Here is the R code used for the simulations.

**“Librarys.R”** provides all the R packages used in these codes. All packages used are publicly released in the R community.

**“FUNC.R”** provides the functions used in the simulations.

**“matrix\_multiplication.cpp”** is a high-performance matrix operation library written in C language. We call it in R code for large matrix operations.

**“Sample.R”** provides a piece of code that shows the main progress of our model. Along with it, we provide a minimal input in “MRIOTtest.xlsx” for illustrate.

**“Shocks.R”** prepare shocks for each scenario.

**“Sim\_ALLSUB.R”** is one of the typical simulations.

**“Plots.R”** is used to organize the results and make figures.

**“RegionGTAP10.csv”** and **“SectorGTAP10.csv”** provide the list of regions and sectors in GTAP Database (version 10).