**Market Structure and Resilience of Food Supply Chains Under Extreme Events**

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# Overview

Code files in this replication package generate eight main text figures and one appendix figure using R. The replicator should expect about 5 minutes to run through the files. Raw data is only used to create a motivating figure. All other analysis is conducted with a simulated datasets and distribution of shocks, where price and quantity are normalized with respect to the perfect competitive case.

# Data Availability

External data are only used for a preliminary motivating figure (figure 1). Aggregated weekly retail data is provided by USDA ERS, aggregated from IRI scanner data <https://www.ers.usda.gov/data-products/weekly-retail-food-sales/>. Weekly US beef slaughter and inventory data is provided by the Livestock Market Information Center (LMIC). Both raw data files are included in the replication package.

# Computational/Software Requirements

R Studio was used for the simulation analysis in the article.

Approximate time needed to reproduce the analyses on a standard 2020 desktop machine:

* < 5 minutes (after necessary R packages are installed)

# Description of the Code

File name of each code file indicates the corresponding figure or table that the code generates. The replicator can duplicate all the figures in the paper by setting the working directory and running the ‘run\_all.R’ file provided in the main folder. Detailed instructions of code are included in the files as comments.

# List of Code Files

|  |  |  |  |
| --- | --- | --- | --- |
| Output | File | Data | Software |
| Figure 1 | HMS\_AJAE\_Fig1.R | USDA; LMIC | R |
| Figure 2 | HMS\_AJAE\_Fig2\_3.R | N/A | R |
| Figure 3 | HMS\_AJAE\_Fig2\_3.R | N/A | R |
| Figure 4 | HMS\_AJAE\_PolicySim1\_2.R | N/A | R |
| Figure 5 | HMS\_AJAE\_PolicySim1\_2.R | N/A | R |
| Figure 7 | HMS\_AJAE\_PolicySim3.R | N/A | R |
| Figure 8 | HMS\_AJAE\_PolicySim3.R | N/A | R |
| Figure 9 | HMS\_AJAE\_PolicySim4.R | N/A | R |
| Figure A1 | HMS\_AJAE\_PolicySim1\_2.R | N/A | R |