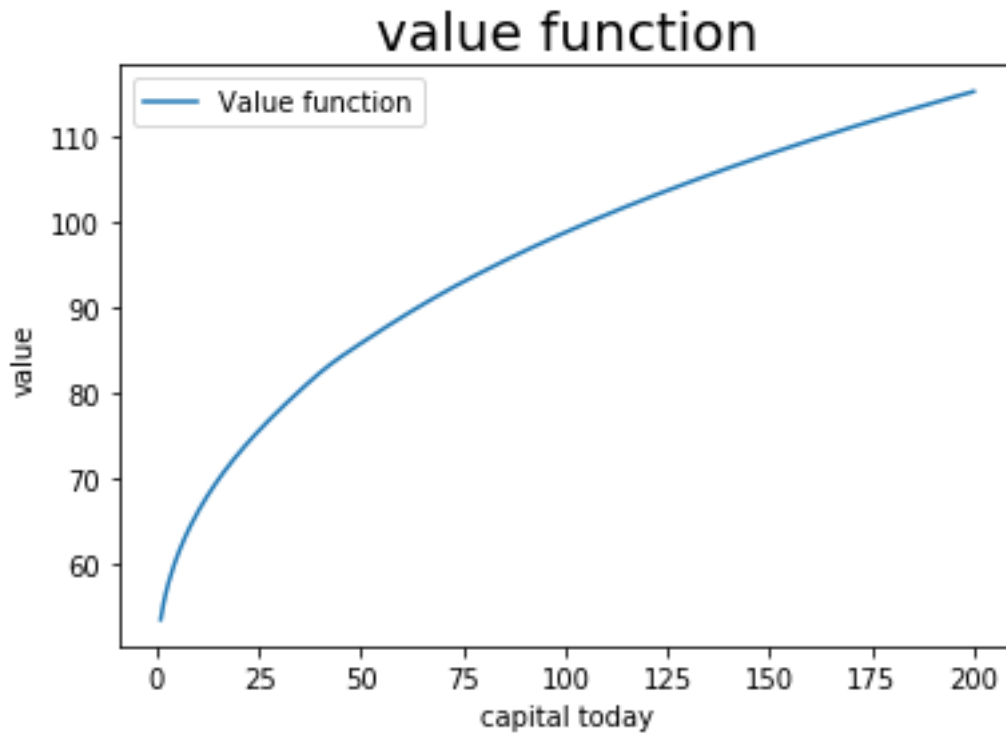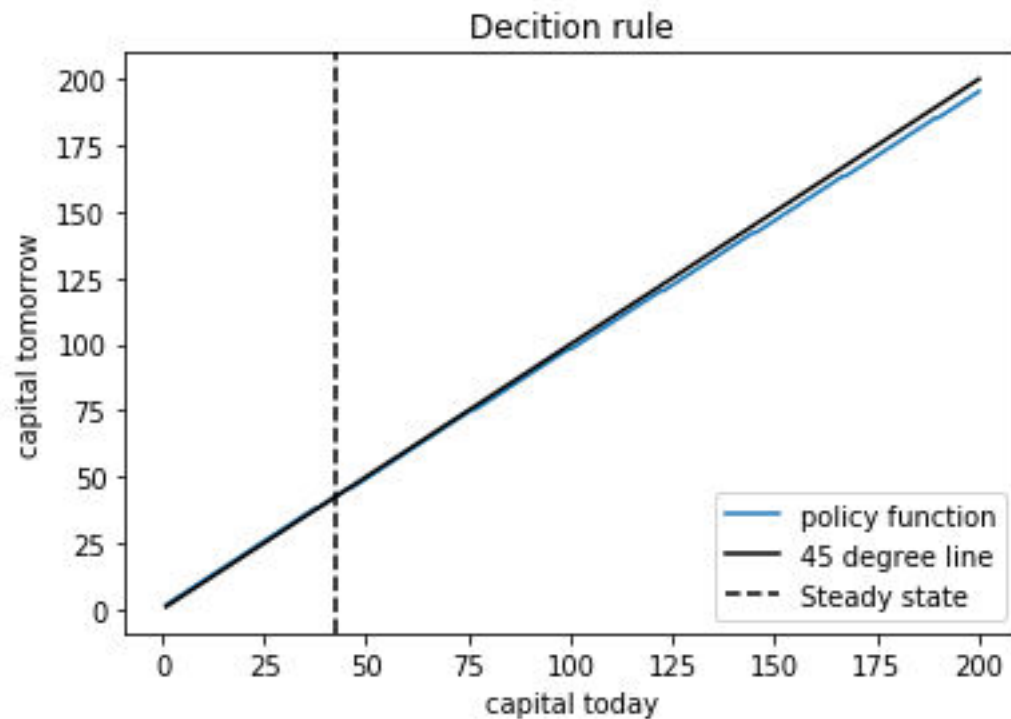Ps4 Joan alegre:

The model that I used is exactly the same tan the one that is stated but, I did not normalize output to 0.

