**Supply Contracts at SkiRetail (Answers)**

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| Q. 1 | * Optimal production quantity = 15,000 * Expected profit for “the company” = $1,122,813 |
| Q. 2 | * What is your estimate of the quantity for ski jackets that Bergard (SkiRetail) shall place an order for?   + Optimal order quantity = 10,000 * Expected profit for SkiRetail based on your estimate of order quantity.   + Using empirical method = $452,500 * Expected profit for Skiekz based on estimate of order quantity.   + Using empirical method = $530,000 * Total supply chain profit   + Using empirical method = $982,500 * How does this profit compare to the vertically integrated case (Q 1).   + As expected, the profit is lower by $1,122,813 -$982,500 = 140,313. This is a decrease of 12.5% compared to the vertically integrated case. |
| Q 3 | * Analyze the impact of different buy-back prices on the optimal order quantity, retailer’s expected profit, supplier’s expected profit, as well as the total supply chain profit? Show your results using some plots.      * What is the “optimal” range of buy-back price that you would propose to the firms?   The optimal, range implies the “profit maximizing” buy-back price, which is $116.67 to $ 143.33. The total profit is $1,023, 438.   * Determine the expected profit for the “retailer” under the proposed buy-back contract.   The expected profit of the retailer ranges from $479,170 to $503,330.   * Determine the expected profit for the “supplier” under the proposed buy-back contract.   The expected profit of the supplier (or manufacturer) ranges from $544,268 to $520,107. |
| Q 4 | * What is the optimal purchase /wholesale price that Skiekz should propose?   The range of optimal purchase /wholesale price that Skiekz is [122,131]. The maximum profit is $1,122,813.   * Determine the expected profit for the “retailer” under the proposed revenue-sharing contract.   Refer to the table below:   * Determine the expected profit for the “supplier” under the proposed revenue-sharing contract.   Refer to the table below:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Wholesale price** | **Service Level** | ***Optimal Qty.*** | **Retailer's Expected Profit** | **Manuf.'s Profit** | **Total Profit** | | $ 122.00 | 59.34% | 15000 | $ 990,547 | $ 132,266 | $ 1,122,813 | | $ 131.00 | 53.44% | 15000 | $ 855,547 | $ 267,266 | $ 1,122,813 | |
| Q 5 | Revenue Sharing is out of scope of this course. Please ignore this question. |
| Q 6 | Revenue Sharing is out of scope of this course. Please ignore this question. |