Tradability and Goods' Prices: A Tale of Two Regions

Germán Gutiérrez
UW Foster

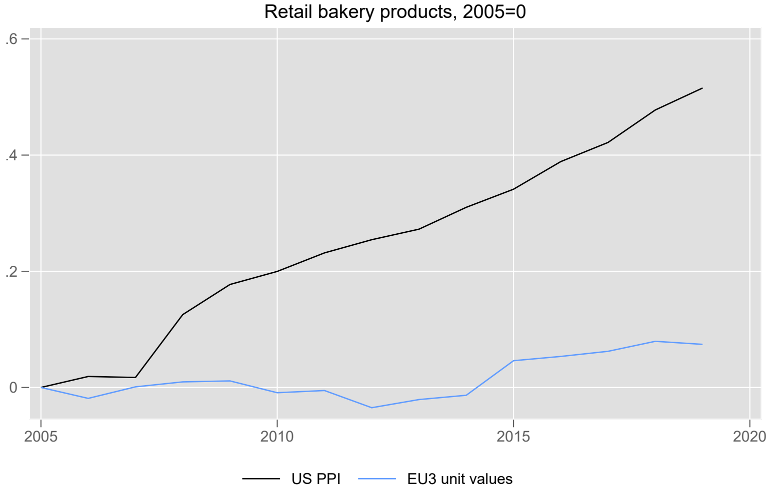
Joseba Martinez
LBS

Thomas Philippon
NYU Stern

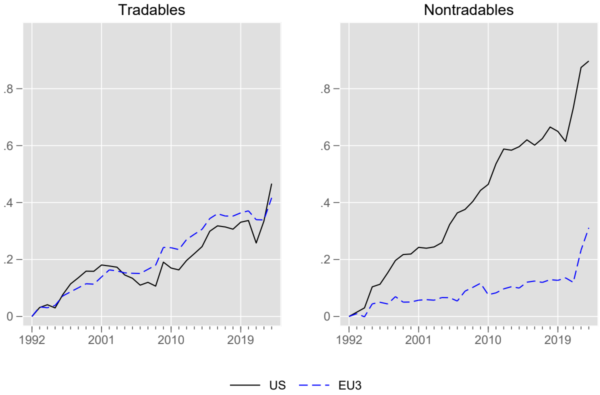
Sophie Piton
Bank of England

NBER SI Monetary Economics
July 2026

A tale of two regions: the price of bread



The divergence in US vs. EU manufacturing goods prices



Producer (GVA-deflator) prices, 1992–2023.

Tradables (ex. technology): textiles, machinery, transport eq. | Nontradables: food, wood & paper, chemicals, metals. Source: OECD STAN; EU3 = FR, DE, IT.

The divergence in U.S. and EU manufacturing-goods prices

1992–2019: U.S.–EU price gap

Nontradeables: $+53$ **log points** **Tradeables:** ≈ 0

- **Focus on manufacturing**
  Comparable (OECD STAN) industry-level data across countries [Boppart et al (2023)]; not large in GDP, but important in consumption baskets.

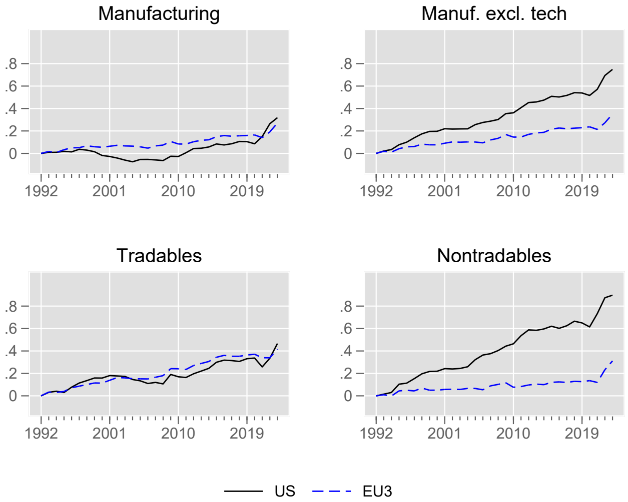
- **Exclude computers & electronics**
  Industries are not comparable across regions; more on this shortly.

