



# Economia, Finanza e Analisi dei Dati

Laurea Magistrale

## Data Analysis for Economics

### Topic 2: Prices and Taxation V (Summary)

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# Introduction and motivation

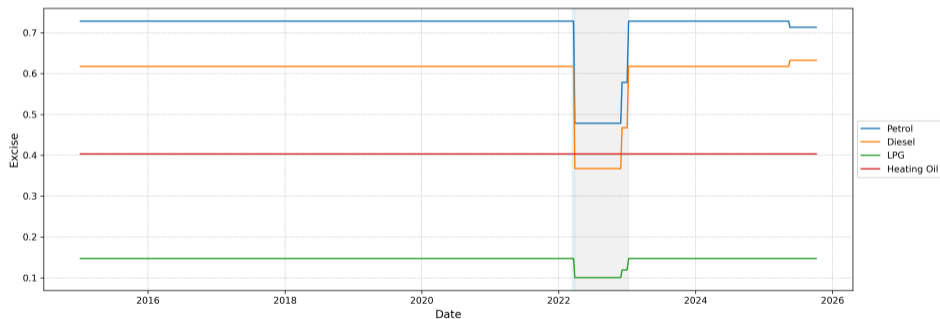
- ▶ The response of prices to taxation is a longstanding topic in economics.
- ▶ Economic incidence (who bears the burden) differs from statutory incidence (who pays the tax).
- ▶ The pass-through of excise taxes depends on the elasticities of supply and demand.
- ▶ A key determinant of pass-through is market structure:
  - ▶ In competitive markets, price is close to marginal cost, so tax-induced cost changes are more likely to be passed to consumers through higher prices.
  - ▶ In less competitive markets, firms with market power can absorb part of the tax through lower margins, resulting in lower pass-through to consumers.

## Related literature and contribution

- ▶ There is a large literature analyzing the pass-through of tax increases (or cuts) to consumers:
  - ▶ Fuel and carbon taxes: Harju, Kosonen, and Matikka (2022); Drolsbach, Gail, and Klotz (2023).
  - ▶ VAT changes: Benzarti et al. (2021).
- ▶ A few studies highlight that the degree of pass-through depends on market structure:
  - ▶ Genakos and Pagliero (2022) provide direct evidence that competition increases pass-through and accelerates price adjustment.
  - ▶ Harju et al. (2022) show that competitive intensity explains part of the heterogeneity in tax incidence across locations.
- ▶ We contribute by studying Italy in 2021–2022, when fuel excises were reduced and later increased.

# Institutional details

- ▶ Excise cuts were implemented from March 2022 as energy prices surged.
- ▶ The cut was temporary and lasted until January 2023.

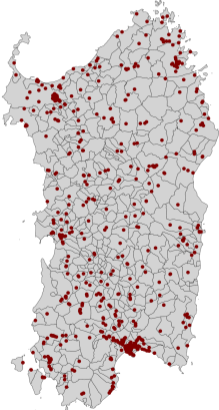


# Data description

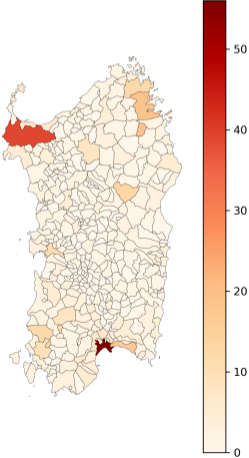
- ▶ Data sources:
  - ▶ Daily microdata on fuel prices from MIMIT Open Data (2019–2024).
  - ▶ Census of Italian fuel stations with precise locations (MIMIT Open Data).
  - ▶ Excise data from SISeN (MASE).
- ▶ We build a station $\times$ day panel that tracks both gross and net prices at the station level.
- ▶ We compute several measures of competition capturing the number of competitors per station.
  - ▶ The analysis is limited to one Italian region: Sardinia.

