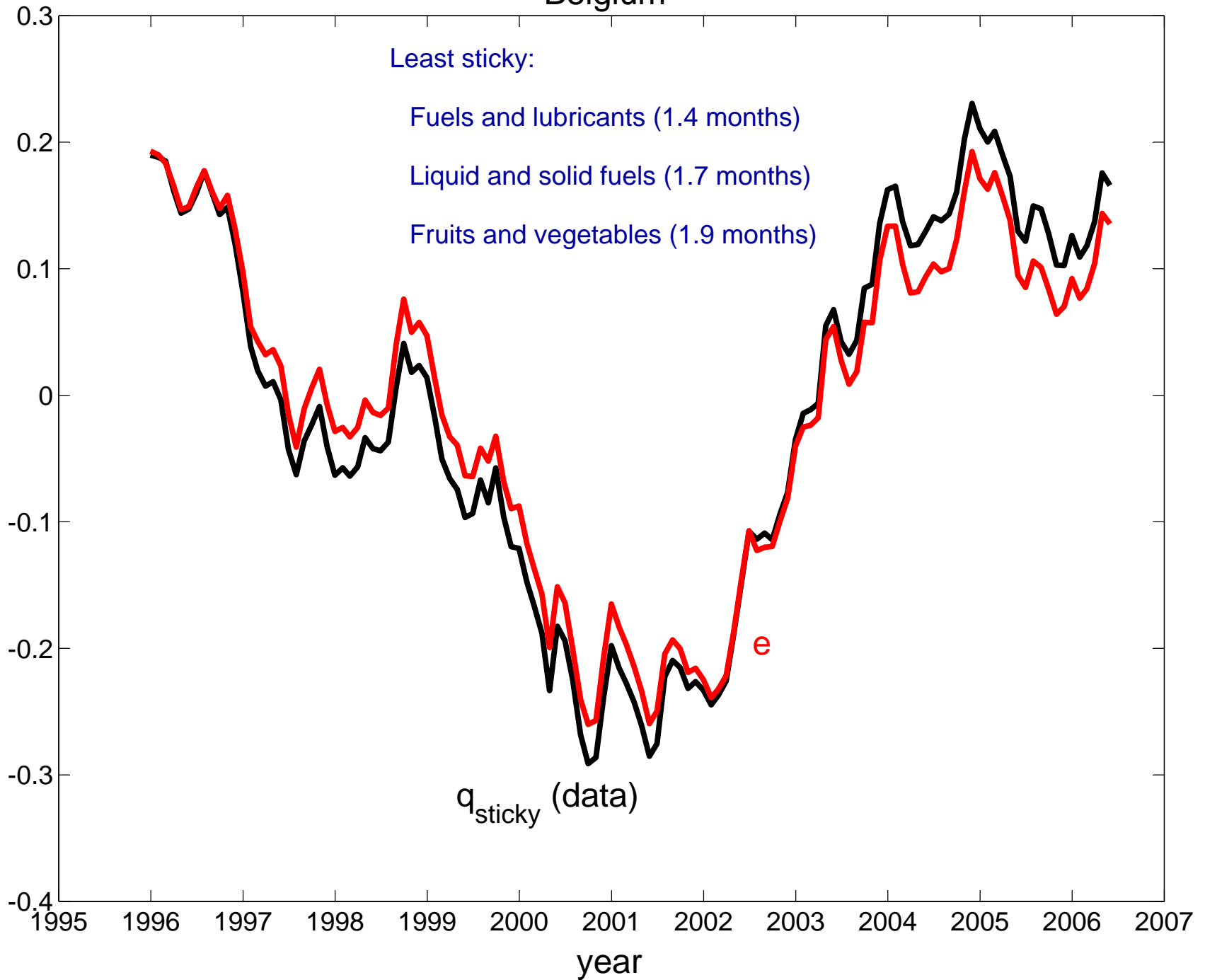
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