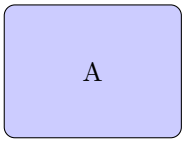
Example of Conflicting Incentives and Transfer Pricing



Suppose all markets are perfectly competitive and that managers are motivated to maximize short-run profit. The production capacity (as well as standard) of department A is 1,000 units. Denote the quantity transferred by x. Consider two alternative scenarios:

Centralized decision maker who maximizes overall firm's profits:

Maximize

$$\begin{aligned}&(P_A - V_A)(1,000 - x) + (P_B - V_B - V_A)x\\ &= (200 - 120)(1,000 - x) + (300 - 150 - 120)x\\ &= 80,000 - 50x\end{aligned}$$

Two decentralized decision makers, each maximizing her division's profits:

$$\begin{aligned}Profit\ A &= (200 - 120)(1,000 - x) + (TP - 120)x\\ &= 80,000 + (TP - 200)x\\ Profit\ B &= (300 - 150 - TP)x\\ &= (150 - TP)x\end{aligned}$$

1. What price would induce *both* managers to choose $x = 0$?
2. What is the minimum transfer price according to the course text?
3. What is the transfer price according to the variable cost and full cost methods?
4. When is the variable cost-based transfer price appropriate?
5. Suppose, in the example above, that we do not have a perfect market. Division A can sell up to 800 units at \$200 but no more. What would happen under each of the transfer price schemes discussed above?