

Data and Code for *Scarred Consumption*, American Economic Journal: Macroeconomics

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I. Overview

The replication folder consists of five main folders.

1. The folder “raw” contains all the raw data used in the analysis.
2. The folder “code” contains the programming code that builds the working datasets from the raw data and replicates all the figures and tables in the paper. The folder consists of six subfolders, corresponding to the different elements or sections in the paper: (i) exp_measures (for construction of measures of experience), (ii) PSID, (iii) MSC, (iv) CEX, (v) Nielsen, and (vi) Model.
3. The folder “data” contains all the intermediate data that are manipulated from the raw data.
4. The folder “Figures” contains all the figures in the paper, generated from the corresponding code in the code folder.
5. The folder “Tables” contain all the tables in the paper, generated from the corresponding code in the code folder.

This readme file first provides details about data availability, data sources, and software requirements. It then provides detailed descriptions of the programming code, with the descriptions organized by data construction and data analysis. Finally, it provides instructions for running the code and replicating the results.

II. Data Sources and List

The following data used in the paper are publicly available.

- Data from the Panel Study of Income Dynamics (PSID).
These data can be obtained in packaged form from <https://simba.isr.umich.edu/Zips/ZipMain.aspx> after registering for an account. The PSID repository for this paper <https://doi.org/10.3886/E184647V1> contains the raw and processed PSID data.
 - The “/raw” subfolder contains the raw base data: psid_new_everyone.dta.
 - The “/raw/wealth” subfolder contains raw data files on debt and wealth in 1984, 1989, 1994, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, and 2017.

- The “/raw/consumption” subfolder contains the raw data files on consumption in 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, and 2017.

The collection of data used in this study was partly supported by the National Institutes of Health under grant number R01 HD069609 and R01 AG040213, and the National Science Foundation under award numbers SES 1157698 and 1623684.

- Data on unemployment rate from the Bureau of Labor Statistics (BLS) and articles.

National unemployment rate data can be freely obtained from four sources: (a) BLS series LNS14000000 for the years 1947-2018, pulled from <https://data.bls.gov/pdq/SurveyOutputServlet> in 2019; (b) BLS calculations based on U.S. Census Bureau data, persons age 14 and over in the civilian labor force, 1940-1947, manually extracted from <https://www.bls.gov/cps/aa2009/cpsaat1.pdf>; (c) data for 1930-1939 manually extracted from a table in Coen (1973); (d) data for 1890-1930 manually extracted from a table in Romer (1986).

- Annual: “/raw/ nat_UE_1890_2017.dta”
- Quarterly: “/raw/ unemployment_raw_q.xlsx”
- Monthly: “/raw/ unemployment_raw_m.xlsx”

State-level unemployment rate data from the BLS can be freely obtained from <https://download.bls.gov/pub/time.series/la/>

- “/raw/state_UE_1976_2017.dta”

County-level unemployment rate data from the BLS can be freely obtained from <https://download.bls.gov/pub/time.series/la/la.data.64.County>.

- “/raw/Unemployment_county.dta”

- Data on Personal Consumption Expenditures (PCE) from the U.S. Bureau of Economic Analysis can be freely retrieved from FRED, Federal Reserve Bank of St. Louis, <https://fred.stlouisfed.org/series/PCE>.
 - “/raw/PCE_use2.xls”
- Data on PCE Chain-type Price Index (DPCERG3) from the U.S. Bureau of Economic Analysis can be freely retrieved from FRED, Federal Reserve Bank of St. Louis, (index normalized to 12/1/2012)
 - “/raw/PCEPI.dta”
- Data on Zillow Home Value Index (county level) can be freely retrieved from <https://www.zillow.com/research/data/>.
 - “County_Zhvi_AllHomes.csv”
- Data from the Survey of Consumer Attitudes and Behavior from the University of Michigan (Michigan Survey of Consumers, or MSC).

