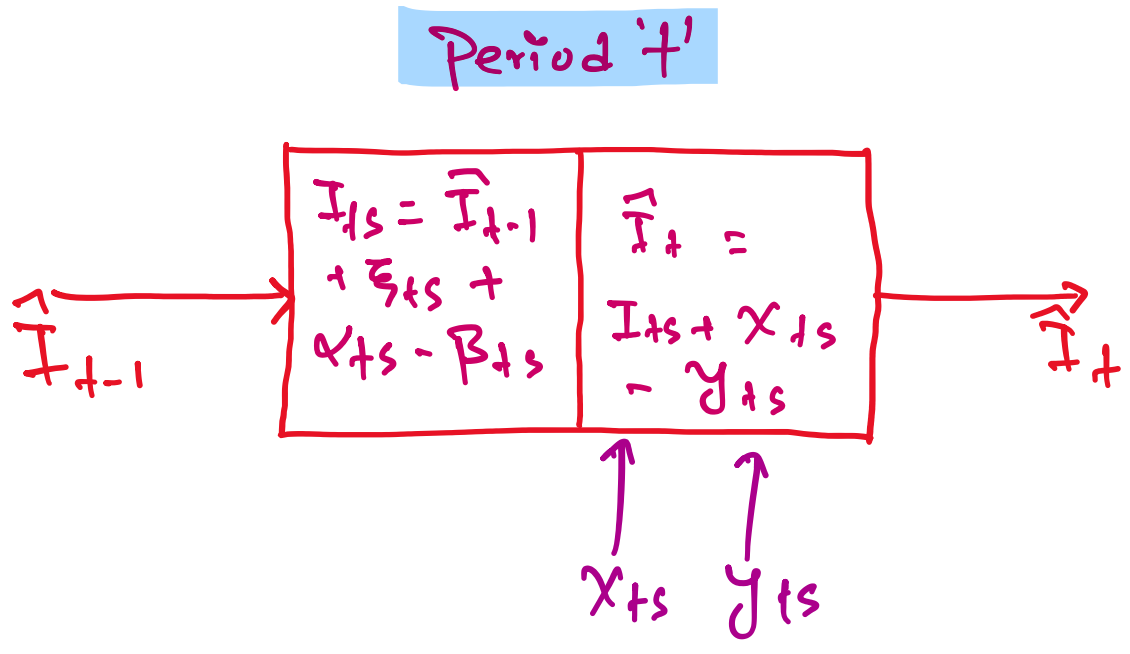
HW6

2SSP Model



$$\text{Min: } \sum_{s \in S} p_s \sum_{t \in T} \left(c^{\alpha} \alpha_{ts} + c^{\beta} \beta_{ts} + c^{x} \cdot x_{ts} - c^{y} y_{ts} \right)$$

s.t.

$$I_{ts} \in [-250, 0], \quad \forall t \in T, \forall s \in S$$

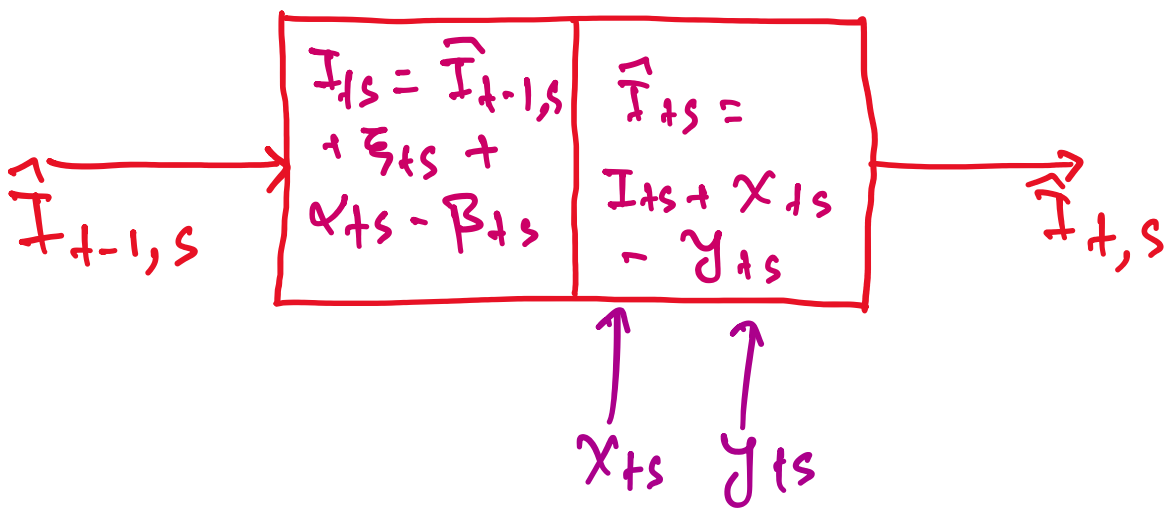
$$\hat{I}_t \in [-250, 0], \quad \forall t \in T$$

$$I_{ts} = \hat{I}_{t-1} + \xi_{ts} + \alpha_{ts} - \beta_{ts}, \quad \forall t \in T, s \in S$$

$$\hat{I}_t = I_{ts} + x_{ts} + y_{ts}, \quad \forall t \in T, \forall s \in S$$

$$\alpha_{ts}, \beta_{ts}, x_{ts}, \beta_{ts} \geq 0, \quad \forall t \in T, \forall s \in S$$

MSSP Model



$$\text{Min: } \sum_{s \in S} p_s \sum_{t \in T} \left(c^{\alpha} \alpha_{ts} + c^{\beta} \beta_{ts} + c^{x} \cdot x_{ts} - c^{y} y_{ts} \right)$$

s.t.

$$I_{ts} \in [-250, 0], \quad \forall t \in T, \forall s \in S$$

$$\hat{I}_{ts} \in [-250, 0], \quad \forall t \in T, \forall s \in S$$

$$\hat{I}_{ts_j} = \hat{I}_{ts'_j}, \quad \forall s, s' \in S_t^j, \forall t \in T$$

$$I_{ts} = \hat{I}_{t-1,s} + \xi_{ts} + \alpha_{ts} - \beta_{ts}, \quad \forall t \in T, s \in .$$

$$\hat{I}_{ts} = I_{ts} + x_{ts} + y_{ts}, \quad \forall t \in T, \forall s \in S$$

$$\alpha_{ts}, \beta_{ts}, x_{ts}, \beta_{ts} \geq 0, \quad \forall t \in T, \forall s \in S$$

S_t^j = j^{th} set of scenarios in time period 't' that are undistinguishable with each other.