

This README accompanies Pavese and Rubolino (2023) “Austerity Harmed Student Achievement”

Overview

The code in this replication package constructs the analysis file from several data sources using Stata. Code for data cleaning and analysis is provided as part of the replication package.

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

Some data cannot be made publicly available.

Details on each Data Source

- **Test scores** data (including socio-economic characteristics and other student and school-level characteristics) are confidential, but may be obtained by submitting a specific request to the statistical service of INVALSI (*Istituto nazionale per la valutazione del sistema educativo di istruzione e di formazione*). All relevant information is provided at the following address: <https://serviziostatistico.invalsi.it/>. It can take some weeks to negotiate data use agreements and gain access to the data. To the replicator, we provide the following datasets:
 - `dataout/dataset_invalsi.dta`
 - `dataout/dataset_invalsi_dirigenti.dta`
- **Municipal balance sheets** data (including information on tax revenue and public spending) are confidential, but may be obtained from the Italian Ministry of Interior (*Ministero degli Interni* - <https://dait.interno.gov.it/>). Researchers interested in access to the data may contact Pasquale Recano at pasquale.recano@interno.it. It can take some months to negotiate data use agreements and gain access to the data. To the replicator, we provide the following datasets:

- `datain/balance_sheets/balance_sheets_revenue.dta` for revenue data;
 - `datain/balance_sheets/balance_sheets_spending_c.dta` for current spending data;
 - `datain/balance_sheets/balance_sheets_spending_k.dta` for capital spending data;
 - `datain/balance_sheets/balance_sheets_servizi.dta` for additional data on expenditure on public services.
- **Demographic** data are provided by the Italian Institute of Statistics (ISTAT). It collects data on municipal population, consumer price index, shapefiles for creating maps, and identifiers for municipalities, provinces, and regions. A copy of the relevant datasets is provided as part of this archive. The data are in the public domain and all relevant information is provided at the following address: <https://www.istat.it/>. Datafiles:
 - `datain/istat/population.csv` collects municipal population data;
 - `datain/istat/population_0_10.csv` collects municipal population data by age (from 0 to 10);
 - `datain/istat/cpi.csv` provides the Consumer Price Index (2018=1);
 - `datain/istat/key.csv` gathers identifiers for municipalities, provinces, and regions;
 - `datain/istat/data_mun.csv` and `datain/istat/data_mun_corr.csv` are shapefiles with information on municipal borders;
 - `datain/istat/data_reg.csv` and `datain/istat/data_reg_corr.csv` are shapefiles with information on regional borders.
 - Data on **local tax rates** are confidential, but may be obtained from *Finanza Locale - Fondazione IFEL* (<https://www.fondazioneifel.it/>). Researchers interested in access to the data may contact info@fondazioneifel.it. To the replicator, we provide the following dataset:
 - `datain/tax_rates/local_tax.csv`
 - Data on **local politicians** can be downloaded from the *Anagrafe degli Amministratori Locali e Regionali*, available at the following website: <https://dait.interno.gov.it/elezioni/anagrafe-amministratori>. A copy of the data is provided as part of this archive. The data are in the public domain. Datafiles:
 - `datain/politicians/amm_loc_2001.csv`
 - `datain/politicians/amm_loc_2002.csv`
 - `datain/politicians/amm_loc_2003.csv`
 - `datain/politicians/amm_loc_2004.csv`
 - `datain/politicians/amm_loc_2005.csv`
 - `datain/politicians/amm_loc_2006.csv`

- datain/politicians/amm_loc_2007.csv
- datain/politicians/amm_loc_2008.csv
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- datain/politicians/amm_loc_2010.csv
- datain/politicians/amm_loc_2011.csv
- datain/politicians/amm_loc_2012.csv
- datain/politicians/amm_loc_2013.csv
- datain/politicians/amm_loc_2014.csv
- datain/politicians/amm_loc_2015.csv

- **Municipal tax base** data can be downloaded from the Italian Ministry of Economy (*Ministero Economia e Finanza*)'s webpage at the following link: https://www1.finanze.gov.it/finanze/pagina_dichiarazioni/public/dichiarazioni.php. A copy of the data is provided as part of this archive. The data are in the public domain. Datafiles:

- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2000.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2001.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2002.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2003.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2004.csv
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- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2009.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2010.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2011.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2012.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2013.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2014.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2015.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2016.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2017.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2018.csv
- datain/income/Redditi_e_principali_variabili_IRPEF_su_base_comunale_CSV_2019.csv

- **Data on municipalities without active primary schools** was provided by the Italian Ministry of Education (MIUR - Ufficio Gestione Patrimonio Informativo e Statistica). All relevant information is provided at the following address: <https://www.miur.gov.it/>. To the replicator, we provide the following dataset:

– `datain/misc/dataset_flag_no_school.csv`

- **House prices** data are confidential, but may be obtained from the *Osservatorio Mercato Immobiliare*, managed by the Italian Internal Revenue Agency (*Agenzia delle Entrate*). Researchers interested in access to the data may follow the procedure documented at the following website: <https://www.agenziaentrate.gov.it/portale/web/guest/schede/fabbricatiterreni/omi/forniture-dati-omi-cittadini>. It can take some weeks to negotiate data use agreements and gain access to the data. To the replicator, we provide the following dataset:

– `dataout/house_prices.csv`

- **Sanction** data can be downloaded from the Ministry of the Interior website, and rely on the following decrees: Decree of November 24, 2011; Decree of July 26, 2012; Decree of November 19, 2014; Decree of September 28, 2015; and Decree of October 11, 2016. A copy of the data is provided as part of this archive. The data are in the public domain.

