

## Overview

The code in this replication package produces the final estimates for Ciani, Delavande, Etheridge and Francesconi “Policy Uncertainty and Information Flows: Evidence from Pension Reform Expectations” using Stata, version 16. The replicator should expect the code to run for about 24 hours.

## 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.

The paper uses data from the SHARE survey (version 6-0-0). SHARE does not allow for redistribution, but access is free to any academic researcher. To obtain access, please visit <http://www.share-project.org/data-access.html>. After the registration, download all stata files for waves 1, 2, 4, 5 and 6, version 6-0-0, from the Research Data Center, folder “Archive”. Extract each wave into a subfolder of your main directory from where you are running the replication, as /Wave 1;/ /Wave 2;/ /Wave 4;/ /Wave 5;/ /Wave 6/. Datasets are cited as Börsch-Supan (2022a, 2022b, 2022c, 2022d, 2022e), as per SHARE data user agreement.

The data on timing of pension reforms used to produce the results of this study are collected from the authors. The description can be found in Figures 3-4 and Appendix B. Data can be distributed and used for other research, with appropriate citation of this article.

Datafile: reforms\_months.csv

Data for monthly google trends were downloaded from <https://trends.google.com/trends/>. A full description is reported in Appendix A4. The series from “pension reforms” were downloaded on 12/07/2017 (apart from Belgium, French, on 05/08/2021 to correct a previous mistake), “austerity” on 12/01/2018; and “other reforms” on 02/07/2019. The data were assembled in the files distributed as part of this archive. The data are in the public domain.

Datafile: google\_austerity.csv; google\_other\_reform.csv; google\_search.csv

Data on timing of general elections and characteristics of Cabinet are from ParlGov database (Doring and Manow 2016), development dataset downloaded on 30/11/2017. See <https://www.parlgov.org/about/> for new releases and data usage for other scopes than replicating this paper.

Datafile: view\_cabinet.csv; view\_election.csv

Data on GDP per head (Gross domestic product (expenditure approach); Per head, constant prices, constant PPPs, OECD base year); Long-term government bond yields, which refers to government bonds maturing in ten years (Long-term interest rate); General government net lending (+)/net borrowing (-) as fraction of GDP (calculated as net lending divided by Gross domestic product (output approach) in current prices); Unemployment rate; were downloaded from OECD.Stat on 23/10/2017. Data on Central government debt, total (% of GDP) was downloaded from downloaded the World Bank World Development Indicators (<https://databank.worldbank.org/source/world-development-indicators>) on 23/10/2017. The data on internet access are from the World Bank (<https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=FR-GB-DE-IT-NL-ES-PT-SE-AT-BE>) and were downloaded on 30/01/2021. Data on total employment by cell defined on country, gender, and age group (50-54,55-59,60-64) were from Eurostat, lfsa egan table, available at [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa\\_egan&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_egan&lang=en) (downloaded 20/05/2015). The data were assembled in the macrovars.csv file, distributed as part of this archive. The data are in the public domain.

Datafile: macrovars.csv; World\_bank\_internet\_access\_over\_time.xlsx; lfs.csv

Data on news about pension reforms are extracted from Lexis Nexis. A full description is reported in Appendix A5. Access to the original source is restricted to a commercial license, but the files distributed with this replication package contain only counts of articles per country and month.

Datafile: all files in the Nexis folder

Data on official retirement age by age have been extracted from OECD Pension at a glance publications ([https://www.oecd-ilibrary.org/finance-and-investment/oecd-pensions-at-a-glance\\_19991363](https://www.oecd-ilibrary.org/finance-and-investment/oecd-pensions-at-a-glance_19991363)), editions 2005 (reference year 2002); 2007 (ref. year 2004); 2009 (ref. year 2006); 2011 (ref. year 2008); 2013 (ref. year 2012). Replacement rate refers to net replacement rate at average earnings.

Datafile: PAG.xlsx

## Dataset list

Data file	Description	Source	Provided
google_austerity.csv	Country series for google trends for "austerity"	See Appendix A4	Yes
google_other_reform.csv	Country series for google trends for "reform"	See Table A.11	Yes
google_search.csv	Country series for google trends for "pension reform"	See Appendix A4	Yes
lfs.csv	Total employment by cell defined on country, gender,	Eurostat, lfsa egan table, available at < <a href="http://appsso.eurostat.ec.europa.e">http://appsso.eurostat.ec.europa.e</a>	Yes

