TRANSFER PRICING: GOAL CONGRUENCE VS. DIVISIONAL AUTONOMY

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I. *Introduction*

One of the most difficult problems in divisionalization and internal profit measurement is how to design a sound, workable system for pricing the products that are transferred from one division to another. From a profit measurement viewpoint, the ideal profit center is one that buys all its input from outside companies and sells its entire output on the outside market, with no intracompany purchases or sales. Under these circumstances, there is no transfer pricing problem and internal profit measurement is relatively simple. Unfortunately, ease in profit measurement cannot be the dominant criterion in establishing profit centers and interdivisional transfers do take place.[1]

The primary concern of the authors, who have approached the transfer pricing problem, has been to design a transfer price system which leads division managers to take goal-congruent behavior. The pioneers in transfer-pricing theory state as follows:

> This paper is concerned with the most basic aspect of this problem (of setting prices for transactions within a company). This is that a company, in decentralizing, expects to increase its profitability by giving direct profit incentives and evaluations to more people in management; if this is to be successful, the company must insure that one profit center is not led to increase its profits by reducing the profit of the company as a whole (Cook, 1955, p. 87).

> This paper is concerned with the problem of pricing the goods and services that are exchanged between such divisions within a firm and with how these prices should be set in order to induce each division to act so as to maximize the profit of the firm as a whole (Hirshleifer, 1956, p. 172).

However, it should be noted here that top management in a divisionalized company may decide that heavy decentralization is desirable. Therefore, the preservation of the autonomy of division managers should be another criterion in the design of a management control system. In this paper we will trace transfer-pricing theory from this viewpoint.

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[1] A complete absence of interdivisional transactions raises doubts about the rationality of having these divisions under one corporate roof. See Henderson and Dearden (1966, p. 145).

II. *Transfer Pricing for Goal Congruence*

First of all, we should note that in designing transfer prices relevant to goal congruence, the following assumptions generally are made:

(1) A company has an overall objective or goal of maximizing its immediate, short-run profit.
(2) Division managers desire to maximize their reported profits.[2]

I will use the following notation throughout in this paper:

P^* = the transfer price
MR_B = the marginal revenue of the final product
P_S = the market price of the intermediate product
MR_S = the marginal revenue of the intermediate product
MC_B = the marginal cost of the buying division net of the transferred cost
MC_S = the marginal cost of the selling division
$NMR_B = MR_B - MC_B$
$MR_t = MR_S + NMR_B$

2-1 *Hirshleifer Analysis*[3]

In addition to the basic assumptions described above, Hirshleifer makes the following operational assumptions:

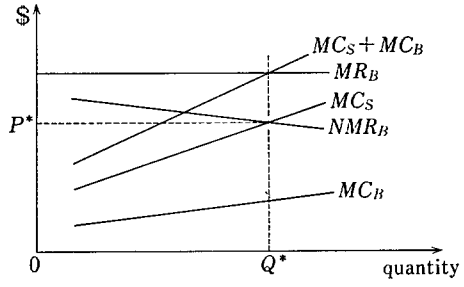
(1) A company comprises two divisions. And each division produces only one product. The first is referred to as the selling division and the latter as the buying division.
(2) The operating costs of each division are independent of the level of operations being carried on by the other; i.e., technological independence.
(3) Additional external sales by either divisoin do not reduce the external demand for the products of the other; i.e., demand independence.

Given these assumptions, he analyzes the transfer pricing problem under three situations:

1. A situation where a single joint level of output is to be determined for the two divisions. In this example there is no intermediate market.
2. A situation where the intermediate market is perfectly competitive.
3. A situation where the intermediate market is not perfectly competitive, so that the external market for the intermediate product facing the selling division has a sloped demand curve.

[2] A manager is motivated to optimize the factors on whch he is being evaluated (Henderson and Dearden, 1966, p. 149). Then a division manager or profit center manager is motivated to optimize his reported profit.
[3] Incidentally, Hirshleifer (1956, p. 180) admits that one defect of his analysis 'is that the divisional "profits" determined by the transfer price established as here advocated do not provide an unequivocal answer as to whether or not to abandon a subsidiary.'