**Exercice1.1: Bellman equation and ploting value function.**

This is the decision rule associated to above value function.

Exercice 1.1.b)-h)

Type	Time (sec)
Bellman	5.410874891081221
monotonicity	36.02259418289577
concavity	140.44786547039803
local	1.4543602293138065
Howard starting at 1	1.070902714037402
Howard starting at 30	1.1125892721574928
Howard starting at 80	1.1552278842377746
Howard reassessments every 5	0.9295001306336417
Howard reassessments every 10	0.8804638800852445
Howard reassessments every 20	0.8821628039627285
Howard reassessments every 50	0.9170837602300708

We can observe that monotonicity a concavity are the worse performance, this is due to the fact that I used several loops in order to apply the "speed up" algorithm, The thing is that all the rest I minimize the use of loops defining functions and vectorising them. Hence, what I achieved is an unusual result, where the speed up algorithm are in fact inefficient.

Exercice 1.2: Value function with leisure in utility function. (Code: 688-751)
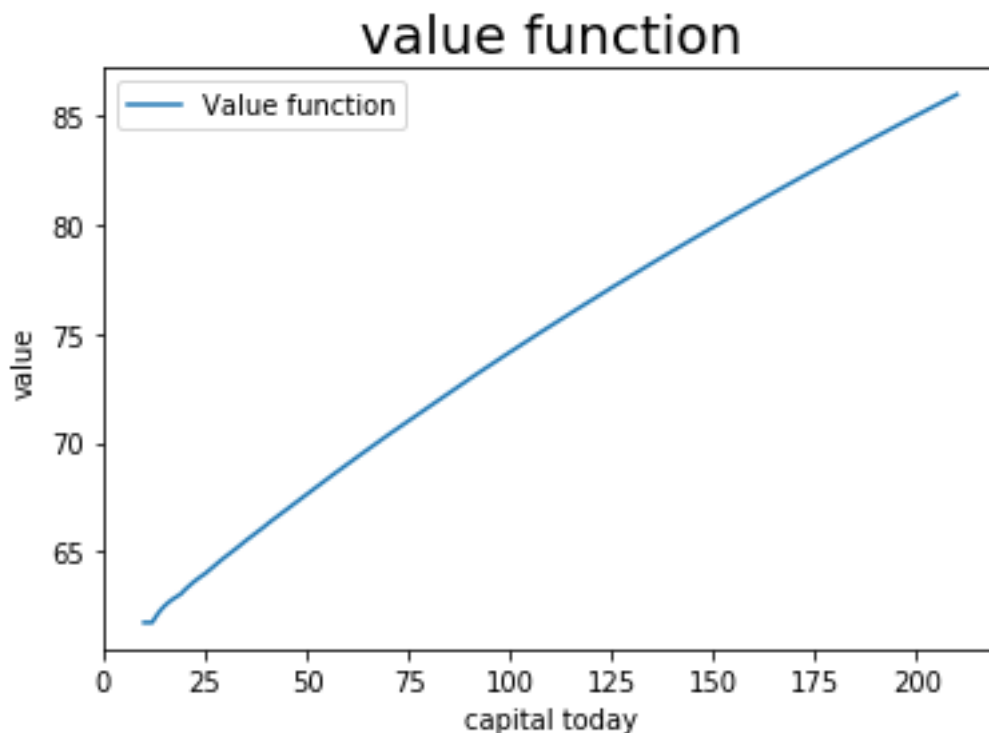
Exercice 2.1: Bellman equation with shocks.

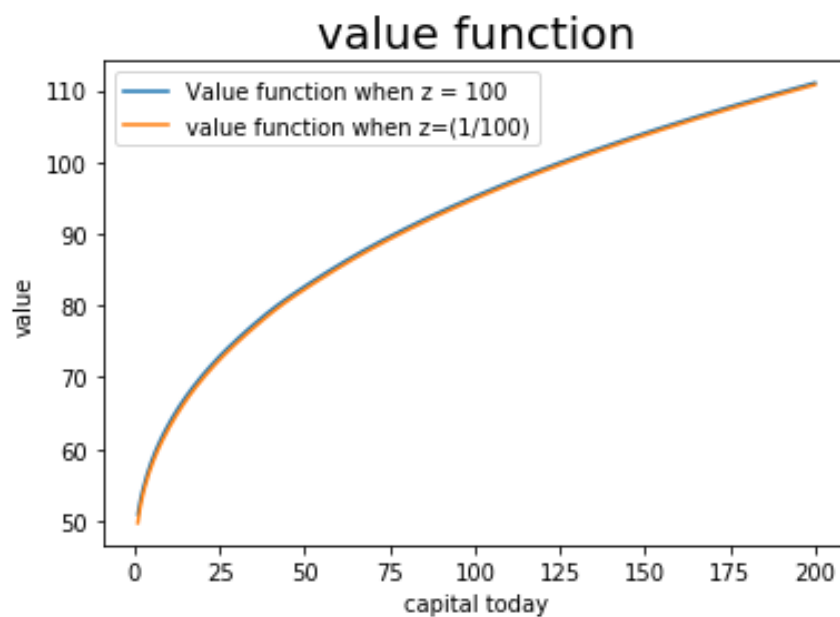 In this exercice I Create several options, since with non-normalization of y=0 shocks are not making a relevant difference among value functions associated to different shocks.

