Deterministic Analysis of Government Tariffs for Substitute Products in a Dual-Channel Supply Chain

Amit Ranjan and J K Jha
Department of Industrial and Systems Engineering
Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India -721302
*Corresponding Author Email: amitranjan.iitkgp@gmail.com

Abstract

Due to the fast reduction of natural resources and increasing environmental pollution, the government encourages green practices. The government provides subsidy and imposes tax for the use of green and non-green products, respectively. A mathematical model has been developed for the price differentiation with demand leakage, greening, and sales-effort under deterministic demand for substitute products. In this study, two models (centralized, and decentralized) have been examined in the dual-channel supply chain. A Stackelberg game-theoretic approach is applied to analyze the decentralized model.

Keywords
Dual-channel supply chain, Government tariffs, Greening level, Price differentiation, Cannibalization, Game theory.