The Short-Term Effects of Monetary Policy: Evidence from the UK

Lennart Brandt[1]   Johannes Fischer[2]   Carl-Wolfram Horn[3]   Filippo Pallotti[4]

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[1]Bank of England; Email: Lennart.Brandt@bankofengland.co.uk
[2]Deutsche Bundesbank; Email: Johannes.Fischer@bundesbank.de
[3]Frankfurt School of Finance and Management; Email: c.horn@fs.de
[4]University College London and Lombard Odier Group, Email: filippo.pallotti@ucl.ac.uk

Main findings

- We use a novel dataset of UK credit and debit card spending to evaluate consumer behaviour at high frequency and high granularity

- We find that consumer spending falls quickly and its response to interest rate surprises is statistically significant

- The response is concentrated in discretionary spending categories such as restaurants and hotels

- We complete the picture with the response of online vacancies postings and web-scraped prices which also fall significantly within the quarter of the shock

Data: Overview

- **Consumption**: Fable (daily, 2017-2023)
  - daily raw data converted into 90-day moving average
  - each COICOP category deflated using the respective deflator
  - aggregate index constructed by weighting COICOP categories
- **Job Vacancies**: Indeed (7-day MA, 2018-2023) ▸ Summary
  - most used page for online job search in the UK ($\approx$50m visits per month)
- **Prices**: PriceStats (7-day MA, 2008-2023) ▸ Summary
  - formerly Billion Prices Project, Cavallo and Rigobon (2016)
  - scrapes daily online prices of goods and services (60% of CPI weights).
  - remaining "offline" prices proxied using related goods with similar developments.
  - weighted with CPI weights.
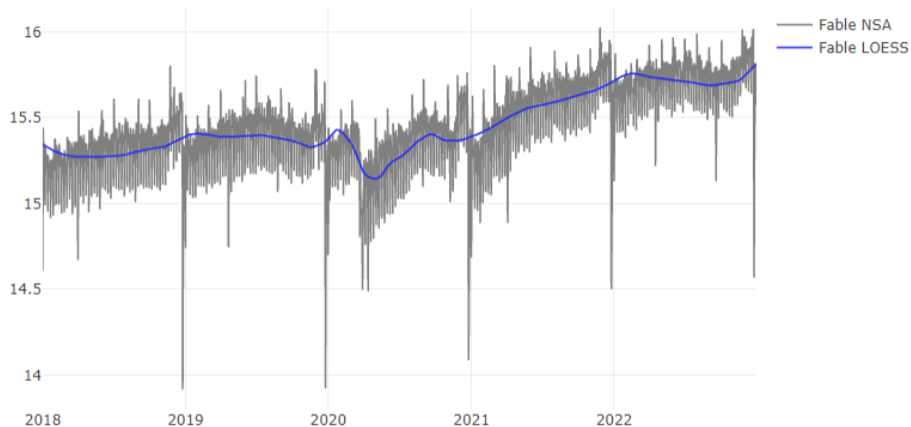- **High-frequency monetary policy shocks**: Braun et al. (2023)
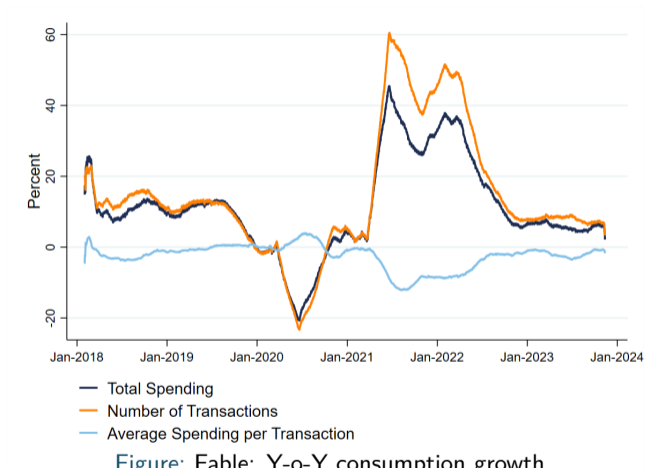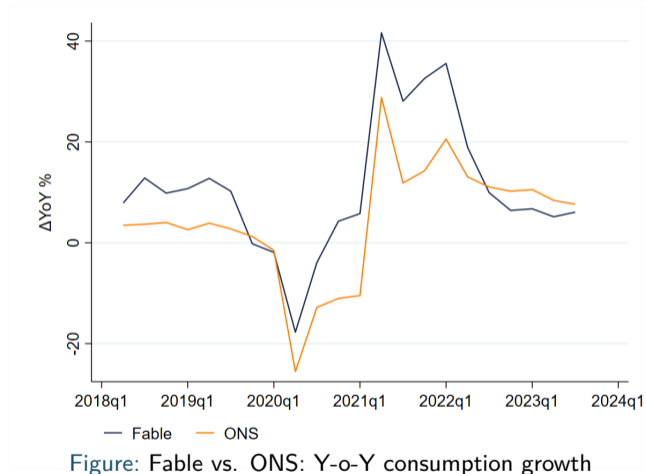
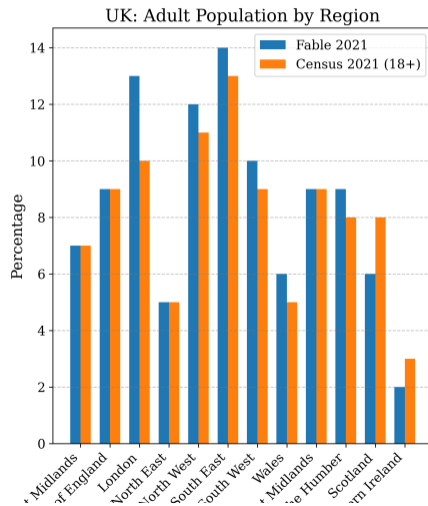# Data: Fable deep-dive