# Station density

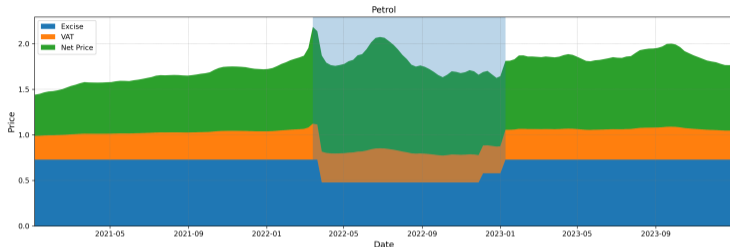
a. Gas stations



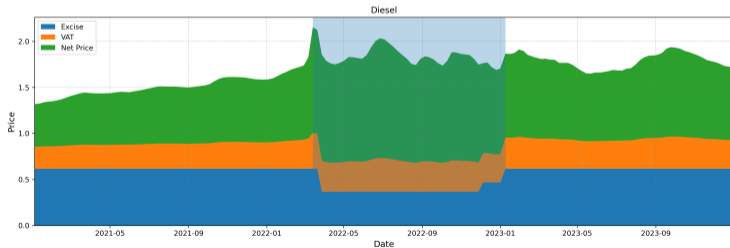
b. Stations per municipality



# Result 1: Excise change and prices

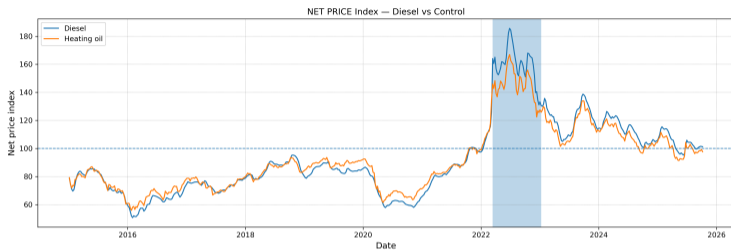


a. Petrol

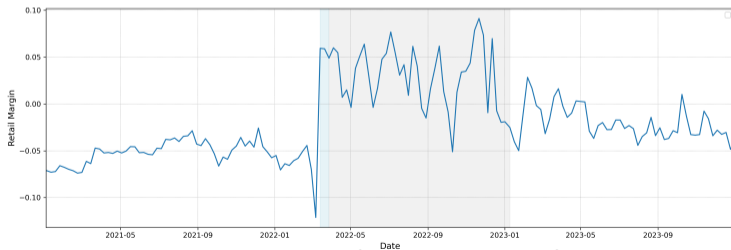


b. Diesel

# Result 1: Excise change and prices



a. Diesel vs. heating oil (control)

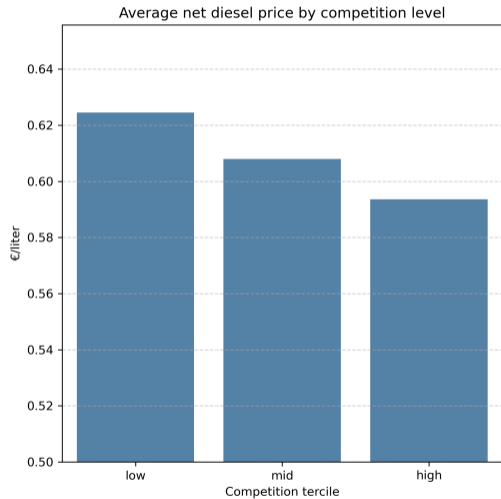


b. Retail margin (diesel - heating oil)

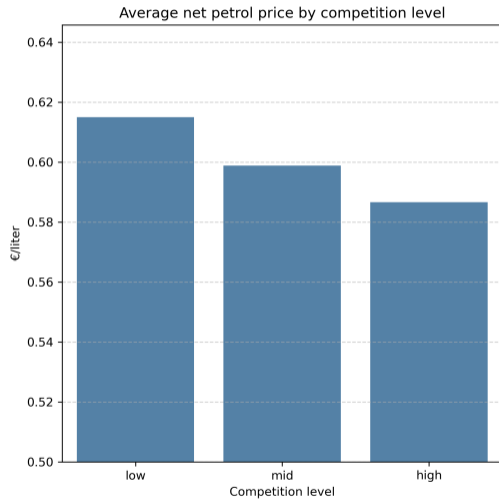
## Result 1: Excise changes and price

- ▶ We find evidence of an asymmetric response of gross and net prices to the two excise regimes:
  - ▶ The excise cut introduced in March 2022 was largely retained by fuel stations, while gross prices remained almost unchanged.
  - ▶ This implies an increase in the net price received by sellers.
  - ▶ Conversely, in January 2023, when the excise was reinstated, we observe a 80% pass-through to consumers.
- ▶ To control for potential confounders, we compare the treated product (diesel) with a control product (heating oil), which was unaffected by the tax change.
  - ▶ An analysis of the retail margin—proxied by the difference between diesel and heating oil net prices—confirms these results.

