Econ Problem Set #1

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Problem 1

$\{\bar{b}_s\}_{s=1}^{3} = [0.01931, 0.05861]$
$\{\bar{c}_s\}_{s=1}^{3} = [0.18241, 0.34384, 0.24087]$
$\overline{w} = 0.2017$
$\overline{r} = 2.4330$

Problem 2

With $\beta = 0.55$, the new steady-state is:

$\{\bar{b}_s\}_{s=1}^{3} = [0.02817, 0.07686]$
$\{\bar{c}_s\}_{s=1}^{3} = [0.19597, 0.36915, 0.26669]$
$\overline{w} = 0.22415$
$\overline{r} = 1.88636$

As households become more patient, savings increase, consumption increases uniformly across a lifetime, wages are higher, and interest rates are lower. Savings are higher as a result of households' increased patience; this leads to a larger capital stock, pushing down interest rates.

Problem 3/4

Figure 1 plots the equilibrium time path of the aggregate capital stock $\{K_t\}_{t=1}^{15}$. It took the economy 8 periods to get within 0.0001 of the steady-state aggregate capital stock, $\overline{K} = 0.07772$ (this ignores the fluctuations from $t = 1$ to $t = 5$ that can be seen in the plot).

Figure 1: Equilibrium Capital Time Path