- **Split by US "tradedness"** Table
  [Aghion et al (2001), Covarrubias et al (2019), Besley et al. (2021), Amiti & Heise (2024), Jaravel & Sager (2025)]

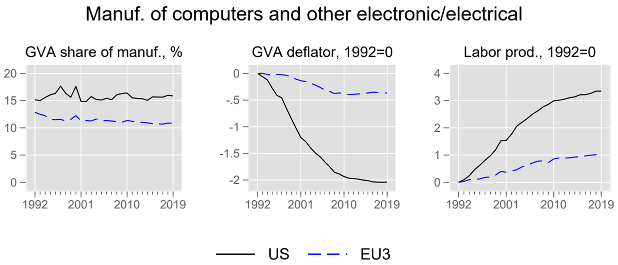
Outline

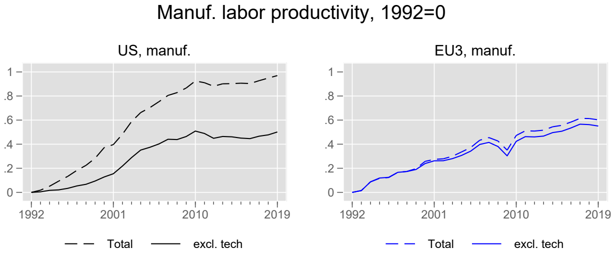
1. Documenting the divergence
2. Divergence decomposition : factor prices, technology, markup/returns to scale
3. Causal evidence for US industries
4. Implications of price divergence: how large is the incidence, and where does it fall?

Aggregate manufacturing and the technology sector

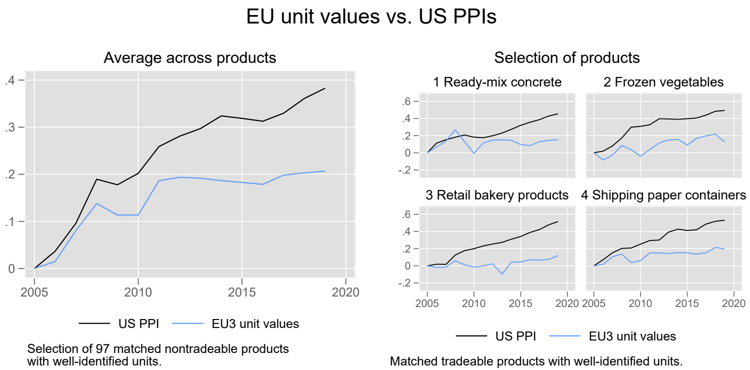


Technology manufacturing: prices and measured productivity





Best evidence: the divergence in NT prices is not due to unmeasured quality



97 matched nontradable products with standardized units; US BLS PPI vs EU3 Prodcom unit values (not quality-adjusted), 2005=0. Further evidence

An accounting decomposition of value-added prices

Accounting identities

$$\Delta \log P = \underbrace{\Delta \log W - \Delta \log \frac{Y}{N}}_{\text{unit labor cost}} - \underbrace{\Delta \log s^L}_{\text{labor share}},$$

$$\Delta \log s^L = \underbrace{\Delta \log c_L}_{\text{labor cost share}} + \underbrace{\Delta \log(1 - s^\pi)}_{\text{profit-share adjustment}} .$$

