

ACQUISITION PRICING AND REMANUFACTURING DECISIONS IN A CLOSED-LOOP SUPPLY CHAIN

*Yuanjie He, Technology and Operations Management Department, College of Business Administration,
California State Polytechnic University, Pomona, 3801 W. Temple Ave, Pomona CA 91768, 909-869-
2458, he@csupomona.edu*

ABSTRACT

We model a closed-loop supply chain with a manufacturer and supply channels. The manufacturer reuses the recycled product component and remanufactures the product. The recycle channel shows stochastic recovery rate. The optimal production and acquisition pricing decisions are obtained for deterministic and stochastic demand cases. Further, the paper discusses the CLSC efficiency. It is shown that decentralized CLSC reduces acquisition price and recycle quantity, therefore lowers remanufactured quantity - similar to the classic double marginalization. To mitigate such inefficiency, two contracts are proposed. Both contracts are Pareto improving and can be used to coordinate the CLSC. Numerical examples are used to illustrate the results.