

Estimation of marketing efficiency and analysis of price data

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Market efficiency and price analysis are the significant aspects explaining the market research and analysis. These are pivotal in explaining the marketing process in the modern digital world as Market Information System (MIS). Market efficiency is a broad term which encompasses the marketing efficiency. But, in practice both market and marketing efficiency are used interchangeably.

Market efficiency

Market efficiency is the condition in which the maximum amount of goods and services are being produced and the additional output is possible without increasing the amount of inputs. Market efficiency is achieved mainly through equilibrium of demand price and supply price i.e., the intersection of demand and supply curves with the condition that no market failures occurred. This is called as equilibrium balance (EB).

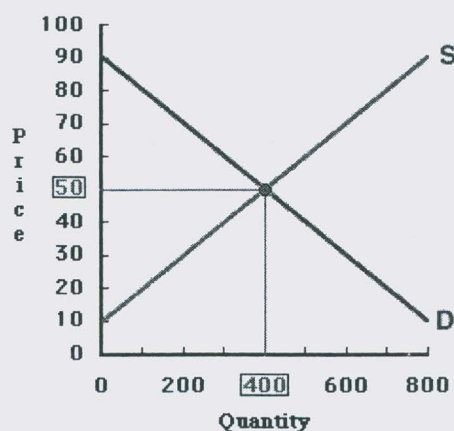


Fig. 1. Market Equilibrium

This equilibrium implied that the satisfaction obtained from the output produced is equal to the opportunity cost of production. There are two possibilities which are called as alternatives which are not efficient.

1. If the demand price exceeds the supply price in market due to too little production (Production low) i.e., supply is low in the market.
2. If the supply price exceeds the demand price in market with too much production (Consumption low) i.e., demand is low in the market.

These conditions explained the existence of inefficient condition in the market which affects the market competitiveness.

Market failures

There are situations where there is no assurance for maintaining the market efficient throughout time. This lack of market efficiency is explained by four types of market failure or imperfections. These failures occurred mainly because of the two reasons. One is that the value of production doesn't fully reflect the value of production. And another reason for that is demand and supply prices are not equal. Market failure is defined as a situation where free markets fail to allocate resources efficiently. These are the concepts well situated to study the environmental economics.

Four types of market failures

- i. **Public goods:** Goods that is available to all and characterized by non-rival consumption. These market inefficiency occurs because buyers are willing to pay small fraction of the total value that is received from the good.
- ii. **Market control:** This is due to lack of competition among with buyers or sellers. Market inefficiency occurs because the existence of market control prevents the equilibrium balance between demand and supply price.
- iii. **Externalities:** Buyers and sellers alone will not receive the benefits or incurring costs of marketing and in turn consequence of an industrial or commercial activity will affects and reflected in market prices.
- iv. **Imperfect information:** This means that buyers or seller doesn't have complete information about the product being exchanged. Market inefficiency results because of demand and supply prices are not reflected in the value of production.

Marketing efficiency

Market efficiency is the degree of market performance at the given resources and time. It is the ratio of market output to market inputs.

$$\text{Marketing efficiency} = \frac{\text{Output}}{\text{Input}}$$

Types of marketing efficiency

Marketing efficiency can be divided into two types i.e., technical efficiency and economic efficiency.

- i. **Technical efficiency:** It takes into account the effectiveness in terms of physical aspects of performing market activities. In other words, it implies that the system utilize the maximum available resources effectively by using the best available technologies irrespective of costs.

- ii. **Economical efficiency:** It explains the realisation of maximum output in monetary terms or a given output with minimum resources. This explores the marketing activity which added for the most profitable activity.

Approaches to marketing efficiency

1. Input-output approach

Marketing efficiency is the maximization of input-output ratio. The various resources in the marketing such as land, labour, capital and management which are used in providing the various marketing services are the inputs of marketing. And the output of marketing is the satisfactions derived from the consumption of goods and services. This approach has limited relevance as it considers only static and micro aspects of marketing efficiency and ignores its dynamic and macro dimensions.

2. Shepherd's marketing efficiency

The second approach is the estimation of marketing efficiency by using consumer's price for the produce, marketing cost and marketing margin.