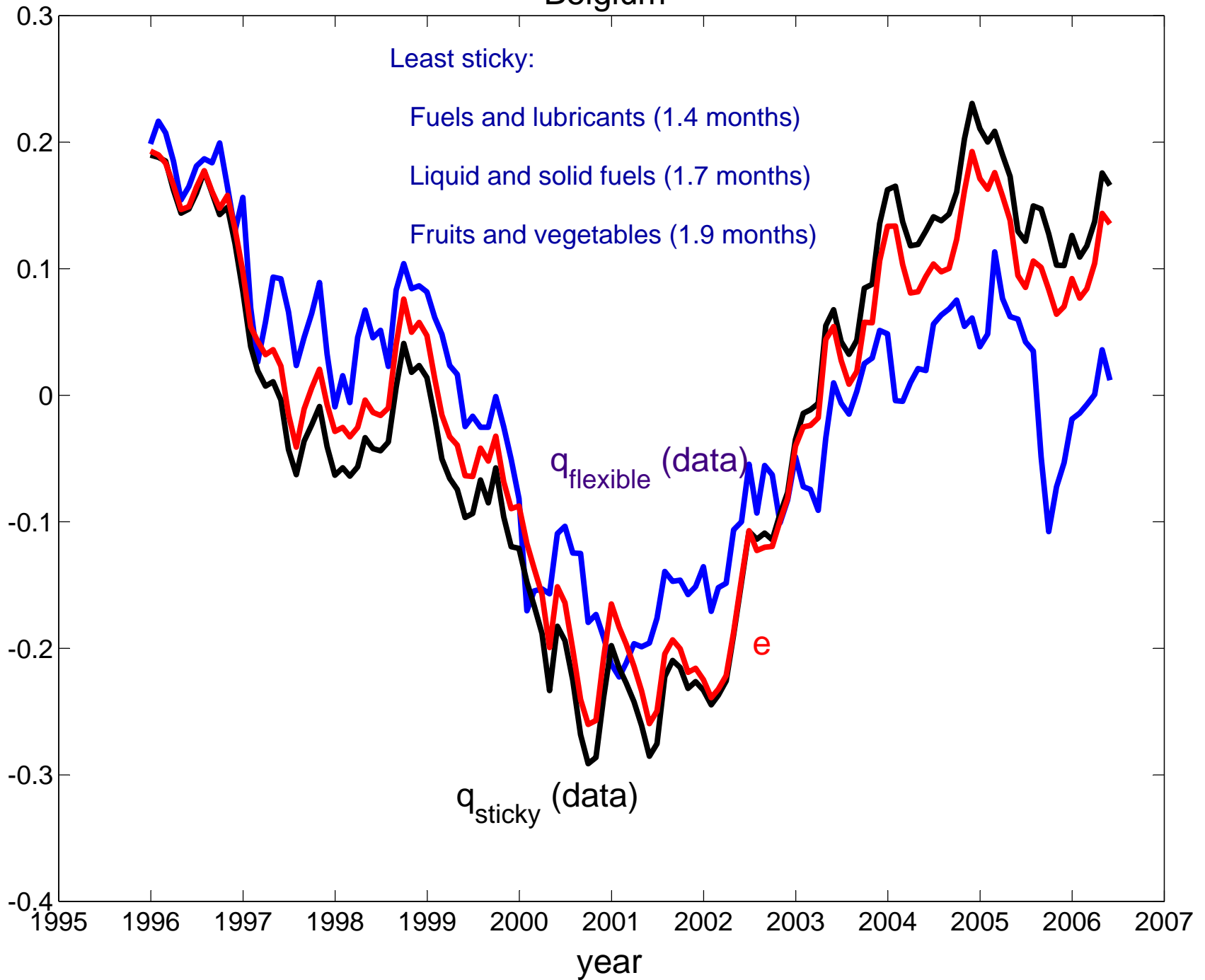
Sectoral real exchange rates: most and least sticky sectors Belgium