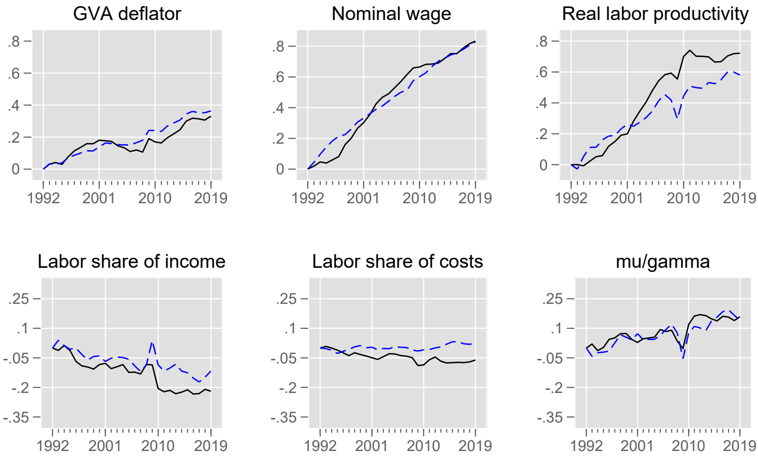
Combining the two identities

$$\boxed{\Delta \log P = \underbrace{\Delta \log W}_{\text{wages}} - \underbrace{\Delta \log \frac{Y}{N}}_{\text{labor productivity}} - \underbrace{\Delta \log c_L}_{\text{labor cost share}} + \underbrace{\Delta \log \frac{\mu}{\gamma}}_{\text{markup / returns to scale}}}$$

$$\frac{\mu}{\gamma} \equiv \frac{1}{1 - s^\pi} = \frac{PY}{WL + RK}, \qquad R = q_{K,t-1}\left[r_t + \delta_K\left(1 + \widehat{q}_{K,t}\right) - \widehat{q}_{K,t}\right].$$

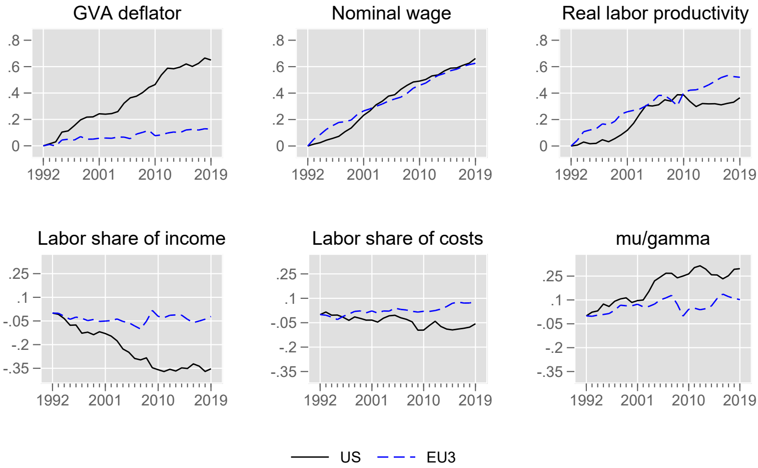
Capital user cost follows Barkai (2020).

Tradable decomposition

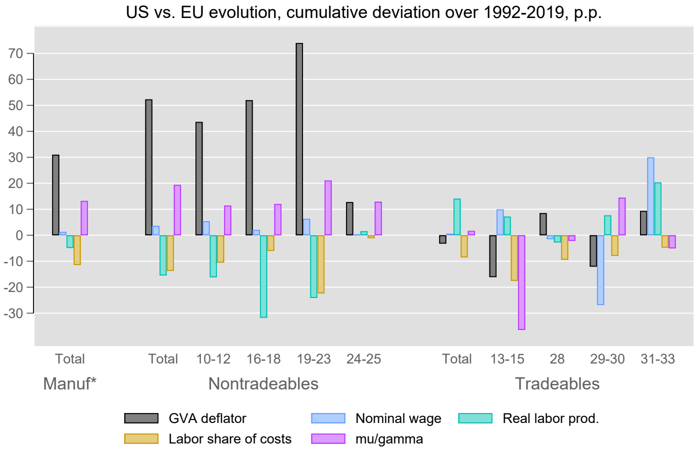


US = solid black EU=dashed blue

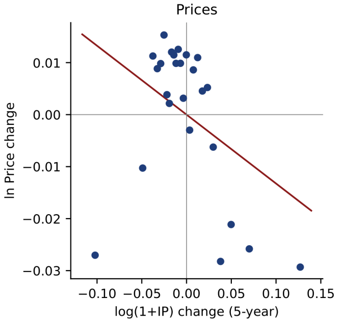
Nontradable decomposition



Industry-level decomposition



Import penetration lowers prices and profit shares (US)



