Horizontal Summation for Market Demand Curve

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Abstract

Paper discusses the alternative approach to recreate market demand curve for good or service under consideration by employing horizontal summation of individual demand curves. The horizontal summation is used as the start point. The developed algorithm gives possibility to calculate the aggregate demand curve from known individual demand curves as well as to get the individual demand curves from already obtained aggregate demand curve. The developed method can be applied to get better inside of the demand formation and thus for better price targeting.

Keywords: aggregate demand, horizontal summation, optimizing price

Introduction

The importance of the demand curve can not be neglected for the business managers who strive to maximize their profits. In market environment it is important to set the right price for the product so that to successfully compete with the rivals. Leff (1975) proposed that it can be profitable to set low price and to produce at high volume level, so that business will benefit high profit and society will benefit from cheaper price. He suggests that the prices are set a lot above the region where most consumers can benefit from the product. If the price is set a bit lower then many consumer can be reached benefitting more profit. In other words the shape of aggregate demand curve can tell us that more profit can be obtained by setting another price(s). The consumer group can be viewed as the separate groups of consumers by their purchasing power. Therefore it can be calculated out which group what portion contributes to the profit of the business and according to that can be found the optimized price that promises maximum profit. Further in paper I will try to illustrate these idea.

Idea development

Any elementary economics book will tell you that the market demand curve for some product or service is simply the horizontal summation of the individual demand curves for that product or service. Theoretically it sounds great and logical. How in reality market demand curve is obtained?

Will the economist or any other analyst try to get all individual demand curves for some product or service in order to calculate/ figure out the market demand curve for that product or service? I do not think so.

The probable way is to observe the demand for that product for some period of time by setting different prices each time. In doing that way, we will get some cloud of observations for which later we will run some sort of regression analysis; probably we will apply method of least squares. At last we will get some trend line which will pass through the "cloud of observations" describing the pattern of demand for the product or

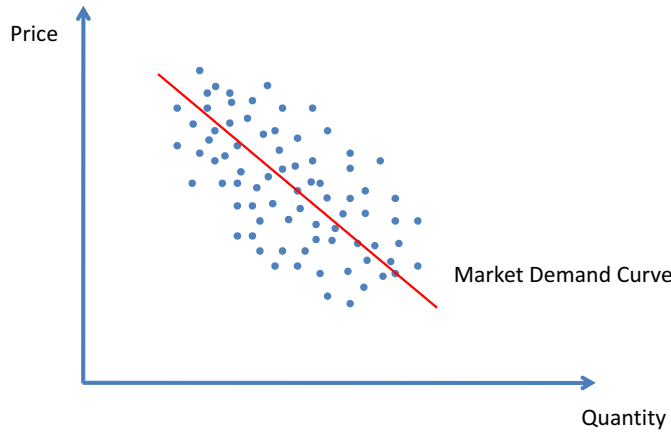service in relationship of quantity to price as in figure 1.

Figure 1. Market demand curve obtained by using regression analysis (sample).

Alternatively, we have the "cloud of the observations". Let's say, we want to describe this "cloud of observations" through the set of straight lines. We suspect that these straight lines have some defined prices, so that we need to calculate demand quantities for them. By employing algorithm developed we got the demand quantities, see figure 2A . Finally, at the same time, we will get the aggregate (market) demand of the product or service under observation that will be describing the "cloud of observations" as the whole, see figure 2B.
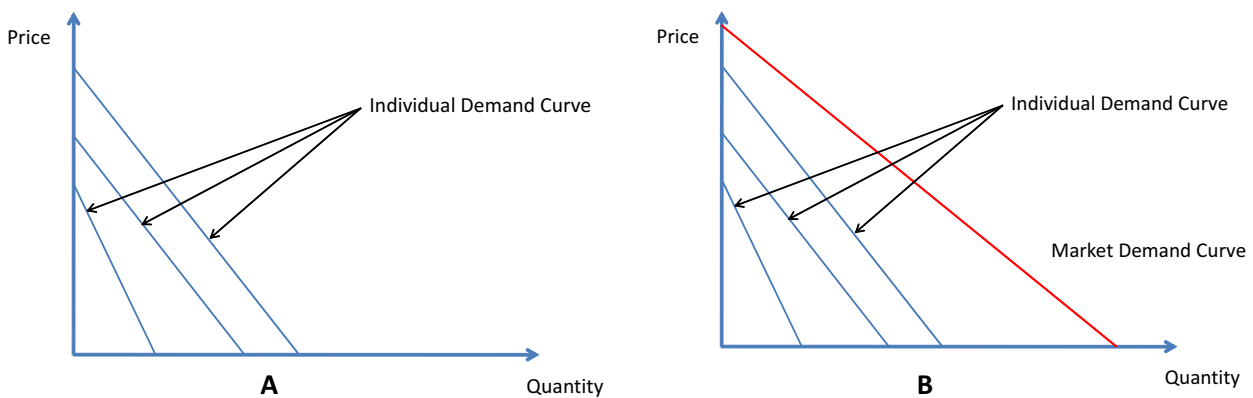

Figure 2. Market demand curve obtained by application of proposed method.

By determining the straight lines we can have insight to the structure of the market demand. Like: what group of lines (individual demand curves) is resulting in market demand curve, which individual demand curve has more influence on the market demand curve? So that, later adjust prices according to this information for profit maximization.

We need only two inputs to approach this problem: prices and "cloud of observations".

The questions to be challenged:

-       How to get the right prices?

-       How many individual demand lines are sufficed for optimal solution of the problem?

Conclusion

Aggregate demand curve calculated by the proposed method provides different approach for price optimization strategy. The empirical research should be applied to get more insight of this method. Further results will be published in near future.