THE CONCEPT OF MARKET BALANCE IN THE DEMAND AND SUPPLY FUNCTIONS IN ECONOMIC MATHEMATICS

Dian Ponco Pratiwi [1], Dedek Kustiawati [2], Rivia Zulfa Ananda [3], Annisa Rizka Wardhani [4]
Mathematics Education Study Program, Faculty of Tarbiyah and Teacher Training, Syarif Hidayatullah State Islamic University Jakarta
Email: dianpp213@gmail.com*)

Abstract

A market is a place where a group of sellers and buyers have real or potential interactions, and set the price of a product or a set of products. In other words, the market can be referred to as a place where the price of an item is set. In simple terms, the market is a meeting place for sellers and buyers to carry out buying and selling transactions. An interactive system in the market, of coursexx there is a concept of demand and supply for an item or service. In economic mathematics, the concepts of demand and supply are interrelated and have interrelationships. In economic mathematics, the market environment is a buying and selling transaction. In buying and selling transactions, everyone makes supply and demand which results in market balance.

Key words: Food, Demand, Analyisis

INTRODUCTION

Mathematics is one of the sciences that is widely used in everyday life. Both in general and in particular. In general, mathematics is used in trade transactions, exchanges, trade and much more. Almost in every aspect of life, mathematics can be applied. Mathematics also has many advantages over other sciences because mathematics is universal. Apart from being flexible and dynamic, mathematics can always keep pace with the times. One of the applications of mathematics is found in economics so that it makes economics mathematics.

In economics, mathematical tools are often used to simplify calculations, namely using linear and non-linear functions. Two or more economic variables that are interrelated often cannot be translated into linears or quadratic functions. Economic mathematics exists in a market environment as a buying and selling transaction. In buying and selling transactions, everyone makes supply and demand which results in market balance. This journal will discuss the function into the economy which includes the demand function in market balance and supply function in market balance. On this basis, the researcher is interested in raising the title "The Concept of Market Equilibrium in the Demand Function and the Supply Function in Mathematical Economics".

DISCUSSION

Request Function

General Form of the Demand Function in Market Equilibrium

The demand function is an equation that displays the relationship between quantity product which requested with factors which affect it. Attitude consumer as well as price, can analyzed with study mathematical use function Request. Function Request this use corner look buyers/consumers.

Law Request is if price product go on so amount product which asked to come down and vice versa.
So connection Among price with quantity product which requested is connection opposite direction, so that gradient from function Request (b) will always negative.

Form general function Request linear is as following this.

$$Qd = a - bP$$

Or

$$P = -\frac{1}{b}(-1 + Qd)$$

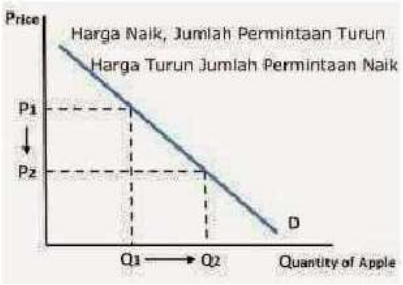
Where,

- a and = constant, where b b must worth negative
- $b = \frac{\Delta Qd}{\Delta Pd}$
- P= price product per UNI
- Q= quantity units product
- Condition, ,$P \geq 0 Q \geq 0$

Function Graph Request in balance Market

On function request using function linear mathematics so how to draw the graph of the demand function is the same with method draw function graph linear math. If on function linear math known with axis x as line horizontal and y as line vertical, while function Request known axis Q as line horizontal and axis P as line vertical.

curve drawing function Request shaped line straight which cut axis Q, axis P and have steep negative/gradient negative that
is if price which requested low so amount which requested will high, and vice versa when the price demanded increases, the quantity demanded decreases.



In draw chart function Request required a number of steps that is :

1) Define point cut to t axis Q, then P=0, so that obtained coordinate (Q,0)
2) Define point cut to t axis P, then Q=0, so that obtained coordinate (P,0)
3) Define location two point cut the to in field cartecius then connect Becomes line st raight. There is formula in determine two point cut that is:

$$\frac{P - P_1}{P_2 - P_1} = \frac{Q - Q_1}{Q_2 - Q_1}$$

The method using the 2-point formula is to substitute the values, which$Q_1, Q_2 P_1, P_2$ has is known on the formula in above, so that will produce equality

$$Q_{dx} = a - mP_x \text{or} P_{dx} = a - mQ_x$$

Example The Demand Function in Market Equilibrium

The bookstore sells books with an initial price of IDR 10,000 per dozen and a lot Request book the as much 10 dozen. Then, when price book down Becomes IDR 8,000 per dozen by request as much as 16 dozen. seek function Request the

Solution:

From score which is known in question, for look for function his request so needed :