- NBER–CES NAICS-6 panel; import penetration instrumented by PNTR $\times$ post-2001 [Pierce & Schott, 2016]
- A 10pp rise in import penetration: prices -2.5% [Jaravel & Sager (2025)], labor share $+4.5\%$, profit share -13%

Household incidence 1/2

Feed the industry-level US−EU3 nontradable price wedges δ_i through the U.S. input–output structure:

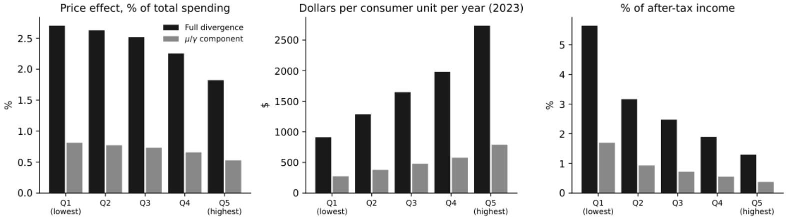
$$d \log p = (I - A')^{-1}(s_v \circ \delta),$$

with A the direct-requirements matrix and s_v value added per unit of output; weight $d \log p$ by the domestic content of personal consumption expenditure.

- Assumptions: take input-output matrix as given; full passthrough of nontraded price divergence by downstream sectors
- Distributional implications: map the price effects to consumer categories $\times$ CEX 2023 expenditure shares by income quintile [Kaplan & Schulhofer-Wohl (2017), Jaravel (2019)]

CPI-PPI

Household incidence 2/2



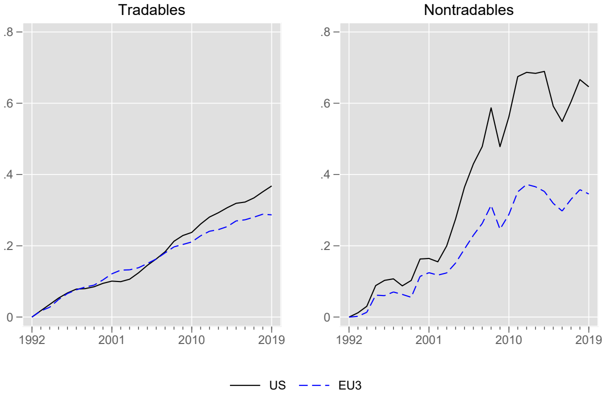
- Average incidence of US-EU NT wedge: USD $3,200 per household-year, of which $920 due to μ/γ (2.2% and 0.65% of US consumption, respectively)
- **Regressive**: For poorest/richest quintiles: 5.5% / 1.25% of after-tax income

Conclusion

- Cross-country comparisons of living standards are fraught with measurement difficulties; this paper focuses on sectors where comparisons are possible
- We isolate a narrow but welfare-relevant contributor to the gap in U.S. vs E.U. living standards
- In industries most shielded from international competition US prices rose much faster than Europe's over 25 years
- Accounting decomposition: 1/3 of divergence is markups net of returns to scale; remainder is productivity and factor prices
- Significant, regressive incidence on US households

