

Data and Code for *Heterogeneity in imperfect inflation expectations: theory and evidence from a novel survey*, Journal of Money, Credit and Banking, by Alistair Macaulay (University of Surrey, a.macaulay@surrey.ac.uk) and James Moberly (Goldman Sachs International (London))

Overview

The code in this replication package constructs the analysis file and produces all results tables and figures, all using Stata. The main data source is Bundesbank (2022). The do-file “master_code.do” cleans this data and produces all results, consisting of 9 tables and 12 figures, along with various numbers quoted in the text of the paper. The code should run for less than 5 minutes.

Data Availability and Provenance Statements

Statement about Rights

We certify that the authors of the manuscript have legitimate access to and permission to use the data used in this manuscript.

Summary of Availability

- ☐ All data **are** publicly available.
- X Some data **cannot be made** publicly available.
- ☐ **No data can be made** publicly available.

Details on each Data Source

The following data sources used in the paper are publicly available.

- Data on annual CPI in Germany from Destatis (2022).

These data can be obtained from [destatis.de](https://www-genesis.destatis.de/datenbank/online/statistic/61111/table/61111-0001), in the table found at <https://www-genesis.destatis.de/datenbank/online/statistic/61111/table/61111-0001>. Note that the base year may differ depending on when the data is accessed, but this does not affect the inflation rate calculations for which we use it.

- “data/raw/CPI_Annual_DE.csv”

- Data on internet search intensity from Google (2023).

These data can be obtained from trends.google.com, by searching for “inflation” in Germany. The data are stored in the “data/raw” subfolder. Note: Google Trends data can vary slightly depending on the date of access if the sampling algorithm is updated, and historical (un-revised) series are not maintained by Google. The data provided here, and used in the analysis, was accessed on August 8th 2023.

- “data/raw/Google_Trends_Inflation_DE.csv”

- Data on the ECB Survey of Professional Forecasters (European Central Bank, 2024).

These data can be obtained from

https://www.ecb.europa.eu/stats/ecb_surveys/survey_of_professional_forecasters/html/all_data.en.html, by selecting “Download as CSV” under “Microdata for all rounds”.

We use only the 2021 Q4 wave, saved as follows.

- “data/raw/SPF_2021Q4.csv”

The following data source used in the paper is freely available to download after registration with the data provider.

- Data on the Bundesbank Online Panel – Households (BOP-HH) (Bundesbank, 2022).

These data can be obtained by applying for access to the Research Data and Service Centre of the Deutsche Bundesbank

(<https://www.bundesbank.de/en/bundesbank/research/rdsc/your-research-project-at-the-rdsc>). Once granted, you will be able to download the full survey microdata.

After downloading the full microdata in Stata format, save the scientific use file for November 2021 (wave 23 of the survey) as “data/raw/bophh_suf_wave23.dta”. We were provided with the responses to our novel questions in a separate file. If this is the case, save this as “data/raw/bophh_extras_wave23.dta”. If all responses are provided in the scientific use file, the replicator should replace lines 7-8 of “code/cleandata.do” with the line use “data/raw/bophh_suf_wave23.dta”. Full survey details are located at <https://www.bundesbank.de/en/bundesbank/research/survey-on-consumer-expectations-bop-hh>.

- “data/raw/bophh_extras_wave23.dta”
- “data/raw/bophh_suf_wave23.dta”

Dataset list

Data file	Source	Notes	Provided
data/raw/CPI_Annual_DE.csv	Destatis	As per terms of use	Yes
data/raw/Google_Trends_Inflation_DE.csv	Google	As per terms of use	Yes
data/raw/SPF_2021Q4.csv	European Central Bank	As per terms of use	Yes
data/raw/bophh_extras_wave23.dta	Bundesbank	Available via the	No

data/raw/bophh_suf_wave23.dta	Bundesbank	RDSC Available via the RDSC	No
-------------------------------	------------	--------------------------------------	----

Computational requirements

Software Requirements

- Stata (code was last run with version 17)
 - estout (version 3.23, 31may2019)
 - panelcombine (<https://github.com/steveofconnell/PanelCombine>)
 - lines 11-14 of “code/master_code.do” will install all dependencies locally, and should be run once.

Memory and Runtime Requirements

Summary

Approximate time needed to reproduce the analyses on a standard (2024) desktop machine: 1 minute.

Details

The code was last run on a **4-core Intel-based laptop with Windows 11 Home**. None of the data files are larger than 0.5GB.

Description of programs/code

Stata

“code/master_code.do”: master .do file that cleans and combines the data sources listed above to produce all figures and tables except those which do not contain results (Tables 1, B.2, and B.3). Output files are saved to the “results” folder, with appropriate names corresponding to how they appear in the manuscript (e.g. “Figure_1a.eps”).

Data cleaning

- “code/cleandata.do”: combine and clean BOP-HH microdata stored in “data/raw” for analysis. Output the cleaned dataset to “data/cleaned/surveydata_clean.dta”.

Analysis

The following .do files produce the corresponding tables and figures that use BOP-HH microdata.