Figure: Fable: Total spending

Data: Fable deep-dive

Figure: Fable: Y-o-Y consumption growth

Legend:
- Total Spending
- Number of Transactions
- Average Spending per Transaction

Data: Comparison with national accounts consumption

Figure: Fable vs. ONS: Y-o-Y consumption growth

Data: Representativeness

UK: Population by Age Group

UK: Adult Population by Region

Data: Comparison with national accounts consumption

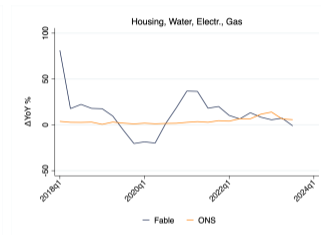Figure: Fable vs. ONS: Y-o-Y consumption growth by COICOP
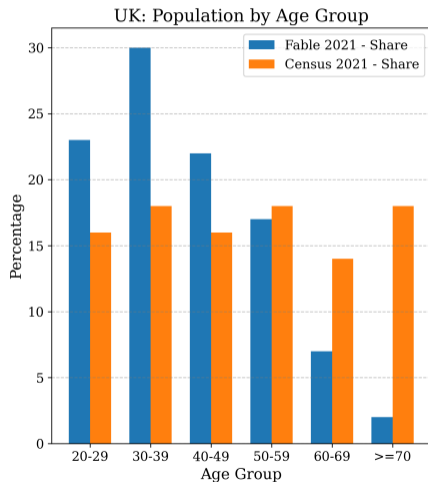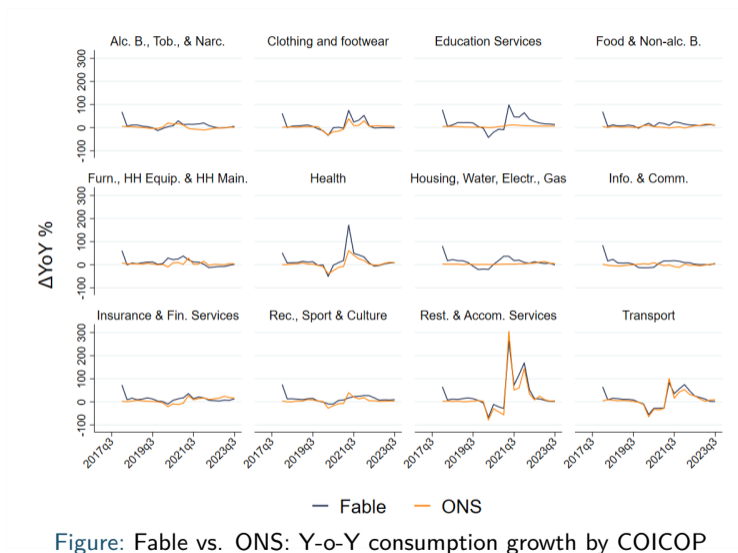
Data: Card spending bias
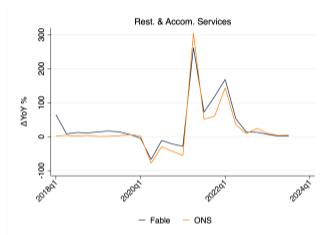
(a) COICOP 11: Restaurants and accommodation services
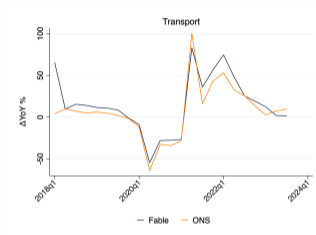
(b) COICOP 7: Transport

