Conventional and Current way of Interpretation and Cost Forecasting

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Abstract

This study discusses Short-term cost interpretation, regression analysis with time-series data, long term cost interpretation, Regression analysis using cross-section data, cost forecasting and Changes in the productivity of production factors. Short-term cost interpretation lead to short-term decisions, the concept of incremental costs has a very important role which includes variable costs and changes in fixed costs. Long term cost interpretation to analyse the production function of several different firms, long-run cost estimates can be used. Based on these conditions, the estimation of long-term costs uses cross-section data. Forecasting costs for various levels of output in the coming period requires an assessment of changes in the efficiency of the production process physically, plus changes in the prices of production factors used in the production process.

Introduction

Cost estimation and forecasting for decision making is an attempt to find the shape and position of the cost curves of a company. An understanding of the short-run cost function will help decision makers to assess the optimization of current output levels and solve decision-making problems using contribution analysis.

In the short term, some fixed cost items may increase, because often existing production facilities (fixed inputs) face constraints to reach their full production capacity so that these facilities need to be added. If the fixed cost category is expected to face constraints to reach its full capacity, requiring overtime work or additional additions, the decision maker must take into account the costs for overtime work and additional facilities as we only calculate variable costs when estimating the incremental costs incurred by there is a certain decision.

Long-term cost function information is needed if we are going to expand or contract factory size and to ensure that the existing factory size is optimal for the level of output produced (Browning & Heath, 2009; Acién et al., 2012). That this long-run cost function represents an alternative to the size of the current plant. And long-run costs should not be interpreted as estimates of costs from various factory sizes for the future, because both technology and production factor prices are relatively prone to change, so that it can impose the long-term cost function to be inaccurate anymore. To estimate these future costs, we need to predict changes in technology and changes in factor price ratios and isolate them from the effects of future inflation.

This paper discusses the cost estimation and forecasting process mentioned above and consists of three main ingredients, namely (1) estimating short-term costs, (2) estimating long-term costs, (3) estimating costs.

A proper understanding of the concept and implementation of costs will be able to guide company leaders to run the company at an optimal level, it can be understood that with careful calculation it will be able to accurately predict the state of the company in the future.
To overcome the worst that will happen to the company in the future, management needs to carefully consider the required resources, because after all every dollar spent will be a fixed cost for a certain period of time and activities in the future.

**Short-Term Cost Interpretation**

Understanding the short run cost function will help decision makers to assess the optimization of current output levels and solve decision-making problems using contribution analysis. In making short-term decisions, the concept of incremental costs has a very important role which includes variable costs and changes in fixed costs.

**Regression Analysis with Time-Series Data**

If we have a larger number of observed cost-output data, then we can use regression analysis to estimate the relationship between costs and a given level of output. If we want to estimate the cost function of a particular company, then we must use time series data from the company in question.

Cost data must be deflated by an appropriate index and the time element must be included as an independent variable in the regression equation we estimate. Thus any trend of relative prices or productivity can be calculated based on the regression coefficient of the time variable.

By describing the TVC data and output in a graph, we will know that one of the three functional forms above is the best form which shows the relationship between the two variables. Therefore, we confidently proceed with the regression analysis using the functional form of our choice.

If visually it does not appear that there is a functional form that best expresses the relationship clearly, then we need to perform regression analysis with the form of a linear function and then with one or more other functional forms to find the regression equation that best fits our baseline.

**Long Term Cost Interpretation**

Estimating long-run costs is basically the same as estimating short-term costs, but what differs is the number of firms (Miller & Modigliani 1966; Easton et al., 2002). To analyze the production function of several different firms, long-run cost estimates can be used. Based on these conditions, the estimation of long-term costs uses cross-section data. The following is an example to clarify the concept of estimating long-term costs.

Long-term cost function information is needed if we are going to expand or contract the size of the plant and to ensure that the existing plant size is optimal for the level of output produced (Joskow, 1985; Acién et al., 2012).

**Regression Analysis Using Cross-Section Data**

This method uses regression analysis with cross section data. Since long-run cost estimation is an attempt to find different plant sizes at a certain point in time (assuming constant technology and factor prices), we cannot use time-series data observations to obtain an estimate of the long-run cost function (Pindyck, 1999; Mueller, 1986). Therefore, we need to collect pairs of observational data relating the level of output to total cost to get that level of output for each plant, over a given time period.
Here, what needs to be considered is that the measurement of the actual output level or the level of output in that period must be in accordance with the actual cost level to produce that level of output for each factory studied.

There are 2 main problems in using cross-section data for estimating long-run average curves (1) Problems arise because the observations collected are not points on the long-run average cost (LRAC) curve at all. (2) Problems that arise because many factories cannot operate at the same price level and production factor productivity.

**Cost Forecasting**

Cost forecasting is necessary if the decisions we will take include the level of costs for the coming period (Woodward, 1997; Fisher & Raman 1996). Forecasting costs for various levels of output in the coming period requires an assessment of changes in the efficiency of the production process physically, plus changes in the prices of production factors used in the production process.

**Changes in the Productivity of Production Factors**

If we pay attention to the physical efficiency of the production process for the coming periods, then we have to predict that the productivity of these factors of production will change over time. Machines and other equipment, for example, are expected to be more efficient when measured by the hourly output they produce (or based on other criteria) due to the application of technological advances in these machines.

**Changes in Production Factor Prices**

If the costs of all inputs increase with the same proportion, then the optimal combination of factors of production will not change at a certain level of output, although it will result in higher costs. If all input prices increase at the same rate, the relative prices of these inputs will remain the same and there will be no incentive to substitute one input for another.

If market forces in the market for production factors cause the price of one production factor to increase compared to the price of another production factor, the company will substitute it with a cheaper factor of production as a result of this price increase.

With a certain probability distribution associated with future cost levels, we can calculate the results on the basis of the "expected value" of the cost rate in future periods with a view to obtaining a forecast of future cost levels for pricing or other wisdom.

Cost forecasting is needed if the decisions we will take include the level of costs for future periods, such as in the decision to bind a contract, the decision to buy or make it ourselves, or other decisions that have cost implications not only in the current period. There are factors that can determine future cost forecasting namely Changes in the productivity of production factors. Any changes in the productivity of production factors, such as an increase in the capacity of production machines, will be used as a basis for predicting the company's production costs in the future.

**Changes in T=the Price of a Production Factor (Input)**

Changes in the price of production factors (input), such as an increase in the price of new production machines, can also be used as a basis for predicting the company's future production costs.
Conclusion

Cost estimation relates to the level of cost at various levels of factory output of the firm and to the relative costs of other factory sizes available to the firm. In the short term situation we are dealing with the behavior of AVC and MC, plus other incremental costs which are required due to the full utilization of several production factors. Long-run cost estimates include unit cost rates of various plant sizes, based on current factor prices and form of technology used. The short-run cost estimation methods discussed are simple extrapolation methods and gradient analysis. Possible long-run costs can be estimated using regression analysis with cross-sectional data. Cost forecasting requires estimating the level of costs for the coming period, where the productivity and prices of the factors of production will differ from the current level. The productivity trends seen in recent years can be used to predict changes in costs in the future. Changes in the prices of real factors of production can also be estimated to obtain reliable indicators of future costs for decision making.

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