

README

Guide for the replication packet for all tables and figures in “Trapped Factors and China’s Impact on Global Growth”, by Nicholas Bloom, Paul Romer, Stephen J. Terry, John Van Reenen
Economic Journal

The code in this replication packet was run on a 2017 iMacPro running macOS Catalina Version 10.15.5 with a 2.3 GHz 18-core Intel Xeon W processor. The two statistical languages that we used were R and STATA. R was implemented with Version 3.5.2 “Eggshell Igloo”, which we executed using Version 1.1.463 of the integrated development environment RStudio. Our STATA analysis was done with STATA-MP, Version 15.1.

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Figure 1

The files are located in directory `Figure_1`. Using the language R, run the file `Figure_1.R` by typing `source("Figure_1.R")` in the command window. The code will draw data from `Figure_1_Data.csv` and produce `Figure_1.pdf`, which is the figure of aggregate trade ratios appearing in the paper. The execution time is trivial.

Table 1

The files are located in directory `Table_1`. Using the language STATA, first install the command `ivreg2` by typing `ssc install ivreg2` in the command window. Then, execute the file `Table_1.do` by typing `do Table_1.do` in the command window. The code will draw data from STATA data files `titc_bdvr_small.dta` and `COMTRADE_NBER.dta` (note that ASCII comma separated versions are also included). There are six trade regressions and ancillary statistics in the main text’s Table 1. The code will output these values in the text log `Table_1.txt`. The execution time is 20-30 seconds, depending on the speed of your machine.

Figure 2

The files are located in directory `Figure_2`. This theoretical figure is available in PDF form in the file `Figure_2.pdf`.

Figure 3

The files are located in directory `Figure_3`. This theoretical figure is available in PDF form in the file `Figure_3.pdf`.

Figure 4

The files are located in directory `Figure_4`. This theoretical figure is available in PDF form in the file `Figure_4.pdf`.

Table 2

The files are located in directory `Table_2`. The table is based on model results which need to be computed. To do so, first open the command window in the language R. You will need the packages `matlab` and `pso`, so run the following two commands to install them:

- `install.packages("matlab")`
- `install.packages("pso")`

Then, run the file `Table_2.R` by typing `source("Table_2.R")` in the command window. The code will produce `Table_2.txt`, which includes the values reported in Table 2 in the paper. The execution time is 5-10 seconds, depending on the speed of your machine.

Figures 5, 6, 7, 8, and 10, joint with Table 3

The files are located in directory `Figures_5_6_7_8_10_Table_3`. These figures and tables are based on related model results, so the code producing them is in a single directory.

Open the command window in the language R. You will need the packages `matlab` and `pso`, so run the following two commands to install them:

- `install.packages("matlab")`
- `install.packages("pso")`

Then, execute the main file by typing `source("Main_File.R")` which will sequentially call the files `Step_1.R`, `Step_2.R`, and `Step_3.R`. The total execution time will be around 20 seconds to a minute depending on the speed of your machine. The files which will be produced include:

- `Figure_5.pdf`: this is Figure 5 in the paper, plotting a 2 x 2 matrix of transition paths of the Fully Mobile economy
- `Figure_6.pdf`: this is Figure 6 in the paper, plotting a 2 x 2 matrix of transition paths of the Trapped Factors economy
- `Figure_7.pdf`: this is Figure 7 in the paper, with a bar plot of the industry-level change in patenting after the trade shock
- `Figure_8.pdf`: this is Figure 8 in the paper, plotting a 2 x 2 matrix of transition paths of various prices and shadow values in the Trapped Factors economy after the trade shock
- `Figure_10.pdf`: this is Figure 10 in the paper, containing a decomposition of growth in the Northern and Southern economies after the trade shock
- `Table_3.txt`: this file contains the 4 different welfare gain values in Table 3 in the paper

Figure 9

The files are located in directory `Figure_9`. This figure is based on a combination of multiple model results.

Open the command window in the language R. You will need the packages `matlab` and `pso`, so run the following two commands to install them:

- `install.packages("matlab")`
- `install.packages("pso")`

Then, execute the main file by typing `source("Main_File.R")` which will sequentially call the files `Step_1.R`, `Step_2.R`, `Step_3.R`, `Step_4.R`, and `Step_5.R`. These files will create intermediate model output in the subdirectory `Model_Data`. The total execution time will be 1-2 minutes, depending on the speed of your machine. The file `Figure_9.pdf` will be produced in the main directory, which is a 2 x 1 matrix of transition paths in the Trapped Factors economy.

Figure 11 and Table 4

The files are located in directory `Figure_11_Table_4`. This figure and table are based on a combination of multiple model results computed as a range of robustness checks to the main results.

Open the command window in the language R. You will need the packages `matlab` and `pso`, so run the following two commands to install them:

- `install.packages("matlab")`
- `install.packages("pso")`

Then, execute the main file by typing `source("Main_File.R")` which will sequentially call three files in each of the subfolders in the directory corresponding to a robustness check. These files will create intermediate model output in the associated subdirectories, e.g., `alpha_50` for the robustness check with $\alpha = 0.5$. The total execution time will be 3-5 minutes, depending on the speed of your machine. The replication packet already includes pre-computed values of this intermediate model output, so if you wish to speed the execution considerably and just produce the figure and table output, set the value `compute_underlying` to 0 in `Main_File.R` at line 11. When `Main_File.R` completes execution, the following files will be produced:

- `Figure_11.pdf`: this is the robustness check figure for the Trapped Factors growth path in the paper
- `Table_4.txt`: this is an array of welfare gain figures for each robustness check reported in Table 4 in the paper.