Data for 1953-1977 can be retrieved from ICPSR subject to account registration, <https://www.icpsr.umich.edu/web/ICPSR/series/54>. The entire dataset was downloaded for each wave:

- <https://doi.org/10.3886/ICPSR03634.v1>
- <https://doi.org/10.3886/ICPSR03602.v1>
- <https://doi.org/10.3886/ICPSR03631.v1>
- <https://doi.org/10.3886/ICPSR03633.v1>
- <https://doi.org/10.3886/ICPSR03629.v1>
- <https://doi.org/10.3886/ICPSR03628.v1>
- <https://doi.org/10.3886/ICPSR03637.v2>
- <https://doi.org/10.3886/ICPSR03627.v2>
- <https://doi.org/10.3886/ICPSR03626.v1>
- <https://doi.org/10.3886/ICPSR03622.v1>
- <https://doi.org/10.3886/ICPSR03621.v1>
- <https://doi.org/10.3886/ICPSR03620.v2>
- <https://doi.org/10.3886/ICPSR03619.v2>
- <https://doi.org/10.3886/ICPSR07473.v1>
- <https://doi.org/10.3886/ICPSR07475.v1>
- <https://doi.org/10.3886/ICPSR07476.v2>
- <https://doi.org/10.3886/ICPSR07525.v3>
- <https://doi.org/10.3886/ICPSR07477.v2>
- <https://doi.org/10.3886/ICPSR07523.v2>
- <https://doi.org/10.3886/ICPSR07478.v2>
- <https://doi.org/10.3886/ICPSR07524.v2>
- <https://doi.org/10.3886/ICPSR07479.v2>
- <https://doi.org/10.3886/ICPSR07480.v2>
- <https://doi.org/10.3886/ICPSR07481.v2>
- <https://doi.org/10.3886/ICPSR07482.v2>
- <https://doi.org/10.3886/ICPSR07543.v1>
- <https://doi.org/10.3886/ICPSR07544.v3>
- <https://doi.org/10.3886/ICPSR07545.v1>
- <https://doi.org/10.3886/ICPSR08723.v1>
- <https://doi.org/10.3886/ICPSR08724.v1>
- <https://doi.org/10.3886/ICPSR08727.v1>

Data for 1978-2018 can be retrieved from the Survey of Consumers Cross-Section Archive at <https://data.sca.isr.umich.edu/findings/findings.php>. The variables selected were CASEID, YYYYMM, YYYYQ, YYYY, ID, IDPREV, DATEPR, PEXP, BEXP, UNEMP, DUR, INCOME, AGE, SEX, MARRY, ECLGRD, EHSGRD, WT.

- “/raw/MS/MS_data_1.csv”: data from 1978 – 10/2012, accessed January 5, 2013.
 - “/raw/MS/MS_data_2.csv”: data from 1978 – 2018, accessed February 1, 2019.
- CEX files are all publicly available but need to be separately downloaded by year.
 - Years 1980-1, 1990+ files are downloaded from the NBER, www.nber.org/ces.

- Years 1982-1989 files are downloaded from ICPSR, which are freely available to data users at ICPSR member institutions, <https://www.icpsr.umich.edu/web/ICPSR/series/20>. Download the files that begin with “fmly*”, “memb*”, and “mtab*”.
 - 1980-1981 Interview Survey files from NBER <http://data.nber.org/ces/1980-1981/>
 - 1982-1983 Interview Survey (ICPSR 8598): <https://doi.org/10.3886/ICPSR08598.v1>
 - 1984 Interview Survey (ICPSR 8671): <https://doi.org/10.3886/ICPSR08671.v2>
 - 1985 Interview Survey (ICPSR 8904): <https://doi.org/10.3886/ICPSR08904.v2>
 - 1986 Interview Survey (ICPSR 9113): <https://doi.org/10.3886/ICPSR09113.v2>
 - 1987 Interview Survey (ICPSR 9332): <https://doi.org/10.3886/ICPSR09332.v2>
 - 1988 Interview Survey (ICPSR 9451): <https://doi.org/10.3886/ICPSR09451.v2>
 - 1989 Interview Survey (ICPSR 9712): <https://doi.org/10.3886/ICPSR09712.v1>
 - 1990-2012 from NBER <http://data.nber.org/ces/>
- The files are stored in the directory “/raw/CEX” with one subdirectory for each year (1980-2012).
- Within each subdirectory, there are three types of files, one for each quarter: fmlyq[YEAR][Quarter], memb[YEAR][Quarter], and mtabq[YEAR][Quarter] (i.e., 12 files total). For example, the files in the “1980” subdirectory are
 - “/raw/CEX/1980/fmlyq801.dta”
 - “/raw/CEX/1980/fmlyq802.dta”
 - “/raw/CEX/1980/fmlyq803.dta”
 - “/raw/CEX/1980/fmlyq804.dta”
 - “/raw/CEX/1980/memb801.dta”
 - “/raw/CEX/1980/memb802.dta”
 - “/raw/CEX/1980/memb803.dta”
 - “/raw/CEX/1980/memb804.dta”
 - “/raw/CEX/1980/mtabq801.dta”
 - “/raw/CEX/1980/mtabq802.dta”
 - “/raw/CEX/1980/mtabq803.dta”
 - “/raw/CEX/1980/mtabq804.dta”

The following data used in the paper cannot be made publicly available as they require a subscription with the provider.

