Quantitative Sovereign Default Models and the European Debt Crisis

by Luigi Bocola, Gideon Bornstein, and Alessandro Dovis

Replication Instructions

This document describes the replication files. We divided the replication files into three sub-folders:

1. **Section 2** – this folder contains the Stata data and do files to replicate our graphs from Figure 1 and the regression results in Table 1.
2. **Section 4 calibration targets** – this folder contains a Matlab data and script file to compute the targeted moments for the two calibration exercises in Section 4.1.
3. **Section 4 model** – this folder contains the Julia files to compute the solution of the model.[1] In addition to computing moments, the Julia files save a text file for Matlab with simulation results. This folder also contains the Matlab files to produce Figures 3-5 in the paper.

Detailed explanation on each file:

- *Section 2* folder
    - Section2.dta – data file containing average quarterly spreads (`spreads_COUNTRY'), net external debt (`niip_COUNTRY'), public debt (`by_COUNTRY'), public external debt (`bey_COUNTRY'), and output (`y_COUNTRY'). See data sources in paper.
    - Section2_figs_and_tables.do – Stata do file which produces the figures and tables from Section 2.
- *Section 4 calibration targets* folder
    - Spain_data.mat – data file with quarterly data on debt services to output (b), spreads (spread), trade balance (tb), and de-trended output (y).
    - Spain_moments.m – code which computes the moments and standard errors via GMM. This code is used to construct the first column of Table 3.

[1] For readers unfamiliar with Julia, we recommend reading the QuantEcon solution to the Arellano (2008) model - https://lectures.quantecon.org/jl/arellano.html.

- *Section 4 model* folder
    - Model.ipynb – Julia code written in Jupyter Notebook. The code computes moments for different parameterization values (the function `model_moments'), as well as saves simulation results to text files.
    - load_sim_results.m – Matlab script to load Julia simulation for text files and save in Matlab format. This code also records the behavior of the economy prior to default events.
    - Figure_3.m – Matlab script to produce Figure 3.
    - Figure_4.m – Matlab script to produce Figure 4.
    - Figure_5.m – Matlab script to produce Figure 5.