Replication Package for "Technological Rivalry and Optimal Dynamic Policy in an Open Economy"

Authors: Yan Bai, Keyu Jin, Dan Lu

This package contains the code and data to replicate our results.

1 Computational Requirements

Generating the results requires MATLAB R2022b or newer. Estimations and simulations of models use Dynare v6.3 (https://www.dynare.org/). It takes a couple of seconds to run the Ramsey or Markov optimal policy on a MacBook Pro with an Apple M1 Max chip and 32GB of memory.

2 The Folder Structure of the Package

The replication package consists of the following major files

- `main_figure.m`: plot all figures in the paper
- `main.m`: compute Ramsey, Markov, and private equilibrium under various scenarios
- `Ramsey_1s2c_perfect2.mod`: Dynare mod file, compute optimal Ramsey policy during transition
- `markov2.mod`: Dynare mod file, compute optimal Markov policy
- `markov2_perfect.mod`: Dynare mod file, compute optimal Markov policy during transition
- `private_1s2c_perfect2_varyTaux.mod`: Dynare mod file, compute private equilibrium under export tax formula $1/(\theta\pi_{22})$

3 Details of Replication

Replication of Figures. For convenience, a full set of results from all Matlab programs is included in the replication package. To reproduce immediately the figures in the paper, execute the script `main_figure.m`.

Main program. The Matlab script `main.m` generates all results used in `main_figure.m`. To get these results,

- Change 'irun=1' in Line 12 for cases of Ramsey, Markov, or private equilibrium under different risk aversion parameters.
- Execute the script `main.m`.