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MULTIPERIOD CAPACITY EXPANSION AND SHIPMENT PLANNING

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The authors consider a multiperiod deterministic capacity expansion and shipment planning for a single product. The case of concave capacity expansion costs was first proposed · by A. S. Manne (Investment for Capacity Expansion: Size, Location and Time Phasing · MIT Press, Cambridge, Massachusetts, 1976). The solving of this problem by using dynamic programming is computationally prohibitive if the number of producing surpasses three.

In this paper the authors make assumption that the capacity expansion costs are linear rather than concave. A linear programming model is obtained and solved by an efficient algorithm using the operator theory of parametric programming for the transportation problem. A numerical example is given.

Extensions to the infinite planning horizon case are also presented.

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