Lecture notes, Oct 15th, 2020

Case 1 : correlated wage offers.

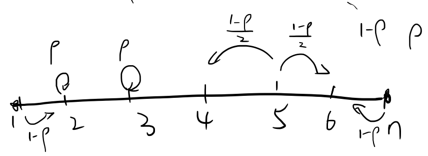
$s \in \mathcal{S} = \{1, 2, 3 \ldots n\}$ $\quad w(s)$

$$P = \begin{pmatrix} \rho & 1-\rho & \cdots & & \\ \frac{1-\rho}{2} & \rho & \frac{1-\rho}{2} & \cdots & \\ & \frac{1-\rho}{2} & \rho & \frac{1-\rho}{2} & \\ & & & \ddots & \\ & & & 1-\rho & \rho \end{pmatrix}$$

P_{ij} i-row, j-column

$P_{s,s'}$ $s \to s'$

unemployed inc. c

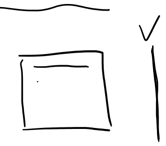


$$V(s) = \max_{\text{accept/reject}} \left\{ V^{\text{accept}}(s),\ c + \beta \cdot \mathbb{E}_s V(s') \right\}$$

$$V^{\text{accept}}(s) = \frac{w(s)}{1-\beta} = w(s) + \beta \cdot w(s) + \beta^2 w(s) \ldots$$

$$\mathbb{E}_s V(s') = \sum_{s'=1}^{n} P_{s,s'} \cdot V(s')$$

$$V(s) = \max_{a/r} \left\{ \frac{w(s)}{1-\beta},\ c + \beta \sum_{s'=1}^{n} P_{s,s'} \cdot V(s') \right\}$$



$$V_T(s) = \max_{a/r} \left\{ V_T^{\text{accept}}(s),\ c \right\} \quad V_T^{\text{accept}}(s) = w(s)$$

$$V_{T-1}(s) = \max_{a/r} \left\{ V_{T-1}^{ac}(s),\ c + \beta \sum_{s'=1}^{n} P_{s,s'} \cdot V_T(s') \right\} \quad V_{T-1}^{\text{accept}}(s) = w(s) + \beta \cdot V_T^{\text{accept}}(s)$$

$\vdots$

Case 2 : On-the-job search

t ———— $t+1$

unemployed : $s \longrightarrow$ accept $\longrightarrow$ employed

reject $\longrightarrow$ unemployed, c

employed : $s \longrightarrow$ pay $f \longrightarrow s' <$ accept / reject $\quad \nearrow t+1$

not $\longrightarrow s$

$$V^U(s) = \max \left\{ c + \beta \cdot \mathbb{E} V^U(s'),\ w(s) + \beta \cdot V^E(s) \right\}$$

$$V^E(s) = \max \left\{ -f + \beta \cdot \mathbb{E}\, V^E(s'),\ w(s) + \beta \cdot V^E(s) \right\}$$