FIG. 1 BEST JOINT LEVEL OF OUTPUT



In each case, the market for the final product may be perfectly or imperfectly competitive.

Situation **1**: *Transfer Price for Best Joint Level of Output*

The determination of the best joint level of output is shown in Figure 1.[4] In this diagram the quantity of output is measured along the horizontal axis for both divisions. It is assumed that the units of the intermediate and the final products are commensurate. Prices and costs per unit of output are measured vertically. The best solution for the company as a whole is to set the joint level of output at Q* where the over-all marginal cost equals the marginal revenue of the final product.

At this point, the central office can compute the output to maximize the profit of the company as a whole, and directly dictate the output to each division. But such dictation seriously impairs divisional autonomy. Then, Hirshleifer 'divise[s] a transfer-price rule which will lead the divisions autonomously to the same solution' (1956, p.174).

What transfer-price induces the division managers to reach the output decision which is optimal for the company as a whole? If the transfer price is set at P^*, the selling division would produce Q^*. The buying division would also find its own output where $MC_B + P^* = P_B$ at Q^*.

Hirshleifer does not have the central office dictate the use of the central-office-optimal transfer price *directly* as well. Instead, he suggests the following method:[5]

(1) The buying division obtains a schedule showing how much the selling division would produce (i.e., sell to the buying division) at any transfer price for the intermediate product. (This schedule would be the same as the MC_S curve, if the selling division rationally determines its output.)

(2) With this information, the buying division determines a curve showing the difference between the marginal revenue for the final product and the transfer price for any level of output. It then determines its output at Q^* where $P_B = MC_S + MC_B$, or $P_B - MC_S = MC_B$.

(3) The selling division will also produce at Q^* where $MC_S = P^* = MC_S(Q^*)$.

[4] In this diagram it is assumed that there is a perfectly competitive market for the final product where the price is set at P_B. But the solution remains essentially unchanged if the market for the final product is not perfectly competitive.

[5] In the method described here the buying division is given the dominant role in decision-making. But this could be reversed without any essential change; instead of the buying division working with the supply function of the selling division, the latter could work with the demand function of the former.

FIG. 2

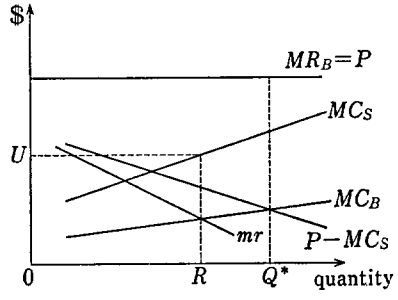
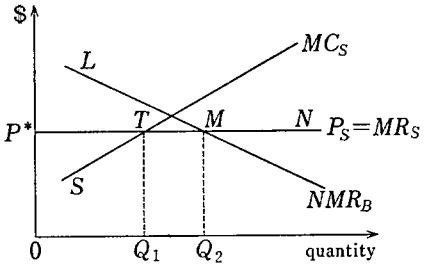


FIG. 3 OPTIMUM LEVEL OF OUTPUT COMPETITIVE INTERMEDIATE



Here, note that while Hirshleifer's transfer-price rule certainly insures optimal profits for the company, the central office imposes restrictions to prevent one division from exploiting the other. That is, the buying divisoin can increase its individual profit by deriving a quasi-marginal revenue curve from the $P - MC_S$ curve (the one labeled "*mr*" in Figure 2), and establishing an output of OR and a transfer price of OU. See Fig. 2.

Situation **2**: *Transfer Price with Competitive Intermediate Market*

The determination of the best divisional levels of output for the company as a whole is shown in Fig. 3. The best solution is that the selling division produces Q_1, and the buying division produces Q_2. In this case, the company's effective net marginal revenue curve is LMN and its effective net marginal cost curve is STN.

