# Tradability and Goods' Prices: A Tale of Two Regions


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# Have US prices diverged?

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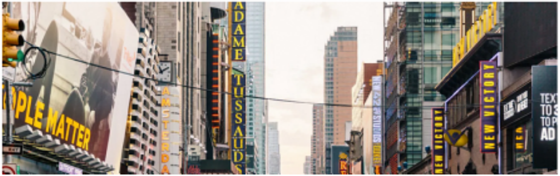
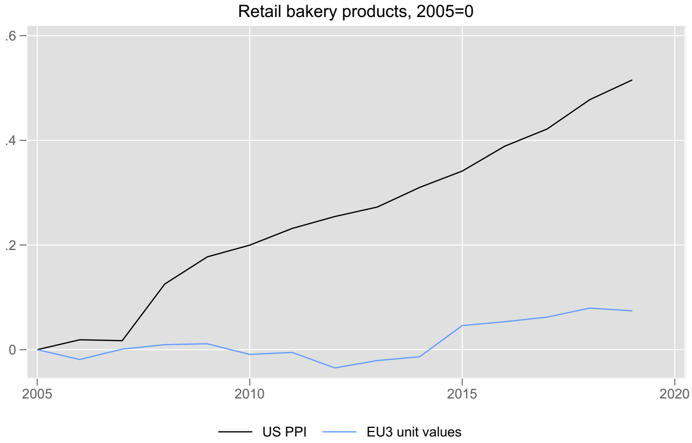
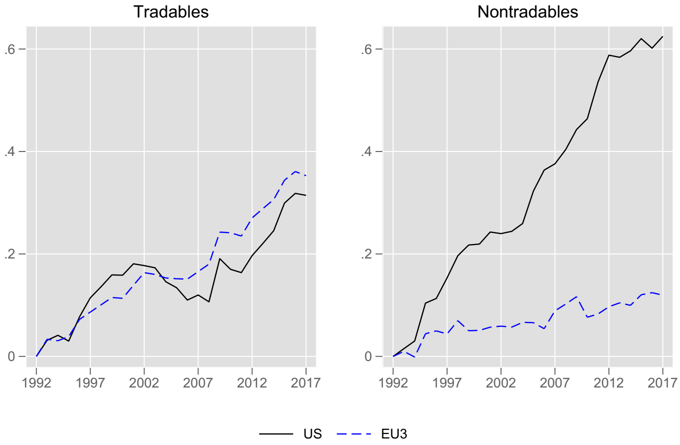


# Have US prices diverged? A look at the data: bread, +40% price increase since mid-2000s



# The divergence in US vs. EU manufacturing goods prices




Source: authors' calculations using OECD STAN. EU3 = France, Germany, Italy. Manufacturing excluding computers.

# This paper

$\rightarrow$ Why did US nontradable goods prices rise so much faster than in the EU?

**What we do:**

1. Decomposing price changes to identify contribution of costs, productivity and markups net of returns to scale ($\mu/\gamma$), and apply to US–EU data: divergence concentrated in nontradables and reflect both slower productivity growth and rising $\mu/\gamma$,
2. CES production model to connect decomposition to economic primitives, recovering technology and market power parameters,
3. Further investigate how trade affected goods prices in the US: causal US evidence that greater import penetration reduces prices and profit shares.

# Why? A Decomposition of Prices

Decomposing changes in nominal gross value-added prices at the industry level:

$$\Delta \log P = \underbrace{\Delta \log W - \Delta \log \frac{Y}{N}}_{\Delta \log \text{ULC}} - \underbrace{\Delta \log s^L}_{\text{Change in Labor Share}} \tag{1}$$

with

$$\Delta \log s^L = \underbrace{\Delta \log c_L}_{\text{Labor Cost Share}} + \underbrace{\Delta \log(1 - s^\pi)}_{\text{1 - Profit Share}}.$$

Combining these relationships yields:

$$\Delta \log P = \Delta \log W - \Delta \log \frac{Y}{N} - \Delta \log c_L + \Delta \log \frac{\mu}{\gamma} \tag{2}$$

Note that we cannot disentangle $\mu$ from $\gamma \rightarrow$ we focus on $\frac{\mu}{\gamma}$, a function of the profit share.

