

[Cannella, Salvatore; Ciancimino, Elena](#)

On the bullwhip avoidance phase: supply chain collaboration and order smoothing. (English)

Zbl 1197.90017

[Int. J. Prod. Res.](#) 48, No. 22, 6739-6776 (2010).

Summary: This paper provides an assessment of the impact of collaboration and smoothing replenishment rules on supply chain operational performance and customer service level. Three supply chain configurations (i.e. Traditional, Information Exchange and Synchronised) in which orders are generated by smoothing (S, R) inventory control policies are studied for different proportional controllers. A supply chain stress test is performed through a sudden and intense change in demand. A structured and extended supply chain assessment framework is adopted. The main conclusions of this paper are the following. (i) The impact of Supply Chain Collaboration on overall supply chain performance is greater than that of order smoothing. Order smoothing mitigates the bullwhip effect, but it may have a negative impact on customer service. Supply Chain Collaboration mitigates the bullwhip effect, provides inventory stability, limits lumpy orders and enhances customer service level. (ii) The negative effect on customer service level of order smoothing is almost eliminated in synchronised supply chains.

MSC:

[90B05](#) Inventory, storage, reservoirs

[90B06](#) Transportation, logistics and supply chain management

[90B30](#) Production models

Cited in **15** Documents

Keywords:

[multi-echelon](#); [information sharing](#); [supply chain performance metrics](#); [inventory management](#); [order-up-to periodic review](#); [differential equation modelling](#); [cost reduction strategies](#)

Full Text: [DOI](#)