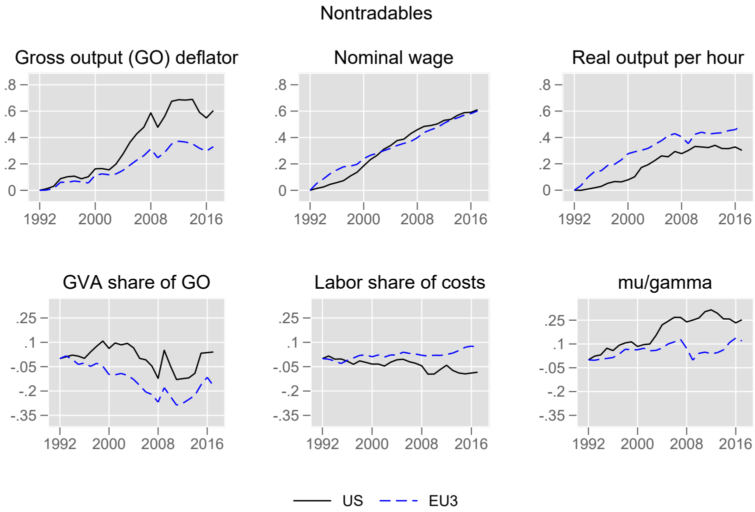
Thank you

A tale of two regions: GO deflators

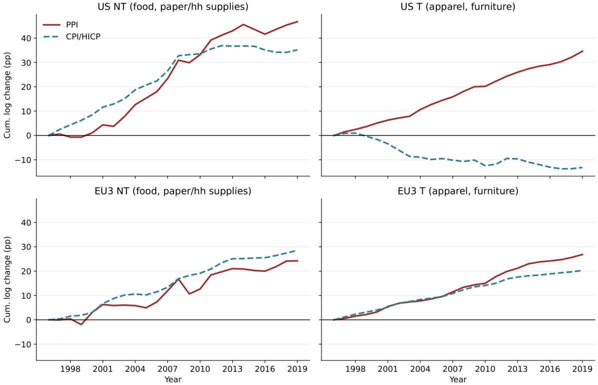


Output (VA+intermediates) prices, 1992–2023. Tradables (ex. technology): textiles, machinery, transport eq. | Nontradables: food, wood & paper, chemicals, metals. Source: OECD STAN; EU3 = FR, DE, IT.

A tale of two regions: GO deflators



Matching producer and consumer prices



- US NT PPI-CPI wedge is explained by distribution margins
- US T PPI-CPI wedge is largely due to differences in quality adjustment [Atalay et al (2025)]

Unit values   Incidence

A structural counterpart to the accounting decomposition

CES production with returns to scale γ and markup pricing:

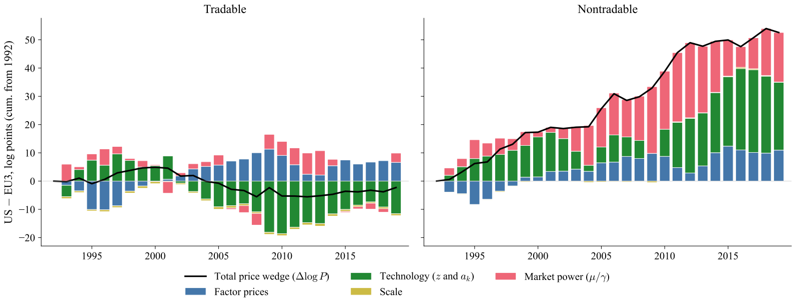
$$Y^{1/\gamma} = z\left[a_k K^{\frac{\epsilon-1}{\epsilon}} + L^{\frac{\epsilon-1}{\epsilon}}\right]^{\frac{\epsilon}{\epsilon-1}}, \qquad P = \mu \times MC$$

Cost minimization implies, exactly (Grilliches & Jorgenson (1967)):

$$\Delta \log P = \underbrace{\bar{c}_L \Delta \log W + \bar{c}_K \Delta \log R_k}_{\text{factor prices}} + \underbrace{\tfrac{\epsilon}{1-\epsilon}\, \bar{c}_K \Delta \log a_k - \Delta \log z}_{\text{technology}} - \underbrace{\tfrac{\gamma-1}{\gamma} \Delta \log Y}_{\text{scale}} + \Delta \log \tfrac{\mu}{\gamma}$$