# Implementing the decomposition: Data Sources

**Main analyses:**

- Source: National Accounts in comparable industry classifications from OECD STAN
- Time period: Cumulative changes from 1992 to 2017
- 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

# 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)
- $\alpha^L$: 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%.
- $q_K$: investment price from STAN. As in most of the literature (e.g. EU KLEMS), we use a moving average for $\hat{q}_{K,t}$. Robustness with no capital gains/losses.
- We infer the depreciation rate from STAN assuming countries use the perpetual inventory method to compute $K$, such that $\delta_t = 1 - \frac{K_t - I_t}{K_t - 1}$

Robustness

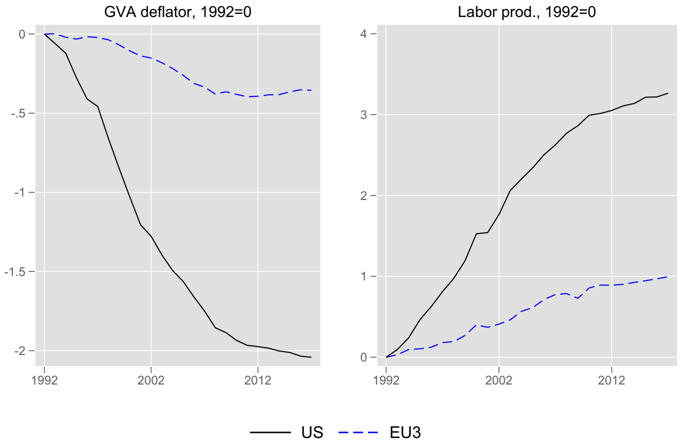
# Why Manufacturing Industries?

1. More comparable price data for cross-country comparisons
2. Central role in macroeconomic trends, despite being 10% of GDP:
   - biggest driver of the decline in the US labor share relative to the EU (Gutiérrez and Piton, 2020) LS
   - biggest driver of the post-GFC productivity slowdown (Syverson, 2016)
3. Quantitatively important for welfare: goods, especially nontradables, feature prominently in the CPI basket (e.g. food manufacturing is one-third of the CPI basket)

We classify manufacturing industries as tradable or nontradable based on their trade openness (X+M/GO) in the US.

