Texas Tech University

ECO 6353—Consumption & Investment Dynamics

Final Paper Replication

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Part (4)

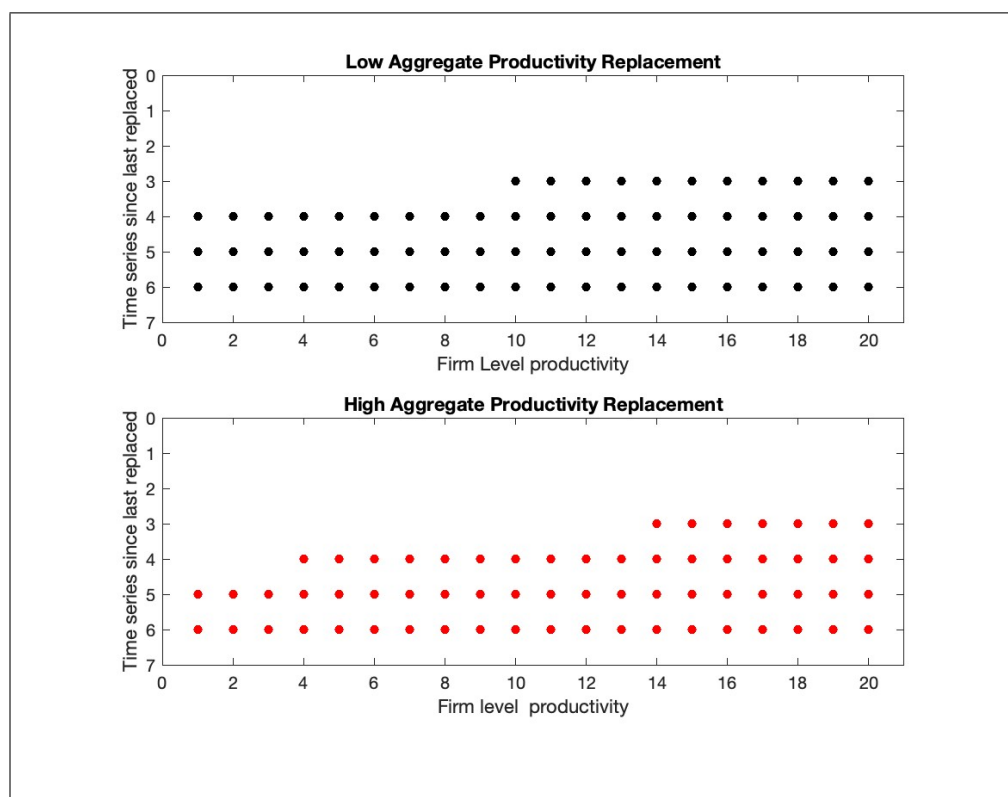Ploting the policy function using Spy Plot.

Figure 1: Spy Plot

Comment on the policy function: As capital ages and approaches the threshold (R=6 years), firms are more likely to replace old capital, especially under higher productivity conditions, reflecting a strategic response to balance capital costs and potential revenue gains.

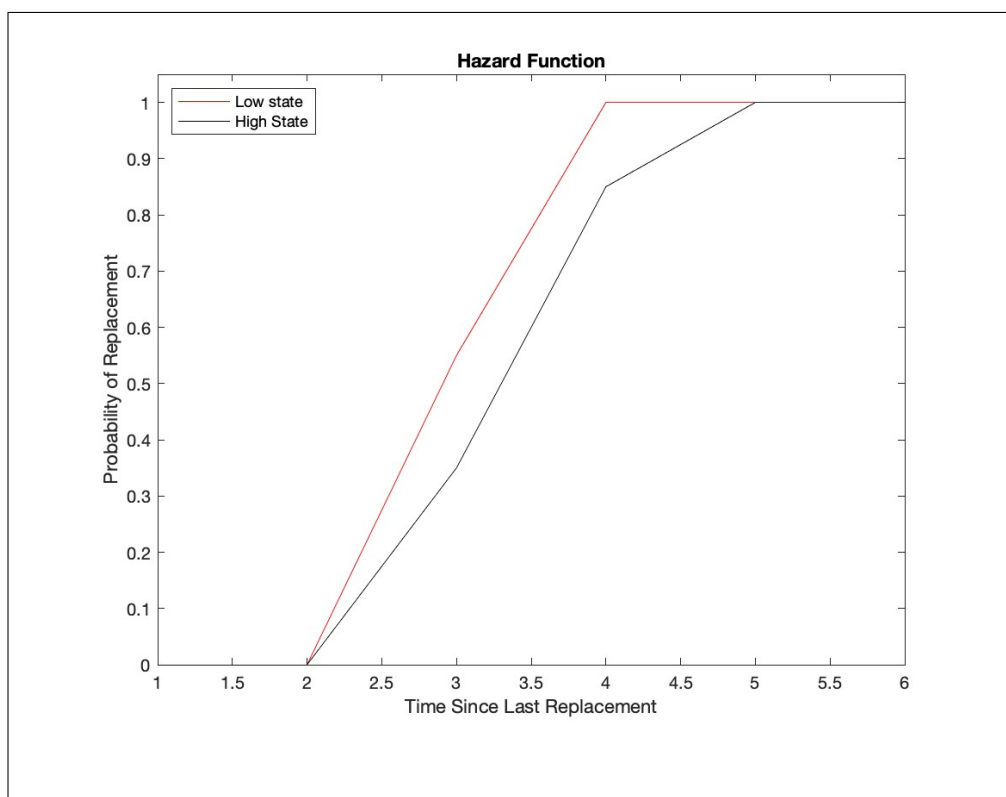# Part (5)

