CHAPTER

24

The financial environment: Culinary math

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OUTLINE

As in any business, it is vital that you understand your figures. You need to know how you are doing as well as where you went wrong. Although the financial reports cannot tell you everything that is wrong, especially as we are in an industry with many personal touches, with experience, you should be able to at least see where the problem is just by looking at the figures.

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24.1 Percentages (%)

Before you begin to analyze any figures in a food and beverage operation, you need to understand what percentage (%) means. Very often when asked what your results were, or how much your revenue increased from one year to the next, talking plain numbers does not do it (the following equation).

Equation 24.1: Percentage (%) means part of a whole 1

$$\frac{\text{Part}}{\text{Whole}} = \text{Percentage}(\%)$$

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For example, you have 10 fruits in total and 4 of those fruits are apples. So, apples represent 40% of the total amount of fruit you have (the following equation):

Equation 24.2: Percentage (%) means part of a whole 2

$$\frac{\text{Apples}}{\text{Total fruits}} = \frac{4}{10} = 0.4 \times 100 = 40\%$$

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It is difficult to visualize an increase in revenue in monetary terms, take for example Gibby's French Burgers which has two outlets: One in the Town Center and one on the Beach Front. They each had an increase in revenue of $500,000.00 in the year 2018 in comparison to last year. It would seem that they each had the same amount of increase in revenue as we only expressed the amount of revenue each increased (Table 24.1):

However, when you talk about the increase in revenue in percentage terms, we can see that the growth revenue for the Beach Front outlet has by far exceeded that of the Town Center. The Beach Front's revenue for this year has increased by 12% over that of last year. This is double of what the Town Center's increase in revenue, which was 6.25%.

To calculate the percentage of increase from one year to the next, we have to calculate the variance %, which brings us to the next step.

TABLE 24.1 Revenue variance.

	Town Center	Beach Front
Revenue this year	$8,500,000.00	$4,500,000.00
Revenue last year	$8,000,000.00	$4,000,000.00
Variance in revenue	$500,000.00	$500,000.00

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24.2 Variance

The variance in revenue is the difference in revenue earned between two different time periods (the following equation):

Equation 24.3: Revenue variance

$$\text{Revenue this year} - \text{Revenue the previous year} = \text{Revenue variance}$$

Compiled by Miguel Gassman from multiple data sources.

In the example of Gibby's French Burgers above, for the Town Center restaurant, we can calculate the variance in revenue from 2017 to 2018 as

Equation 24.4: Variance in revenue 2017/2018.

Revenue this year	–	Revenue the previous year	Revenue variance
$8,500,000.00	–	$8,000,000.00	$500,000.00

Compiled by Miguel Gassman from multiple data sources.

24.2.1 Gibby's French Burger Town Center revenue variance

To calculate the revenue variance %, we utilize one of the following three formulas (Equation 24.5):

Equation 24.5: Revenue variance %.

$$\frac{\text{Revenue variance}}{\text{Revenue last year}} \times 100 = \frac{\$500,000}{\$8,000,000} \times 100 = 0.0625 \times 100 = 6.25\%$$

$$\frac{\text{Revenue this year} - \text{Revenue last year}}{\text{Revenue last year}} \times 100 = \frac{\$8,500,000}{\$8,000,000} \times 100 = 0.0625 \times 100 = 6.25\%$$

$$\left(\left(\frac{\text{Revenue this year}}{\text{Revenue last year}}\right) - 1\right) \times 100 = \left(\left(\frac{\$8,500,000}{\$8,000,000}\right) - 1\right) \times 100 = 0.0625 \times 100 = 6.25\%$$

Compiled by Miguel Gassman from multiple data sources.

24.2.1.1 Gibby's French Burger Beach Front revenue variance

Using one of these formulas, we can see the increase for the Beach Front outlet this year increased by 12.5% over last year (the following equation):

Equation 24.6: Beach Front revenue variance %.

$$\frac{\text{Revenue variance}}{\text{Revenue last year}} \times 100 = \frac{\$500,000}{\$4,000,000} \times 100 = 0.125 \times 100 = 12.5\%$$

Compiled by Miguel Gassman from multiple data sources.