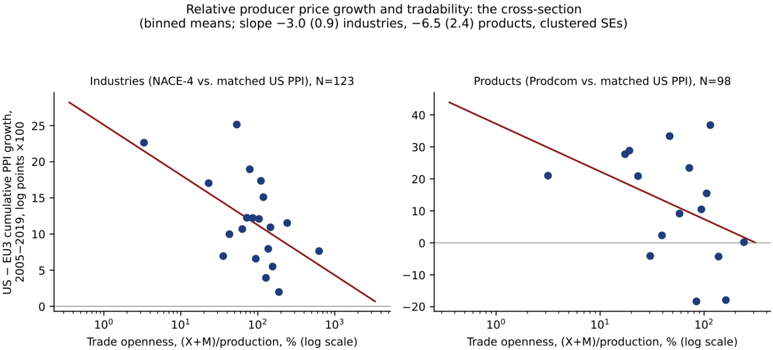
- Calibration: R_k user cost as in the baseline; ϵ by industry from Oberfield & Raval (2021); $\gamma = 1.05$

Contributions to the price wedge over time



Bars: cumulative contributions to the US−EU3 price wedge (positive up, negative down); line: total wedge. In nontradables, μ/γ drives the wedge through 2010; slower measured US technology growth adds to it after 2010. In tradables, contributions offset.

The price gap declines continuously in trade openness



Related literature

- Markups and prices. Syverson (2019); Ganapati (2021); Conlon, Miller, Otgon & Yao (2023): firm markups rise, industry prices need not.
  $\rightarrow$ the price-relevant object is μ/γ — markups net of returns to scale — which we link directly to prices.
- Trade and pricing discipline. Jaravel & Sager (2025); Amiti & Heise (2024); Covarrubias, Gutiérrez & Philippon (2019); Besley, Fontana & Limodio (2021).
  $\rightarrow$ we measure the accounting counterpart (profit shares) and embed the falsification test in a cross-country design.
- Factor shares and market power. Barkai (2020); De Loecker, Eeckhout & Unger (2020); Karabarbounis & Neiman (2014, 2018).
  $\rightarrow$ we tie profit-share dynamics to prices and to welfare, across countries.
- Deflator measurement. Byrne et al. (2016); Atalay et al. (2025).
  $\rightarrow$ we exclude technology and use homogeneous products and independent price levels.

Tradable vs. Nontradable Industries

		Openness ratio (%)		
		US 1992–2017	US+EU3 1992–2017	US+EU3 2000
Nontradable manufacturing industries				
C10T12	Food products, beverages & tobacco	15.5	34.1	29.7
C16T18	Wood and paper products, printing	17.2	37.2	36.3
C24T25	Basic metals and fabricated metal products	28.6	52.9	48.3
C19T23	Chemical & pharma, rubber, plastics, fuel	32.0	71.3	60.4
Tradable manufacturing industries				
C31T33	Furniture; other manufacturing	58.8	50.3	43.8
C29T30	Transport equipment	59.0	95.5	91.8
C28	Machinery and equipment n.e.c.	66.3	93.8	85.4
C13T15	Textiles, wearing apparel, leather	138.9	169.0	121.3
C26T27	Electrical, electronic & optical equipment	106.2	135.8	123.9

Nominal trade (imports+exports) to gross output. EU3: France, Germany, Italy.

Back

Baseline estimation

Main variables in the decomposition:

- Y, P, w, L observed at the industry-level : GVA, its deflator, average employee compensation per hour worked, and total hours worked (employees + self-employed)
- α^L: estimated following Barkai (2020)
- $\frac{\mu}{\gamma}$: residual

Barkai (2020) estimation:

- $pY = wN + RK + \Pi$ with $R = q_{K,t-1}\left[r_t + \delta_K\left(1 + \hat{q}_{K,t}\right) - \hat{q}_{K,t}\right]$
- r: nominal 10y bond yield (risk-free rate) from OECD. Robustness with r_t=4%.

Robustness

Data Sources

Main analyses:

- Source: National Accounts in comparable industry classifications from OECD STAN
- Time period: Cumulative changes from 1992 to 2019
- Sample:
  - US vs. EU3 (France: FR, Germany: DE, Italy: IT)
  - Manufacturing industries
- Similar results for all EU/Global, but shorter time series

Additional sources:

- Import + export exposure from OECD
- Granular prices from US PPI (BEA), EU PPI (Eurostat), as well as EU ProdCom unit values
- Macro-data for cost-share estimation