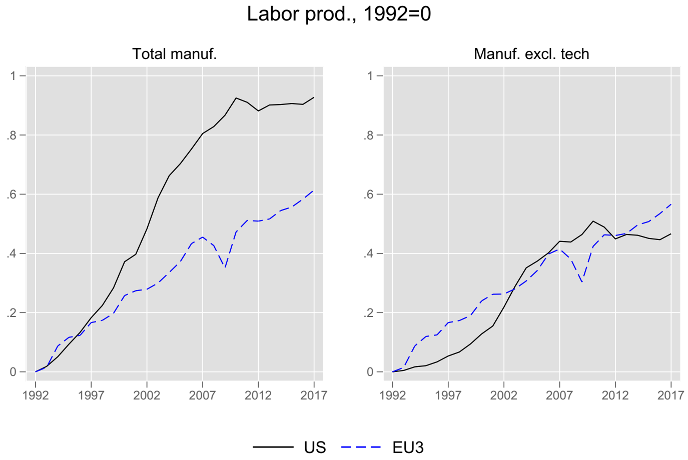
Table

# Technology: importance of quality adjustments

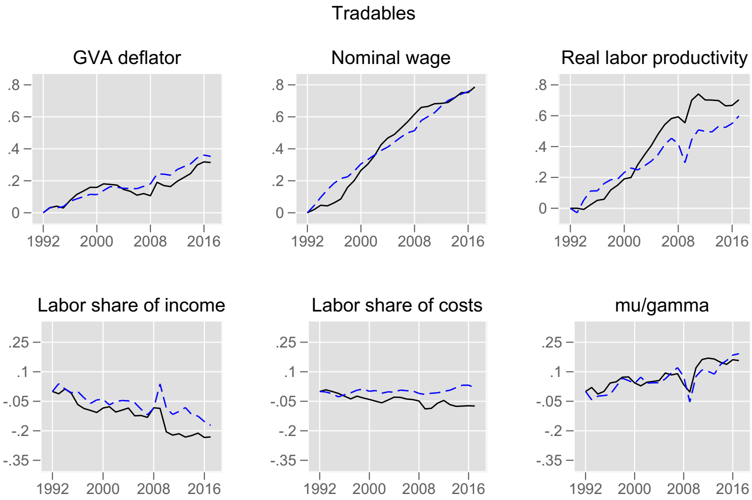



Technology manufacturing: computers, electronics, optical products, and electrical equipment (ISIC Rev. 4 industries C26–C27).

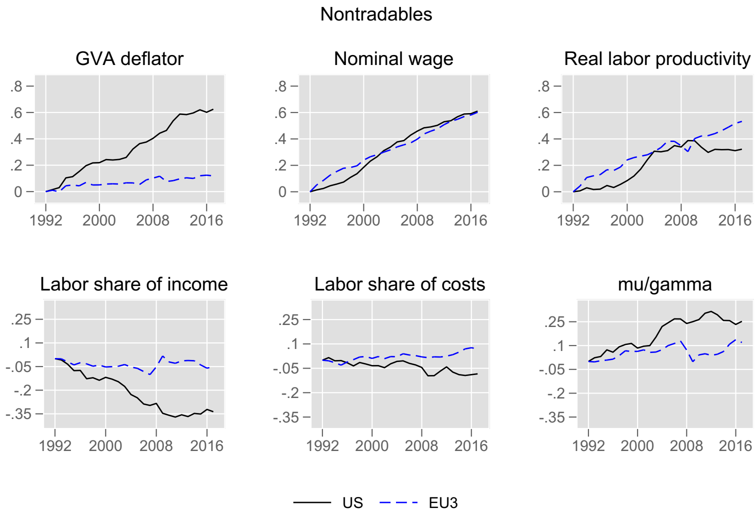
# Contribution of technology to productivity growth



# Tradable Manufacturing: Remarkably similar prices and profits



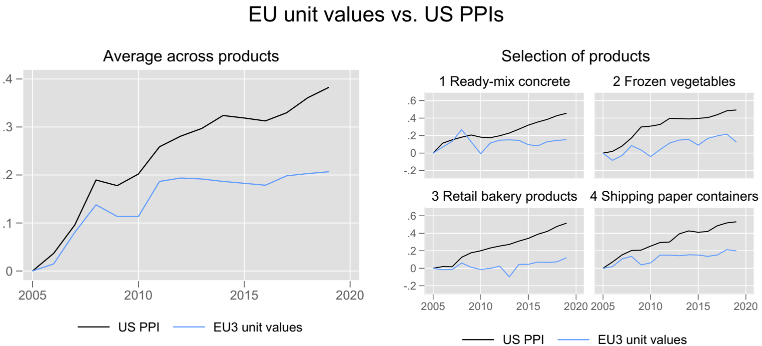
# Nontradable Manufacturing: Rising prices and profits in US




Implications | Industy details

# Product-level prices

→ Look at narrowly defined homogeneous products (standardized units, consistent production methods, little quality change).
→ US PPI prices vs. EU Prodcom unit values (not quality adjusted).




Selection of 97 matched nontradeable products with well-identified units.

Matched tradeable products with well-identified units.

