

Read Me

Disinflations in a model of imperfectly anchored expectations

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1 Replication Instructions

This document provides a brief introduction to the data and programs used in creating the tables and figures in Gibbs and Kulish (2017). Three different programs were used to create figures and tables. This document is organised by the program used.

1.1 File Structure

The zipped replication file has the following file structure:

- Programs

- Data

- See Table 1 for list of contents.

- Stata_Programs

- See Subsection 1.3 for description of contents.

- Matlab_Programs

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See Subsection 1.4 for description of contents.

→ Mathematica_Programs

See Subsection 1.5 for description of contents.

1.2 Data

There are 12 separate files that contain the raw data used in this paper. The data and their sources are provided in Table 1. The raw source data files are in the sub-folder Data. The data are used to create cross-country estimates of the sacrifice ratio as well as for estimating the theoretical model in Section 5 for the quantitative analysis.

Table 1: Raw Data

Data	File Name	Source
Multi-country CPI	CPI-TOT_AGRWTH-Q.csv	OECD
Multi-country GDP	QGDP-TOT-PC_CHGPP-Q.csv	OECD
Multi-country interest rates	STINT-TOT-PC_PA-Q.csv	OECD
Multi-country GDP	world_band_data.xls	World Bank
Multi-country interest rates	Supplemental_interest.xls	FRED
Multi-country GDP	Supplemental_GDP_Data.xls	FRED
Arg. CPI	Official Price Data sh_ipc_2008.xls	BCRA
Arg. GDP Growth	SGE-ARGGGR.xls	BCRA
Arg. Money Aggregates	MoneyMeasures	BCRA
Arg. Billion Price Project	Price Stats Billion Price Argentina_monthly_series.xlsx	BPP
US Data	US_Data.xls	FRED
Chinese Data	Supp_China.xls	FRED
Central Bank Govenors	cbg_turnover_2015v02jes.xlsx	Dreher et al. (2008 and 2010)

1.3 Stata Programs

There are six Stata programs. The programs should be executed in the order in which they are listed here.

1. Data_Cleaning_Argentina.do - This file cleans the source data used for estimating the model used in Section 5. The directory at the top must be changed to point at the appropriate folder where the data is located on your machine.

2. Data_Cleaning_US.do - This file cleans the source data used for estimating the model used in Section 5. The directory at the top must be changed to point at the appropriate folder where the data is located on your machine.
3. Data_Cleaning_OECD.do - This file cleans the source data that is used to calculate cross-country sacrifice ratios in Section 2. The directory and global variables at the top govern where the program looks to find the data. Make sure to change these to point at the appropriate folders for your machine.
4. Ball_Method_SRs.do - This file calculates the sacrifice ratios from the cross-country data. It calculates a number of additional statistics to those that are used in the paper. The measure of the sacrifice ratio used in the paper is labeled as "b_sacrifice_ratios."
5. Figure_1_and_Tables_1_and_2.do - This program produces Figure 1 and Tables 1 and 2 in the paper. The program first imports the data on central bank governors and creates the necessary variables. Additional measures are created to what is shown in the paper. Some of the measures appeared in early versions of the paper. The directory at the top must be changed to point at the appropriate folder where the data is located on your machine.
6. Table_6.do - This program requires the Matlab program Table_6_Sim_Data.m to run first. It takes simulated data from the Matlab model and runs the same filters on it as we used on the cross-country data. The directory at the top must be changed to point at the appropriate folder where the data is located on your machine.

1.4 Matlab Programs

There are 17 Matlab programs needed to replicate the results in Section 5 and in the Online Appendix. The following programs are used to estimate the model to obtain parameter values for the quantitative exercise:

1. `arg_data.m` - This program imports the data for the Argentinean estimation and plots it. The data set that this program calls is created by the Stata program `Data_Cleaning_Argentina.do`.
2. `us_data.m` - This program imports the data for the US estimation and plots it. The data set that this program calls is created by the Stata program `Data_Cleaning_US.do`.
3. `Table_3_Arg_Estimates.mod` - This program uses Dynare to estimate the model by Bayesian methods using the data imported from `arg_data.m`.
4. `Table_3_Estimates.mod` - This program uses Dynare to estimate the model by Bayesian methods using the data imported from `us_data.m`.

The remaining programs are used to create Tables 3 through 6, Online Appendix Table 1, Figures 3 through 6, and Online Appendix Figure 4.

1. `runSet.m` - This program holds all the options for the model. It allows for selection of the model parameterization (US or Argentina), the size and characteristics of the disinflation, the length of the simulation, the setting of λ and the γ , and a number of other options. The programs are set up so that this program is called automatically and set appropriately to create each figure. If one wants to create new figures, then this program may be called independently.
2. `SR.m` - This is the primary function that simulates the model under imperfectly anchored expectations. The function takes in the structure “SET,” which is created when `runSet.m` is executed. Therefore, it is called by typing, for example, “`out = SR(SET)`” into the command prompt. The function returns a structure “out” that contains various statistics relating to the simulations. The statistics vary according to the options chosen in `runSet.m`. This program is called automatically by the programs that create the figures in the paper.

Note: This program uses the parallel processing toolbox. If you do not have this toolbox, then you can modify the code by changing every “parfor” loop to “for.” This, however, will greatly increase the time it takes to reproduce the figures and tables.

3. SR_actual.m - This is a modified version of SR.m that produces the actual sacrifice ratios implied by the model plus all characteristics needed to reproduce the regressions in Table 1 and 2 using simulated data.
4. SR_reg.m This is a modified version of SR.m that produces only simulated data that is similar to the raw cross-country data analyzed in Section 2.
5. smatsbp.m - This program calculates the rational expectations solution of the baseline model.
6. Figure_3.m - Creates Figure 3 and estimates for Table 4.
7. Figure_4_and_Table_4.m - Creates Figure 4 and estimates for Table 4.
8. Figure_5_and_Table_4.m - Creates Figure 5 and estimates for Table 4.
9. Figure_6.m - Creates Figure 6.
10. Table_5_Arg.m - Creates the Argentinean calibration estimates of Table 5.
11. Table_5_US.m - Creates the US calibration estimates of Table 5.
12. Table_6_Sim_Data.m - Creates the simulated data used in Table 6. Run this program before running the State program: Table_6.do.
13. Appendix_Figure_4_and_Table_1.m - Creates Online Appendix Figure 4 and Table 1.

1.5 Mathematica Programs

There are two Mathematica programs that are used to create Figure 2 and Online Appendix Figures 1 through 3.

1. Fig_2_and_Appendix_Fig_1.nb
2. Appendix_Figs_2_and_3.nb