P_1= IDR 10,000, = IDR 8,000, = 10. = 16$P_2 Q_1 Q_2$

$$\frac{P - 10.000}{8.000 - 10.000} = \frac{Q - 10}{16 - 10}$$

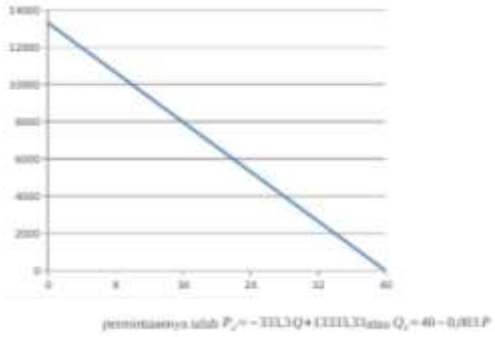
$$\frac{P - 10.000}{-2.000} = \frac{Q - 10}{6}$$

6P – 60,000 = -2,000Q + 20,000

6P = -2,000Q + 80,000 or 2000 Q = -6P + 80,000

P_d= -333.3Q + 1333.3 Or = 40-0.003PQ_d

The graph is as follows.



So, the obtained demand function isP_d= -333.3Q + 1333.3 Or = 40-0.003P.Q_d

Offer Function

General Form of the Supply Function in Market Equilibrium

Function offer is a function which show connection price product with amount product which offered.

In function offer use corner look Seller. Function offer by producer used to analyze the possibilities quantity thing that to be produced. In accordance law offer if price product up, with assumption factors other considered constant,

then amount product which offered will increase, and vice versa if price product down, amount product which offered also down. In function offer there is connection positive Among price product with amount product which offered,

then gradient (b) of function offer always positive.

Form general function offer is opposite from function request, namely:

$$Qs = -a + bPs \text{and} Qs = f(Ps)$$

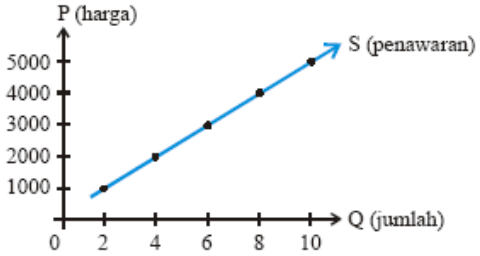
Where,

- a and = constant, b where b must worth positive

- $b = \frac{\Delta Qs}{\Delta Ps}$
- Ps= price product which offered per units
- Qs= quantity/quantity units product which offered
- Condition, $Ps \geq 0, Qs \geq 0$

Function Graph Offer in Balance Market

The supply function displays the relationship between the number of products offered by the producer for for sale with price product. In in theory economy displayed that if price go on so amount goods which offered increase, so also the opposite that if price down so amount goods which offered down, so chart function Request have slope positive (crooked to right).



Function Example Offer in balance Market

Moment price melon IDR 3,000 per fruit Shop A only capable sell melon as much 100 fruit, and moment price melon Rp. 4,000 per fruit, shop A capable sell melon more many that is Becomes 200 fruit. shape function the offer!

Solution:

Enter data which is known to in formula equality linear :

$$\frac{P - P_1}{P_2 - P_1} = \frac{Q - Q_1}{Q_2 - Q_1}$$

$$\frac{P - 3000}{4000 - 3000} = \frac{Q - 100}{200 - 100}$$

$$(P - 3000)(100) = (Q - 100)(1000)$$

$$100P - 300.000 = 1000Q - 100.000$$

$$-1000Q = 300.000 - 100.000 - 100P$$

$$\frac{-1000Q = 200.000 - 100p}{-1000}$$

$$Q = -200 + 0{,}1P$$

$$-0{,}1P = -200 - Q$$

$$P = 2000 + 10Q$$

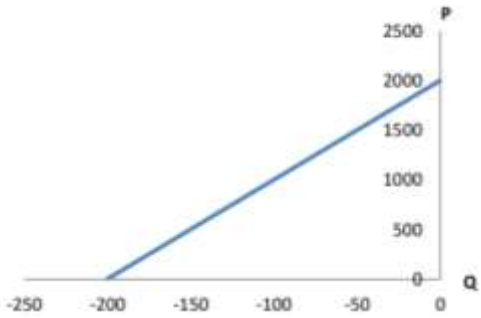
So obtained offer function:

$$Qs = -200 + 0{,}1P$$

Or

$$P = 2000 + 10Q$$

The graph is as follows.



So, the supply function obtained is or .$Qs = -200 + 0,1PP = 2000 + 10Q$

CONCLUSIONS AND RECOMMENDATIONS

Function Request isa equality which showing bond Among quantity product which requested with factors which affect it. Function offer is a function which showing bond price product with amount product which offered The demand function and supply function in the market balance cannot be separated from one another. Both have a relationship in the interaction between the seller and the buyer. With the demand function and supply function, there will be market equilibrium in economic mathematics. Suggestions from the author are to be more careful in performing calculations in the supply and demand functions so as to get the appropriate market balance. With a discussion like this in this journal, it is hoped that readers will be able to understand market balance and be able to use it in their daily lives.

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