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Data and Code for: Downward Revision of Investment Decisions after Corporate Tax Hikes

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Data and code README

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Data access:

This replication package cannot be used for any non-academic purposes and can only be reproduced by being physically present in Munich. The code and complete data (including confidential data) for this project is available in the Repository of the LMU-ifo Economics & Business Data Center (EBDC) archive (DOI: https://doi.org/10.7805/it-lmps-2023). Access to the data is only possible with a physical presence at the EBDC and after approval of a standard data access application request (the form is available at the landing page of the EBDC archive: https://doi.org/10.7805/it-lmps-2023). Please request the replication package of our paper in this application form.

The AEA Data and Code Repository contains all code for this project and the data for this project which is not confidential.

Replication instructions:

The main programs run in Stata (version 17.0 was used). For one specific optional pre-preparation step Matlab was used (version R2020b).

Most of the analysis was done on the EBDC's Stata server using the following computing environment: "Windows Server 2019", Intel(R) Xeon(R) CPU E5-2697 v4 @ 2.30GHz, 24 cores, 128 GB RAM. All files took less than 2 hours to run from beginning to end.

The main data source of the paper is a combined dataset of the ifo Investment Survey (DOI: https://doi.org/10.7805/it-lmps-2023) and administrative data at the municipality level. Note that the data of the ifo Investment Survey are proprietary and must not be made publicly available. Thus, we are only allowed to make the data available through the EBDC archive and not via an external repository, e.g., hosted by the AEA. Further note that the EBDC team provided additional data on the location of the firm (address), which was used to merge the ifo Investment Survey Data to the administrative municipality data. To ensure data protection, the merged dataset in the replication package contains an anonymized municipality ID.

For the sake of convenience, we also transferred all additional datasets from other sources and the respective codes to prepare this data for usage to the aforementioned EBDC archive. Hence, all results of

the paper can be replicated within the replication package at EBDC archive in a single setting (DOI: https://doi.org/10.7805/it-lmps-2023).

Outside of the EBDC, only a few Figures (A.1, C.5, E.1, E.2) can be replicated and we created a separate program (04_figures_with_prep_data.do) for this in the public AEA Data and Code repository.

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Overview of data sources (all datasets contained in the EBDC replication package):

Data	Information	Availability and Source
Ifo Investment Survey + location information + legal form "it_ags_2019_raw_anonym.dta"	Main data set I	EBDC archive (DOI: https://doi.org/10.7805/it-lmps-2023)
Municipality data "Gemeindedaten_agsGesamt_22_10.dta"	Main data set II	EBDC archive (DOI: https://doi.org/10.7805/it-lmps-2023)
CBT Tax Database "mb_shares_zvalues.dta" (raw data: "cbt-tax-database-2017xls.xls")	Used to calculate effective tax rates	Freely available: Oxford University Centre for Business Taxation
Investment shares data "mb_shares.dta" (raw data: " 81000-0115_ausr.xlsx", "81000-0115_bauten.xlsx")	Used to calculate effective tax rates	Freely available: Destatis (81000-0115)
Interest rate data "final_buba_zins.dta" (raw data: " effektivzinssatz_neugeschaeft_ab2003_ BBK01.SUD939A.csv","festzinskredit_500kbis5mio_ abnov19996_BBK01.SU0509.csv"," buba_diskontsatz_BBK01.SU0112.csv")	Used to calculate effective tax rates	Freely available: Bundesbank
CPI data "cpi.dta" (raw data: "cpi_ger.xls")	Used to transform nominal into real values	Freely available: FRED
Local newspaper data "local_newspaper.dta" (raw data: "gewerbe_erh.csv"; "gewerbe_erh_broad.csv")	Compiled by an RA. Only used in Fig. A.1	Freely available (need to be hand-collected by counting the frequency for each month with separate searches at https://www.genios.de/)
Statistics on Small and Medium-sized Enterprises "Representativeness_IVS_Admin_Data_ 48121_calc.xlsx"	Only used to compare distribution of firms in Table B.1	Freely available: Destatis (48121-0002)
Wage data "union_wages.dta" (raw data: "Lange_Reihe_2_Quartal_2021.xlsx")	Only used to show time-series of collectively	Freely available: Destatis Index der Tarifverdienste und Arbeiszeiten, Lange Reihe

	bargained wage growth (Fig. C.5)	
Balance sheet data of firms in ifo Investment Survey "bilanzdata_no_totasset_miss_mitIdnum_nra.dta"	Only used to calculate profit margin for the back-of-the-envelope calculation	EBDC archive (DOI: https://doi.org/10.7805/it-lmps-2023)
Shape files "Gemeindegrenzen_2017_mit_Einwohnerzahl-shp"	Only used to create a map of Germany in Fig. 1	Freely available: opendata esri

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Overview of Figures and Tables produced:

Main text:

Figures:

1. 04c_figures_maps.do
2. 05_figures.do
3. 06_event_studies.do
4. 06_event_studies.do
5. 05_figures.do
6. 05_figures.do

Tables:

1. 07_tables.do
2. 07_tables.do
3. 07_tables.do
4. 07_tables.do

Online Appendix:

Figures:

A:

1. 04_figures_with_prep_data.do

B:

1. 04b_figures_balanced_panel.do
2. 04b_figures_balanced_panel.do
3. 04b_figures_balanced_panel.do
4. 04b_figures_balanced_panel.do
5. 05_figures.do
6. 05_figures.do
7. 05_figures.do

8. 05_figures.do
9. 05_figures.do

C:

1. 06_event_studies.do
2. 06_event_studies.do
3. 06_event_studies.do
4. 06_event_studies.do
5. 04_figures_with_prep_data.do
6. 05_figures.do

E:

