The Role of Industrial Composition in Driving the Frequency of Price change

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The Paper in Brief

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- BEA and World KLEMS for industrial composition over the period 1947-2019;
- Nakamura and Steinsson (2008) for price-change statistics for CPI and PPI products averaged over the 1998-2005 period.

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- **Main Result 2:** The estimation of a multi-sector menu costs DSGE model shows that the shift from manuf. to services has flattened the Phillips Curve by 35.7% from 1947 to 2019.

Result 1

Table 1: Evolution of the Distribution of the Frequency of Price Change: 1947–2019

Year	10	25	50	75	90
1947	3.3	4.9	9.2	26.9	87.6
1957	3.3	4.6	8.9	25.1	61.7
1967	3.3	4.3	8.3	25.0	48.4
1977	3.4	4.3	8.2	25.0	48.7
1987	3.4	4.2	8.0	22.2	42.4
1997	3.4	4.2	7.8	16.8	41.9
2007	3.4	4.3	7.8	14.9	41.9
2017	3.4	4.2	6.9	12.4	41.7
2019	3.3	4.0	6.9	12.4	41.7

Result 1

Table 2: Industries with the Top 5 Largest Increases in Shares of the Economy: 1947 to 2019

Industry Name	Freq.	1947	1983	2019
Miscellaneous professional scientific and technical services	8.2	1.1	3.5	6.7
Ambulatory health care services	3.4	1.0	3.0	5.3
Hospitals Nursing and residential care facilities	6.3	0.9	3.1	4.6
Administrative and support services	4.3	0.5	1.8	4.1
Federal Reserve banks credit intermediation and related activities	3.5	1.7	3.9	4.8

The table reports the five industries whose shares in the economy increased the most from 1947 to 2019 (measured in absolute terms). The columns represent the industry name, the median frequency of price change of the industry, the share in 1947, the share in 1983, and the share in 2019. Sources: BEA, BLS, World KLEMS.

Table 3: Industries with the Top 5 Largest Decreases in Shares of the Economy: 1947 to 2019

Industry Name	Freq.	1947	1983	2019
Farms	94.8	10.0	1.7	0.9
Retail Trade	10.7	12.2	9.9	7.9
Food and beverage and tobacco products	22.2	5.8	3.1	1.8
Rail transportation	24.1	4.0	0.8	0.3
Primary metals	34.8	2.8	1.2	0.4

The table reports the five industries whose shares in the economy fell the most from 1947 to 2019 (measured in absolute terms). The columns represent the industry name, the median frequency of price change of the industry, the share in 1947, the share in 1983, and the share in 2019. Sources: BEA, BLS, World KLEMS.

1 Background

2 Comments

3 Conclusion

Main Comments: Empirical Part

Clarification Comments

- Not clear to me how you measure the frequency of price change outside the sample period 1998-2005 available from Nakamura and Steinsson (2008).

- Need to spend more time explaining the procedure used in the empirical session.

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  empirical session.

- Not sure if the reduction in the frequency of price change
  started soon after WWII or is a phenomenon of the last 40
  years accompanied by other stylized facts that can explain the
  change in the frequency of price change.

Main Comments: Empirical Part

- **Dig into the main reason why structural change has led to a flattening of the NKPC. ... and better investigates the role of other contributing causes.**

- $==>$ To provide a model that can better rationalize the results and also **explain other connected stylized facts.**

Comments: Related literature and Stylized Facts

- In the United States, both **the level and the dispersion of these markups** appear to **have increased** over the last few decades. (De Loecker et al., 2020 among many others).

- This increase has been accompanied by a **secular rise in industry concentration** (Grullon et al., 2019; Kwon et al., 2021, Autor 2019)

- **Oligopolization of US markets**, (Ederer and Pellegrino 2023, Pellegrino 2023, among others).

Comments: Relationship with other Stylized Facts

- What is the relationship between **increased markup (level and dispersion)** at the sectoral level and the frequency of price changes? (see Ricardo Marto 2023 and others).

- What is the relationship between **market structure, technological transformation ==> Oligopolization** of the sectors, and the frequency of price change?

- **Tradable vs non-Tradable** ==> Service ==> Mainly Non-Tradable sector face lower competition than tradable ==> higher markups ==> more concentrated market ==> lower frequency of price change?

Marto 2023: Structural Change and the Rise in Markups

Table 2.1: Average markups and sectoral shares

	Non-services			Services		
	1980	2015	Δ	1980	2015	Δ
Average markups (cogs)	1.13	1.21	7.3%	1.14	1.27	11.9%
Average markups (cogs + sga)	1.18	1.44	22.3%	1.19	1.65	37.8%
Average markups (sales)	1.17	1.47	25.5%	1.22	1.86	52.2%
Sectoral shares (comp + II)	54.0	28.6	-47.0%	46.0	71.4	55.1%
Sectoral shares (gross output)	47.4	27.6	-41.8%	52.6	72.4	37.7%

Note: The average markups are computed using Compustat data and sectoral shares using EUKLEMS data.

Is Monopolistic Competition the right framework?

Oligopolization of US industries:

- The newly-appointed chairman of the Federal Trade Commission suggests that a new paradigm in antitrust policy needs to be developed in response to the Oligopolization of US industries (Khan, 2018).

- ==> Oligopolization has affected also the frequency of price changes

- ==> Interpreting these trends through the lens of economic theory presents an imposing methodological challenge.

Oligopolization of US industries and the flattening of the NKPC

Why oligopoly might be the new alternative framework?

- In case of Oligopoly **strategic interaction** plays a role.

- **Strategic interaction ==> lower frequency of price changes and flattened Phillips curve**, Etro and Rossi (2015)

Alternative model: Bertrand Competition and Calvo pricing

Etro and Rossi (2015) framework with constant retailers, n:

$$\pi_t = \beta E_t \pi_{t+1} + \frac{\bar{\kappa}(n-1)[\theta(n-1)+1]}{\lambda[\theta-1+\theta n(n-1)]} \widehat{mc}_t$$

$\bar{\kappa} \equiv (1-\lambda)(1-\lambda\beta)/\lambda$: slope of the NKPC under MC. Also for n arbitrarily large and when $\theta \to 1$ (independent goods).

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- In all the other cases, the slope of the NKPC is smaller than under MC. It becomes a third of it in the case of duopolies.

- **Under Bertrand competition and Calvo pricing the NKPC becomes flatter** when the elasticity of substitution among goods increases or the number of firms decreases

Final Comment: What about the UK?

ONS evidence from UK economy:

- Average markups increased and mainly in the service sector;

- Greater increase in P90 $==>$ markup dispersion has increased.

- Percentage of GDP of service sector and its product variety has increased (almost 80% of GDP now).

- Oligopolization of the service sector.

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- An Alternative and more structured model can explain the flattening and structural changes.

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- **I can't wait to see future research on this topic!**