$h^{[i]}$
$\mathcal{H}_K$
K
$h^{[i]}$
K
$h^{[i]}$

$$\{\hat{h}^{[i]}\} = \arg\min_{h^{[i]} \in \mathcal{H}_K} \sum_{t=t_0}^{N} (y_t - \hat{y}_{t|t-1})^2 + \gamma_2^2 \left(\sum_{i=1}^{m} \|h^{[i]}\|_{\mathcal{H}_K}^2 \right)$$

(1)

$$\hat{y}_{t|t-1} = \sum_{i=1}^{m-1} \left[\sum_{k=1}^{\infty} h_k^{[i]} u_{t-k}^{[i]} \right] + \sum_{k=1}^{\infty} h_k^{[m]} y_{t-k}.$$

(2)

γ_2
$h^{[i]}$
K
$h_k^{[i]} =$
$0, \forall k >$
J
K_J
$K_J(h,k) =$
$0, \forall (h,k) :$
$k >$
$J oppure h >$
J
$\underline{h}^{[i]} := [h_1^{[i]}, h_2^{[i]}, \ldots, h_{t_0}^{[i]}]^T.$

J
$K_J \in$
$R^{j \times j}$
J
$\|h^{[i]}\|_{\mathcal{H}_{K_J}}^2$
$\|h^{[i]}\|_{\mathcal{H}_{K_J}}^2 = (\underline{h}^{[i]})^T K_J^{-1} \underline{h}^{[i]}.$

$\hat{y}_{t|t-1}$

$$\hat{y}_{t|t-1} = \sum_{i=1}^{m-1} \left[\sum_{k=1}^{J} h_k^{[i]} u_{t-k}^{[i]} \right] + \sum_{k=1}^{J} h_k^{[m]} y_{t-k}.$$

(3)

$h^{[i]} \in$
$\mathcal{H}_{K_J}$
??

$$\arg\min_{\underline{h}^{[i]} \in R^{t_0}} \sum_{t=t_0}^{N} (y_t - \hat{y}_{t|t-1})^2 + \gamma_2^2 \sum_{i=1}^{m} \left[(\underline{h}^{[i]})^T K_J^{-1} \underline{h}^{[i]} \right]$$

(4)

??
??
$h_{t_0}^{[i]}$
θ
??
l_2

$$\overline{y}_{t_0}^{+} = \sum_{i=1}^{m} \overline{A}_{Ji} h_{t_0}^{[i]} + W$$

(5)

$\overline{y}_{t_0}^{+} :=$
$y_{t_0}^{+}$
$0_{1 \times (t_0 \cdot m)}$
$\overline{A}_{Ji} :=$
$[A_{Ji} v_i \otimes \Lambda] \, \Lambda :=$
$\gamma_2 K_J^{-1/2}$
$v_i :=$
$[\underbrace{0 \ldots 0}_{i-1} 1 \underbrace{0 \ldots 0}_{m-i}]^T$
β
γ_2
??
$\overline{A}_{Ji}$
??
$h^{[i]}$
??
γ_2
l_2
??
$[h_1^{[i]}, h_2^{[i]}, \ldots, h_{t_0}^{[i]}]^T$
$\mathcal{H}_{K_{t_0}}$
β
$\{y_t, u_t\}_{t=1,\ldots,N}$
$\{y_t, u_t\}_{t=1,\ldots,2N/3}$