COST ESTIMATION MODEL

Economics for Engineers (Humanities-II)
Code: HSMC-301

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CONTENT

1. INTRODUCTION

Cost Estimation

COST ESTIMATION

- Cost estimation is the development of the functional relationship between a cost object and its cost drivers for the purpose of predicting the cost

- Cost estimates based on activity-based, volume-based, structural, and executional cost drivers facilitate strategic positioning analysis, value-chain analysis, target costing and life-cycle costing

2.
COST ESTIMATION MODELS

Several models are available for estimating cost

PER UNIT MODEL

The per-unit model is a simple but useful model in which a cost estimate is made for a single unit, then the total cost estimate results from multiplying the estimated cost per unit times the number of units.

$$\text{PER UNIT COST} = \frac{\text{TOTAL COST}}{\text{NUMBER OF UNITS PRODUCED}}$$

SEGMENTING MODEL

The segmenting model partitions the total estimation task into segments. Each segment is estimated, then the segment estimates are combined for the total cost estimate.

segment	A1	A2	A3
No. of units produced	n1	n2	n3
Cost per unit	c1	c2	c3
Cost of segment	n1c1	n2c2	n3c3

$$\text{TOTAL COST} = \sum_{i=1}^{n} ni.ci$$

$$\text{AVERAGE COST} = \frac{\sum_{i=1}^{n} ni.ci}{\sum_{i=1} ni}$$

COST INDEXING TECHNIQUE

Cost indexes can be used to account for historical changes in costs. The widely reported Consumer Price Index (CPI) is an example. Cost index data are available from a variety of sources. Suppose A is a time point in the past and B is the current time. Let IVA denote the index value at time A and IVB denote the current index value for the cost estimate of interest. To estimate the current cost based on the cost at time A, use the equation:

Cost at time B = (Cost at time A) (IVB / IVA).

POWER SIZING MODEL

The power-sizing model accounts explicitly for economies of scale. To estimate the cost of B based on the cost of comparable item A, use the equation

Cost of B = (Cost of A) [("Size" of B) / ("Size" of A)] x

where x is the appropriate power-sizing exponent, available from a variety of sources. An economy of scale is indicated by an exponent less than 1.0 An exponent of 1.0 indicates no economy of scale, and an exponent greater than 1.0 indicates a diseconomy of scale.

LEARNING CURVE MODEL

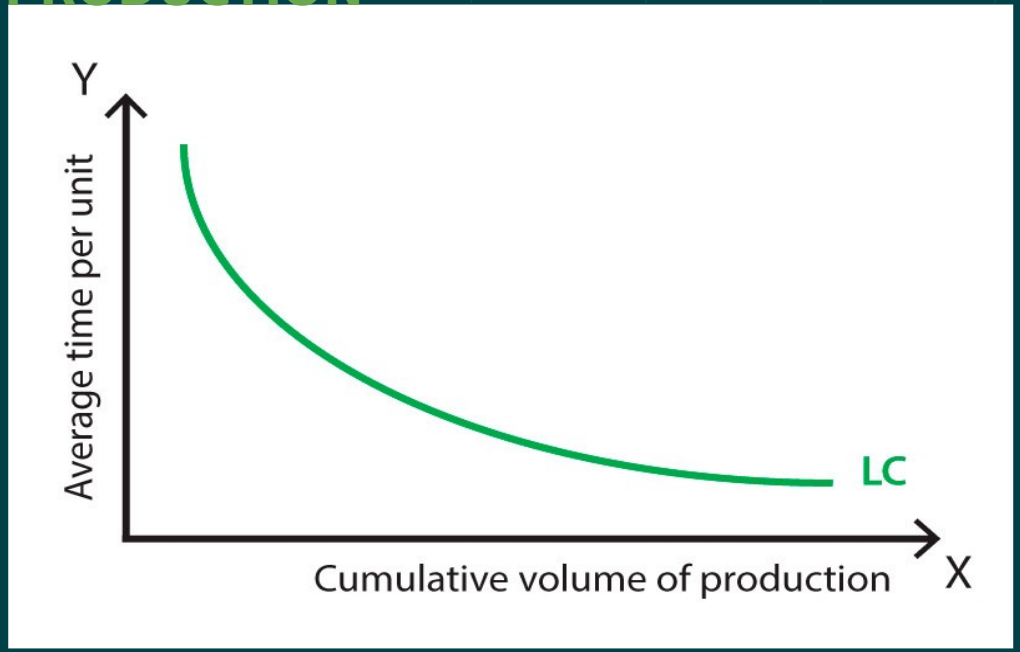
Learning curve cost estimating is based on the assumption that as a particular task is repeated, the operator systematically becomes quicker at performing the task.The learning curve slope indicates "how fast" learning occurs.

Let b = learning curve exponent
= log (learning curve rate in decimal form)/log2.0

Then TN = time estimate for unit N (N = 1, 2,...)
= (T1) (N)b

where T1 is the time required for unit 1.

LEARNING CURVE : TIME V/S VOLUME OF PRODUCTION



THANK YOU