(c) COICOP 4: Housing, Water, Electricity, Gas

Specification

Following Buda et al. (2023), we estimate the short-run effects of UK monetary policy using local projections:

$$y_{t+h} = \alpha_h + \beta_h \text{path}_t + \sum_{\ell=1}^{90} \varphi_{h,\ell} y_{t-\ell} + \theta_h \text{cases}_t + \delta_h \text{stringency}_t + \varepsilon_{h,t} \tag{1}$$
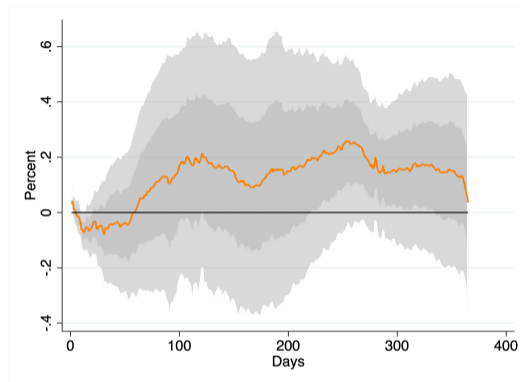
where

- y_{t+h} is the year-on-year growth rate of consumption, vacancies, or prices
- path_t is the monetary policy shock
- cases_t is is the log of new confirmed cases of COVID-19
- stringency_t is the log of the Oxford stringency index for UK

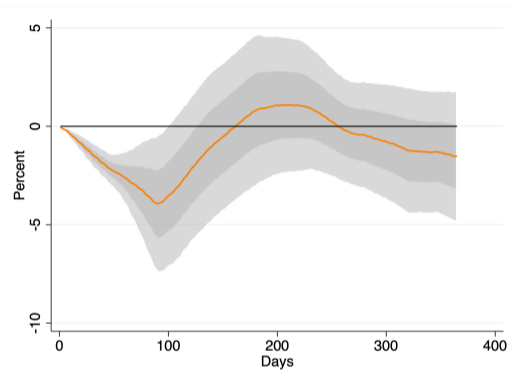# Results: Consumption

Figure: Total Real Consumption Response to Path Factor
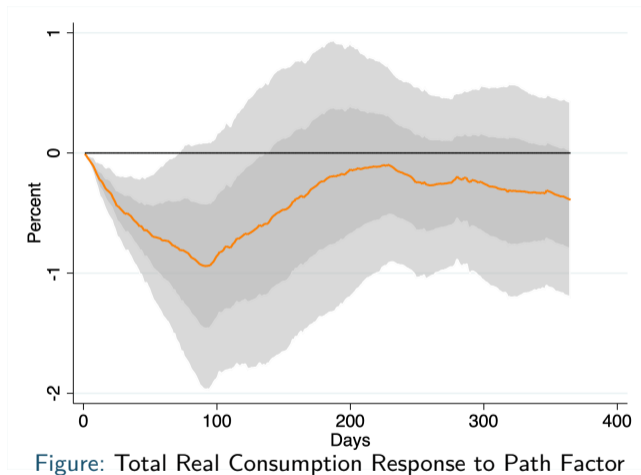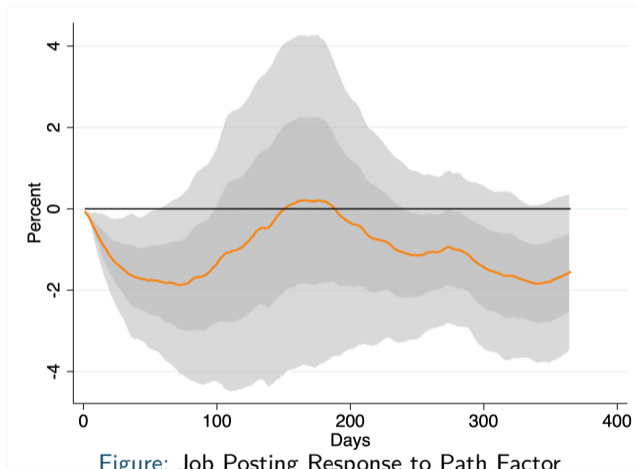
Results: Consumption components

