

$$J(\pi) - J(\pi^*) = \sum_{t=1}^T \mathbb{E}_{s_t \sim d_{\pi}^t} A^{\pi^*}(s_t, \pi(s_t))$$

$$\leq M \cdot \sum_{t=1}^T \mathbb{E}_{s_t \sim d_{\pi}^t} \mathbb{1}(\pi(s_t) \neq \pi^*(s_t))$$

$$\leq M \sum_{t=1}^T \underbrace{\left\| \frac{d_{\pi}(s_t)}{d_{\pi^*}(s_t)} \right\|}_{\leq C} \underbrace{\mathbb{E}_{s_t \sim d_{\pi^*}^t} \mathbb{1}(\pi(s_t) \neq \pi^*(s_t))}_{O(\epsilon)}$$

$$\leq O(M T C \cdot \epsilon)$$