## Result 2: Market structure and prices

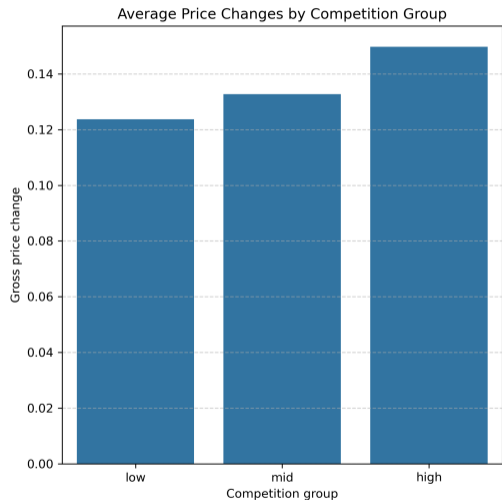


a. Diesel

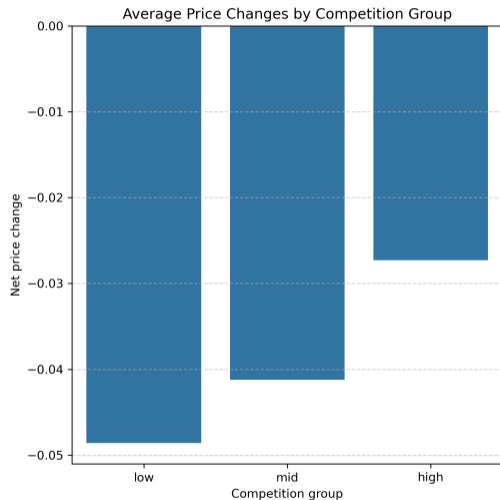


b. Petrol

## Result 2: Market structure and pass-through

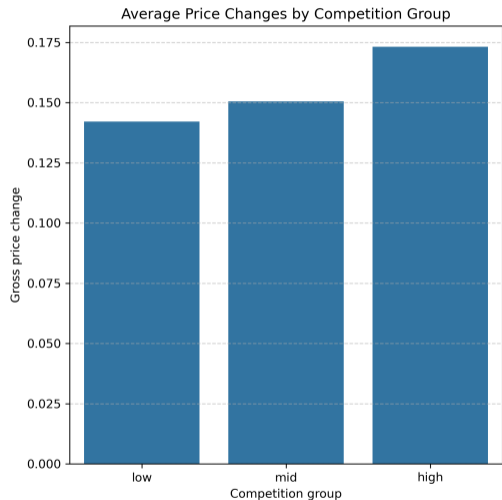


a. Gross price (Diesel)

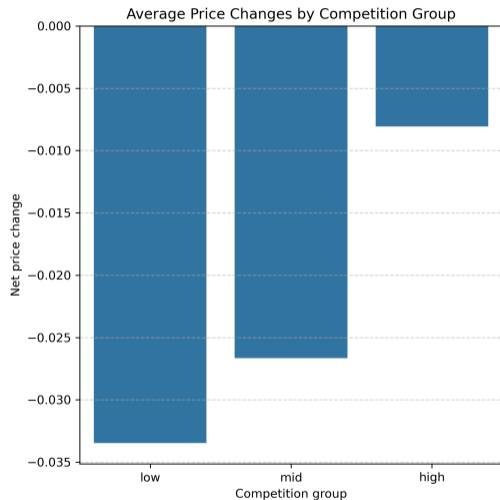


b. Net price (Diesel)

## Result 2: Market structure and pass-through



a. Gross price (Petrol)



b. Net price (Petrol)

## Result 2: Market structure and pass-through

- ▶ We find that the burden of a tax increase on consumers is higher in competitive markets than in less competitive ones.
- ▶ This pattern is consistent with previous findings. For instance, Genakos and Pagliero (2022) show that:  
*“Pass-through increases significantly with the number of competitors, and the relation between competition and pass-through is nonlinear. On average, pass-through is about 0.43 on monopolistic islands and rises to around 1 on islands with four or more competitors.”*
- ▶ Our evidence suggests a similar mechanism in the Italian fuel market, where stations facing higher competitive pressure tend to transmit a larger share of cost shocks to final prices.

# Conclusion

- ▶ We document asymmetric price responses to excise changes:
  - ▶ The 2022 excise cut was mostly retained by fuel stations, increasing net margins.
  - ▶ The 2023 excise reinstatement was largely passed on to consumers.
- ▶ Competition shapes the extent of pass-through:
  - ▶ Stations in more competitive markets transmit a higher share of tax changes to retail prices.
- ▶ Overall, our results suggest that market structure is a key determinant of how fiscal policy interventions—such as fuel tax changes—affect consumers and firms.