Using the revenue variance for both outlets for this year in comparison to last year, we can see that the Beach Front outlet of Gibby's French Burgers has done much better that the Town Center outlet.

24.3 Average check

Another term that must be understood before moving on is the average check, which refers to the average amount of money spent by any given guest during a particular meal or period: The average check is calculated as follows (Equation 24.7):

Equation 24.7: The average food check

$$\text{Average check} = \frac{\text{Total revenue earned}}{\text{Total number of guests served}}$$

Therefore, the average food check is calculated as follows:

$$\text{Average food check} = \frac{\text{Total food revenue}}{\text{Total number of guests served}}$$

Compiled by Miguel Gassman from multiple data sources.

The average beverage check is calculated as follows (the following equation):

Equation 24.8: The average beverage check

$$\text{Average beverage check} = \frac{\text{Total beverage revenue}}{\text{Total number of guests served}}$$

Compiled by Miguel Gassman from multiple data sources.

For example, Gibby's served 54 people during lunch today. The revenue for lunch is shown in Table 24.2:

Broken down, this equates to that found in the following equation (Equation 24.9):

Equation 24.9 Total food and beverage variances broken down.

Average food check	=	$\frac{\text{Food revenue}}{\text{No. of guest served}}$	=	$\frac{\$5,400.00}{54}$	=	\$100.00 per guest
Average beverage check	=	$\frac{\text{Beverage revenue}}{\text{No. of guest served}}$	=	$\frac{\$2,700.00}{54}$	=	\$50.00 per guest
Average food and beverage check	=	$\frac{\text{Food and beverage revenue}}{\text{No. of guest served}}$	=	$\frac{\$8,100.00}{54}$	=	\$150.00 per guest

Compiled by Miguel Gassman from multiple data sources.

TABLE 24.2 Total food and beverage variances total.

Food revenue	\$5400.00
Beverage revenue	\$2700.00
Total revenue	\$8100.00

Compiled by Miguel Gassman from multiple data sources.

24.4 Forecasting

When we are planning for future results, it is difficult to predict what will happen. Very often managers predict the feeling with what they feel or expect will happen. This is called a gut feeling. However, one of the characteristics of being human is that we very often repeat ourselves. As such and taking into consideration that we tend to do the same things the same way, in essence what has happened in the past is a very good guideline for helping predict what will happen in the future.

For this we use the variance in revenue growth from past years to help us predict the revenue growth for the following year.

Take for example Gibby's French Burger Town Center outlet, which can be found in the following Equation 24.10:

Equation 24.10: Gibby's French Burger Town Centre revenue variance.

$$\frac{\text{Revenue variance}}{\text{Revenue last year}} \times 100 = \frac{\$500,000}{\$8,000,000} \times 100 = 0.0625 \times 100 = 6.25\%$$

Compiled by Miguel Gassman from multiple data sources.

Here we can see that the revenue increase for this year over last year was 6.5%. This does not mean that next year we will have an increase in revenue of 6.5%! What this does indicate is that as we had an increase of 6.5% or revenue this year over last year, the chances of once again having an increase of 6.5% next year over this year are good.

As a manager, you might find that 6.5% is too high or even too low. The variance in revenue from one year to another is just a guide; it is not set in stone. If you feel that business is improving, you might feel that business will be even better next year, so you feel that business will increase by 7% or even 7.5%. Alternatively, you could feel that this year was an exceptional year and that business should stabilize next year so there will only be an increase in revenue of 3% over the revenue of this year.

The more years of financial history that we have, the better it is as we get a better feel for what happened. If we have the financial records for the past 3–4 years, we can calculate the variance in revenue for each of the years recorded. With the additional historical variances, we can get a better feel of how business is going and we can therefore make a better calculated guess of what will happen in the future.