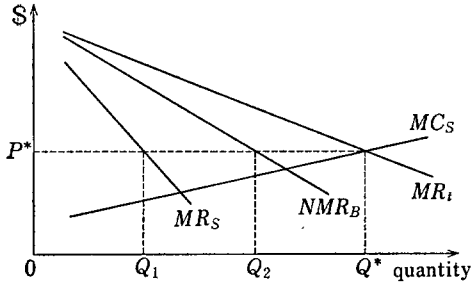
Then, P_S is the transfer price which leads autonomous profit-maximizing divisions to the best solution for the company.[6]

Situation **3**: *Transfer Price with Imperfectly Competitive Intermediate Market*

Since demand independence is assumed, the company has the power to separate its markets. That is, it sells the output of its selling division in one market and the output of its buying division in another. This situation is shown in Fig. 4. In this situation, the optimum output of the intermediate product is Q^*, while Q_2 is transferred to the buying

[6] Note that with a perfect intermediate market, top management is totally indifferent toward transactions between the divisions. Hence the actual transfer price may be irrelevant as long as both division managers have complete freedom to trade in the intermediate market (Dopuch, et al., p. 380n.).

FIG. 4 OPTIMUM LEVEL OF OUTPUT–IMPERFECTLY COMPETITIVE INTERMEDIATE MARKET



division and Q_1 is sold externally.

It can be seen immediately that the relevant transfer price to achieve the maximum profit result is MC_S at Q^*. Again Hirshleifer suggests the transfer-price rule, which may be stated as follows:

For the buying division:

(1) Determine the NMR_B curve and convey the information to the selling division.
(2) Given the transfer price P^* established by the selling division, produce where $P^* = NMR_B$.

For the selling division:

(1) Determine MR_S and sum MR_S and NMR_B to get MR_t.
(2) Produce where $MC_S = MR_t$.
(3) Establish P^* at the MC_S determined by (2).

Note again that the selling division is instructed to accept the curve NMR_B as a marginal revenue curve to be added to MR_S to get MR_t. This stipulation is analogous to those made in *Situation 1.*

2–2 *Different Prices in the Intermediate Market*

Hirshleifer states that if the intermediate market is competitive, the transfer price should be the market price. But, as Cook (1955, p. 89) points out, the net prices that the buying and selling divisions can get in the intermediate market might be different, owing to freight absorption, selling expenses, credit terms, bad-debt expense, etc. For example, one can imagine an integrated firm situated some distance from a market where an intermediate product is sold in conditions of perfect competition. The net price that the buying division has to pay for purchases in the market is the market price plus transport costs, while the selling division receives from sales in the market the market price less transport costs. In such situations, what is the optimal transfer price? It was Gould (1964) that has approached this problem.

Suppose that the buying division can buy any quantity of the intermediate product at a price P_x, and that the selling division can sell any quantity outside the company at a price P_y. That is, P_x refers to the average cost of acquiring the intermediate product from

the outside market, including any cost of dealing, e.g., transport costs, and P_y refers to the average revenue net of costs of dealing. And it is assumed that average costs per unit bought or sold in dealing with the outside market are constant and that the costs of dealing within the company are negligible.

In determining the transfer prices which lead the autonomous divisions to make the output decisions which maximize the company's profit, the three possible relations between the magnitudes of P_x, P_y, and P_o (where P_o stands for the intersection of MC_S and NMR_B) must be considered.

1. $P_x > P_y > P_o$
2. $P_o > P_x > P_y$
3. $P_x > P_o > P_y$

Case 1:

This case is represented by Fig. 5. The effective net marginal revenue for the company is *LMN* and the effective marginal cost curve *STU*. Then, it is easily seen that the profit-maximizing output for the company results when the selling division produces Q_1, reserves Q_2 of its output for the buying division, and sells $Q_1 - Q_2$ on the outside market.

Thus, P_y is the transfer price which insures these output. But it should be noted that at P_y the selling division has no incentive to supply the buying division rather than outside customers. Then, as Gould (1964, p. 63) points out:

> The transfer price rule which insures these outputs is that central management should instruct the mining division (i.e., the selling division) to supply the quantity that the processing division (i.e., the buying division) demands at P_s (i.e., P_y in our