My markow chain matrix in this first part is the following: 0.49751, 0.50248

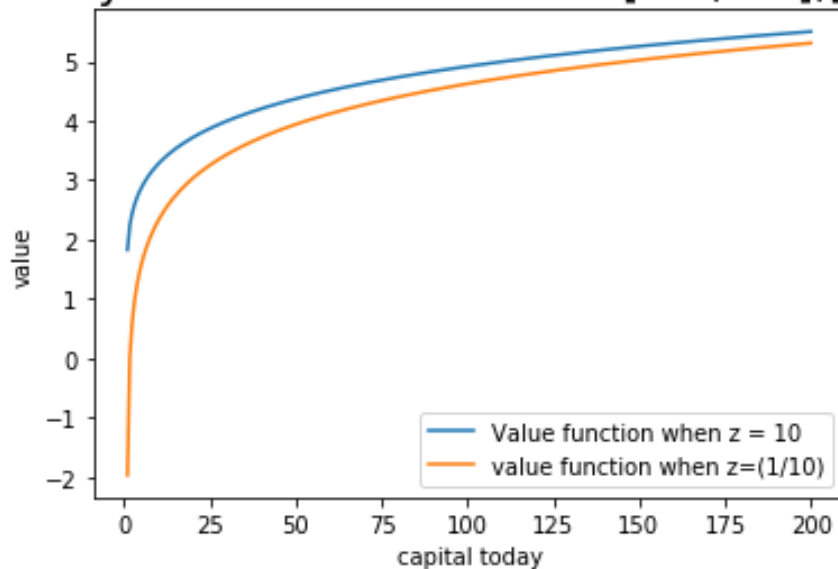|	S1'	S2'
S1	0.49751	0.50248
S2	0.49751	0.50248
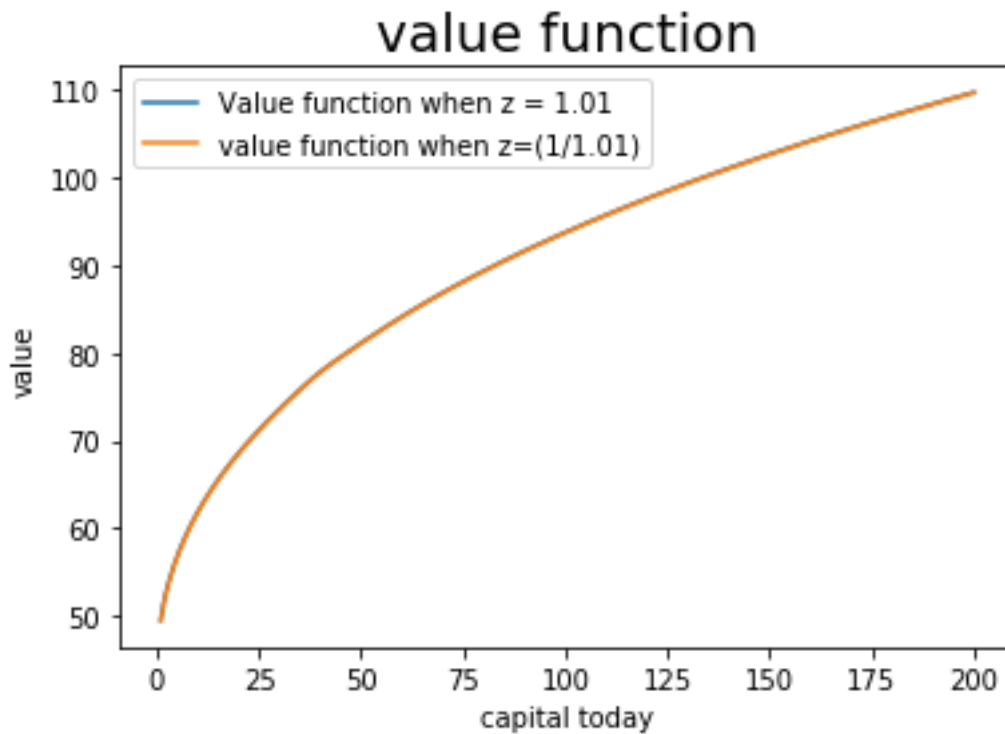
I increased the shock: But difference is still insignificant.

So I changed the markow chain process and the shocks:

	S1'	S2'
S1	0.9	0.1
S2	0.1	0.9

Economy with a markow chain [0.9,0.1],[0.1,0.9]

I could not finished the whole ps since I run out of time. Nevertheless, chebycheff part would be easy, taking the ps1 code. The simulated part would be more interesting, I should have created a code with this markow chain process, and generated from this matrix a sequence of shocks, using the optimal policies functions associated to the value functions to create the path that the economy would make.