Lecture notes, Oct 13th, 2020

The alternative way I provided for McCall

(general dynamic prog. prob)

finite $T \to \infty$

$$V_T(s) = \max\{V_T^{accept}(s), c\} \Leftarrow V_T^{accept}(s) = w(s)$$

$$V_{T-1}(s) = \max\{V_{T-1}^{accept}(s), c+\beta\cdot\sum_{s'\in S} V_T(s')\cdot q(s')\} \quad V_{T-1}^{accept}(s) = w(s)+\beta V_T^{accept}(s)$$

$\vdots$

$$V_0(s) = \max\{V_0^{accept}(s), c+\beta\cdot\sum_{s'\in S} V_1(s')\cdot q(s')\} \quad V_0^{accept}(s) = w(s)+\beta\cdot V_1^{accept}(s)$$

$\vdots$

$T \to \infty$

An extension to McCall model

$s \in S = \{1, 2, \dots n\}$ $\quad w(s)$ $\quad \alpha$ unemployed

unemployed $<$ accept? $\quad w(s) \quad <$ $1-\alpha$ employed

reject? — receives c, next..

$$\begin{cases} V_t^U(s) = \max\{V_t^E(s),\ c+\beta\cdot\sum_{s'\in S} V_{t+1}^U(s')\cdot q(s')\} \\ V_{t-1}^E(s) = \underline{w(s) + \beta\cdot\left[(1-\alpha)\cdot V_t^E(s) + \alpha\cdot\sum_{s'\in S} V_t^U(s')\cdot q(s')\right]} \end{cases}$$

$$V_T^U(s) = \max\{V_T^E(s), c\} \quad V_T^E(s) = w(s)$$