- Nielsen Homescan Consumer Panel from the Nielsen Consumer LLC and marketing databases is provided through the NielsenIQ Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business. A subscription is required for access: <https://www.chicagobooth.edu/research/kilts/datasets/nielsen>. Once registered and approved, researchers use the Kilts Apply portal to access all years of data through a secure online file transfer system Globus. From Globus, researchers download the data to an institutionally-owned device or approved location for storage and use. Per Nielsen guidelines, data samples may not be submitted to any outside party.
 - household panelist data, organize as “/raw/panelist_[year].dta”.

- Data on panelist with corrected birth dates released by Nielsen in 2016, “/raw/panel_birth_corrected.dta”
- trips data, organize as “/raw/trip_[year].dta”.
- purchase data, organize as “/raw/purchases_[year].dta”.
- products details, “/raw/products.dta”.

Statement about rights: We certify that the authors of the manuscript have legitimate access to and permission to use the data used in this manuscript.

III. Computational Requirement

The empirical results in the paper were produced using the following software:

- Stata
- R
- Python

All the model simulation files were written for and run in Julia version 1.0.0 using a Linux system. Packages and version numbers are included below.

```
( "CSV", v"0.4.2" )
( "GR", v"0.35.0" )
( "PDMats", v"0.9.5" )
( "Distributions", v"0.16.4" )
( "ParallelDataTransfer", v"0.5.0" )
( "Rmath", v"0.5.0" )
( "SortingAlgorithms", v"0.3.1" )
( "Arpack", v"0.3.0" )
( "Distributed", nothing )
( "LinearAlgebra", nothing )
( "PyCall", v"1.18.5" )
( "SharedArrays", nothing )
( "StatsBase", v"0.25.0" )
( "Plots", v"0.21.0" )
( "PyPlot", v"2.6.3" )
( "StatsFuns", v"0.7.0" )
( "FileIO", v"1.0.2" )
( "ProfileView", v"0.4.0" )
( "StaticArrays", v"0.9.2" )
( "JLD2", v"0.1.2" )
( "DataFrames", v"0.14.1" )
( "SpecialFunctions", v"0.7.2" )
( "UnicodePlots", v"0.3.1" )
( "PlotlyJS", v"0.12.0" )
( "RandomNumbers", v"1.0.2" )
```

We also included the Manifest.toml and Project.toml in the Replication\code\Model\simulation\baseline_high_educ folder. More information about these files can be found [here](#).

The figures and tables based on the PSID and CEX data can be reproduced within 30 minutes. Those based on the Nielsen data take about 120 hours. Simulations for the baseline version (for one education level and lambda) take approximately 12 hours, and the two backward induction files take approximately 55 hours. Simulations for the consumption scarring version (for one level of education) take approximately 2 hours, and the backward induction takes approximately 1000 hours (each run takes 10 hours and 101 runs were conducted). The simulation code requires large amounts of both computing resources and storage. The baseline model uses approximately 1TB of storage for each of the two education levels. The consumption scarring model requires a larger grid space (to ensure the distribution is not skewed when introducing consumption scarring) and therefore requires approximately 3.6 TB of storage for each education level. All jobs were run on machines with Intel Xeon E5-2650 v4 CPUs with 24 cores and 64 GB of memory.

Controlled randomness: Across the simulation codes (wherever applicable) a fixed seed is used for pseudorandom number generators.

IV. Description of Programming Code

IV.1 Programming Code for Data Build

PSID

“code/PSID/master_build_psid.do”: master .do file that builds the PSID data by running all of the following dependencies.