# Connecting to Economic Primitives

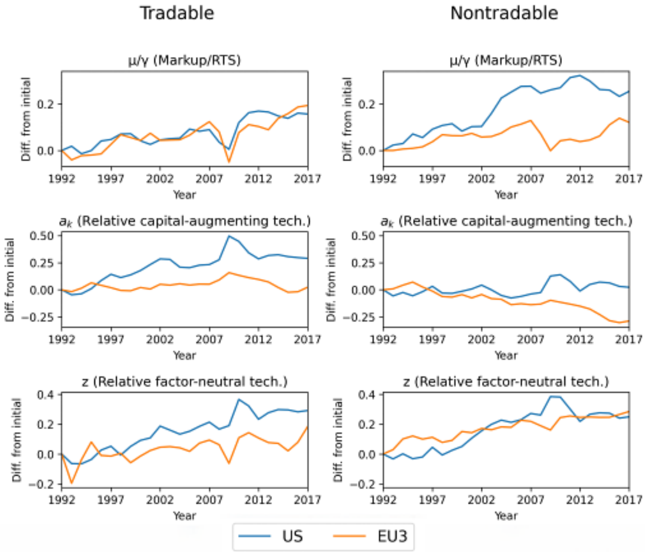
→ Embed decomposition in a CES production framework to recover measures of capital- and factor-neutral productivity as well as *mu/gamma*

- Production function: $Y^{\frac{1}{\gamma}} = z\left[a_k K^{\frac{\epsilon_{kl}-1}{\epsilon_{kl}}} + L^{\frac{\epsilon_{kl}-1}{\epsilon_{kl}}}\right]^{\frac{\epsilon_{kl}}{\epsilon_{kl}-1}}$

  with $a_k$ relative capital technology improvement and $z$ is factor neutral relative to labor augmenting technical change.
- $\min R_k K + WL$ s.t. $X = 1$, with $Y^{\frac{1}{\gamma}} = zX$
- by definition, $\frac{\mu}{\gamma} = \frac{PY}{WL+R_k K}$, irrespective of the pricing game.

→ Calibrate model and back-out contribution of tech. differences and rising market power to the US-EU price divergence Calibration

# Model-implied technology and markups



# Prices and profits increased most in US manufacturing industries *less* exposed to import competition

→ Divergence in US vs. EU NT goods prices reflect domestic factors (market structure, exposure to competition) rather than global technology trends.

→ Next step: investigate relation between price/profits and import penetration in US granular industry data.

- NBER-CES granular industry data with prices (PPI), profits (Barkai (2020) estimation) and import penetration [M/(M+domestic shipments)].
- Look at impact of import penetration on profits and prices, instrumenting import penetration using industry heterogeneity in the impact of granting PNTR to China in 2000 (Pierce and Schott, 2018):

$$\Delta \log y_{it} = \beta \, \Delta \mathrm{IP}_{it} + \alpha_i + \delta_t + \gamma X + \varepsilon_{it},$$

- Find that prices and profits increased most in industries with *lower* increases in import penetration.

# Conclusion

- We decompose prices into contributions of unit labor costs, labor shares, and markups net of returns to scale for US and EU manufacturing.
- We find rising relative US *nontradable* manufacturing prices reflecting mainly higher markups net of returns to scale.

→ Looking at the co-evolution of markups, productivity and prices is important to uncover whether markups reflect competition vs. technology.

→ Trade usually thought as pro-competitive, i.e. substitute to competition policy. This result suggests trade and competition policies should be thought as complements given heterogeneous impacts across industries.

Barkai, S. (2020). Declining labor and capital shares. *The Journal of Finance*, 75(5):2421–2463.

Gutiérrez, G. and Piton, S. (2020). Revisiting the global decline of the (non-housing) labor share. *American Economic Review: Insights*, 2(3):321–38.

Pierce, J. R. and Schott, P. K. (2018). Investment responses to trade liberalization: Evidence from u.s. industries and establishments. *Journal of International Economics*, 115:203 – 222.

Syverson, C. (2016). The slowdown in manufacturing productivity growth. *Brookings Briefs*.