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THE INCREMENTAL CONCEPT — THE ECONOMIST'S GENERALIZATION OF THE MANAGERIAL ECONOMICS

The work considers the role of marginal concept and incremental concept in economic analysis of the managerial economics.

Keywords: *incremental concept, marginal concept, incremental cost*

In all managerial decisions, the study of *differences* or *changes* is the key element in the selection of an optimal course of action. The marginal concept, although correct for analyzing unitary changes, is too narrow to provide a general methodology for evaluating alternative courses of action.

The marginal concept is a key component of the economic decision-making process. It is important to recognize, however, that marginal relations measure only the effect associated with *unitary changes* in output or some other important decision variable. Many managerial decisions involve a consideration of changes that are broader in scope. For example, a manager might be interested in analyzing the potential effects on revenues, costs, and profits of a 25 percent increase in the firm's production level. Alter-

natively, a manager might want to analyze the profit impact of introducing an entirely new product line or assess the cost impact of changing the entire production system [2, p. 38].

Fundamental relations of incremental analysis are essentially the same as those of marginal analysis.

Incremental analysis involves examining the impact of alternative managerial decisions or courses of action on revenues, costs, and profit. It focuses on changes or differences between the available alternatives.

Incremental profit is the profit gain or loss associated with a given managerial decision. Total profit increases so long as incremental profit is positive. When incremental profit is negative, total profit declines. Similarly, incremental profit is positive (and total profit increases) if the incremental revenue associated with a decision exceeds the incremental cost. The incremental concept is so intuitively obvious that it is easy to overlook both its significance in managerial decision making and the potential for difficulty in correctly applying it.

The incremental concept is the economist's generalization of the marginal concept. The incremental change is the change resulting from a given managerial decision. For example, the incremental revenue of a new item in a firm's product line is measured as the difference between the firm's total revenue before and after the new product is introduced.

For this reason, the incremental concept is often violated in practice. For example, a firm may refuse to sublet excess warehouse space for \$5,000 per month because it figures its cost as \$7,500 per month — a price paid for a long-term lease on the facility. However, if the warehouse space represents excess capacity with no current value to the company, its historical cost of \$7,500 per month is irrelevant and should be disregarded. The firm would forego \$5,000 in profits by turning down the offer to sublet the excess warehouse space. Similarly, any firm that adds a standard allocated charge for fixed costs and overhead to the true incremental cost of production runs the risk of turning down profitable sales [2, p. 39].

Care must also be exercised to ensure against incorrectly assigning overly low incremental costs to a decision. Incremental decisions involve a time dimension that simply cannot be ignored. Not only must all current revenues and costs associated with a given decision be considered, but any likely future revenues and costs must also be incorporated in the analysis. For example, assume that the excess warehouse space described earlier came about following a downturn in the overall economy. Also, assume that the excess warehouse space was sublet for 1 year at a price of \$5,000 per month, or a total of \$60,000. An incremental loss might be experienced if the firm later had to lease additional, more costly space to accommodate an unexpected increase in production. If \$75,000 had to be spent to replace the sublet warehouse facility, the decision to sublet would involve an incremental loss of \$15,000. To be sure, making accurate projections concerning the future pattern of revenues and costs is risky and subject to error. Nevertheless, they cannot be ignored in incremental analysis.

Another example of the incremental concept involves measurement of the incremental revenue resulting from a new product line. Incremental revenue in this case includes not only the revenue received from sale of the new product but also any change in the revenues generated by the remain-

der of the firm's product line. Incremental revenues include any revenue resulting from increased sales of another product, where that increase was the result of adding the new product to the firm's line. Similarly, if the new item took sales away from another of the firm's products, this loss in revenue would be accounted for in measuring the incremental revenue of the new product [2, p. 39].

To further illustrate the incremental concept, consider the financing decision typically associated with business plant and equipment financing. Consider a business whose \$100,000 purchase offer was accepted by the seller of a small retail facility. The firm must obtain financing to complete the transaction. The best rates it has found are at a local financial institution that offers a renewable 5-year mortgage at 9 percent interest with a down payment of 20 percent, or 9.5 percent interest on a loan with only 10 percent down. In the first case, the borrower is able to finance 80 percent of the purchase price; in the second case, the borrower is able to finance 90 percent. For simplicity, assume that both loans require interest payments only during the first 5 years. After 5 years, either note would be renewable at then-current interest rates and would be restructured with monthly payments designed to amortize the loan over 20 years. An important question facing the firm is: What is the incremental cost of additional funds borrowed when 90 percent versus 80 percent of the purchase price is financed?

Because no principal payments are required, the annual financing cost under each loan alternative can be calculated easily. For the 80 percent loan, the annual financing cost in dollar terms is:

$$\begin{aligned} \text{Financing Cost} &= \text{Interest Rate} \times \text{Loan Percentage} \times \text{Purchase Price} = \\ &= (0.09)(0.8)(\$100,000) = \$7,200. \end{aligned}$$

For a 90 percent loan, the corresponding annual financing cost is:

$$\text{Financing Cost} = (0.095)(0.9)(\$100,000) = \$8,550.$$

To calculate the incremental cost of added funds borrowed under the 90 percent financing alternative, the firm must compare the additional financing costs incurred with the additional funds borrowed. In dollar terms, the incremental annual financing cost is:

$$\begin{aligned} \text{Incremental Cost} &= 90\% \text{ Loan Financing Cost} - 80\% \\ \text{Loan Financing Cost} &= \$8,550 - \$7,200 = \$1,350. \end{aligned}$$

In percentage terms, the incremental cost of the additional funds borrowed under the 90 percent financing alternative is:

$$\begin{aligned} \text{Incremental Cost in Percentage Terms} &= \text{Incremental Financing Costs} / \\ &/ \text{Incremental Funds Borrowed} = (\$8,550 - \$7,200) / \\ &/ (\$90,000 - \$80,000) = \$1,350 / \$10,000 = 0.135, \text{ or } 13.5\%. \end{aligned}$$

The true incremental cost of funds for the last \$10,000 borrowed under the 90 percent financing alternative is 13.5 percent, not the 9.5 percent interest rate quoted for the loan. Although this high incremental cost of

funds is perhaps surprising, it is not unusual. It results because with a 90 percent loan the higher 9.5 percent interest rate is charged on the entire balance of the loan, not just on the incremental \$10,000 in borrowed funds [2, p. 40].

The marginal concept is a key component of the economic decision-making process.

The incremental concept is important for managerial decision making because it focuses attention on changes or differences between available alternatives. Revenues and costs unaffected by the decision are irrelevant and should be ignored in the analysis.

The incremental concept is often used as the practical equivalent of marginal analysis. Incremental change is the total change resulting from a decision. Incremental profit is the profit gain or loss associated with a given managerial decision.

The incremental concept is fruitfully applied in the practical analysis of managerial decision problems. As seen in later chapters, basic economic relations provide the underlying framework for the analysis of all profit, revenue, and cost relations.

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Тюхтій М.П., Громоздова Л.В. *Концепція прирощень як економічна основа управлінської економічної теорії.*

У статті розглянуто роль концепції маржинального аналізу та концепції аналізу додаткових прирощень під час прийняття управлінських рішень.

Ключові слова: концепція прирощень, маржинальна концепція, додаткові витрати

Тюхтий Н.П., Громоздова Л.В. *Концепция приращений как экономическая основа управленческой экономической теории.*

В статье рассмотрена роль концепции маржинального анализа и концепции анализа дополнительных приращений при принятии управленческих решений.

Ключевые слова: концепция приращений, маржинальная концепция, дополнительные затраты