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**On the effect of non-optimal forecasting methods on supply chain downstream demand.**

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Summary: Demand information sharing is used by many organizations to counter the bullwhip effect. A stream of recent papers claims that the upstream member can mathematically infer the demand at the downstream link (downstream demand inference [DDI]) without any formal information sharing mechanism. In this paper, we investigate DDI when non-optimal forecasting methods are employed by supply chains. We show that in the case of a simple moving average forecast, the demand at the downstream link can be inferred. In the case of single exponential smoothing (SES), downstream demand cannot be inferred and thus needs to be shared. Finally, we quantify the value of sharing demand information when SES is employed.

**MSC:**

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

[62P20](#) Applications of statistics to economics

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**Keywords:**

supply chain management; bullwhip effect; downstream demand inference; forecast information sharing; single exponential smoothing; simple moving average

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