A market-driven transfer price for distributed products using mathematical programming

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Abstract

A distributed product has its manufacturing activities distributed among many locations. These locations could belong to one or more firms in a manufacturing network. Often, components needed to manufacture a distributed product move through different nodes in the network and sometimes across international borders. Hence, a transfer price is needed for the purpose of estimating duties and drawbacks. Being aware of the fact that transfer price can be used to manipulate taxable profits, many countries have instituted rules concerning transfer price estimation. For example, in the United States, the Internal Revenue Service (IRS) says that the right price is the market value. But for many components it is difficult to find a free market. Similar products may exist in the market but they may have different attributes. In such cases, it is important to be able to estimate the market-driven transfer price, given other similar products in the open market. We develop a method using a mathematical programming model and providing companies an opportunity to work proactively with the IRS in a cooperative manner in order to avoid costly audit and litigation. This way, companies avoid penalties and also gain certainty regarding tax liability. An example illustrating the method is presented.

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1. Introduction

In the face of increasing global competition, many firms are involved in the manufacture and logistics of distributed products (Achrol and Kotler, 1999). A distributed product has its manufacturing activities dispersed through many locations. These locations could be either subsidiaries of one firm or several firms collaborating within a manufacturing network. With the distributed product strategy, firms target