- “code/Figure_1.do”: also produces the numbers quoted in Section 4.1 of the paper.
- “code/Table_2.do”

- "code/Table_3_D5.do": also produces the statistics on hand-to-mouth status quoted in Section 4.3 of the paper.
- "code/Figure_2.do": also produces the numbers quoted in Section 5.2 of the paper.
- "code/VAT_Table_E1_Figure_E3.do": produces all numbers quoted in Section 5.3 of the paper, as well as Table E.1 and Figure E.3 (i.e., all results for the VAT shock analysis).
- "code/Table_B1.do"
- "code/Figure_C1.do"
- "code/Figure_C2_C3.do": also produces the numbers correlating alternative uncertainty and Kalman gain measures quoted in Web Appendix C.2.
- "code/Figure_D2.do"
- "code/Figure_D3.do"
- "code/Figure_D4.do"
- "code/Table_D1.do"
- "code/Table_D2.do"
- "code/Table_D3.do"
- "code/Table_D4.do"
- "code/Figure_E1.do": also produces the numbers for impulse responses excluding rounders quoted in Web Appendix E.2.
- "code/Figure_E2.do"

The following .do file produces Figure D.1, using Google Trends data.

- "code/Figure_D1.do"

The following .do file produces the AR(1) coefficient for annual inflation quoted in Section 4.1, and used to calibrate the impulse response analysis in Section 5 and Appendix E.

- "code/AR_coefficient.do"

The following .do file produces the statistics on individual-level uncertainty among professional forecasters quoted in Web Appendix A.2.

- "code/SPF_uncertainty.do"

Instructions to Replicators

- Download the data files referenced above. They should be stored in the subdirectories and with the names and file types described above.
- Edit line 17 of “code/master_code.do” to set the current directory.
- Run “code/master_code.do” to create all the datasets needed for the analysis and generate all figures and tables except those that do not contain results (Tables 1, B.2, and B.3).

List of tables and programs

The provided code reproduces:

- X All numbers provided in text in the paper
- ☐ All tables and figures in the paper
- X Selected tables and figures in the paper, as explained and justified below.
 - Tables 1, B.2, and B.3 present details of survey questions, not results, so do not require code to compute.

In the following summary table, line numbers are provided wherever the program computes more than one table or figure.

Figure/Table	Program	Line Number	Output file
Table 1	N/A (no data involved)		
Table 2	code/Table_2.do		results/Table_2.tex
Table 3	code/Table_3_D5.do	22	results/Table_3.tex
Table B.1	code/Table_B1.do		results/Table_B1.tex
Table B.2	N/A (no data involved)		
Table B.3	N/A (no data involved)		
Table D.1	code/Table_D1.do		results/Table_D1.tex
Table D.2	code/Table_D2.do		results/Table_D2.tex
Table D.3	code/Table_D3.do		results/Table_D3.tex

Table D.4	code/Table_D4.do		results/Table_D4.tex
Table D.5	code/Table_3_D5.do	25	results/Table_D5.tex
Table E.1	code/VAT_Table_E1_Figure_E3.do	155	results/Table_E1.tex
Figure 1	code/Figure_1.do	25 33 42 47	results/Figure_1a.eps results/Figure_1b.eps results/Figure_1c.eps results/Figure_1d.eps
Figure 2	code/Figure_2.do	101 104	results/Figure_2a.eps results/Figure_2b.eps
Figure C.1	code/Figure_C1.do	214 221	results/Figure_C1a.eps results/Figure_C1b.eps
Figure C.2	code/Figure_C2_C3.do	445 448	results/Figure_C2a.eps results/Figure_C2b.eps
Figure C.3	code/Figure_C2_C3.do	451 454	results/Figure_C3a.eps results/Figure_C3b.eps
Figure D.1	code/Figure_D1.do		results/Figure_D1.eps
Figure D.2	code/Figure_D2.do	15 22	results/Figure_D2a.eps results/Figure_D2b.eps
Figure D.3	code/Figure_D3.do	13 19 25	results/Figure_D3a.eps results/Figure_D3b.eps results/Figure_D3c.eps
Figure D.4	code/Figure_D4.do		results/Figure_D4.eps
Figure E.1	code/Figure_E1.do	125 128	results/Figure_E1a.eps results/Figure_E1b.eps
Figure E.2	code/Figure_E2.do	61 64	results/Figure_E2a.eps results/Figure_E2b.eps
Figure E.3	code/VAT_Table_E1_Figure_E3.do	223 226	results/Figure_E3a.eps results/Figure_E3b.eps

References

Bundesbank (2022). Bundesbank Online Panel – Households. November 2021 wave.

Destatis (2022). Consumer Price Index for Germany. <https://www-genesis.destatis.de/datenbank/online/statistic/61111/table/61111-0001>. Accessed February 10 2022

European Central Bank (2024). Survey of Professional Forecasters.

Google (2023). Search volumes for term “inflation” in Germany. Accessed from trends.google.com, August 08 2023.