– `datain/sanctions/sanzioni_2010.csv`

– `datain/sanctions/sanzioni_2011.csv`

– `datain/sanctions/sanzioni_2013.csv`

– `datain/sanctions/sanzioni_2014.csv`

– `datain/sanctions/sanzioni_2015.csv`

Computational requirements

Software Requirements

- Stata (code was last run with version 17). The program “00_setup.do” will install all the dependencies locally, and should be run once.
 - `reghdfe` (as of August 2023)
 - `spmap` (as of August 2023)
 - `ivreghdfe` (as of August 2023)
 - `ivreg2` (as of August 2023)
 - `binscatter` (as of August 2023)
 - `ftools` (as of August 2023)
 - `egenmore` (as of August 2023)
 - `fillmissing` (as of August 2023)

- `outreg2` (as of August 2023)
- `coefplot` (as of August 2023)

Memory and Runtime Requirements

Approximate time needed to reproduce the analyses on a standard 2023 desktop machine around 40 hours. The code was last run on a 1,8 GHz Dual-Core Intel Core i5 laptop with MacOS version 12.6.2.

Description of programs/code

- The `programs/00_setup.do` sets up the working environment. Please make sure to adjust here the default path before running this code. It then runs the do-files that cleans the data and produce the analysis.
- Programs in `programs/01_dataprep` will extract and reformat all datasets referenced above. The file `programs/01_dataprep/main.do` will run them all.
- Programs in `programs/02_analysis` generate all tables and figures in the main body of the article. The program `programs/02_analysis/main.do` will run them all. Each program called from `main.do` identifies the table or figure it creates (e.g., `01_fig1.do`). Output files are called appropriate names (`fig1.pdf`) and should be easy to correlate with the manuscript.
- Programs in `programs/03_appendix` will generate all tables and figures in the online appendix. The program `programs/03_appendix/main.do` will run them all. Output files are called appropriate names (`figA1.pdf`) and should be easy to correlate with the manuscript.

Instructions to Replicators

- Edit `programs/00_setup.do` to adjust the default path and run `programs/00_setup.do` once on a new system to set up the working environment.
- Download and request the data files referenced above. Each should be stored in the prepared `datain/` folder.
- Run `programs/01_main.do` to run all steps in sequence.
 - The program `programs/01_01_dataset_balance_sheets.do` imports the municipal balance sheets data, clean the data, merge the data with the datasets containing information on municipality and region codes, and then export the data in dta format in the prepared `dataout/` folder.
 - The program `programs/01_02_dataset_tax_rates.do` imports the tax rates data and then export the data in dta format in the prepared `dataout/` folder.

- The program `programs/01_03_dataset_politicians.do` imports the local politicians csv data provided in the folder `datain/politicians`, clean the data, create temp files in the prepared `temp/` folder, and then export the data in dta format in the prepared `dataout/` folder.
- The program `programs/01_04_dataset_income.do` imports the municipal taxable income data provided in the folder `datain/income`, clean the data, and then export the data in dta format in the prepared `dataout/` folder.
- The program `programs/01_05_final_dataset.do` generates the final dataset and exports the data in dta format in the prepared `dataout/` folder.
- Run `programs/02_main.do` to run all steps in sequence.
 - The programs `programs/02_01_fig1.do`-[...] `programs/02_06_fig6.do` generate Figure 1 - [...] - Figure 11 and saves the output in the `output/` folder.
 - The programs `programs/02_07_tab1.do`-[...] `programs/02_09_tab3.do` generate Table 1 - [...] - Table 3, and saves the output in the `output/` folder.
- Run `programs/03_main.do` to run all steps in sequence.
 - *Appendix A.* The programs `programs/03_01_figA1.do`-[...] `programs/03_03_figA6.do` generate Figure A1 - [...] - Figure A6 and saves the output in the `output/appendix/` folder. The programs `programs/03_07_tabA2.do`-[...] `programs/03_11_tabA6.do` generate Table A2 - [...] - Table A6 and saves the output in the `output/appendix/` folder.
 - *Appendix C.* The programs `programs/03_12_tabC1.do`-[...] `programs/03_21_tabC10.do` generate Table C1 - [...] - Table C10 and saves the output in the `output/appendix/` folder. The programs `programs/03_22_figC1.do`-[...] `programs/03_27_figC5.do` generate Figure C1 - [...] - Figure C5 and saves the output in the `output/appendix/` folder.

References

- Agenzia delle Entrate (2021). ‘Italian Internal Revenue Agency - Osservatorio Mercato Immobiliare: House Price Data [dataset]’, <https://www.agenziaentrate.gov.it/>.
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- ISTAT (2021). ‘Istituto Nazionale Statistica: Demographic Data [dataset]’, <https://www.istat.it/>.
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- Ministero dell’Istruzione (2021). ‘Italian Ministry of Education (MIUR - Ufficio Gestione Patrimonio Informativo e Statistica): Active Schools [dataset]’, <https://www.miur.gov.it/>.
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