Reference

1. L. G. Zhao and H. S. Lau (1992) Reducing inventory costs and choosing suppliers with order splitting. *J. Opl Res. Soc.* **43**, 1003–1008.

RESPONSE

Professor Goyal correctly points out that when the suppliers' lead times are not identical, the restriction $Q_1 = Q_2$ imposed by the earlier studies (including ours) should be relaxed. Goyal's equation (2) solves the problem: how a *given* Q should be split into Q_1 and Q_2, while maintaining the *same* reorder point (R) and hence safety stock level. This minimizes the annual inventory holding cost but does not consider the ordering and shortage costs.

A more comprehensive formulation is: for a $(Q \cdot R)$ system, find the optimal values of Q_1, Q_2 and R that will minimize: (i) the sum of annual inventory holding, ordering and shortage costs; or (ii) the sum of inventory holding and ordering costs subject to a minimum acceptable service level. In other words, among the three factors Q, Q_1 and R (Q_2 is determined by Q and Q_1), Goyal's equation (2) considers only Q_1 as a decision variable; but actually all three factors should be considered as decision variables. Working papers solving the latter formulation can be obtained from us.

Hong Kong University of Science and Technology   Hon-Shiang Lau
Oklahoma State University, USA   Long-Geng Zhao