

This directory contains data and code that replicates tables and figures for the following paper:

**Title:** Health Risk and the Value of Life

**Authors:** Daniel Bauer, Darius Lakdawalla, and Julian Reif

One master script runs all of the code. It was last run on a Windows 10 Desktop with 32 gigabytes of RAM and an i7-8700 CPU 3.20 GHz processor. The runtime was approximately 20 hours.

## Software requirements

Stata version 18 or higher

- Add-on packages required: **rscrip**t and **texsave**
- Note: add-on packages are included in **scripts/libraries/stata** and thus do not need to be installed by user

R version 4.3.1 or higher (available for free from: <https://cloud.r-project.org>)

- Add-on packages required: **rootSolve**

## Directory structure

```
replication                                # Replication package folder
├── data                                  #   Input files (read-only)
├── processed                             #   Processed data
├── results                               #   Output files
│   ├── figures                           #       Figures (PDF)
│   ├── intermediate                       #       Intermediate results
│   └── tables                             #       Tables (LaTeX)
├── scripts                               #   Code
│   ├── libraries/stata                   #       Add-on Stata packages
│   ├── logs                             #       Stata log files
│   ├── programs                          #       Configuration file and R code
│   ├── 1_process_fem_data.do
│   ├── 2_fem_analysis.do
│   └── 3_make_tables_figures.do
└── run.do                                #   Master script
```

Note: to save on disk space, the folder **results/intermediate** is not included in this replication folder. Running the analysis, as described below, will recreate that folder and its contents.

## Instructions

Executing the master script **run.do** will run the analysis and generate all tables and figures. Before running this script, you must make one edit to line 19:

1. Define a global macro, **Longevity**, that points to the directory containing this README file

For example, that line should look something like the following:

---

```
global Longevity "C:/Users/jdoe/thisfolder"
```

---

# **Data availability statement**

We certify that the authors of the manuscript have legitimate access and permission to use the data employed in this manuscript.

## **Datasets**

### **Future Elderly Model**

The Future Elderly Model (FEM) is a microsimulation model that projects future health and medical spending for Americans ages 50 and over. Detailed technical information about its data sources and methods is included in our Supplementary Materials, and also available online at:

<https://healthpolicy.usc.edu/future-elderly-model/fem-technical-specifications/>

When running the FEM, we assumed zero GDP growth, zero Medical CPI growth, and no all-cause mortality reduction adjustment. The output from this model, which is used in this study's analysis, is available in:

`/data/fem`

## **Descriptions of scripts**

**run.do** is a master script that sets up the environment, creates output folders, and then calls other scripts.

### **1\_process\_fem\_data.do**

This script imports and processes the raw output from the Future Elderly Model.

### **2\_fem\_analysis.do**

This script calls R scripts that are used to calculate the value of health and longevity.

### **3\_make\_tables\_figures.do**

This script creates all the tables and figures from the paper.

Note: the file `/scripts/programs/README.auxiliary.pdf` provides additional documentation for the R scripts that run the stochastic life-cycle model.

## Lists of exhibits

| Figure    | Source script            | Output file                   | Notes |
|-----------|--------------------------|-------------------------------|-------|
| Figure 1a | 3_make_tables_figures.do | medical_spending.pdf          |       |
| Figure 1b | 3_make_tables_figures.do | earnings.pdf                  |       |
| Figure 2  | 3_make_tables_figures.do | c_vsl_shock.pdf               |       |
| Figure 3a | 3_make_tables_figures.do | mc_vsl_variance.pdf           |       |
| Figure 3b | 3_make_tables_figures.do | mc_vsl_age70.pdf              |       |
| Figure 4a | 3_make_tables_figures.do | mc_vsl_change.pdf             |       |
| Figure 4b | 3_make_tables_figures.do | mc_vsly_change.pdf            |       |
| Figure 5  | 3_make_tables_figures.do | mc_vsl_vsly_age70.pdf         |       |
| Figure 6  | 3_make_tables_figures.do | mc_vsi_vsiy_age70.pdf         |       |
| Figure 7a | 3_make_tables_figures.do | robustness_consumption.pdf    |       |
| Figure 7b | 3_make_tables_figures.do | robustness_vsl.pdf            |       |
| Figure 7c | 3_make_tables_figures.do | robustness_mc_vsly_age70.pdf  |       |
| Figure 7d | 3_make_tables_figures.do | robustness_mc_vsiy_age70.pdf  |       |
| Figure 8a | 3_make_tables_figures.do | robustness2_consumption.pdf   |       |
| Figure 8b | 3_make_tables_figures.do | robustness2_vsl.pdf           |       |
| Figure 8c | 3_make_tables_figures.do | robustness2_mc_vsly_age70.pdf |       |
| Figure 8d | 3_make_tables_figures.do | robustness2_mc_vsiy_age70.pdf |       |
| Table 1   | 3_make_tables_figures.do | calibration.tex               |       |
| Table 2   | 3_make_tables_figures.do | summary_stats_qale70.tex      |       |
| Table 3   | 3_make_tables_figures.do | summary_stats.tex             |       |