Dependencies:

The following .do files are called sequentially to build the main PSID working dataset, stored in <https://doi.org/10.3886/E184647V1> “processed/psid_new_final_lag_LS.dta”

- “code/PSID/psid_clean.do”: imports the bulk of the raw PSID data and converts it into a panel format.
- “code/PSID/prepare_exp_lagged.do”: subsetting the PSID data in preparation for generating measures of unemployment experience for the heads of households.
- ** “code/PSID/gen_exp_lagged.R”: separate R code for generating unemployment experience measures.
- “code/PSID/psid_clean2f_lagged.do”: clean variables and merge in the unemployment experience measures.
- “code/PSID/merge_debt.do”: merges in variables related to wealth.
- “code/PSID/merge_other_consumption.do”: merges in variables related to consumption
- “code/PSID/DATA_FINALIZING_LAG.do”: prepares the data for regressions.

The following .do files are called sequentially to build the PSID dataset

“processed/psid_new_final_spouses.dta” that includes spouse information for generating Table A4.

- “code/PSID/Table_A4/prepare_exp_spouse_lagged.do”.
- “code/PSID/Table_A4/gen_exp_lagged_spouse.R”.

- “code/PSID/Table_A4/psid_clean2_spouse_lagged.do”.
- “code/PSID/Table_A4/merge_debt_spouse.do”.
- “code/PSID/Table_A4/merge_other_consumption_spouse.do”.
- “code/PSID/Table_A4/DATA_FINALIZING_SPOUSES.do”.

Nielsen Homescan data

- “code/Nielsen/panelist_base.do”: loads in the raw panelist files.
- “code/Nielsen/zillow.do”: loads in and cleans the raw county-level housing price index from Zillow.
- “code/Nielsen/panelist_totalexp_m.do”: merges in information on purchasing trips and products; creates the working dataset “data/Nielsen/panelist_totalexp_m.dta”.
- “code/Nielsen/panelist_rankstore_m.do”: merges in information on purchasing trips and products; creates the working dataset “data/Nielsen/panelist_storerank_m.dta”.
- “code/Nielsen/panelist_rankgood_m.do”: merges in information on purchasing trips and products; creates the working dataset “data/Nielsen/panelist_goodrank_m.dta”.

MSC

- “code/MSC/data_add_new.py: combines the raw MSC files from different time periods into one file, “/raw/ ms_all_1953_2018.dta”.

CEX

“code/CEX/master_build_cex.do”: master .do file that builds the CEX data by running all of the following dependencies.

Dependencies:

The following .do files are called sequentially to build the main PSID working dataset

“data/CEX/ CEX_1980_2012.dta”

- “/code/CEX/step1_readmtab.do”
- “/code/CEX/step2_readmemb.do”
- “/code/CEX/step3_readfmly.do”
- “/code/CEX/step4_create_bigmtab.do”
- “/code/CEX/step5_create_bigfmly.do”
- “/code/CEX/step6_create_CEX_1980_2012.do”

Experience Measures

- “code/exp_measures/generate_unemployment_experience.py”: generate monthly (“data/Nielsen/generated_months.dta”), quarterly (“data/CEX/generated_quarters.dta”), and annual (“data/MSD/generated_years.dta”) unemployment experience measures to be used in Nielsen, CEX, and MSC regressions, respectively.
- “code/exp_measures/generate_unemployment_experience_lag.do”: generate lagged experience measures for all three variations above.

IV.2 Programming Code for Analysis

“code/master_analysis_main.do”: master .do file outputting the tables and figures in the main text of the paper (that were generated using Stata).

“code/master_analysis_appendix.do”: master .do file outputting the tables and figures in the appendix of the paper (that were generated using Stata).

Dependencies:

- The following .do files are called to produce the corresponding tables and figures that use the PSID.

- “code/PSID/Table_1.do”: generate Table 1.
- “code/PSID/Table_2.do”: generate Table 2.
- “code/PSID/Table_4.do”: generate Table 4.
- “code/PSID/Table_5.do”: generate Table 5.
- “code/PSID/Figure_1_input.do”: generate input to construct Figure 1
- “code/PSID/Table_A1.do”: generate Appendix Table A1.
- “code/PSID/Table_A2.do”: generate Appendix Table A2.
- “code/PSID/Table_A3.do”: generate Appendix Table A3.
- “code/PSID/Table_A4.do”: generate Appendix Table A4.
- “code/PSID/Table_A5.do”: generate Appendix Table A5.
- “code/PSID/Table_A6.do”: generate Appendix Table A6.
- “code/PSID/Table_A7.do”: generate Appendix Table A7.
- “code/PSID/Table_A8.do”: generate Appendix Table A8.
- “code/PSID/Table_A9.do”: generate Appendix Table A9.
- “code/PSID/Table_A10.do”: generate Appendix Table A10.
- “code/PSID/Table_A11.do”: generate Appendix Table A11.
- “code/PSID/Table_A12.do”: generate Appendix Table A12.
- “code/PSID/Figure_A1.do”: generate Appendix Figure 1.

