

# Reused Smartphones Pricing Analysis — A Duopoly Model Analysis with respect to Apple and Samsung Smartphones

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## Abstract

As technology advances, multi-touch smartphones have rapidly become a necessity in the daily lives of most users. In order to expand their market share and attract new users, new generations of smartphones are being introduced in a much shorter interval. As a result, older phones are discarded in greater speed, and thus creating more electronic waste each year. To reduce waste material, the concept of reused smartphones is proposed. In order to attract users to purchase these reused smartphones, this study aims to look into the pricing strategy for Apple and Samsung products as both are top smartphone brands with the highest market shares. Under the duopoly environment, this study uses the Cournot game model to determine the optimal solution in a price competition with Apple set to be the leader and Samsung the “follower”. While making pricing strategies, manufacturers commonly strive to maximize their profits. Two pricing functions will have a point of intersection, and the solution will be the optimal equilibrium. The model proposed in this study may be taken as reference for manufacturers to understand the reused smartphone market.

*Keywords:* Smartphone, duopoly model analysis, cournot model.

## 1. Introduction

In the age of rapid technological advancement, most companies put great effort in their product development so as to satisfy consumers’ expectations, which will encourages higher consumer demand and exacerbates the wastage of resource. Without efforts in reuse, remanufacturing and recycling, the environment will be getting more polluted and eventually be destroyed. In recent years, both industry practitioners and academics worldwide have been giving increased attention to product recovery with the aims of protecting the environment and saving production costs (Atasu et al. [2], Guide Jr. and Van Wassenhove [9], Ferguson and Souza [6]). Thus product recycling is a critical issue that needs to be addressed urgently. United Nations’ statistics showed that worldwide e-waste, from discarded smartphones to old fridges that were inadequately disposed, has reached 41.8 million tons per year, and will hit 50 megatons by the year 2018. Less