FINDING MAXIMUM PROFIT IN ECONOMICS THROUGH QUADRATIC FUNCTION

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A R T I C L E I N F O.	**Abstract**
Key words: Income, input, output, expenditure, demand curve, quadratic function, elastic, extrapolation, angle, coefficient, graph.	In order to solve problems mathematically in the article, first of all, we need to have the necessary concepts, which we express as follows. In the most general way, the income can be defined as the difference between the full input and the full output (expenditure) of the product of the enterprise or firm. Here, total output is considered to consist of costs incurred in the production and exchange of the product.

To us It is known that the enterprise or of the firm received income-economy and in business the most important from concepts consists of is , har how of the enterprise or of the firm effective activity assessment showing from concepts consists of

Enterprise or of the firm activity different different in appearance to be can , for example product work issuing , financial , trade to do , to mediate and from others consists of to be we know

Such of issues mathematician method solve for First of all, we need to to concepts have to be need will be these as follows we express Most common in appearance income enterprise or of the firm the product to exchange full enter with full output (sp cost) between difference as determination can Here full exit the product work in release and him in exchange and from expenses is considered to consist of [1]. If the income with P full input with R spending with C set , then P = CR possible will be

Q quantity of the product xar one from the sale of unit F at the price (soum) . Received full income

R=QF   **(1)**

in the form of a formula to write can _ This is in formula (1). of the price itself in Q quantity of the product from the function consists of to be note to do it is necessary functional to connect sure appearance something line right or curve line with to be given can , and this we call the line the demand line . This as follows explaining we give We know that price product work of the issuer wish with without detection of the consumer i. e buy of the recipient how much to pay with is determined .

If the price

F= aQ+b   **(2)**

if we assume that a <0, b> 0 from parameters consists of is the demand curve decreasing from the function consists of, i. e price how much high if it is in price product less amount to be sold can Pouring the last formula (2) into (1). full income for .

R=Q(aQ+ b)= aQ^2+ba   **(3)**

Expression harvest we do If we Q and R 's coordinate arrows as taking (3) . graph if we make it graph square function as in the graph will be [3] (Figure 1).
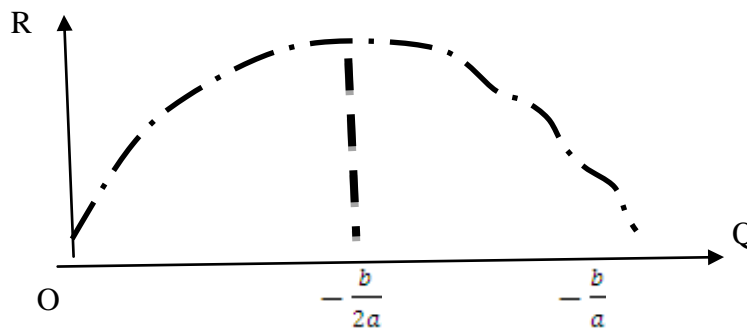

Figure 1

From this apparently as it is full income coordinates is 0 at the beginning will be From this so to the conclusion to arrive can sell _ if not income no (this natural) Full again income sale size increase with increases .(this even natural) and him the following mathematician expression through we write

$$Q=-\frac{b}{a}$$ **(4)**

94) when done income maximum to the degree is achieved .

is point (4). right on the side function decreased goes , that is sale size increase with enter quantity falls (decreases). As a result conclusion by doing to say it is possible, "mind raso" s for conflict being it seems , but this in life in experience observed . We are below this of fact of demand price according to elasticity concept with depends that we will see .

Finally $Q=-\frac{b}{a}$ at the point full input becomes 0 because _ this in value of the product sale of size the price is 0 being remains. (demand line on) Indeed if $Q=-\frac{b}{a}$ if it is (3) in case as follows we write

F= aQ+b = a($-\frac{b}{a}$)+b=- b+b =0

So, general come in and of the product price becomes 0 this our of our model extrapolation is the result and this is in reality does not occur . This is the following common of the rule private example consists of Any model implementation has a level (limit) from it exit wrong to the results take will come

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Now the concept of output (expenditure). we enter Usually product work in release or him in scrolling current of spending money in unity expression exit is called Output in trade, transport and another own expenses into takes Full from my exit except again product in unity output is also considered. Product work release to the size depends didn't happen exit immutable exit is called They are rent payment , leader of individuals appointed OK and the like from payments consists of Second from the side variable exit product to issue proportional being raw material to the value of , electricity to energy , workers to the salary and to others depends will be If full exit immutable and variable outputs sum in the form of to express

$$C = C_1 + C_2 Q \qquad\qquad (5)$$

in the form of we write Here C_1 is immutable outputs, C_2 -unit variable output, Q- output product volume (product amount) we understand

If we C_1 and C_2 s immutable if we consider parameters, then formula (5). Exit function being his graph right line will be (Figure 2)
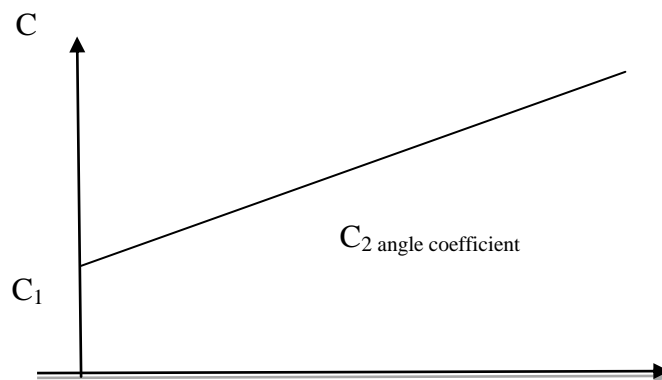
C