- The following .do files are called to produce the corresponding table that uses the MSC.

- “code/MSC/Table_3.do”: generate Table 3.

- The following .do files are called to produce the corresponding table that uses the CEX.

- “code/CEX/Table_A15_A16.do”: generate Table A15 and A16.

- The following .do files are called to produce the tables and figures using the simulated data (stored in “data/simulations”).

- “code/Model/full_reg3.do”: generate Table 7.
- “code/Model/full_reg3_income.do”: generate Table C20.

*** Additional Tables and Figures**

- “Figures/figure_1.xlsx”: create Figure 1 based on outputs from “code/PSID/Figure_1_input.do”.
- “Figures/figure_2.xlsx”: create Figure 2 based on outputs from “code/PSID/Table_A12.do”.
- “code/Model/graphs_3fig.py”: generate Figure 3.
- “Figures/figure_A2.xlsx”: create Figure A2 based on outputs from “code/PSID/Table_A8.do” and “code/PSID/Table_A9.do”.
- Table 6 and Table C19 are based on Low, Meghir, and Pistaferri (2010).

* Nielsen

- “/code/Nielsen/Table_A13.do”: generate Appendix Table A13.
- “/code/Nielsen /Table_A14.do”: generate Appendix Table A14.
- “/code/Nielsen /Table_B17.do”: generate Appendix Table B17.
- “/code/Nielsen /Table_B18.do”: generate Appendix Table B18.
- “/code/Figures/figure_A3.xlsx”: create Figure A3 based on raw data and experience measures.
- “/code/Nielsen /Figure_B4.do”: generate Appendix Figure B4.

* Model Simulations

The files for the baseline, low-income simulations are located in the folder Replication\code\Model\simulation\baseline_low_educ. Specifically, solve.jl runs does the backward-induction solving just for the one delta value used in the rational case. solve1a.jl and solve1b.jl solve do the backward-induction solving for multiple delta values used in the behavioral simulations. merge.jl merges the data generated by solve1a/b.jl into one array for memory mapping. sim_lag_new_v2.jl does the rational simulation with a lambda of 1. sim_lag_new_v2_lam3.jl does the rational simulation with a lambda of 3. sim-behavioral_mmap_lag_new_v2.jl does the behavioral simulation with a lambda of 1. sim-behavioral_mmap_lag_new_v2_lam3.jl does the behavioral simulation with a lambda of 3. solve_states.jl contains functions which solve for various states. sim_funs_lag_new.jl contains functions used in the simulation with lambda of 1. sim_funs_lag_new_3.jl contains functions used in the simulation with lambda of 3. params.jl defines the parameters. grid_functions.jl contains functions used to generate the grids used. base.jl contains the basic functions used throughout.

The files for the baseline, high-income simulations are located in the folder Replication\code\Model\simulation\baseline_high_educ. Specifically, solve01.jl and solve1.jl solve do the backward-induction solving for multiple delta values used in the behavioral and rational simulations. merge.jl merges the data generated by solve1.jl and solve01.jl into one array for memory mapping. sim-behavioral_mmap_lag_new_v2-fix.jl does the rational simulation with a lambda of 1. sim-behavioral_mmap_lag_new_v2-fix_lam3.jl does the rational simulation with a lambda of 3. sim-behavioral_mmap_lag_new_v2.jl does the behavioral simulation with a lambda of 1. sim-behavioral_mmap_lag_new_v2_lam3.jl does the behavioral simulation with a lambda of 3. solve_states.jl contains functions which solve for various states. sim_funs_lag_new.jl contains functions used in the simulation with lambda of 1. sim_funs_lag_new_3.jl contains functions used in the simulation with lambda of 3. params.jl defines the parameters. grid_functions.jl contains functions used to generate the grids used. base.jl contains the basic functions used throughout.