Ploting Capital Replacement Hazard Function H(k,A)

Figure 2: Hazard Function H(k,A)
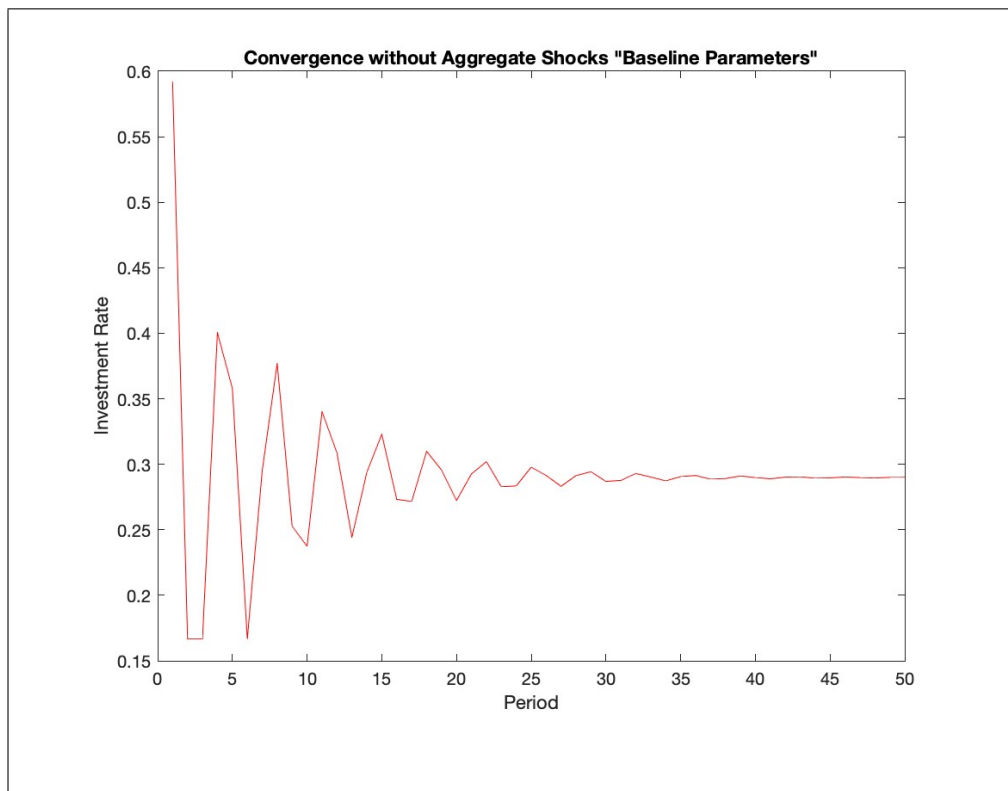
Part (6 & 7)