Sectoral real exchange rates: most and least sticky sectors Belgium



Sectoral real exchange rates: most and least sticky sectors Belgium



Cross-section evidence

- Theory
 - Sticky goods have persistent real exchange rates
 - Flexible goods have transitory real exchange rates
 - Why: adjusters' prices move to offset Δe
- Data
 - All goods have persistent real exchange rates
 - Why: adjusters' prices don't move to offset Δe

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Do pricing complementarities help?

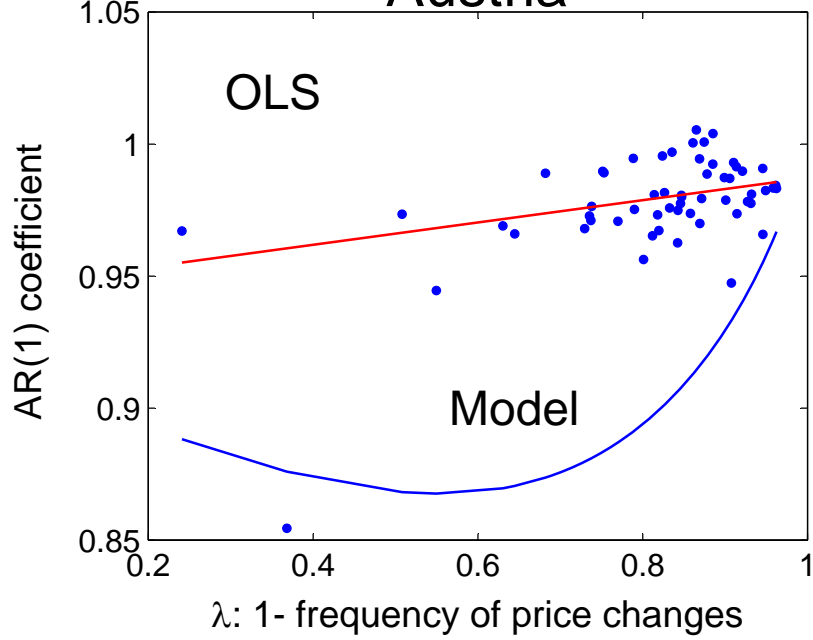
- Production: Generic firm buys goods from all other firms

$$y = m^\alpha l^{1-\alpha}, \quad m = \left(\int m_i^{\frac{\theta-1}{\theta}} di \right)^{\frac{\theta}{\theta-1}}, \quad m_i = \left(\int m_{i,z}^{\frac{\theta-1}{\theta}} dz \right)^{\frac{\theta}{\theta-1}}$$

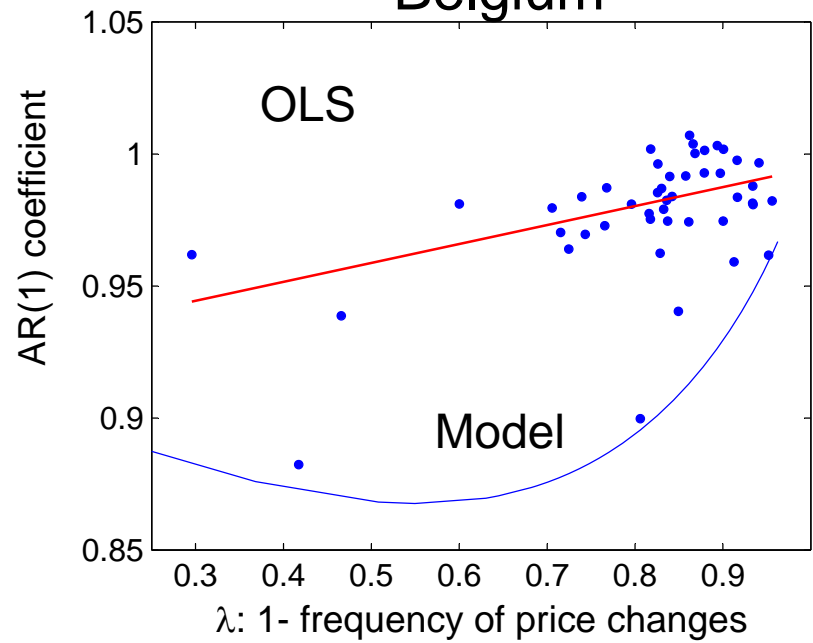
- Idea
 - Input costs of firms in all sectors move together
 - Stickiness of one sector spills over to other sectors
- Quantitative
 - Extreme case $\alpha = .99$

