Notes for Optimal Growth using Dynamic Programming

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1 The Problem

A consumer has to maximize:

$$U(c) = \frac{c^{1-\gamma}}{1-\gamma} \tag{1}$$

Subject to:

$$c_{t+1} + k_{t+1} = zk^{\alpha} + (1-\delta)k \tag{2}$$

$$\log(z_{t+1}) = \log(z_t) + \eta_{t+1} \tag{3}$$

2 Solving

- Grid based method: We divide V(The value function) into subdomains - mostly into a multi dimensional grid, and approximate V with seperate function within each subdomain. This is interpolation.
- The grid will be the Cartesian product G_k x G_z, that is all combinations of our state and stochastic shocks (if there are no shocks, we will have a 1 dimensional vector here)