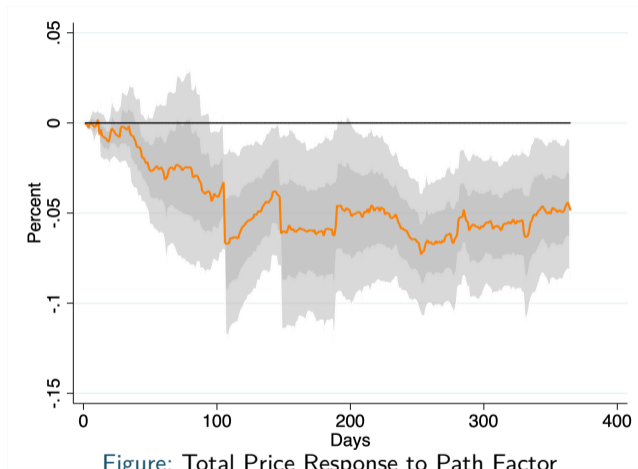(a) Consumption: Food and non-alcoholic beverages   (b) Consumption: Restaurants and accommodation services

Figure: High Frequency Response of Consumption by Selected Sectors to a Monetary Policy Shock

[▶ All Categories]

Results: Vacancies

Figure: Job Posting Response to Path Factor

Results: Prices

Figure: Total Price Response to Path Factor

Summary

- Using a novel dataset of UK credit and debit card spending we show that consumer spending falls quickly and significantly in response to interest rate surprises

- The response is concentrated in discretionary spending categories such as restaurants and hotels while spending on staples does not react

- Online vacancies fall similarly fast after a monetary policy shock

- The aggregate price level falls more slowly and is permanently lower a year after the shock

References I

Braun, R., S. Miranda-Agrippino, and T. Saha (2023). Measuring monetary policy in the uk: the uk monetary policy event-study database. Technical report, Bank of England.

Buda, G., V. M. Carvalho, G. Corsetti, J. B. Duarte, S. Hansen, Á. Ortiz, T. Rodrigo, and J. V. Rodríguez Mora (2023). Short and variable lags. *Robert Schuman Centre for Advanced Studies Research Paper* (22).

Cavallo, A. and R. Rigobon (2016, May). The billion prices project: Using online prices for measurement and research. *Journal of Economic Perspectives 30*(2), 151–78.

Highlighted feature: high frequency data

Using daily data

- The daily nature of our data enables us to capture certain events and their impact with more precision.

Example

- We can see deviations from normal spend patterns during certain events such as Public Holidays and Black Friday exactly when they take place.

Total German Expenditure, October – November 2022

Source: Fable Data

Appendix: Fable

Figure 14: Difference in food and beverage services expenditure of German tourists during winter of 2020 and 2021 in Austria

Difference in EUR
1e+05
1e+04
1e+03
1e+02
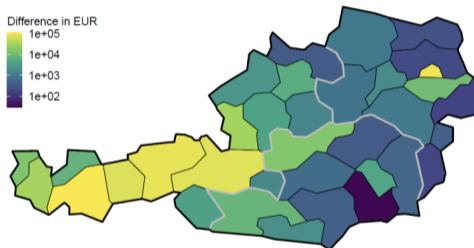
Note: The graph depicts the difference in spending of German tourists in euro for the spending category *food and beverage services* in Austria during the winter season of 2019/2020 and 2020/2021. The value indicates the amount German tourists spent more during 19/20 than 20/21. The winter season is defined as first of December until 31st of March.
Source: Fable Data, Eurostat.