Economy with Pricing Complementarities

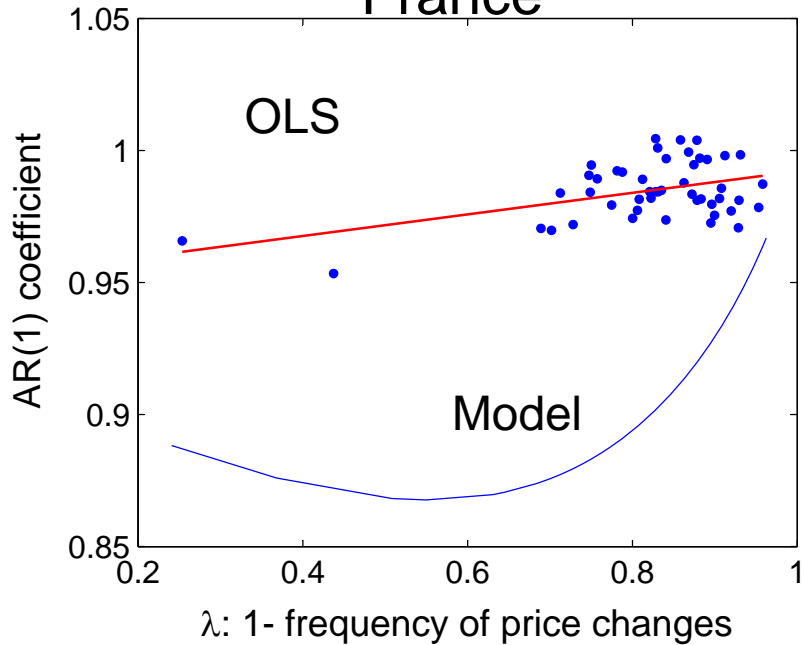
Austria



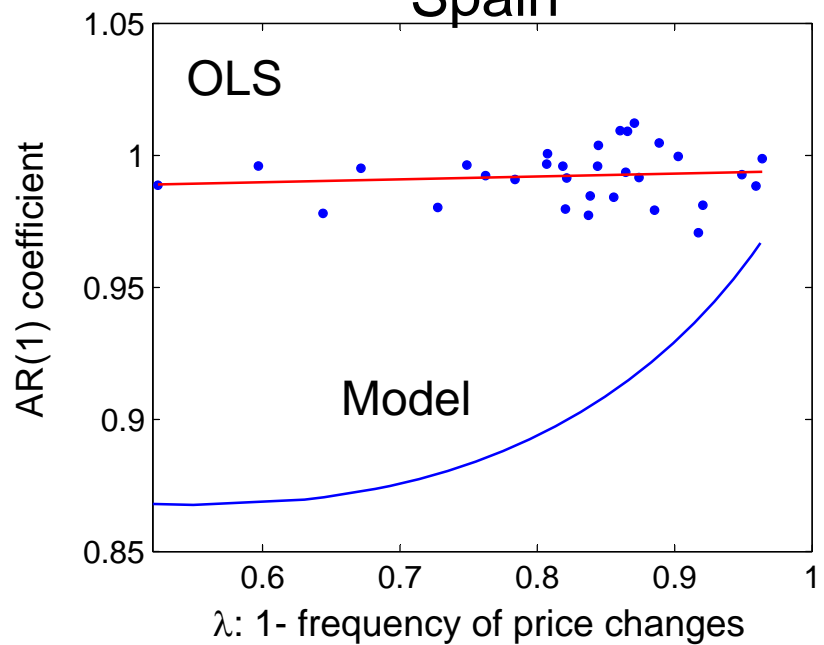
Belgium



France



Spain



Finding 2: significant real rigidities

- What does real rigidity mean?
 - Distance between what menu-cost model and data?
 - $1 - R_{model}^2$?
 - Klenow-Willis '07 used similar test for sticky information
- Need micro-data to discipline RR
- What characteristics of good determine pass-through /RR?

Finding 2: significant real rigidities

- Two types of real rigidities:
 - Type 1: high curvature of profit function in $\frac{p}{P}$
 - decreasing returns
 - specific factors
 - non-constant substitution elasticities
 - Predict prices change little, but $\Delta p = 10\%$ in data
 - Dotsey-King'05, Klenow-Willis'07: need huge menu costs/idiosyncratic volatility
 - Multi-product firms?
 - Type 2: sticky factor prices
 - Appears less relevant here if factor prices move little with e

Model and Data

- Show $\frac{d\bar{p}}{de}$ sufficient statistics for currency choice
- Show $\frac{d\bar{p}}{de}$ low for LCP and high for PCP firms
 - Direction of causality not obvious
 - Useful to know other characteristics of goods
 - Cross-country evidence
 - why do American exporters price in dollars?
 - Real rigidities in US larger than in US export markets?
- Partial Equilibrium setup:
 - Assume local producers costs move little with e
 - Difficult to generate in GE: $e \sim \frac{M}{M^*} \sim \frac{W}{W^*}$