Replication of the Quantitative Analysis for "Information Frictions, Reputation, and Sovereign Spreads"

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Overview

The quantitative analysis replication package contains three main folders, and a compilation folder. The folder "*/01_Baseline_Model*" contains all the necessary files to solve and simulate the baseline model. The folder "*/02_Perfect_Information*" has the files to solve a counterfactual in which the type of government is perfectly observed. The "*/03_Appendix*" folder includes the files to construct the tables and figures of the appendix. Lastly, the folder "*/04_Compile_Figures_Tables*" contains a compilation of all figures and tables.

To solve the quantitative model, we used Julia v0.60, since the project was already quite developed by the time the v1.x versions were released. The following packages are needed to run these codes: *Distributions, Interpolations, Optim, Roots, Plots, JLD, StatsBase.* To solve and simulate the model and construct all the tables and figures of the paper, the user just need to run the "**00_Master_File.jl**" file.

Baseline Model

Inside the "*/01_Baseline_Model*" folder, we include the files that we use to solve our baseline model.

- **01_Model_Structure.jl.** Defines a structure in which we store all the parameters and matrices that we use to solve the model and run the simulations.
- **02_Functions.jl.** Defines most of the functions, such as the government's utility function, the Bellman equation, probability of receiving message m, among others.
- **03_Model.jl.** For a given value function and bond pricing kernel, this file solves the government problem and updates the pricing kernel.
- **04_Main_Iteration_fx.jl.** Iterates over the 03_Model.jl file. That is, it updates both the value functions and bond pricing kernel until convergence is achieved.
- **05_Load_Solution.jl.** Auxiliary file to load a stored solution or initial first guess.
- **10_Simulations_Main_fx.jl.** Defines all functions needed to simulate the model.
- **11_Simulations_Moments_Unconditional.jl.** Computes unconditional moments, such as debt-to-gdp ratios, average spreads, etc. It generates Figure 7 of the paper.

- **12_Simulations_Wrapper.jl.** Auxiliary function that calls the 10_Simulations_Main_fx.jl. and 11_Simulations_Moments_Unconditional.jl files. In addition, it computes the elasticity η and provides a decomposition of sovereign spreads.

- **20_Run_Main.jl.** Calls all the other **.jl** files and solves the model.

- **21_Policies_Plots.jl.** Creates Figure 6 of the paper, and Figures C.1 and C.2 of the Appendix.

- **30_Run_Simulations.jl.** Main file that runs the simulations of the model, computes unconditional moments and the Argentine counterfactual.

- **31_Create_Tables.jl.** Auxiliary file that loads stored solutions and creates the tables of the quantitative sections (Tables 4, 5, 6, 7, and 8).

- **32_Arg_Counterfactual.jl.** Loads the Argentine output path and simulates the model based on different realizations of the message m. It then uses those results to construct the Argentine counterfactual. It creates Figure 8 and Figure C.8.

Perfect-Information Counterfactual

Inside the "*/02_Perfect_Information*" folder, we include the files that we use to solve the counterfactual in which the type of government is perfectly observed by agents. The structure of the files is analogous to the one described in the previous section. The files used are the following:

- 01_Model_Structure.jl.
- 02_Functions.jl.
- 03_Model.jl.
- 04_Main_Iteration_fx.jl.
- 12_Simulations_Wrapper.jl.
- 30_Run_Simulations.jl.
- 31_Create_Tables.jl.

Appendix

In the "*/03_Appendix*" folder, we include files to construct the figures and tables of our quantitative appendix.

- **10_Spreads_Ratio.jl** Compares spreads between the baseline model and the perfect-information counterfactual. It generates Figure C.5.

- **20_Derivative_Posterior.jl.** Analyzes how α affects the expected posterior reputation and the model-implied elasticity. It computes the first derivative of the expected posterior with respect to α and decomposes the effects into a frequency and a surprise channel. It generates Figure C.3.

- **30_Elasticity_Alpha.jl** Simulates the model under different values for α. It generates Figure C.4.

- **40_CEC_plots.jl** Computes the certainty equivalent consumption between the baseline model and the perfect-information case. It generates Figures C.6 and C.7.

- "**/50_Alternative_Persistence**". This subfolder includes two files that we use to solve and simulate the model under different parameterizations for the Markov transition matrix across types T. It generates Table C.1.

Compilation Figures Tables

- All figures and tables can be compiled by running the file "**compile_figures_tables.tex**", which is inside the "*/04_Compile_Figures_Tables*" folder.