Problem Set 1

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1 Data

Suppose household i receive after-tax income Y_{it}, which takes the form:

$$\log(Y_{it}) = \kappa_t + y_{it}$$
$$y_{it} = P_{it} + \epsilon_{it}$$

where:

- $P_{it} = \rho P_{i,t-1} + \zeta_{i,t}$, with $\rho < 1$ governing the persistence of earnings.
- Persistent shocks, "std", "min", "max" ζ are such that $\zeta_{i,t} \sim N\left(0, \sigma_\zeta\right)$
- Temporary shocks ϵ are such that $\epsilon_{i,t} \sim N\left(0, \sigma_\epsilon\right)$.
- $\zeta_{i,t}$ and $\epsilon_{i,t}$ are independent over time and across households.

2 Model

Test two way sync.