The files for the consumption scarring, low-income simulations are located in the folder Replication\code\Model\simulation\cs_low_educ. Specifically, solve.jl solve does the backward-induction solving for multiple delta values used in the behavioral and rational simulations. merge-2.jl merges the data generated by the different solve.jl runs into one array for memory mapping. sim-behavioral_mmap-delend-rep_lag.jl does the rational simulation with a lambda of 1. sim-behavioral_mmap-delend-rep_lag_lam3.jl does the rational simulation with a lambda of 3. sim-behavioral_mmap-delend_lag.jl does the behavioral simulation with a lambda of 1. sim-

behavioral_mmap-delend_lag_lam3.jl does the behavioral simulation with a lambda of 3. solve_states.jl contains functions which solve for various states. sim_funs_lag_new.jl contains functions used in the simulation with lambda of 1. sim_funs_lag_new_3.jl contains functions used in the simulation with lambda of 3. params.jl defines the parameters. grid_functions.jl contains functions used to generate the grids used. base.jl contains the basic functions used throughout.

The code files for the consumption scarring, high-income case are identical in name to the consumption scarring, low-income case. They are located in the folder Replication\code\Model\simulation\cs_high_educ.

V. Instruction to Replicators

Before running any of the following, first run required_programs.do to install the required Stata programs via SSC.

Note that all of the code expects to be run from the folder in which it lives.

Empirical Results

- Run “code/exp_measures/generate_unemployment_experience.py” and code/exp_measures/generate_unemployment_experience_lag.do” to generate experience measures.
- Run “code/PSID/master_build_psid.do” to build the PSID data.
- Run “code/CEX/master_build_cex.do” to build the CEX data
- Run “code/master_analysis_main.do” to generate the tables and figures in the main text of the paper that were generated using Stata.
- Run “code/master_analysis_appendix.do” to generate the tables and figures in the appendix of the paper that were generated using Stata.
- For the figures and tables listed under “Additional Tables and Figures” and “Nielsen” above, run or use the corresponding files.

Simulation Results

- To generate the files needed for the baseline, low-income simulations run solve.jl, solve1a.jl, and solve1b.jl. Then run merge.jl. These files are located in folder Replication\code\Model\simulation\baseline_low_educ.
- To run the baseline, low-income simulations run files sim_lag_new_v2.jl, sim_lag_new_v2_lam3.jl, sim-behavioral_mmap_lag_new_v2.jl, and sim-behavioral_mmap_lag_new_v2_lam3.jl in folder Replication\code\Model\simulation\baseline_low_educ.
- To generate the files needed for the baseline, high-income simulations run solve01.jl and solve1.jl. Then run merge.jl. These files are located in folder Replication\code\Model\simulation\baseline_high_educ.

- To run the baseline, high-income simulations run files `sim-behavioral_mmap_lag_new_v2.jl`, `sim-behavioral_mmap_lag_new_v2_lam3.jl`, `sim-behavioral_mmap_lag_new_v2-fix.jl`, and `sim-behavioral_mmap_lag_new_v2-fix_lam3.jl` in folder `Replication\code\Model\simulation\baseline_high_educ`.
- To generate the files needed for the consumption scarring, low-income simulations you need to run `solve.jl` 101 times where the environment variable "SLURM_ARRAY_TASK_ID" is set to (integer) values 1 to 101. This is easily accomplished using a job array on a cluster using the Slurm workload manager. For reference, we have included a sample Slurm job submission script, see `job.sh`. Then run `merge-2.jl`. These files are located in folder `Replication\code\Model\simulation\cs_low_educ`.
- To run the consumption scarring, high-income simulations run files `sim-behavioral_mmap-delend-rep_lag.jl`, `sim-behavioral_mmap-delend-rep_lag_lam3.jl`, `sim-behavioral_mmap-delend_lag.jl`, and `sim-behavioral_mmap-delend_lag_lam3.jl` in folder `Replication\code\Model\simulation\cs_low_educ`.
- To run the consumption scarring, high-income simulations, run the files located in the folder `Replication\code\Model\simulation\cs_high_educ` based on the steps described above for the low-income case.

References

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Bureau of Economic Analysis, Personal Consumption Expenditures: Chain-type Price Index [PCEPI], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/PCEPI> (accessed July 11, 2015).

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