Volume 21 Issue 21
Originally issued as B4



Global Journal of Management and Business Research: B
Economics and Commerce
Volume 21 Issue 4 Version 1.0 Year 2021
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

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GJMBR-B Classification: *JEL Code: A10*



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Economic Estimation of Profit and Selling Price Across Supply Chain

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I. Introduction

The process of business economy management is now presenting a multitude of challenges to governments and all organizations that both provide, directly or indirectly, services to citizens, and undertake large-scale projects with national and international impacts. Global competition for profitability of market actors and citizens demand for fair priced technologically empowered quality product and service worldwide are making these challenges more formidable, and governments can no longer hide behind bureaucratic rules, inadequate resources, and managerial inefficiency while performing their functions.

We are facing inflation daily with out any tangible reason. Price is surging trimendesly. Managing trade is weak and trading become uneconomically surging price of products and services across business chain. Individuals usually add price on products they sells and services they offers. Organizations are increasing price of product they produce and service they offers because of unbalanced economic conditions and their own uneconomical profitability desires. Product and service Price is increasing across Business chain and purchasing cost of product is become high and higher which affect economy of end users. End users, customers, are challenged by demands for better quality services, improved performance standards, and more fair and responsiveness commodity price across Business chain. While there is a long way to go, the first steps must be taken and this article offers strategic instrument toward optimal economic goal of improved Economic Estimation of Profit and Selling Price across Business chain mathematically.

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Suppliers are those business firm that provide goods and services that help them to satisfy the needs of their own customers. The idea of creating mutually beneficial relationships with both customers and suppliers is a major departure from the traditional approach to customer and supplier relationships. Thus, there must be economic method of managing price of products and services across supply chain. This article present the general concept of business and business chain management. Core concepts of Economic Profit And Selling Price Estimation using mathematical techniques to measure, analyze and implement Economic customer-supplier relationships and productive business chain Profit And Selling Price management across business chain is aim of this article.

II. Analysis and Result

Every Business is part of a long chain (actually many long chains) of customers and suppliers. Each Business is a customer to its suppliers and a supplier to its customers, so it does not make sense to think of a Business as only one or the other. One implication of this concept is that your customer's customers are, in a sense, your customers as well. Sometimes a Business must focus on both their immediate customers and those next in the chain. Business firm must works hard to satisfy the needs of both the people who use their products and the retail establishments that sell them, labeling the former price and across customer-supplier business chain of consumers and the latter customers.

We are trading and offers services across supply chain from raw material producers, processors, product producers or importers, whole sellers, retailers, distributors to shops. At every stage of supply chain there is needs of profits and profitability. However, end users need and require quality product and services with fair price. Both suppliers and end users or customers need profit and price that must be economical so that they get need and requirement satisfaction. Costs and time (number of days product waits to be solled) are two basic factors to manage profits and price of products and services let alone quantity is one of determining factor of number of days product waits. Initial cost of product is one of basic factor to determine profits and product prices across Business chain with expected mean number of days product waits.

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Note: Commodity with low initial cost per unit product should have higher unit product profit in relation to initial unit cost where as Commodity with higher initial unit cost should have lower unit profit in relation to initial unit cost. Moreover, Commodity waiting short mean number of days shall have lower profitability rate where as Commodity waiting longer mean number of days shall have higher profitability rate as per mean number of days Commodity stored and waits to be solled at each Business chain mathematically. Thus, expected profit of unit Commodity at Business chain shall be:

$$E.\Pr = IC * Log^{Wd} IC$$

Where

- E.Pr - expected unit Commodity Business chain profit
- IC- Initial cost of unit Commodity
- Wd- unit Commodity waiting days

$$Wd = \frac{\sum_{BC1}^{BC-n} mean_days}{n} = \frac{T.days}{n}$$

Where n is number of actors across business chain

Note: Unit cost of unit Commodity at each chain of Business chain is base where as mean unit Commodity waiting days is factor of rate of profit logarithm function of business chain.

The quality of goods and services received from suppliers, the upstream potion of the supply chain, has a significant effect on the quality of goods and services that downstream customers receive. Similarly, The price of goods and services payed to unit Commodity received from suppliers, the upstream potion of the business chain, has a significant effect on the price of goods and services that downstream customers shall pay to receive. Thus, unit Commodity selling price at each chain of supply chain shall be:

$$C + (IC * Log^{Wd} IC) * \frac{M.days}{T.days}$$

Where

- C- cost of unit Commodity
- M,days- mean unit Commodity waiting days of actor
- T,days- Total unit Commodity waiting days of chain

Note: Initial cost of unit Commodity at upstream potion of the business chain has a significant effect to set profitability at every stage of business chain and become constant for all actors across business chain. unit Commodity profit of chain actors shall be:

$$E.\Pr * \left(\frac{Mean_BC_days}{Total_mean_days}\right)$$

With the help of GGOOCHAA let as see some examples

Example: trading across five actors of supply chain from product producers or importers, whole sellers, retailers, distributors to shops to reach end user with Initial cost of unit Commodity 9br and mean Commodity waiting days at business actors across business chain are as shown on figure.