Source: *Credit Card Expenditures in German and Austria – A Descriptive Analysis*, Gössinger, L. (2023)
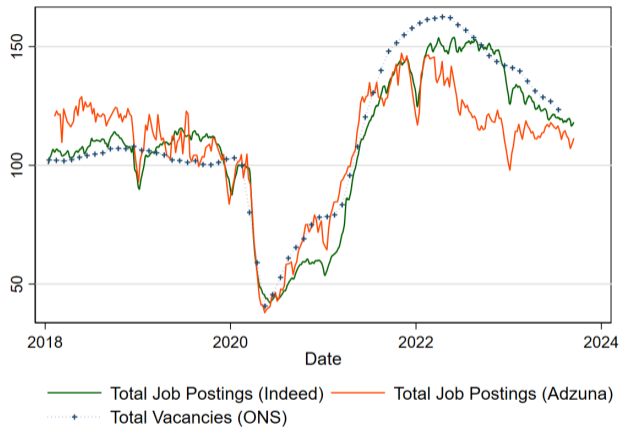
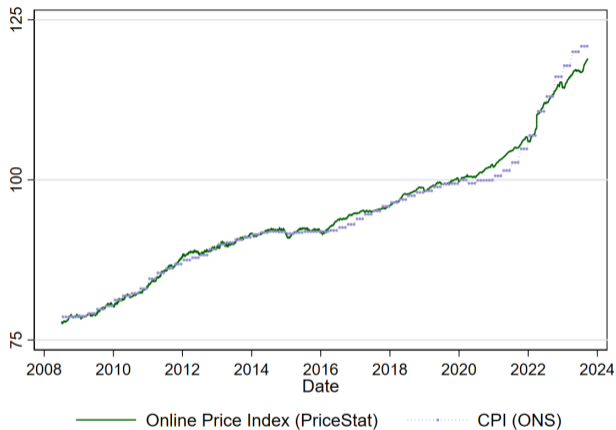# Appendix: Indeed

Figure: Indeed vs. ONS Vacancies

◀ Back

Appendix: PriceStats

Figure: PriceStats Index vs. CPI

Appendix: Consumption response by COICOP

(a) Food and non-alcoholic beverages

(b) Alcoholic beverages, tobacco and narcotics

(c) Clothing and footwear

(d) Housing, water, electricity, gas and other fuels

(e) Furnishings, household equipment and routine household maintenance

(f) Health

(g) Transport

(h) Information and communication

(i) Recreation, sport and culture

(j) Education

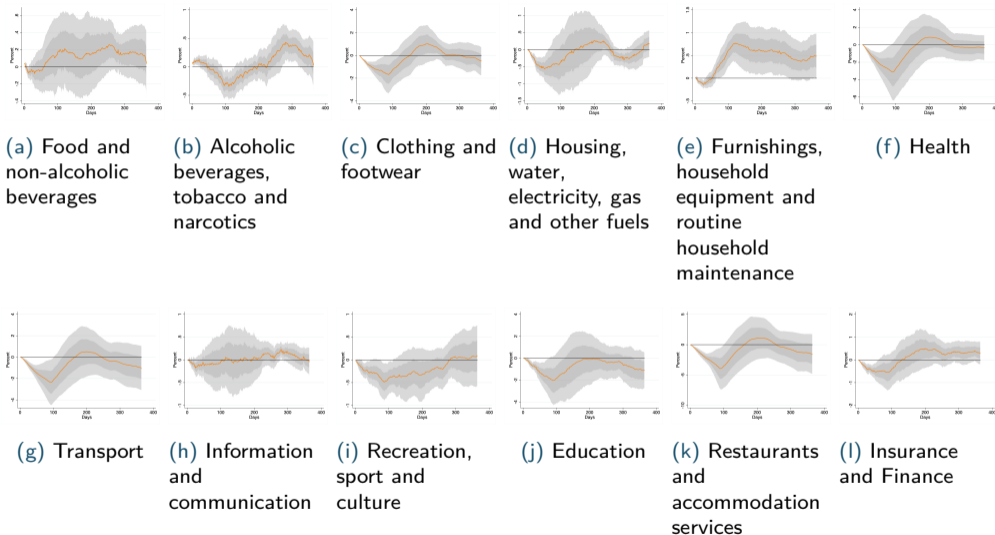(k) Restaurants and accommodation services

(l) Insurance and Finance

Figure: High Frequency Response of Consumption Across Sectors ◀ Back