	and age group (50-54,55-59,60-64)	u/nui/show.do?dataset=lfsa egan&lang=en>	
macrovars.csv	Country series for GDP per head; Long-term government bond yields, which refers to government bonds maturing in ten years; General government net lending (+)/net borrowing (-) and General government gross debt	OECD.Stat (GDP per head; Long-term government bond yields, which refers to government bonds maturing in ten years; General government net lending (+)/net borrowing (-); Unemployment rate; extracted 23/10/2017) and World Bank World Development Indicators (General government gross debt; update 10/18/2017).	Yes
PAG.xlsx	Official national retirement age and average replacement rate	OECD's Pension at a glance reports	Yes
reforms_months.csv	Dataset with reforms timing	Authors' data collection, see Figures 3-4 and Appendix B	Yes
view_cabinet.csv	Timing of general elections	ParlGov database (Doring and Manow 2016), development dataset downloaded on 30/11/2017.	Yes
view_election.csv	Characteristics of cabinet	ParlGov database (Doring and Manow 2016), development dataset downloaded on 30/11/2017.	Yes
World_bank_internet_access_over_time.xlsx	Country series for internet access	World Bank; <a href="https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=FR-GB-DE-IT-NL-ES-PT-SE-AT-BE">https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=FR-GB-DE-IT-NL-ES-PT-SE-AT-BE</a> (30/01/2021)	Yes

## Computational requirements

### Software requirements

- Stata (code was last run with version 16; a 'version 16' command is inserted in the MASTER.do file, but be aware that launching the command from the do-file sets the version only while running the script, so you need to set it again if running each do-file separately).

### Controlled randomness

- Random seed is set at line 320 of program analysis.do before calculating the confidence sets for the bounds. It is reset at line 333 for a check.

### Memory and runtime requirements

Approximate time needed to reproduce the analyses on a standard 2022 desktop machine is 24 hours.

### Description of programs/code

- Do-files in the main folder will clean SHARE data, assemble other sources of data (as described above) and produce all the analysis.

- The file `MASTER.do` will run them all.
- Output files are produced in the output folder. They are called with appropriate names (`table_1.csv`; `figure_1.png`) and should be easy to correlate with the manuscript. Some tables (1; 3; A\_3; A\_4; A\_10) are compiled manually using results that are reported in the log file `analysis.smcl`; to find the exact location where the results can be found, search for “Table A.3” within the log file. Some statistics within some tables (averages of I(.,) indicators and outcomes; e.g. Table 1) are manually compiled and also needs to be searched within the log file.
- `ado-files/sharetom5.ado` is distributed by the SHARE team and is used in the `do-files` to clean the raw SHARE file (it generates the correct missing values).
- `ado-files/CI1D.ado` is the program written by Beresteanu and Molinari (2008) to estimate bounds, as distributed by them; `ado-files/CI1D_cluster.ado` is the version we adjusted so that the bootstrapping accounts for clustering at the country-month level.

### Instructions to replicators

- Download SHARE data, version 6-0-0, and unzip them in the relevant folders, as discussed above and in the `MASTER.do` file
- Copy the `ado` files in `ado-files` within the relevant PERSONAL repository for stata `ado` file (e.g. `CI1D_cluster.ado` should go in the `c` subfolder of your personal repository).
- Edit `MASTER.do` to adjust the default path, the other globals and the personal folder for `ado` files.
- The user-written packages `chartab` (Picard, 2019) `estout` (Jann, 2004) and `ivreg2` (Baum et al., 2010) are installed from `ssc` by `MASTER.do`. We installed the versions available on 13/11/2019, but it should work equally with any version. If not, there is a copy of the `ado` files used in this paper in `ado-files/ivreg2`

### List of tables and programs

The provided code reproduces all numbers provided in text in the paper and all tables and figures.

Figure/Tab le #	Program	Line Number	Output file	Note
Table 1	<code>analysis.do</code>	153	<code>analysis.smcl</code>	The table needs to be compiled from the log file ( <code>analysis.smcl</code> )
Table 2	<code>analysis.do</code>	200	<code>table2.csv</code>	Sample means need to be recovered from the log file ( <code>analysis.smcl</code> )
Table 3	<code>analysis.do</code>	268-329	<code>analysis.smcl</code>	The table needs to be compiled from the log file ( <code>analysis.smcl</code> )
Table 4	<code>analysis.do</code>	378-426	<code>table4.csv</code>	
Table 5	<code>analysis.do</code>	500	<code>table5.csv</code>	
Table 6	<code>analysis.do</code>	554-570	<code>table6.csv</code>	Sample means need to be recovered from the log file ( <code>analysis.smcl</code> )

