

Problem Set 1

Luxi Han 10449918

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1 Problem 5.1

With the specification shown, we have the following results:

$$\begin{aligned}\{\bar{c}_1, \bar{c}_2, \bar{c}_3\} &= \{0.18241213, 0.20961468, 0.24087387\} \\ \{\bar{b}_2, \bar{b}_3\} &= \{0.01931253, 0.0584111\} \\ \bar{w} &= 0.2017 \\ \bar{r} &= 2.4331\end{aligned}$$

2 Problem 5.2

If we set the annual discount rate to $\beta = 0.95$. Then the twenty year discount rate should be 0.3585. Then we get the following results:

$$\begin{aligned}\{\bar{c}_1, \bar{c}_2, \bar{c}_3\} &= \{0.16818874, 0.1912997, 0.21758636\} \\ \{\bar{b}_2, \bar{b}_3\} &= \{0.01318139, 0.04417376\} \\ \bar{w} &= 0.1814 \\ \bar{r} &= 0.6139\end{aligned}$$

Then in general we can see that, the steady state saving decreases. This results from a lower discount rate meaning people are impatient and enjoy current consumption more. As a result of lower savings, the steady state capital stock decreases resulting a lower output level. Since there is less capital, rental rate or returns to capital increases. And because of the lower level of capital, returns to labor decreases.

3 Problem 5.3 - 5.4

The following is the graph for time path of aggregate capital stock.

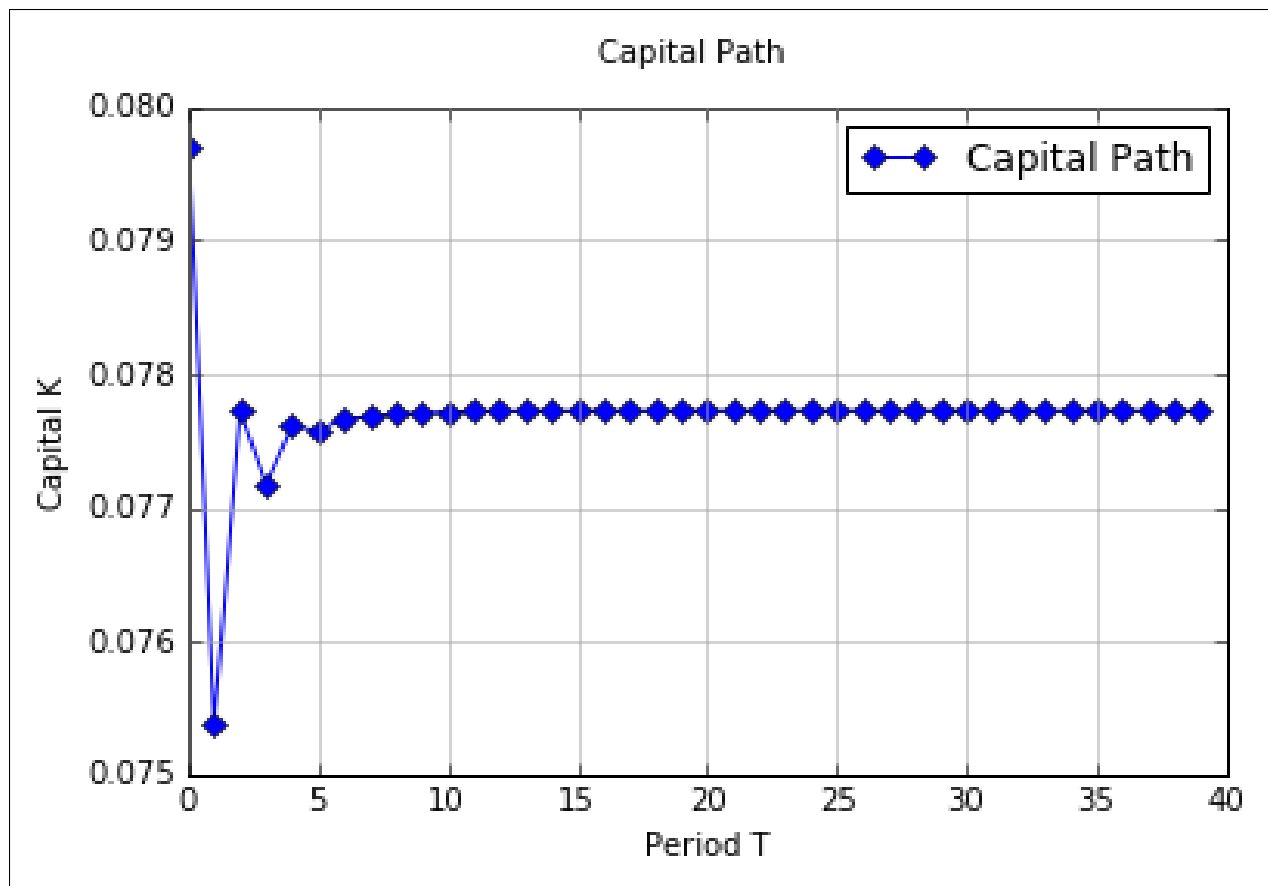


Figure 1: Aggregate Capital Path

It takes about 4 - 5 periods for the aggregate capital stock to fall within the 0.0001 differences..