

Budgeting Exercise 03

Working Out the Break-Even Point

Here are six Break-Event point problems which increase in degree of difficulty from Case A to Case F. The first two problems (Case A and B) can be worked out by simple use of the formula for calculating break-even point found at the URL:

<http://www.leoisaac.com/budget/bud034.htm>

However, it is best to calculate the solution to Case C – Case F by compiling a spreadsheet to model the problem (see example over page). In each spreadsheet you will need to put in formulae to work out income, and then formulae to work out costs. You should remember that the number of spectators/participants is a very important element in working out the total of income and the amount of variable costs.

Once you have set out the spreadsheet, find your solution by manipulating the number of spectators/participants. Be aware that the model presented overleaf needs to be adjusted in design and content for each problem. The main purpose of the example is mostly to demonstrate that you will need an income and an expenditure section.

Case A – Basic break-even point problem

In this simple problem your task is to work out the number of participants required to ensure the event breaks-even.

The data you need to make your calculation is as follows:

- Total Fixed Costs: \$10,080
- Variable Cost per Participant: \$2.00
- Ticket Price per Participant: \$20

Case B – Variation of the basic break-even point problem

This problem is much the same problem as in case A except that you are given the number of participants and you must work out what is the minimum price that spectators must be charged.

The data you need to make your calculation is as follows:

- Total Fixed Costs: \$10,000
- Variable Cost per Participant: \$5.00
- Number of Participants Required: 500

Case C – Awards evening

The club committee are putting on an awards evening in the clubhouse. The ticket price will be \$30 per person and it is expected that 100 people will attend.

The committee will spend \$1500 on entertainment and prizes.

What is the maximum cost of the meal per person that can be afforded, if the event is not to make a loss?

Case D – Calculating the break-even point of three possible venues for an event

The committee of a sport organisation is considering three different venues to stage a major fundraising event.

Venue A has a maximum seating capacity of 500 people and costs \$1,200 to hire. Venue B has a maximum capacity of 1000 and costs \$3,500 and Venue C has a maximum capacity of 2000 and costs \$9,000.

If the variable cost for each participant is \$5.20, which venue would be the most profitable at maximum capacity?

To solve this problem you will need three separate spreadsheets, one for each venue.

Case E – Two levels of ticket prices makes the break-even point a little more difficult

In this problem there are two levels of spectator admission price – adults \$20 and children \$5. This makes the break-even calculation problem a little more difficult. However, it is expected that the ratio of adults to children is 2:1 (two adults to every one child). Knowing this ratio will enable you to calculate the break-even point in adults and children required.

Other important information includes:

- Total Fixed Costs: \$20,000
- Variable Cost per Participant: \$2.00
- Ticket Price for accompanied children: \$5
- Ticket Price for adults: \$20
- Expected Ratio: 2 Adults to every 1 child

Case F – Two different break-even points dependant on the number of event spectators

In this problem, there are TWO break-even points. This scenario is commonplace in major events such as Football matches. The two break-even points occur because there are two possible levels of fixed expenditure depending on whether the spectator crowd is smaller or greater than 20,000. If the crowd exceeds 20,000, the stadium manager has to open up the second tier of seating and extra staffing and cleaning will result.

The important data is as follows:

All spectators will be charged \$15 each for entry to the stadium.

Fixed Costs if the total of spectators is 20,000 or less will be \$200,000. But if spectators are more than 20,000, fixed costs will immediately rise to \$300,000.

Irrespective of the number of spectators, the variable cost per participant: \$3.00

Here is an example of how to set up a model with a spreadsheet but you can download the workbook ready-to-go from the URL: http://www.leoisaac.com/budget/Budgeting_Exercise_03.xls

Income			
	No. of People	Ticket Price	Total Income
Guests			
Total Income			
Expenditure			
	No. of People	Cost per Guest	Total
Variable Costs			
Cost of Food			
Variable Cost			
Prizes and Entertainment			
Fixed Costs			
Total Cost			
Profit			
			0