"A Schumpeterian Model of Top Income Inequality"
Replication Instructions
Charles I. Jones and Jihee Kim
June 2016

This document describes the programs that are used to generate the figures and empirical results in the paper, which can be replicated by following the instructions below.

Matlab programs

The following programs can be run in the main directory where "InequalityPrograms.zip" is unzipped. Please note that "ChadMatlab.zip" should be unzipped and the unzipped folder should be added to your path before running the programs (or you can simply unzip it in the main directory with the other programs).

- BasicGraphs.m
  - creates Figure 1 (BasicGraphs1.eps) and Figure 2 (BasicGraphs5.eps)
- SaezCompositionFigure.m
  - creates Figure 3 (SaezCompositionFigure.eps)
- LorenzGraphs.m
  - creates Figure 4 (LorenzGraphs1.eps, LorenzGraphs3.eps)
  - loads x1980Lorenz.asc and x2005Lorenz.asc
- FractalInequality.m
  - creates Figure 5 (FractalInequalityS.eps) and Figure 6 (FractalInequalityEta.eps)
- BasicMechanism.m
  - creates Figure 7 (BasicMechanismMatlab.eps)
- IdeaModel.m
  - simulates the extended model with heterogeneous mean growth rates and shows comparative static results of growth and inequality with respect to changes in key parameter values
  - creates the plots in Figure 8 (each plot can be found in IdeaModel-[parameter to change].eps, and all the plots are combined in IdeaModel.ps)
  - calls ideamodelsolution.m, solveideamodel.m, e_solveideamodel.m, which solve the general equilibrium
- GuvenenEta_main.m
  - loads Guvenen.mat and creates Figure 10 (GuvenenEta125-Decomposition.eps) and Table B1
  - Guvenen.mat can be created by running Guvenen.m
  - Guvenen.m loads SSA data (GuvenenKarahan_cross_distribution.txt and GuvenenKarahan_impulse.txt) from Guvenen, Karahan, Ozkan and Song (2016). If you get an error since the data is not successfully loaded, try .csv file instead of .txt file for the function input to readtable() in line 19 and line 234.
- SSInequalitySolving.m

    - loads PanelMuHResults.mat, which was produced on a NBER server by running the Octave program PanelMuH_main.m. See below for more details.
    - creates Table C3 and Figure 11 (SSInequalitySolvingIRS.eps)
- TransitionDynamicsMaster.m (takes about 13 minutes to complete)
    - This master program calls the following subprograms to solve for transition dynamics:
      SetParamsIdeaModel.m
      TransitionDynamicsShocks.m
      TransitionDynamicsGuvenen.m
      TransitionDynamicsIRS.m
      transitiondynamics.m
      transitiondynamics_1shock.m
      ideamodelsolution.m
    - The fundamental programs are transitiondynamics_1shock.m and transitiondynamics.m, which solve the KFE equation using the technique in Gabaix, Lions, Lasry and Moll (Econometrica 2016).
    - creates Figure 12 (TransitionDynamicsMaster_eta.eps and TransitionDynamicsMaster_gdp.eps) and Figure 13 (TransitionDynamicsMaster_etaIRS.eps and TransitionDynamicsMaster_gdpIRS.eps)

Octave programs to run on a NBER server

The following Octave programs, which use the IRS public use micro data, should be run on an NBER server as the data access should be made only through NBER computers. For more details on this dataset, please see http://www.nber.org/taxsim-notes.html

- The list of programs to be placed on your NBER account
    - LorenzData_main.m, lorenzdata.m: to generate the data for Figure 4
    - PanelMuH_main.m, panelmuH.m, cpiSaez.m: to estimate model parameters using the IRS data
    - ChadMatlab.zip needs to be extracted in the working directory
- LorenzData_main.m
    - creates x1980Lorenz.asc x2005Lorenz.asc (inputs to LorenzGraphs.m)
    - calls lorenzdata.m
- PanelMuH_main.m
    - creates PanelMuHResults.mat, which can be found in the unzipped folder
    - generates Table C1 and Table C2
    - calls panelmuH.m and cpiSaez.m