



$$\hat{B} = [B_0 \quad \hat{B}^1 \quad \hat{B}^2 \dots; \hat{B}^{T-1}; \hat{B}^T]^T$$

↑
transpos
terminal

T subproblems $\rightarrow (T+1) \times 1$

$$t_{0-1} \mid \overline{B}^{t_{0-1}}$$

$$\begin{bmatrix} B^{t_{0-1}}[0] \\ B^{t_{0-1}}[1] \\ B^{t_{0-1}}[2] \\ \vdots \\ B^{t_{0-1}}[T] \end{bmatrix}$$

$(T+1) \times 1$

$$t_0 \mid \overline{B}^{t_0}$$

$$\begin{bmatrix} B^{t_0}[0] \\ B^{t_0}[1] \\ B^{t_0}[2] \\ \vdots \\ B^{t_0}[T] \end{bmatrix}$$

$(T+1) \times 1$

$$t_{0+1} \mid \overline{B}^{t_{0+1}}$$

$$\begin{bmatrix} B^{t_{0+1}}[0] \\ B^{t_{0+1}}[1] \\ B^{t_{0+1}}[2] \\ \vdots \\ B^{t_{0+1}}[T] \end{bmatrix}$$

$(T+1) \times 1$

$$t_0 \mid \overline{u}^{t_0}$$

$$\begin{bmatrix} u^{t_0}[0] \\ u^{t_0}[1] \\ \vdots \\ u^{t_0}[T] \end{bmatrix}$$

$(T+1) \times 1$

$K \rightarrow$

T such
sub problems.

min

$$+ \frac{P}{\sum}$$

s.t.

$$C^{t_0} P_{\text{sub}}^{t_0}$$

$$\kappa \overline{B}^{t_0}[0] - \overset{\kappa-1}{\hat{B}}[0] + \overset{\kappa-1}{u}[0] \quad | \quad 2$$

$$\kappa \overline{B}^{t_0}[1] - \overset{\kappa-1}{\hat{B}}[1] + \overset{\kappa-1}{u}[1]$$

$$\kappa \overline{B}^{t_0}[2] - \overset{\kappa-1}{\hat{B}}[2] + \overset{\kappa-1}{u}[2]$$

$$\kappa \overline{B}^{t_0}[T] - \overset{\kappa-1}{\hat{B}}[T] + \overset{\kappa-1}{u}[T] \quad | \quad 2$$

time step

$$\kappa \overline{B}^{t_0}[t_0] - \left(\overset{\kappa-1}{\hat{B}}[t_0-1] - \Delta t P_B^{t_0} \right) = 0$$

$$P_{\text{sub}}^{t_0} + P_B^{t_0} - P_L^{t_0} = 0$$

$$\overline{B}^{t_0}[t_0] \in [\underline{B}, \bar{B}] \rightarrow \begin{array}{l} \text{Should it have} \\ \int \overline{B}^{t_0} + \overline{B}^{t_0}[1] \\ + \overline{B}^{t_0}[T] \end{array}$$

$$P_B^{t_0} \in [-P_{BR}, P_{BC}]$$

κ_{II}

Update II:
x-shifted - Latest $\hat{\beta}_k$ from
 $\vec{B}_k^t, \vec{u}_{k-1}^t + t = 1:T$

$$\hat{\beta}_k = \frac{1}{T} \sum_{t=1}^T (\vec{B}_k^t + \vec{u}_{k-1}^t)$$

\hat{K}

update \hat{K} :
Latest
from

$$\hat{K} \vec{u}^t + f = 1:T$$

$$\hat{K} \vec{B}^t + g = 1:T$$

and $\hat{K} \vec{B}$

$$\hat{K} \vec{u}^t = \vec{u}^{t-1} + \hat{K} \vec{B}^t - \hat{K} \vec{B} + f \quad t=1:T$$

$\hat{K} \vec{x}^t$
 \vec{P}

