Two-step procurement

PERIOD 1
Retailer orders quantity

PERIOD 2
Retailer orders additional quantity if necessary

New information may arrive

Retailer sells the product in the market

Model Definition

- Single supplier (S)
  - Unit cost $c_S = 0$
  - Wholesale price in periods 1 and 2: $w_1$ and $w_2$.
- Single retailer (R)
  - Unit cost $c_R = 0$
  - Linear inverse demand function
  - Order quantity in periods 1 and 2: $q_1$ and $q_2$
- Both the retailer and the supplier are profit maximizers
- All the information is common knowledge

$P(Q) = a - bQ$
Timeline

PERIOD 1

Supplier announces first period price, \( w_1 \)

Retailer determines first period quantity, \( q_1 \)

PERIOD 2

Supplier announces second period price, \( w_2 \)

Retailer determines additional procurement quantity, \( q_2 \)

Sales to end customers

Comparison with the CSC

Single-period DSC

Supplier 50%

Manufacturer 25%

Loss due to double marginalization 25%

Two-period DSC

Supplier 56%

Manufacturer 30%

Loss due to double marginalization 14%