Problem Set #9

ECON 833, Prof. Jason DeBacker
Due Friday, December 10, 5:00 p.m.

This problem set will have you working to extend the basic overlapping generations models we worked with in class. I want you to make the following extensions to the model:

1. Allow for S-period lived agents (where S and integer that represents is the maximum number of model periods a household lives)

2. Add endogenous labor supply

   - For the utility function, use the elliptical disutility of labor supply described in Chapter 4 of the OG text book linked to in this repository.
   - Parameter values to use: $b = 0.501$, $\upsilon = 1.554$, $\tilde{l} = 1.0$
   - Also, use χ_s^n = a vector of ones of length S

DELIVERABLES

You will have the following deliverables:

1. Working code. The OG model with the above additions should solve. This code should be contained in the following `*.py` files and , all be placed in your `.ProblemSets/ProblemSet9/scripts` directory:

   - `execute.py` – sets parameters, solves the model
   - `necessary_equations.py` – contains functions representing the necessary equations of the household and firms
   - `SS.py` – contains function(s) to solve the steady-state of the model

2. A tex file and a pdf compiled from TeX that includes (a) a plot of savings for each age s, (b) a plot of the labor supply for each age s, (c) a plot of consumption for each age s. Please give a brief description of each of these figures. Please name the pdf "LastName_ProblemSet9.pdf" and place it in the `.ProblemSets/ProblemSet9/` directory.