3. Through the analysis of the structure, conduct and performance (SCP) of the market

The third approach is through analysis of structure, conduct and performance of the market. This approach was developed in the United States in the industrial sector to analyse the organisation of structures and later it was applied by the agricultural sector too. This transformation of SCP approach from industry to agriculture is easy in developed countries than developing countries due to the technology advancement.

Estimation of marketing efficiency

Marketing efficiency is estimated using various methods

i. Conventional method:

$$\text{Marketing efficiency (ME)} = \frac{(\text{Net price received by producer's} - \text{Consumer's price})}{\text{Marketing Cost}}$$

ii. Shepherd's formula:

$$\text{Marketing efficiency (ME)} = \frac{\text{Consumer's price}}{(\text{Marketing Cost} + \text{Marketing Margin})}$$

iii. Acharya approach:

$$\text{Marketing efficiency (ME)} = \frac{\text{Net price received by producer's}}{(\text{Marketing Cost} + \text{Marketing Margin})}$$

Price spread

Price spread is defined as the difference between the price paid by the consumers and the net price received by the producer for their equivalent produce/ products. It is expressed as the percentage of consumers' price to producers' price.

$$\text{Price Spread (PS)} = \frac{\text{Consumer's price} - \text{Net price received by the producer}}{\text{Consumer price}} \times 100$$

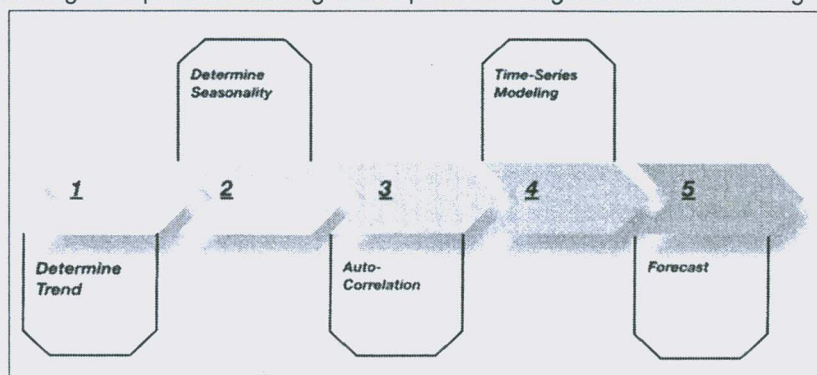
There is a relation between the price spread and marketing efficiency. Price spread is inversely proportional to the market efficiency. Mostly, price spread of more than 50% of the consumer's price is considered as an efficient market. But, in agricultural and allied sector, there is incidence of less than 50% of price spread is evident due to the dominant role of middlemen in marketing.

Price analysis

Price is amount of money paid to acquire a given product. It is explained using the 'Theory of Price' in economic theory. Basically, price of a product is determined by the market equilibrium (intersection of demand and supply price). Price analysis is the process of fixing the price for the product both in fair and reasonable way. It is generally comparing the price with the known indicators. It is the process of examining and evaluating a proposed price without any cost or profit evaluation. It includes price movement, price comparison, forecasting & modelling and price transmission.

i. Price analysis using time series methods

Price data of daily, weekly, monthly, quarterly, annual data for various years are used for analysing time series comparison of prices of particular product. It can be done using trend, seasonality, moving average, exponential smoothing. The price forecasting is also possible using time series modelling.



Source: Terradata.com

Fig. 2. Timeseries modelling

The price analysis modelling can be used to examine the volatility of price over time. Usually, ARIMA (Auto Regressive Integrated Moving Average), ARCH (Autoregressive conditional heteroskedasticity) and GARCH (generalized autoregressive conditional heteroskedasticity) models are used for the price forecasting.

ii. Price co-integration and price transmission analysis

The price analysis using co-integration methods are used popularly in the recent years, to study the market integration. This can be analysed for spatial and temporal price data of the product. The methods viz., Johnson co-integration analysis and Vector Auto Regressive (VAR) models are used to study the market integration. Now-a-days, these methods are used to study the market integration towards making 'Law of one price' among the markets.