FIG. 5

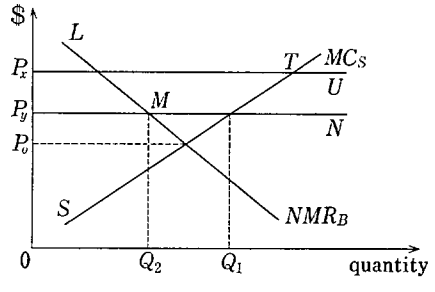


FIG. 6

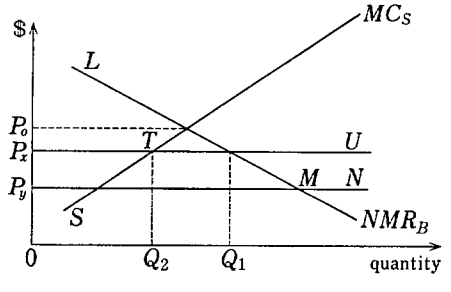
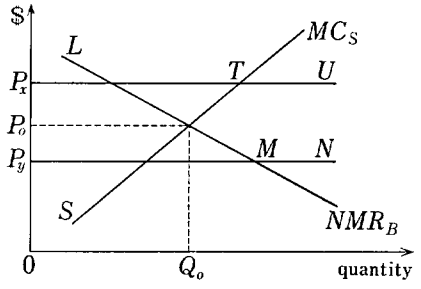


FIG. 7



notation). Subject to this constraint, autonomous profit-maximizing behavior on the part of the individual divisions will lead to the optimum for the firm.

Furthermore, note that the division managers are prohibited from bargaining between the limits of P_x and P_y. This is true in other cases, too.

Case 2:

This case is represented by Fig. 6. In this case, the company's effective net marginal revenue curve is *LMN* and its effective marginal cost curve *STU*. Then, the profit-maximizing output for the company is Q_1 at the intersection of these two.

Thus, the optimal transfer price is P_x. But now, in contrast to the previous case, the buying division has no incentive to trade inside the company. Therefore it must be instructed to accept the quantity that the selling division wishes to supply at P_x.

Case 3:

In this case, represented by Fig. 7, the company's net marginal revenue curve is *LMN* and its marginal cost curve *STU*. Then the optimal output is Q_o and the optimal transfer price is P_o. Thus, the outside market prices are irrelevant. This case is similar to the situation where there is no outside market. In fact, a no-intermediate-market situation is considered to be merely an extreme instance of case 3, where P_x equals infinity and P_y equals zero (Thomas, 1980, p. 158n.).

Relevance of Divisional Profits to the Problem of Abandonment

A futher problem which Gould (1964, pp.64–65) points out is whether the profits for the individual divisions, computed with the aid of these transfer prices, indicate correctly whether or not a division should be abandoned. He also refers to the relevance of divisional profits to the problem of abandonment and notes as follows:

(1) In case 1, the profits computed with the aid of the transfer price are adequate to decide on the abandonment of the buying division, but inadequate for the selling division.

(2) In case 2, the profits determined by the transfer prices are, in contrast to case 1, adequate to decide on the abandonment of the selling division but inadequate for the buying division.

(3) In case 3, the divisional profits determined by the transfer price are inadequate for the decision to abandon either division.

III. *Conflict between the Optimal Transfer Price and Divisional Autonomy*

It is true that Hirshleifer's approach or marginal cost approach serves to establish the corporate-profit-maximizing transfer prices. However, it should be noted, this approach impairs divisional autonomy in several ways.[7]

3-1 *Specification of the Optimal Transfer Price*

Under Hirshleifer's approach or marginal cost approach, the optimal transfer price is specified by the central office. Certainly, Hirshleifer does not have the central office specify the use of the optimal transfer price *directly* where there is not a competitive market for the intermediate product. However he does have the central office stipulate that the dominant division must not exploit its dominant position by acting like a monopolistic buyer or seller. Since, in context, any departure from the optimal transfer price is not permitted, in effect the central office dictates the use of that price.

The specification of the central-office-optimal transfer price, whether directly or indirectly, is an infringement or destruction of divisional autonomy, especially where there is not a competitive intermediate market.[8]

Ronen and McKinney System

Here, as Ronen and McKinney (1970, pp.102–103) point out:

> Note that while Hirshleifer's analysis in fact ensures optimal profits for the firm, his rules reduce the autonomy of divisional managers in that they are not permitted to act as monopolistic buyers or sellers where a perfectly competitive market for the intermediate product does not exist externally.

