



Entry deterrence through credible commitment to transfer pricing at direct cost

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ABSTRACT

This paper examines the choice between direct and absorption costing in a cost-based transfer pricing system for duopolistic firms competing with product market prices. Existing literature has shown that the adoption of an absorption costing system, which drives up the intrafirm transfer price, strategically dominates direct costing for the two firms, regardless of whether the transfer price is publicly observable, thereby constituting a subgame perfect Nash equilibrium (SPNE). However, we demonstrate that direct costing can strategically dominate absorption costing when one of the two firms is an incumbent, whereas the other is a potential entrant. Stated differently, the well-known result in the strategic cost allocation problem reverses if we consider entry threats. More specifically, we show that if the incumbent credibly commits to an observable transfer price, the upfront adoption of a direct costing system enables the incumbent to deter the entry of the potential rival in the SPNE. As a commitment device for the observable price, we consider the regulation of transfer prices that usually exists in oligopolistic network industries. We show that a regulator that pursues social welfare maximization approves direct costing but not absorption costing. Therefore, the firms and the regulator can share a mutual interest in the adoption of a direct costing system, a state thus sustained as the SPNE. This result yields managerial accounting implications for a divisionalized firm facing the threat of potential competitors entering the market in that the firm can use this accounting system to help monopolize the market.

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1. Introduction

The choice of a particular transfer pricing system in a divisionalized company operating within a variety of economic environments has commanded significant attention in the managerial accounting literature. In one of a series of surveys of Fortune 500 and Fortune 1000 firms (Tang, 1992, 1993, 2002), Tang (2002) reports that 46.2% of the transfer pricing methods of 143 Fortune 500 firms are cost based, suggesting that this is the most prevalent transfer pricing method in practice. Of these same firms, 53.8%

employ actual or standard full production costs, 38.5% full production costs plus a markup, and 7.7% variable costs of production, thus indicating that full cost rather than variable cost transfer prices are more common. Mills (1988) also asserts that cost-based methods are the principal basis for determining prices based on a survey of the largest 3500 British companies. In addition, Mills (1988) suggests that noncost considerations generally modify cost-based prices, of which the prices of competitors are the most important, implying that oligopolistic firms commonly make use of internal transfer prices as a strategic tool to compete with rivals.

Transfer prices certainly work as a strategic device, as found by the significant number of studies following Hirshleifer (1956). However, firms in advanced economies

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are not completely free to set internal prices between divisions as they are frequently subject to regulation. For the most part, authorities in advanced countries tend to impose strict regulation, particularly on tax-motivated transfer pricing (Ernst and Young, 2012). When we consider incentives for transfer pricing other than tax evasion, the regulation of transfer prices also becomes important in oligopolistic industries where a divisionalized company potentially exerts significant market power. Accordingly, the regulation of internal transfer prices especially pertains to network industries, such as public utilities. This is because the price considerably affects social welfare if another firm purchases the network service at an access price, which is typically set to equal the transfer price.¹ Consequently, the management of a firm operating in an industry where few firms operate should properly balance not only the strategic situation but also the regulatory regime surrounding the firm that to some extent dictates the transfer price.

In light of the considerable debate on the most desirable accounting method and regulation for transfer pricing, this paper investigates the economic outcomes of two representative cost-based transfer-pricing methods for duopolistic firms facing product market competition; namely, direct costing and absorption costing. We first construct a model where firms act without any transfer pricing regulation to focus on their incentives for the choice of costing system. The extant literature has shown that the adoption of an absorption costing system, which drives up intrafirm transfer prices, can strategically dominate direct costing for both firms, regardless of whether the transfer price is publicly observable, thereby constituting a subgame perfect Nash equilibrium (SPNE).

