Clearing Primal
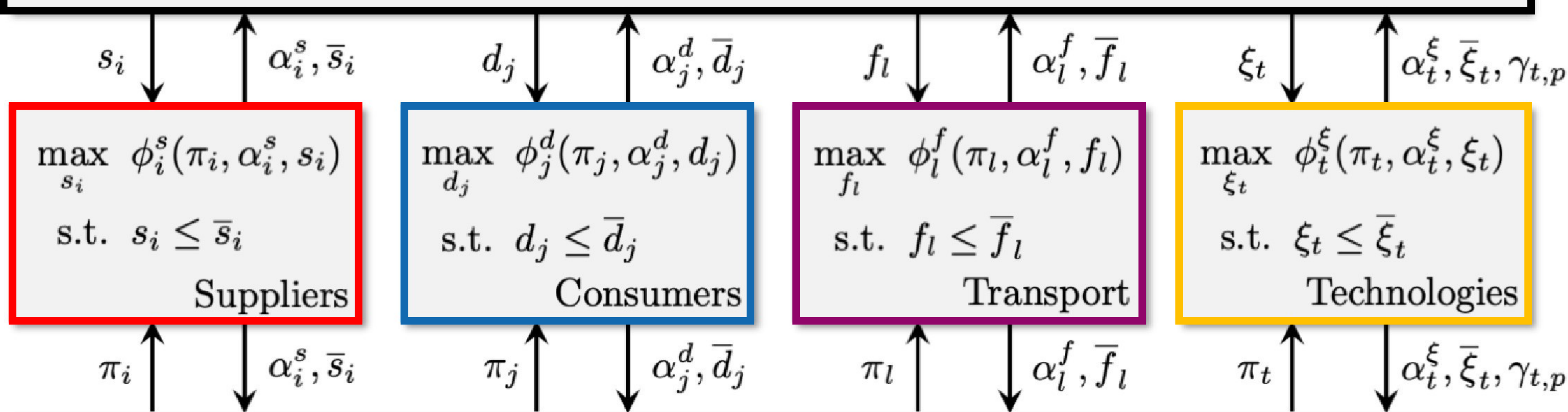
$$\max_{s,d,f,\xi} \sum_{j\in\mathcal{D}} \alpha_j^d d_j - \sum_{i\in\mathcal{S}} \alpha_i^s s_i - \sum_{l\in\mathcal{L}} \alpha_l^f f_l - \sum_{t\in\mathcal{T}} \alpha_t^\xi \xi_t$$

$$\text{s.t.} \quad \sum_{i\in\mathcal{S}_{n,p}} s_i + \sum_{l\in\mathcal{L}_n^{in}} f_l + \sum_{t\in\mathcal{T}_{n,p}^{gen}} \gamma_{t,p}\xi_t = \sum_{j\in\mathcal{D}_{n,p}} d_j + \sum_{l\in\mathcal{L}_n^{out}} f_l + \sum_{t\in\mathcal{T}_{n,p}^{con}} \gamma_{t,p}\xi_t, \quad (\pi_{n,p})$$

$$s_i \le \bar{s}_i, \quad (\bar{\lambda}_i)$$

$$d_j \le \bar{d}_j, \quad (\bar{\lambda}_j)$$

$$f_l \le \bar{f}_l, \quad (\bar{\lambda}_l)$$

$$\xi_t \le \bar{\xi}_t, \quad (\bar{\lambda}_t)$$

$s_i \qquad \alpha_i^s, \bar{s}_i \qquad d_j \qquad \alpha_j^d, \bar{d}_j \qquad f_l \qquad \alpha_l^f, \bar{f}_l \qquad \xi_t \qquad \alpha_t^\xi, \bar{\xi}_t, \gamma_{t,p}$

Suppliers
$$\max_{s_i} \phi_i^s(\pi_i, \alpha_i^s, s_i)$$
$$\text{s.t.} \quad s_i \le \bar{s}_i$$

Consumers
$$\max_{d_j} \phi_j^d(\pi_j, \alpha_j^d, d_j)$$
$$\text{s.t.} \quad d_j \le \bar{d}_j$$

Transport
$$\max_{f_l} \phi_l^f(\pi_l, \alpha_l^f, f_l)$$
$$\text{s.t.} \quad f_l \le \bar{f}_l$$

Technologies
$$\max_{\xi_t} \phi_t^\xi(\pi_t, \alpha_t^\xi, \xi_t)$$
$$\text{s.t.} \quad \xi_t \le \bar{\xi}_t$$

$\pi_i \qquad \alpha_i^s, \bar{s}_i \qquad \pi_j \qquad \alpha_j^d, \bar{d}_j \qquad \pi_l \qquad \alpha_l^f, \bar{f}_l \qquad \pi_t \qquad \alpha_t^\xi, \bar{\xi}_t, \gamma_{t,p}$

Clearing Dual

$$\min_{\pi,\lambda} \sum_{i\in\mathcal{S}} \bar{s}_i\bar{\lambda}_i + \sum_{j\in\mathcal{D}} \bar{d}_j\bar{\lambda}_j + \sum_{l\in\mathcal{L}} \bar{f}_l\bar{\lambda}_l + \sum_{t\in\mathcal{T}} \bar{\xi}_t\bar{\lambda}_t$$

$$\text{s.t.} \quad \pi_i - \bar{\lambda}_i \ge \alpha_i^s, \quad (s_i)$$

$$\pi_j + \bar{\lambda}_j \le \alpha_j^d, \quad (d_j)$$

$$\pi_l - \bar{\lambda}_l \ge \alpha_l^f, \quad (f_l)$$

$$\pi_t - \bar{\lambda}_t \ge \alpha_t^\xi, \quad (\xi_t)$$