Ronen and McKinney, in extending Hirshleifer's system, suggest a system for channeling information between the divisions and the central office so that Hirshleifer's system may be implemented while preserving divisional autonomy.[9] When there is no intermediate market, Hirshleifer has the selling and buying divisions exchange the MC_S and NMR_B curves as their supply and demand schedules. Ronen and McKinney, on the other hand, secure the MC_S curve from the selling division, derive an average cost curve from it, and communicate this curve to the buying division as its supply schedule. Concurrently, they obtain the NMR_B curve from the buying division, derive an average revenue curve from it, and

[7] These approaches also involve the difficulty in obtaining the reliable information needed to compute the optimal transfer price, because of the incomplete knowledge and the manipulation of data by division managers. Moreover the several doubts may arise as to the validity of the underlying assumptions. For example, the independence of demand and of technology may be difficult to justify. Anthony (1973, p. 45) questions the relevancy of the profit maximization model.

[8] Thomas (1980, p. 146) points out that 'in the perfect-intermediate-market situation division managers experience no loss of autonomy from the central office's dictating the use of market prices as transfer prices, because they *expect* to be constrained by market prices.'

[9] In addition Ronen and McKinney (1970) argue that while Hirshleifer's system does not provide a basis for abandonment-continuance decisions, their system does because the divisional profits computed under the R–M system reflect the divisional contributions to the corporate profit.

give the selling division the average revenue curve as its demand schedule. Thus, Ronen and McKinney's system (hereafter referred to as the R–M system) eliminates the restrictions on autonomy imposed by Hirshleifer's system, i.e., the stipulation that the division manager may not derive a curve marginal to the one communicated to him.

Now, what the R–M system does, as Abdel-khalik and Lusk (1975, p.356) aptly point out, is 'to re-route the communication lines through the central management instead of making direct contact between divisions and thereby hoping to *make* divisional managers *believe* that central management is acting as an independent seller' or buyer. Here, it should be noted that for the R–M system to work as prescribed, division managers should never find out the initial source of the curves communicated to them. The R–M system maintains the division manager's sense of autonomy only if he accepts that the central office is an independent buyer or seller. However it seems unlikely that division managers eventually will not become aware of the original source of these curves. And when they do, will the division managers still perceive that they maintain their autonomy? The appearance, but not reality, of autonomy in situations such as this is called *ceremonial autonomy*.[10]

Solomons' View

Solomons (1965) argues that the central office's specification of the transfer price may not be a serious infringement of divisional autonomy. He states as follows:

> Even if handing down transfer prices from a staff department is an infringement of divisional autonomy, it is likely to be much less objectionable to divisions than direct interference with production and marketing plans. A staff department may set the transfer prices, but at least the divisions are left free to react to these prices as they see fit. If the prices have been properly set, the divisional reactions may be expected to conform with the interests of the corporation. A procedure of this type would be likely to engender much less frustration on the part of divisional managements than would the more obvious kind of dictation represented by an order to produce specified quantities of specified products (p.194).

But, even if dictated transfer prices are not a serious infringement of the autonomy of division managers, it must be admitted that serious doubts remain as to the compatibility of these prices with the idea of autonomous divisions seeking to maximize their contributions to the corporate profits by maximizing their own.

3–2 *Incentive to Trade Internally*

A Dual-Price-Competitive-Intermediate-Market Situation

Recall that in Gould's analysis, where $P_y > P_o$ the selling division has no incentive to trade internally at the central-office-optimal transfer price, P_y, and then must be instructed to supply the quantity that the buying division demands at P_y. Also, where $P_o > P_x$ the buying division has no incentive to buy from the selling division at the optimal transfer price and must be instructed to accept the quantity that the selling division wishes to supply at the transfer price. Thus divisional autonomy is reduced.

[10] There may be a strong analogy between ceremonial autonomy and Argyris' pseudo-participation in budgeting (Thomas, 1980, p. 145).