However, we demonstrate that the direct costing system can strategically dominate absorption costing when one of the two firms is an incumbent and the other is a potential entrant. Stated differently, the well-known result

in the strategic cost allocation problem reverses if we consider the threat of entry. More specifically, if the incumbent credibly commits to an observable transfer price, we show that the upfront adoption of the direct costing system enables the incumbent to deter the entry of the potential rival and to monopolize the market in the SPNE. This result yields important managerial accounting implications for a divisionalized firm facing the threat of potential competitors entering the market in that the incumbent firm can use the accounting system to bind itself to more aggressive market behavior, creating a virtual barrier to entry.

The rationale behind this result is as below. If one of the two firms installs the absorption costing system in advance as a Stackelberg leader, the other firm subsequently enters the market by introducing the absorption costing system because the latter may earn sufficient positive revenue to counterbalance any business entry costs. Consequently, the leader is obliged to share the market with the follower. Conversely, if the leader strategically adopts the direct costing system, the follower cannot earn sufficient revenue to cancel out any entry costs, irrespective of its choice of accounting system upon entering the market. Eventually, the follower surrenders entering the market. The key implication of this analysis is that an upfront direct costing system choice enables the leader to increase profits through monopoly in the SPNE.

To derive this result, the observability of the transfer prices of competing firms is an essential assumption, even though internally chosen prices are generally unobservable outside the firm. To ensure the observability in our model, we next consider the regulation of transfer prices that usually exists in oligopolistic network industries, such as a public utility. Specifically, we propose a model extension where firms operating in a network industry make transfer-pricing decisions in the presence of a regulator that pursues social welfare maximization. Because access prices in network industries affect social welfare significantly, regulators monitor the prices for improving social welfare.² Using this model, we show that the regulator approves the direct costing system but not the absorption costing system. Therefore, the firms and the regulator can share a mutual interest in the adoption of a direct costing system, a state thus sustained as the SPNE.

The remainder of the paper is structured as follows. Section 2 provides a comprehensive review of the literature relating to transfer pricing from a managerial accounting viewpoint. Section 3 presents the basic settings that underpin our analytical transfer-pricing model. Section 4 presumes that firms are free from any regulation in order

¹ Fjell and Foros (2008) present several cases in which European regulators provide guidelines on transfer pricing for public utilities in the telecommunications and electricity supply industries. For example, European Competitive Telecommunications Association (2003, p. 4) documents that “The SMP (Significant Market Power) operator must publish to the NRA (National Regulatory Authority) and third parties its internal transfer prices for SMP products, and its methodology for cost accounting and accounting separation. . . .” Moreover, European Regulators Group (2006, p. 44) provides the following statement on electronic communications networks and services: “Accounting separation should ensure that a vertically integrated company makes transparent its wholesale prices and its internal transfer prices especially where there is a requirement for non-discrimination.” Regulators in advanced economies outside Europe present similar guidelines for utility industries. For example, in the US, the Public Utility Commission of Texas (1998) notes that “there is a strong likelihood that a utility will favor its affiliates where these affiliates are providing services in competition with other, non-affiliated entities . . . there is a strong incentive for regulated utilities or their holding companies to subsidize their competitive activity with revenues or intangible benefits derived from their regulated monopoly businesses.” Likewise, in Asia, the Central Asia Regional Economic Cooperation (2005, p. 17) refers to electricity sector regulations as follows: “Countries vary with respect to the sequencing of sector reforms. However, the elements of these reform packages either already include or are likely to include the following: . . . (ii) vertical unbundling, which includes measures to make the performance of each company transparent and to publish transfer prices among generation, transmission, and distribution. . . .”

² Bromwich and Hong (2000) examine accounting separation and hierarchical costing systems in the UK telecommunications industry, concentrating on use by British Telecom and the telecommunications regulator. They suggest that transparency and accounting separation are complementary obligations used to implement a cost-based access price, which inform competing firms about the costs of network components and help them to assess whether they should invest in their own infrastructure. Specifically, they state “. . . Such separated costs are also meant to aid in ensuring that charges to other operators do not differ from the comparable transfer prices used within BT. . . .” (Bromwich and Hong, 2000, p. 141).

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