Unit Commodity waiting days of Business chain

Wd=31/5 = 6.2 days

Expected profit of unit Commodity of chain is:

$$IC * Log^{Wd} IC = 9 * Log^{6.2} 9 = \underline{7.473Br.}$$

Unit Commodity selling price at end of chain

$$IC + IC * Log^{Wd} IC = 9 + 7.473 = 16.473 \text{ Br.}$$

Share of Profit of each actors of chain depends on mean Commodity waiting days of each actor across business chain. They share profit as per their mean Commodity waiting days. unit Commodity profit of BC actors shall be based on expected unit Commodity Business chain profit= 7.473 Br.:

Unit Commodity profit of producers or importers is

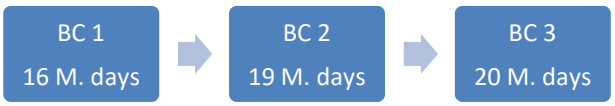
$$7.473 * \left(\frac{3}{31}\right) = 0.723\text{Br.}$$

Unit Commodity selling price of producers or importers is: 9Br. + 0.723 Br. = 9.723 Br.

Similarly

Unit profit of whole sellers= 1.205Br.
Unit selling price of whole sellers =10.928Br.
Unit profit of retailers, =1.687Br.
unit selling price of retailers,= 12.616Br.
Unit profit of distributors=1.687Br.
Unit selling price of distributors =14.304Br.
Unit profit of shops=2.169Br.
Unit selling price of shops=16.473Br.

Example: trading across three business actors of supply chain of producers or importers (BC 1), whole sellers or retailers (BC 2), distributors or shops (BC 3) to reach end user with Initial cost of unit Commodity 4,000br and mean unit Commodity waiting days at actors varies across business chain as shown on figure.



Unit Commodity waiting days of Business chain

Wd=55/3 =18.33days

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Expected profit of unit Commodity of Business chain is:

$$= 4{,}000 * Log_{4{,}000}^{18.33} = 1402.798\text{Br.}$$

Unit Commodity selling price at end of chain

$$= 4000 + 1402.798 = 51402.798\text{Br.}$$

Expected profit and selling price of unit Commodity at each Business chain

Producers or importers unit Commodity profit 408.087Br.	Producers or importers unit Commodity selling price=4408.087Br.
Whole sellers or retailers unit Commodity profit 484.603Br.	Whole sellers or retailers unit Commodity selling price=4892.689Br.
Distributors or shops unit Commodity profit 510.108Br.	distributors or shops unit Commodity selling price 5402.798Br.

Example: trading across supply chain of single business actor act as producers or importers and sellers to reach end user acts with Initial cost of unit Commodity 300,000br and mean unit Commodity waiting days of business chain is 20 days.

Expected profit of unit Commodity = 71261.705Br.

Unit Commodity selling price is= 371,261.705Br.

Note: as number of days increase income increase due to cost corresponding days. For instance, if mean unit Commodity waiting days of business chain of example 3 increase from 20 days to 29 days expected profit of unit Commodity at Business chain will be increased to 80,100.36276 with additional income of 8,838.657831.

Note: if there is shortage of supply of commodity we can manage it economically by:

1. Increasing initial cost of commodity economically as per supply and need and requirement of commodity and reducing days as per demand.
2. Increasing initial cost of commodity economically as per supply and letting days constant as per need and requirement of commodity.
3. Using initial cost of commodity economically as per supply and letting days constant and reducing chain actors as per need and requirement of commodity.

III. Discussion and Conclusion

Businesses have recognized that supply chain management is crucial for effective operations and meeting customer needs. In business today, operations are often highly decentralized and dispersed around the world. Consequently, managing a complex network of suppliers becomes a critical inter organizational issue. Suppliers play a vital role throughout from design through distribution. Suppliers can provide technology or production processes not internally available, early design advice, and increased capacity, which can result in lower costs, faster time-to-market, and improved quality for their customers. In turn, they are assured of stable and long-term business.

Supply chain management is crucial for effective operations and meeting customer and suppliers needs. Companies should try to establish economic productive relationships with their suppliers that they have with their customers. By developing partnerships, customers and suppliers can build relationships that will help them satisfy their shared customers further along the customer-supplier chain.

Three governing principles describe customer-supplier relationships:

- Recognition of the strategic importance of customers and suppliers,
- Development of win-win relationships between customers and suppliers, and
- Establishing relationships based on trust.

Customer must be at the center of the business universe. Satisfying their needs leads to repeat business and positive referrals, as opposed to one-shot business and negative referrals. Suppliers must also be considered crucial to Business success, because they make it possible to create customer satisfaction economically. Neither the quality nor the cost can be brought to competitive levels and continuously improved without the contributions of suppliers.

The second principle of customer-supplier relationships is the need to develop mutually beneficial (often called win-win) relationships between customers and suppliers economically. This was discussed previously as working together to increase the size of the pie, rather than competing over how to divide it. The goal of building partnerships with customers and suppliers can be seen as an extension of the teamwork principle that applies to economic activities and as recognition that the needs of both partners must be satisfied if economic productive long-term relationships are to be created.

The third principle of effective customer-supplier relationships is that they must be based on trust rather than suspicion. Aside from the obvious teamwork implications for relationships based on trust versus suspicion, monitoring supplier or customer behavior does not add any value to the product and customers satisfaction. If a trusting relationship between customers and suppliers can be developed so that neither must check up on the behavior and profitability of the other.

Customer-supplier chain can be broken at any point by one person or one piece of equipment not meeting the requirements of the customer. Failure to meet the requirements in any part of a chain has a way of multiplying, and failure in one part of the system creates problems elsewhere, leading to yet more failure and problems, and so the situation is exacerbated. The

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ability to meet requirements is vital. To achieve quality throughout a business, every person in the chain must be trained how to build and maintain customer-supplier relationships economically.

Acknowledgement

A lot of thanks to GGOOCHAA.

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