In this work, we showed that in a delivery scheduling problem where replenishment activities can be staggered, minimizing the peak inventory storage requirement is equivalent to maximizing the minimum safety inventory (i.e. lowest inventory level), under the assumption that the items are consumed at constant rates. We have also used this observation to derive several results for the classical inventory staggering problem.

The delivery scheduling problem is motivated by the first author’s earlier consulting work undertaken together with Dr Leong Thin Yin (currently with the Singapore Management University). The consulting work focused on building a multivendor kanban-type inventory system to handle the stochastic demands of the items in the system, assuming a fixed delivery schedule. While this makes the two problems distinct, the description of the motivating example and context is taken from Leong and Hum [1], and we have inadvertently omitted this working paper from our reference list. We apologize for this oversight on our part.

References