

A Note on Three-Parameter Buy-Back Contract in Newsvendor Setting

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Abstract

In this article, we consider a buy-back contract with three parameters, namely a wholesale price and a buy-back price as well as a returns ratio, in a newsvendor setting. An interaction between a supplier and retailer is modeled as a two-stage game. We provide an analysis of the game and illustrate via a numerical example how it can be used to find the contract parameters.

Keywords: operations research; stochastic model applications; supply chain management; supply contracts

1 Introduction

We consider a *buy-back contract* (also known as a *returns policy*), one of the most commonly found supply contracts. In a typical returns policy, a supplier sells a product up-front to a retailer at a *wholesale price*; after retailer's demand materializes, a portion of unsold units can be returned to the supplier, and some

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