Here, Ronen and McKinney (1970, p.108) argue that their system, unlike Gould's, avoids such infringement of divisional autonomy. This is illustrated in Fig. 8. The selling division will sell Q_2 to the buying division at the transfer price P_S^*, and $Q_1 - Q_2$ to the outside market at P_y. Note that under the R-M system P_S^* is the average price at Q_2 paid by the central office to the selling division.[11] By offering P_S^* to the selling division, the central office insures its willingness to supply Q_2 to the buying division. On the other hand, the buying division is charged a transfer price P_y and therefore wishes to buy the quantity Q_2.

But note that the sum of the profits of the two divisions will be greater than the

FIG. 8a OPTIMUM LEVEL OF OUTPUT—SELLING DIVISION

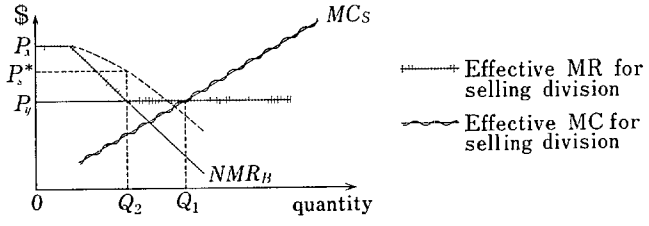
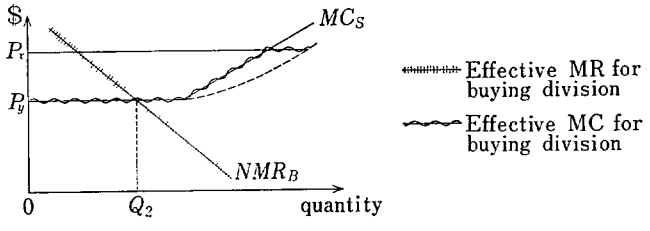
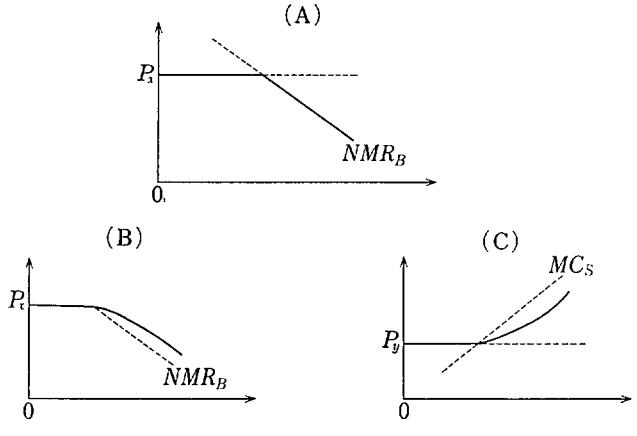


FIG. 8b OPTIMUM LEVEL OF OUTPUT—BUYING DIVISION



[11] The buying division will not pay more than P_x for any quantity because it can buy any quantity at P_x externally. Therefore it submits the kinked curve as in (A) to the central office. The central office then derives a transfer price curve from it as in (B), and communicates it to the selling division. Similarly, the central office communicates a transfer price curve (c) to the buying division.



profit for the company as a whole under the R–M system.[12] At this point, Horngren (1982, p.642) notes:

> The supplier-division manager gets a high price, and the buyer-division manager gets a low price. The danger here is that both managers may tend to get too sloppy regarding cost controls within their subunits. Thus, the looseness of dual pricing may gradually induce undesirable attitudes and practices.

This may be a explanation why dual pricing has not been used widely in practice.

A Constant-Marginal-Cost Situation

As long as the marginal cost line slopes upward, marginal cost pricing gives the selling division some contribution to its fixed costs and profit. This may or may not result in a net profit for the division, depending on whether its fiexd costs are heavy or not. However, if marginal cost is constant, marginal cost pricing will allow the selling division to recoup nothing towards fixed costs.

Thus, where there is no competitive outside price, and if marginal cost is constant, the selling division has no incentive to supply other divisions. Transfer prices set at marginal cost leave the selling division no worse off (except in the unusual case of decreasing marginal cost) than if it had not supplied other divisions with its products. The selling division has no incentive in this situation. Consequently, it must be forced to supply and its autonomy is reduced.