C_2 angle coefficient

C_1

Figure 2

Now maximum income (profit). determination the issue let's see , that is income be the most for Q $_m$ - product how in volume work release the issue seeing we go out Of this for this shape let's make it (picture 3)

R

Maximum profit

Full output

Full income

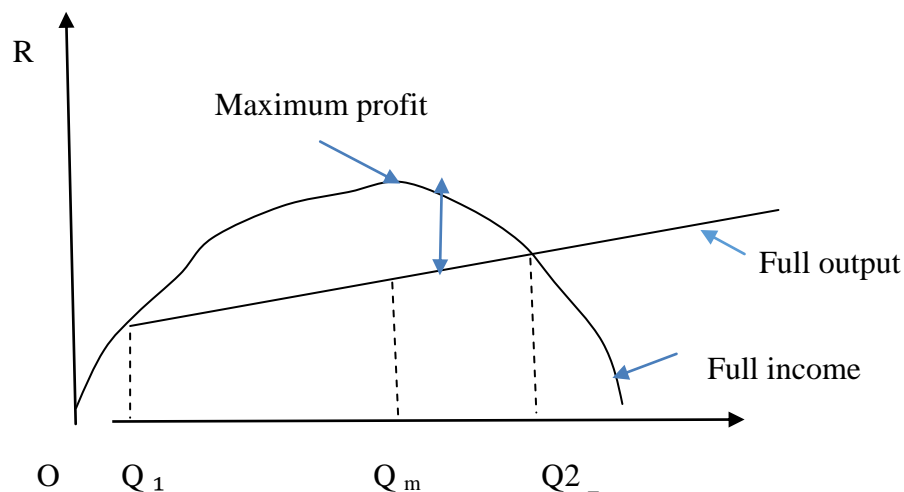O   Q $_1$ Q $_m$ Q2 _

Figure 3

This is how we work issued everyone the product declared as sold say We can't take it from the picture work release useful that we'll see again work output Q is the output

$$Q_1 < Q < Q_2 \quad (7)$$

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conditions when winged enter from my exit big will be

Q_1 point existence clear, if working issued if the product is small, then work in release deficit will be Point Q_2 is open obvious not Such than how much a lot if so, that's it "good" he said it seems, but work release known exceeding the level (quantity). if it goes, then spending "excessive except" to increase take will come Now benefit the most a lot to be Q_m point and (5) condition performed Q_1 , Q_2 points to find algebraic point of view from the point of view is considered . Of this for

P=RC (6)

the formula we can and full input R as well full Output C is product Q quantity through We express it by setting it equal to 0 square and the equation taking off Q_1 and Q_2 solutions we find this points between (6) when done work release is useful. If we define $b_1 = bc_2$, $P = aQ^2 + b_1 Qc_2$ being this quadrat when the function $a<0$ of the ferry network down directed (Fig. 4) $\frac{-b}{2a}$ at the point $Q = - = \frac{c^2 - b}{2a}$ the function has a maximum.
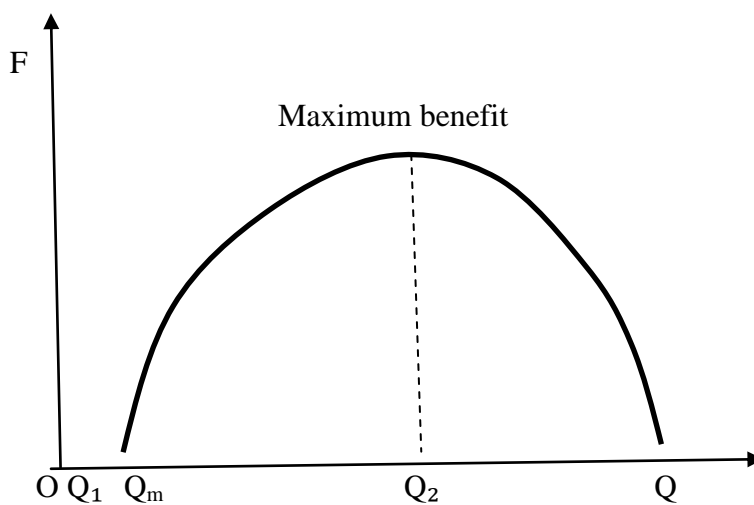

Figure 4

Summary by doing so to speak Q_1 and Q_2 points work release benefit bringer borders determines Q_m point a, b parameter (product on demand depends parameter) and full exit depend C_1, C_2 are parameters with expressed being maximum benefit giver values shows . These are the parameters more precisely If so , the solution to the problem is clear will be Summary by doing in other words , a square function people of the farm a lot in networks wide application will be done . This is us on the ground his market in the economy max income to see the issue we looked Any of the enterprise maximum income cause performance always current is an issue. That's why for this topic important important have.

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