On the Job Search

- Model features
  - Job-specific human capital accumulation combined with on-the-job search
  - Infinite horizon dynamic programming with one state variable and two controls

On the Job Search

- Model setup
  - Let x_t denote the time-t-job-specific human capital of a worker employed at a given firm
  - Let $w_t$denote current wages
  - Let $w_t = x_t(1 - s_t - \phi_t)$ where
    - ϕ_t is investment in job-specific human capital for the current role
    - s_t is search effort, devoted to obtaining new offers from other firms

On the Job Search

- Model setup
  - If the worker remains in the current job, evolution of $\{x_t\}$ is given by $x_{t+1} = G(x_t, \phi_t)$
  - When search effort at t is s_t, the worker receives a new job offer with probability $\pi(s_t) \in [0, 1]$
  - Value of offer is U_{t+1}, where $\{U_t\}$ is idd with common distribution F
  - Worker has the right to reject the current offer and continue with existing job
  - In particular, $x_{t+1} = U_{t+1}$ if accepts, and $x_{t+1} = G(x_t, \phi_t)$ if rejects.

On the Job Search

- The Bellman equation:

$$\begin{aligned} V(x) &= \max_{s+\phi<1} \{x(1-s-\phi) + \beta(1-\pi(s))V(G(x,\phi)) + ... \\ &\quad +\beta\pi(s)\int V(\max\{G(x,\phi),u\})F(du)\} \end{aligned}$$

On the Job Search

- Parameterizations:

$$\begin{aligned} G(x,\phi) &= A(x\phi)^{\alpha} \\ \pi(s) &= \sqrt{s} \\ F &= Beta(2,2) \end{aligned}$$

- where:

$$\begin{aligned} A &= 1.4 \\ \alpha &= 0.6 \\ \beta &= 0.96 \end{aligned}$$

On the Job Search

- Roadmap:
  - Construct the Bellman operator
  - Do value function iterations