1. 04_figures_with_prep_data.do
2. 04_figures_with_prep_data.do
3. 05_figures.do
4. 05_figures.do

Tables:

B:

1. 07_tables.do
2. 07_tables.do
3. 07_tables.do
4. 07_tables.do

C:

1. 07_tables.do
2. 07_tables.do
3. 07_tables.do
4. 07_tables.do
5. 07_tables.do
6. 07_tables.do
7. 07_tables.do
8. 07_tables.do
9. 07_tables.do

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Replication code:

<u>00_master.do:</u>

- This is the master do-file. Executing this file reproduces all Figures and Tables in the main text and the Appendix automatically.
- Paths are set up. Only global "PATH" must be manually changed to the respective working directory. The archive has the following folder structure:
    - "data" folder (contains all data)

    - "code" folder (contains all do-files)
    - "results" folder (contains all figures and tables)
    - "ado" folder (contains all required ado-files for the code)
- Adopaths are set up. All required ado-files are in the "ado" folder.
- Graphics are set up.
- There is one parameter to choose ("sample"):
    - “sample = 1” produces baseline sample without tax drops used in the main analysis.
    - “sample = 2” only used in “08_intext_numbers.do”, where we rerun the preparation files with “sample = 2” to calculate the share of tax drops in the sample (an in-text number).
- Then, the file runs all other do-files, where "01_prep.do", "02_prep.do", and "03_prep.do" are the preparation files and "04_figures_with_prep_data", "04b_figures_balanced_panel", "04c_figures_maps", "05_figures.do", "06_event_studies.do", "07_tables.do", and "08_intext_numbers" contain the analysis. "09_pre_prep.do" is optional to run (contains preparation of external data).

<u>01_prep.do:</u>

- This do-file cleans and prepares the municipality data.
- Before the sample procedure starts (explained in the Online Appendix B.3), the data is saved as "Gemeindedaten_ags2017_halfprepared.dta". This data set is used to document overall patterns of the data in Online Appendix B.1.
- The final municipality data is saved as "Gemeindedaten_ags2017_prepared.dta".

<u>02_prep.do:</u>

- This do-file matches the municipality data and the ifo Investment Survey data. Before data sources are matched, the municipality ID is anonymized in both data sets ("*_anonym.dta") to comply with EBDC’s data protection rules.
- Then, the do-file prepares the linked data and creates new variables.
- The prepared data is saved as "linked_it_gemeindedaten_prepared.dta".

<u>03_prep.do:</u>

- This do-file executes the sample procedure and defines further variables.
- The final data is saved as "final_data.dta".

<u>04_figures_with_prep_data.do:</u>

- This do-file produces figures that are not based on confidential data.

<u>04b_figures_balanced_panel.do:</u>

- This do-file produces figures that are based on the subset of municipalities, where we observe at least one firm during our sample period in the ifo Investment Survey. The figures are only used in Online Appendix B.

<u>04c_figures_maps.do:</u>

- This do-file creates maps of Germany on municipality level. This is only used for Fig. 1.

<u>05_figures.do:</u>

- This is the main do-file that creates figures.
- All created figures are based on the "final_data.dta" data.

06_event_studies.do:

- This do-file produces all event-studies of the main text and the Online Appendix as well as the permutation test.
- Figures 4, C.1 Panel B, and C.2 require to identify tax hike cohorts that are created in this do-file.

07_tables.do:

- This do-file produces all tables in the main text and the Online Appendix.
- For Table B.1, only the inner part of the table is produced. The outer part is based on administrative data that is provided and aggregated to the levels shown in Table B.1 in "Representativeness_IVS_Admin_Data_48121_calc.xlsx" contained in the replication package.

08_intext_numbers.do:

- This do-file produces further in-text numbers that are not contained in Tables.
- Most of this concerns numbers used in the back-of-the-envelope calculation in Online Appendix D.

09_pre_prep.do [optional]

- To further increase transparency, this do-file contains the data preparation of the freely available data sources, where we start from the raw data sets (listed in "Overview of data sources").
- The output of this do-file is used as input in the main preparation files ("01_prep.do", "02_prep.do", "03_prep.do").
- This also includes a small matlab code snippet ("lmps_zval.m") to calculate z values based on the CBT Tax Database and the discount factors collected from the Bundesbank (see "Overview of data sources"). This matlab code uses the "Depreciation Toolbox" by Francesco Furno. The necessary files are also available ("DBSL_depreciation" and "PDV_depreciation").

Data References:

Deutsche Bundesbank. 1967-2023. "BBK01.SUD939A BBK01.SU0509 BBK01.SU0112: Einlagen- und Kreditzinssätze." https://www.bundesbank.de/dynamic/action/de/statistiken/zeitreihen-datenbanken/zeitreihen-datenbank/723444/723444?openNodeId=1731813&treeAnchor=GELD (accessed November 13, 2023).

Esri Deutschland. 2017. "Gemeindegrenzen 2017 mit Einwohnerzahl." https://opendata-esri-de.opendata.arcgis.com/datasets/336e0586f74c4f01ae2cf4b9071c5916/explore?location=51.099647%2C10.454033%2C7.01 (accessed November 13, 2023).

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Organization for Economic Co-operation and Development. 1960-2023. "Consumer Price Index: All Items: Total for Germany [DEUCPIALLMINMEI]." retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/DEUCPIALLMINMEI (accessed November 13, 2023).

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Statistisches Bundesamt (Destatis). 2008-2021. "48121-0002: Unternehmen, Tätige Personen, Umsatz und weitere betriebs- und volkswirtschaftliche Kennzahlen." https://www-genesis.destatis.de/genesis/online?operation=table&code=48121-0002&bypass=true&levelindex=0&levelid=1691482618697#abreadcrumb (accessed November 13, 2023).