

Lecture # 23 – Case Study #2: “Profit” Maximization for Non-Profits

Today we discussed case study #2. The case asked us to consider various options for the Children’s Mental Health Network, Inc. (CMHN), a non-profit organization dedicated to providing affordable mental health screenings to children. We are presented with four possible scenarios:

1. Esther is a worrier. Given the fact that the economy is alright at the moment, she advocates maximizing profits from all sources this year, and socking away the difference between total revenues and total costs in an endowment fund.
2. Carlos lives in the moment. He advocates maximizing the number of kids screened, even if that means there’s practically nothing left for endowment. He doesn’t care where the money comes from.
3. Sylvia is an anti-corporatist, and is uncomfortable accepting private sector donations. Her vote is to maximize the number of screenings, while not accepting private donations.
4. Joaquin is suspicious about the government dole -- he thinks it makes organizations soft and too beholden to government. He would just as soon rely entirely on private contributions. While not adverse to saving a little, he too is mostly interested in maximizing the number of screenings.

We are also presented with demand data, data relating fundraising expenditures to money raised, and two possible grants from the government. In addition, there are the following key facts:

- The overhead costs of providing services are \$10,000.
- In addition, providing services costs \$5 per child.
- For each dollar raised through government grants, 15 cents of donations will be lost due to crowding-out.

To figure the best strategy in each case, we begin by analyzing our options for each potential revenue source: revenues from services, fundraising, and grant writing. The calculations are explained below. You can download a spreadsheet with these calculations from the class web site.

- Services
 - Using the demand data provided, we can calculate total revenue and marginal revenue. Note that, since the organization faces the entire demand curve, marginal revenue is less than the price. That is because, to increase the number of children served, the organization will need to lower prices, and thus will make less money than before on those children it was able to serve a higher price.
 - Marginal revenue can be calculated as $\Delta TR/\Delta Q$
 - The \$10,000 overhead is a fixed cost.
 - Total variable costs equal \$5 times the number of children served.
 - The marginal cost per child served is \$5.
 - Note that when we calculate net profits (= total revenue - total cost), they are all negative.
 - This is not surprising, since if the services could be provided profitably, a profit maximizing firm would likely have entered the industry.
 - As a result, we must look at other sources of revenue for CHMN.
- Fundraising
 - The second table in the case provides us with the number of donations received as fundraising effort increases.
 - To analyze this, I simply looked at the marginal revenue (that is, the additional revenue raised), for each \$2,000 increment of fundraising effort, since that is how the table is presented.
 - As long as the marginal revenue is at least \$2,000, it makes sense to proceed with that level of fundraising.
 - This occurs at \$8,000.
 - Some students used a fundraising level of \$6,000, since it yields the same net profit and leaves resources for other uses. This answer would also be acceptable.
 - The tradeoff is whether we prefer to save those resources (which might not actually exist without the fundraising) versus expanding the donor base, which may pay off in the long run.

- Grant writing
 - There are two grant options available.
 - A basic grant gives the firm \$7,500, and costs \$600 to prepare.
 - A jumbo grant brings in \$11,000, but costs \$1,000 to prepare.
 - If grant writing and fundraising from private donors are both used, each dollar of grant money earned crowds out 15 cents of private donations.
 - With two choices, the marginal analysis is more straightforward.
 - If we spend \$600, we bring in \$7,500 of revenue. Clearly, this is a worthwhile tradeoff.
 - If we also have private donations, \$1125 is crowded out, yielding a net gain of \$6,375, which is still worthwhile.
 - To get a jumbo grant, we must spend \$1,000. Thus, the marginal cost of a jumbo grant (vs. a basic grant) is \$400. The grant is worth \$11,000. Thus, marginal revenue is \$3,500. This is an acceptable tradeoff. Thus, we should go for the jumbo grant, rather than the basic grant.
 - With crowding out, we lose \$1,650 of donations, yielding \$9,350. Marginal revenue is now \$2,975 (= \$9,350 - \$6,375). Since $MR > MC$, the jumbo grant is still the right choice.

We can now proceed to the analysis for each scenario.

1. Maximizing profits
 - Begin by finding the level of services that maximizes profits (or, in this case, minimizes the loss).
 - This is where $MR = MC$.
 - We should serve 2,000 children at a price of \$6 each.
 - Notice that we lose \$8,000 here. Thus, we also need to consider income from other sources.
 - As discussed before, fundraising revenue is maximized when we spend \$8,000 on fundraising.
 - Similarly, we should use a jumbo grant.
 - We end up with a profit of \$15,850.

2. Maximizing services provided, all revenue sources
 - Here, we first need to figure out how much revenue we raise from other sources.
 - Fundraising yields \$15,500 in net revenues (money raised - fundraising costs).
 - Grant writing yields \$8,350 in net revenues (money raised - grant writing costs - crowding out)
 - Since CMHN can raise \$23,850, we then find how many services we can provide without losing more than this amount.
 - That is 5,000 children, at a price of \$4 each.
 - This leaves a profit of \$8,850.
 - Some people said that CMHN should serve 7,000 at a price of \$3 each. Here, CMHN would lose money, but just \$150. This may be an acceptable strategy, but it is also important to note in your report to CMHN that this is not sustainable, and unless they come up with a way to make up this small loss, they will eventually be forced out of business.
 - Alternatively, some noted that, at a price of \$3 each, you can only serve 6,925 people and break even. Since 7,000 will demand your services at this price, you will need to cap the number of clinic spots available, thus turning away some who want services.
3. Maximizing services provided, using only government grants.
 - Again, begin by finding out how much money we can raise.
 - In this case, since crowding out is not a problem, grant writing raises \$10,000.
 - CMHN can serve 3,500 at a price of \$5, and will have zero profits at the end of the year.
4. Maximizing services provided, using only private donations.
 - Here, the maximum revenue raised is \$15,500.
 - CMHN can serve 5,000 children at a price of \$4 each.
 - There is a small profit of \$500 at the end of the year.

Our discussion concluded by offering suggestions for how CMHN could resolve their differences. For example, strategies 1 and 2 offer a potential compromise, as strategy 2 serves more children, but still offers a profit to place in the endowment. Other people suggested beginning with strategy 2, and then reducing fundraising and grant writing as much as possible to serve 5,000 children without losing money. All of the strategies suggested, including those not mentioned here, offered good alternatives.

Finally, one important lesson from this case is that the analysis we've been doing in class applies not only to profit-maximizing firms, but also scenarios you are likely to come across while working in government or non-profit organizations. Even if profit maximization is not the goal, having the needed revenues to provide services is important. Thus, being able to maximize revenues is important. Similarly, knowing how to minimize costs is important because, by keeping costs as low as possible, you can make the most efficient use of the revenues that you have.