Here Shillinglaw (1961, p.743) observed:

> Many companies have turned to a modification of the marginal cost approach. This approach substitutes standard variable cost per unit for marginal cost and adds a monthly lump-sum subsidy to cover the fixed costs of the internal supplier of the intermediate product. This subsidy normally also includes a provision for profit so that as long as the supplying division adheres to budgeted performance it will report a profit.

Surely, this fixed-fee-plus-marginal-cost transfer-price system might mitigate the complaint of the selling division against having to supply other divisions at marginal cost. But it should be noted that at the same time Shillinglaw pointed out as follows:

> A system of this kind can be made quite workable as long as it is clearly understood that the supplying divisions are essentially budget centers rather than profit centers.

This may mean that the conflict between the need for a corporate policy which will maximize the corporate profit and the desire to maintain divisional autonomy remains.

Solomons (1965, pp.200–201) and Kaplan (1982, p.498) recommend this system where no outside competitive market or outside market exists, as long as the transfers are not a predominant part of the selling division's business. But it does not seem to be used widely in practice (Kaplan, 1982, p.500).

[12] The R–M system is a sort of dual pricing system (Shillinglaw, 1982, p. 832n.). Incidentally, Drebin (1959) has also proposed a dual pricing system. Under his system the selling division is credited for final selling price less cost to complete and fair return to the buying division, while the buying division is charged marginal cost.

Full Divisional Autonomy and Negotiated Prices

Thus, as Solomons (1965, p.197) points out:

> The difficulty of combining marginal cost pricing or "programmed" pricing of transfers with full divisional status for divisions serving other divisions has led some authorities concerned with this problem.... to advocate other bases of transfer pricing. These usually involve negotiated prices or some approximation to market price, even where no really free market exists. It has usually been argued that loss of the profit incentive would so diminish efficiency that the corporation would lose more from this cause than it would gain from the elimination of suboptimization.

In order to preserve full divisional autonomy, a negotiated transfer price system may be required.

IV. *Pros and Cons of a Negotiated Transfer Price System*

The Case for a Negotiated Transfer Price System

In the past a negotiated transfer price system has been advocated primarily on the basis of the notion that the individual division managers, with intimate knowledge of their own markets and opportunities, are in the best position to decide whether internal transfers should take place. A negotiated-price system has been discussed in the following sense: the division managers may negotiate transfer prices either because there is no intermediate market, or because, lacking a perfectly competitive market, a market price needs to be adjusted to reflect such things as reduced freight, marketing, and credit costs on internal sales. For example, Horngren (1965, p.306) states as follows:

> Special circumstances create difficulties in ascertaining a market price that is clearly relevant to a particular transfer-pricing situation. In addition to those situations...., a division sometimes provides a product that is unavailable from outsiders or that is not sold to outsiders... A price is then negotiated between the buying and selling divisions ...[13]

We should note that preserving divisional autonomy has been emphasized recently as one advantage of a negotiated-price system. For example, Morse (1978, p.515) argues as follows:

> Negotiated transfer prices, like market-based transfer prices, are believed to preserve divisional autonomy. While corporate suboptimization may result, this is regarded as a small price to pay for the other benefits of divisionalization. Negotiated transfer prices may also lead to optimal corporate profits. The division manager is in the best position to assess the opportunity cost of alternative actions.[14]

The Disadvantages of a Negotiated-Price System

Of course, a negotiated-price system has some disadvantages or limitations too. So

[13] In addition, see Cook (1955, p. 93) and Shillinglaw (1961, p. 738).
[14] In addition, see Shillinglaw (1977, p. 858) and Thomas (1980, p. 198).

the desirability of having the transfer prices negotiated must be appraised in the light of these disadvantages. In the past the several disadvantages of a negotiated-price system have been pointed out:

(1) A negotiated-price system may lead to a suboptimal level of output (Henderson and Dearden, 1966, pp.145–146; Thomas, 1980, pp.200–201; Kaplan, 1982, p.493).
(2) It is time consuming (Cook, 1955, p.93; Horngren, 1962, p.307; Shillinglaw, 1977, p.861; Thomas, 1980, p.201; Kaplan, 1982, p.493). It requires not only the time of division managers but also the time of top management to oversee the negotiating process and to arbitrate or umpire disputes.
(3) It may lead to conflict between divisions (Shillinglaw, 1977, p.861; Thomas, 1980, p.199; Kaplan, 1982, p.493).
(4) It may have the divisional profits depend on the bargaining ability of the respective division managers, and distorted (Cook, 1955, p.93; Shillinglaw, 1961, p.739; Dopuch and Drake, 1964, p.13; Thomas, 1980, p.200: Kaplan, 1982, p.493).