Table 7	analysis.do	596	table7.csv	
Table 8	analysis.do	795-803	table8.csv	
Table 9	analysis.do	961-971	table9.csv	
Figure 1	analysis.do	22-28	figure_1.pdf	
Figure 2	timepattern.do	71-95	figure_2.pdf	
Figure 3	analysis.do	96-103	figure_3.eps	
Figure 4	analysis.do	106-122	figure_4a.pdf; figure_4b.pdf figure_5a.png; figure_5b.png; figure_5c.png; figure_5d.png	
Figure 5	analysis.do	1045-1110	figure_5d.png	
Table A.1	analysis.do	1352-1374	tableA_1.csv	
Table A.2	analysis.do	1584-1693	tableA_2.csv	
Table A.3	analysis.do	131	analysis.smcl	The table needs to be compiled from the log file (analysis.smcl)
Table A.4	analysis.do analysis_long.d	134-135	analysis.smcl	The table needs to be compiled from the log file (analysis.smcl)
Table A.5	o	82	tableA_5.csv	
Table A.6	analysis.do	1156-1178	tableA_6.csv	
Table A.7	analysis.do	1196	tableA_7.csv	
Table A.8	analysis.do	1239-1249	tableA_8.csv	Sample means needs to be recovered from the log file (analysis.smcl)
Table A.9	analysis.do	1303-1313	tableA_9.csv	
Table A.10	analysis.do	241	analysis.smcl	The table needs to be compiled from the log file (analysis.smcl) Sample means need to be recovered from the log file (analysis.smcl)
Table A.11	analysis.do	1352-1374	tableA_11.csv	
Table A.12	analysis.do	681 and 708	tableA_12.csv	
Figure A.1	analysis.do	40-46	figure_A1a.pdf; figure_A1b.pdf	
Figure A.2	analysis.do	520	figure_A2.pdf	
Figure A.3	analysis.do	529	figure_A4.pdf	
Figure A.4	ES_GT.do	250 and 314	figure_A4a.eps; figure_A4b.eps	
Figure A.5	analysis.do	603-660	figure_A5a.pdf; figure_A5b.pdf	
Figure A.6	analysis.do	1522-1537	figure_A6a.png; figure_A6b.png	

## References

- Baum, C.F., Schaffer, M.E., Stillman, S. 2010. IVREG2: Stata module for extended instrumental variables/2SLS, GMM and AC/HAC, LIML and k-class regression, Statistical Software Components S425401, Boston College Department of Economics.  
<http://ideas.repec.org/c/boc/bocode/s425401.html>
- Beresteanu, A., and Francesca Molinari, 2008. Asymptotic properties for a class of partially identified models, *Econometrica*, 76(4): 763-814.
- Börsch-Supan, Axel. 2022a. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 1. Release version: 8.0.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w1.800
- Börsch-Supan, Axel. 2022b. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 2. Release version: 8.0.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w2.800
- Börsch-Supan, Axel. 2022c. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 4. Release version: 8.0.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w4.800

Börsch-Supan, Axel. 2022d. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 5. Release version: 8.0.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w5.800

Börsch-Supan, Axel. 2022e. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 6. Release version: 8.0.0. SHARE-ERIC. Data set. DOI: 10.6103/SHARE.w6.800

Döring, Holger, Constantin Huber and Philip Manow. 2016. Parliaments and governments database (ParlGov): Information on parties, elections and cabinets in established democracies [dataset]. Development version (last accessed: 30 November 2017).

Eurostat. 2015. Employment and unemployment (LFS), lfsa egan table [database], [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa\\_egan&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_egan&lang=en) (last accessed: 20/05/2015).

Google. 2022. Google Trends [database], <https://trends.google.com/trends>

Jann, Ben. 2004. ESTOUT: Stata module to make regression tables, Statistical Software Components S439301, Boston College Department of Economics, revised 26 Mar 2022. <https://ideas.repec.org/c/boc/bocode/s439301.html>

Lexis Nexis. 2021. News Media Database [database] (last accessed: 01/07/2021)

OECD. 2005. OECD Pensions at a Glance 2005: Public Policies across OECD Countries, OECD Publishing, Paris.

OECD. 2007. Pensions at a Glance 2007: Public Policies across OECD Countries, Paris: OECD Publishing.

OECD. 2009. Pensions at a Glance 2009: Retirement-Income Systems in OECD Countries, Paris: OECD Publishing.

OECD. 2011. Pensions at a Glance 2011: Retirement-income Systems in OECD and G20 Countries, Paris: OECD Publishing.

OECD. 2013. Pensions at a Glance 2013: OECD and G20 Indicators, Paris: OECD Publishing.

Picard, Robert. 2019. CHARTAB: Stata module to tabulate character frequency counts. Statistical Software Components S458610, Boston College Department of Economics. <https://ideas.repec.org/c/boc/bocode/s458610.html>

World Bank. 2017. World Development Indicators [database], <https://databank.worldbank.org/source/world-development-indicators> (last accessed: 23/10/2017)

World Bank. 2021. World Bank Open Data [database], International Telecommunication Union (ITU ) World Telecommunication/ICT Indicators Database, <https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=FR-GB-DE-IT-NL-ES-PT-SE-AT-BE> (last accessed: 30/01/2021).