Figure 3: Time Series simulation
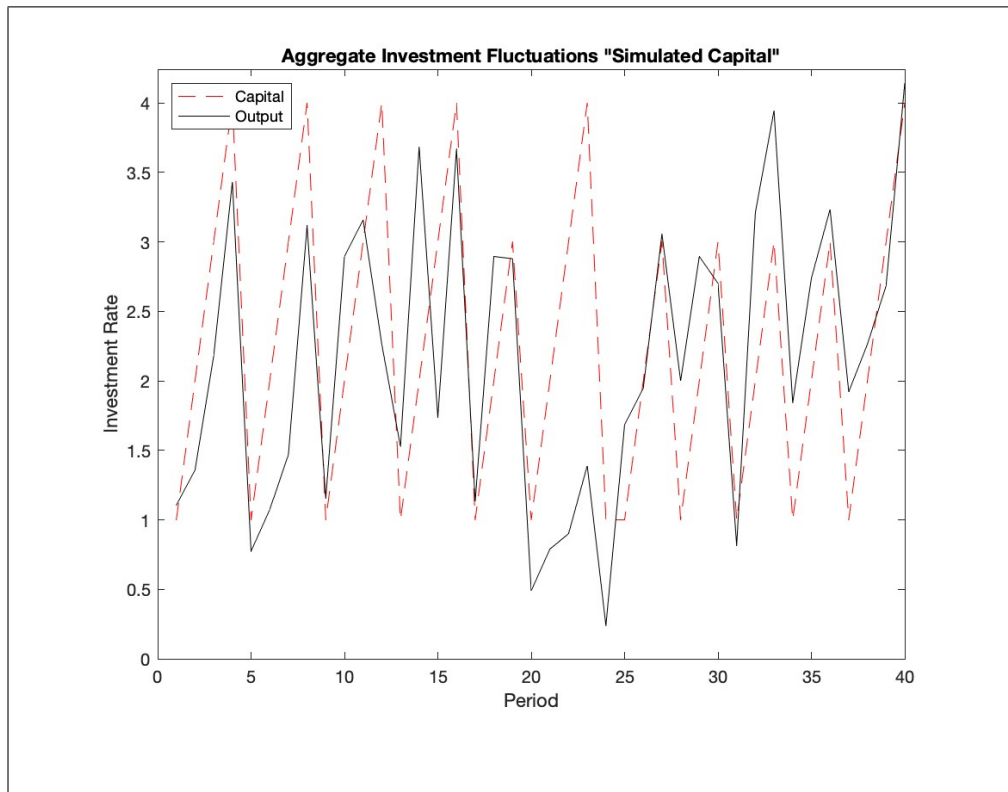
Part (8 & 9)

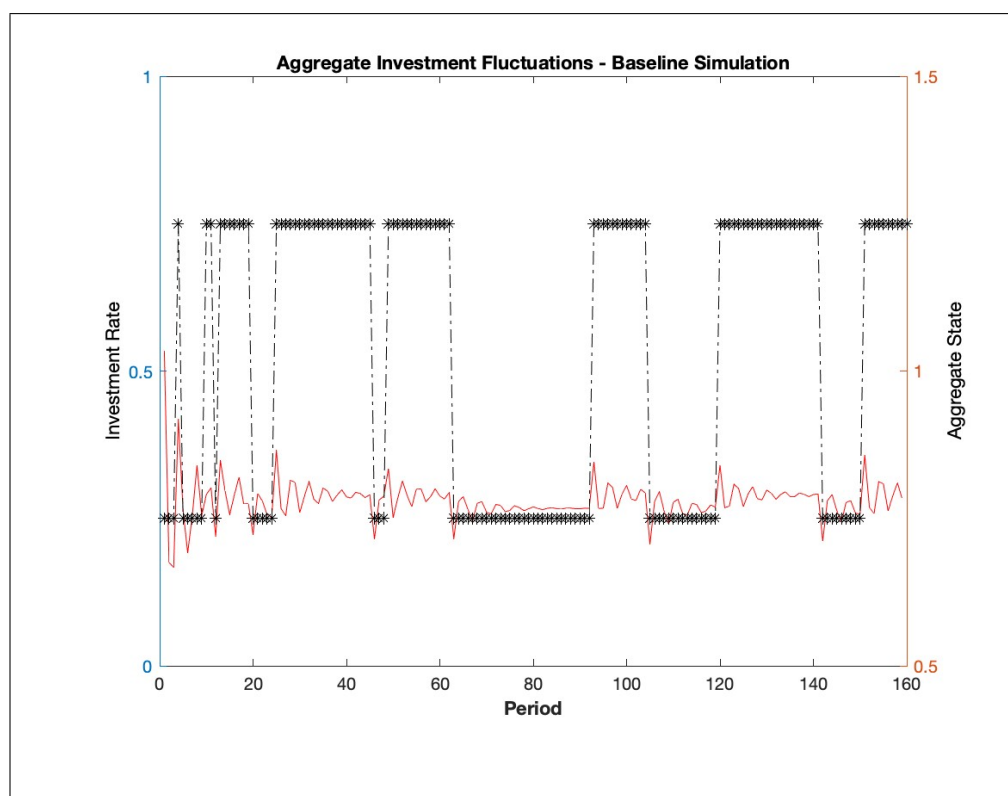
Figure 4: Firms Investment Behaviour

Figure 5: **3 & 4 combine:** Firms Investment Behaviour

Implication from the last two figures:
The visualizations in Figures 3 and 4 plus their combination as figure 5 above illustrate the variability of investment rates starting from a fixed number of producers across the distribution of capital states without considering aggregate uncertainty. Initially, there is significant investment as firms begin with older capital stock, which evolves and stabilizes into a more steady-state investment pattern over time. Additionally, as the productivity state oscillates between low and high, investment exhibits irregular spikes, indicating lumpy investment behaviors as firms choose to replace aging capital. This pattern is observed in Figures 4 and 5, showcasing how firms respond to changes in productivity by making significant capital investments.