

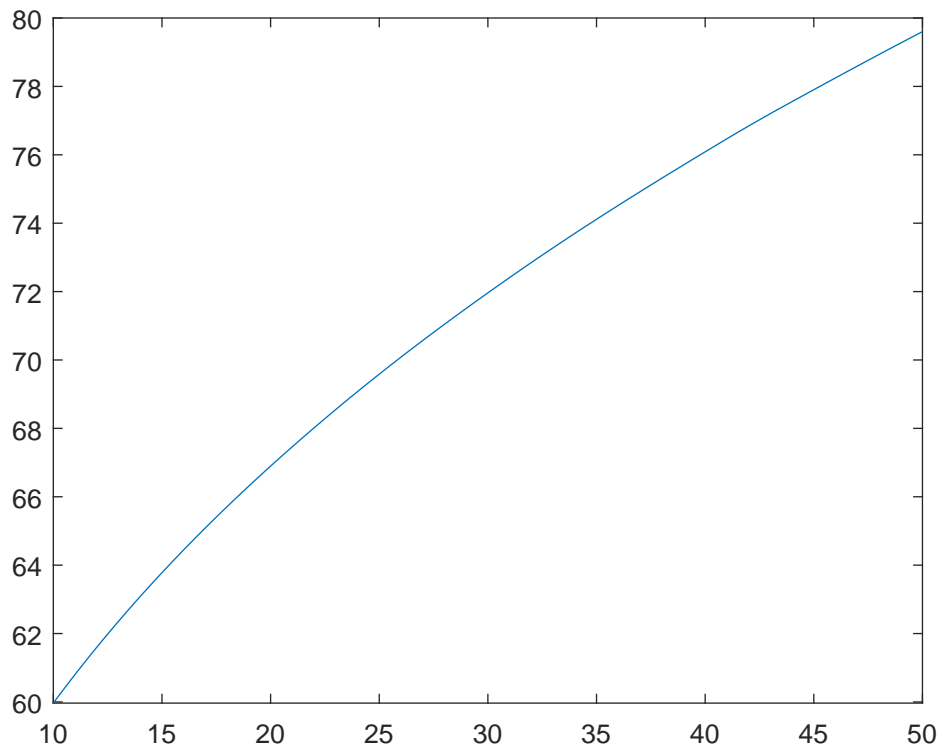
Quantitative Macro HW 3

Alexander Wurdinger

October 15, 2019

Q1

brute force



Doing all the steps described in the slides, I arrive 184 iterations at the plotted value function. The process took 2.878560 seconds.

Part b and c

Adding the described variation I arrive at the same value function that attains a fixed point. Number of iterations are also equivalent, but time needed to arrive at the fixed point is 3.471208 seconds respective 2.908543 seconds.

So while in theory those variations should speed up the process they seem to slow it down. For this specific problem this not to surprising as while in a to attain χ only two matrices have to be added, arguably a really fast process

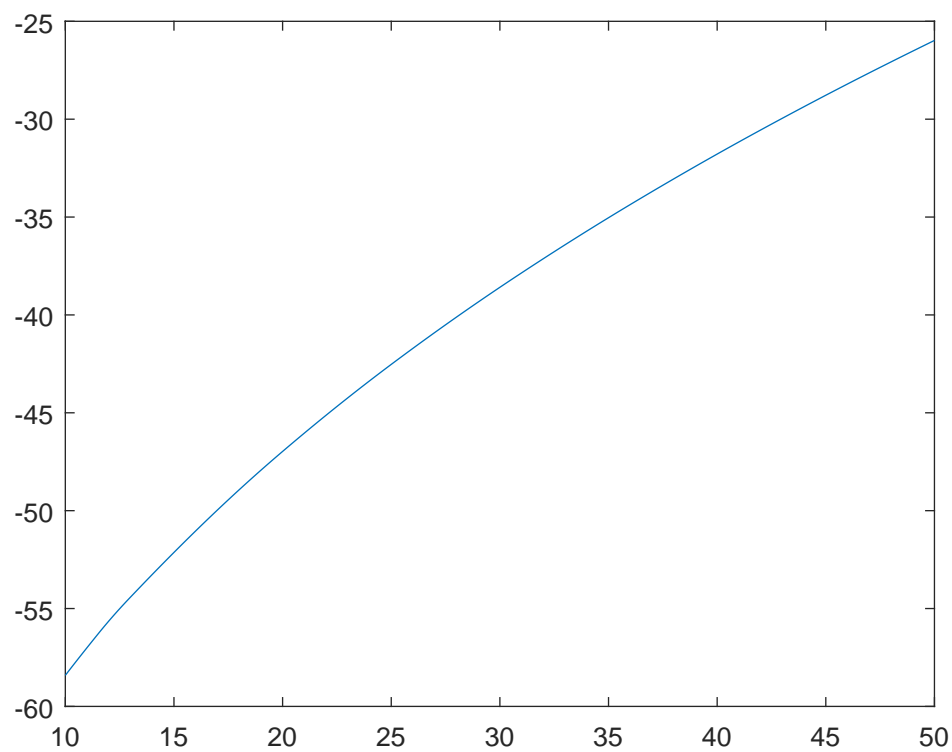
in matlab, in b and c χ is calculated in a loop.

If there are more grid points to be evaluated the speeding up processes might work, as then there are less entries per row to be evaluated in the max function when using the concavity or no maximization at all when using the monotonicity of the policy functions.

Part d-f

work in progress.

Q2



Same procedure as in Q1 with added labour supply.

Q3

The matlab code is close to being finished, calculating the chebeshiv polynomials is quite costly and the value function seems not to converged yet. So mistake creating this problem still has to be corrected.