A long history of bargaining between divisions reduces the bargaining range, and a negotiated-transfer-pricing rule may result from a long-run bargaining process.[15] In fact, as Solomons (1965, p.199) points out, experience indicates that negotiated prices tend to settle down at a figure based on the full-standard-cost-plus when there is not an outside competitive intermediate market. Consequently a disadvantage (3) described just above, which results from wide bargaining ranges (Thomas, 1980, p.199), may not be so serious. Rather, as Watson and Baumler (1975, p.471) note, a behavioral research indicates that the most important means of resolving interdepartmental conflict is negotiation. Thomas (1980, p.199) also argues that 'negotiated transfer prices would be only one element of this, but perhaps a valuable one.'

V. *Conclusion*

Dean (1955, p.68) states as follows:

> Intracompany pricing must preserve the profit-making autonomy of the division manager so that his selfish interests will be identical with the interests of the company as a whole.

Evidently, it is desirable to design a transfer price which accomplishes the maximization of the profit for the company as a whole and at the same time the preservation of divisional autonomy. Where competitive markets are present, market-based prices or negotiated competitive prices may be such transfer prices. But, as Solomons (1977, p.44•24) points out, 'where competitive markets are absent, the company is faced with a difficult choice between, on the one hand, full divisional autonomy coupled with profit responsibility and probably suboptimization to a greater or lesser degree, or, on the other hand, a partial withdrawal from decentralization, either through the enforcement of centralized decisions

[15] See Cyert and March (1963, p. 276).

or insistence on a method of transfer pricing, such as marginal cost pricing, that is out of harmony with divisional profit responsibility.'

At this point, in transfer-pricing theory, goal congruence has been regarded *a priori* as a foremost criterion exclusively, and the attentions have been devoted to design the transfer price systems which lead division managers to make goal-congruent decisions. It is true that attempts to preserve divisional autonomy have been made. However, they have not attempted to preserve divisional autonomy at the expense of goal congruence. Certainly Solomons (1965, p. 199) proposes to let transfer prices be negotiated between divisions where there is no outside competitive market for the transferred products, but his proposal is restricted to where the volume of transfers is not large and not potentially large, that is, to where 'neither the corporation nor the divisions can come to much harm, whatever basis for transfer pricing is used.'

We should not overlook or disregard the motivational benefit of divisional autonomy. Preserving divisional autonomy may be to get division managers to work harder and more imaginatively, creatively, and innovatively (Cook, 1955, p.94; Thomas, 1980, pp.124 and 247).

Here, looking at the real world to see what transfer pricing policies are actually being used by companies, Vancil (1979, p.180), based on a survey of 239 large companies, reports the prevalence of various transfer pricing policies as follows:

Basis of Transfer Price	Number	Percent
Variable cost	11	4.6
Full cost	61	25.5
Cost plus	40	16.7
Negotiation	53	22.2
Market price	74	31.0
	239	100.0

While in the light of the previous analysis it is interesting to see that 31 percent of the companies use a market-price scheme and only 4.6 percent use a variable-cost scheme,[16] we should note here that 22.2 percent of the companies use a negotiation scheme. It suggests that a negotiated transfer price system is widely used and its benefits may outweigh its disadvantages.

What we should do is to evaluate the net motivational benefits which allegedly result from autonomy and compare these with the costs of suboptimization.

[16] This is because the managers of selling divisions would have little incentive to produce if their output were to be transferred on the basis of variable costs that variable costs are used for establishing transfer prices in only about 5 percent of the companies. The survey also raises the question as to why about 42 percent of the companies use a full-cost-based transfer-pricing rule. It may be useful as a defense of transfer prices to income tax or tariff regulators, or it may be used to save the cost of negotiating prices.

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