To calculate the forecasted revenue for the following year, we use the following formula:

Equation 24.11: The forecasted revenue.

$$\text{Forecasted revenue for next financial period} = \text{Revenue from actual financial period} \times (1 \pm \text{expected increase or decrease in revenue})$$

Compiled by Miguel Gassman from multiple data sources.

For Gibby's Town Center restaurant, the manager feels that next year will be a bumper year, so he is predicting an increase of revenue of 9% for next year as shown in the following equation:

Equation 24.12: Forecasted revenue for next year

$$\begin{aligned} &= \text{Revenue for this year} \times (1 + \text{forecasted increase in revenue}) \\ &= \$8,500,000.00 \times (1 + 9\%) \\ &= \$8,500,000.00 \times 1.09 \\ &= \$9,265,000.00 \end{aligned}$$

Compiled by Miguel Gassman from multiple data sources.

24.5 The Profit and Loss (P&L) Statement

One of the most important reports that any F&B manager will have to understand, if not the most important, is the Profit and Loss (P&L) Statement.

Also known as the Income Statement, the P&L Statement is an accounting tool that details revenue, expenses, and profit for a given period of time. It lists all the revenues as well as the respective costs, labor costs, and other expenses that a restaurant may incur in its normal operation.

The revenues earned in a food and beverage operation normally come from the sale of food and beverage items. Three are some restaurants that get a substantial amount of other revenue from sources such as the sale of merchandised items for example.

For simplification purposes, we will assume that Christy's Burrito's gets all their revenue from the sale of food and beverage. See Christies P&L Statement for the previous 2 years below.

When analyzing the P&L statement, we must not only be able to read the report but also more importantly be able to understand and share the results of the report. To be able to give people a clearer understanding of our results, we will very often need to explain in percentage (%) terms. Most P&L Statements not only give the financial figures, they also indicate the percentage (%) of each figure in relation to the total revenue.

Every percentage (%) figure on the P&L Statement is based on total revenue for the financial period, except for two: (1) the cost of food % and (2) the cost of beverage %. The food cost % and the beverage cost % are explained in the next subsection. All other expense percentages are calculated as follows (the following equation):

Equation 24.13: Calculating expenses

$$\text{Expense \%} = \frac{\text{Expense}}{\text{Total revenue}}$$

Compiled by Miguel Gassman from multiple data sources.

Take a look at Christy's P&L Statement for the past 2 years shown in the following table (Table 24.3):

It is also important to know that each of the categories on the P&L Statement is a cumulative total of other expenses that fall within that category. Take for example utilities.

TABLE 24.3 P&L Statement for Christy's Burrito's for the past 2 years.

	Last year	Percentage (%)	This year	Percentage (%)
Food revenue	$9,852,300.00	75.9	$11,034,576.00	76.4
Beverage revenue	$3,122,780.00	24.1	$3,403,830.00	23.6
Total revenue	**$12,975,080.00**	**100.0**	**$14,438,406.00**	**100.0**
Cost of food	$3,255,620.00	33.0	$3,841,411.00	34.8
Cost of beverage	$625,870.00	20.0	$637,727.00	18.7
Total cost of food and beverage	**$3,881,490.00**	**29.9**	**$4,479,138.00**	**31.0**
Cost of labor	$4,756,541.00	36.7	$5,094,173.00	35.3
Employee benefits	$342,555.00	2.6	$355,824.00	2.5
Total cost of labor	**$5,099,096.00**	**39.3**	**$5,449,997.00**	**37.7**
Other expenses				
Marketing	$758,984.00	5.8	$795,841.00	5.5
Entertainment	$310,516.00	2.4	$348,122.00	2.4
Utilities	$77,899.00	0.6	$82,754.00	0.6
Rent	$1,200,000.00	9.2	$1,400,000.00	9.7
Other operating expenses	$350,894.00	2.7	$395,358.00	2.7
Total other expenses	**$2,698,293.00**	**20.8**	**$3,022,075.00**	**20.9**
Operating income	**$1,296,201.00**	**10.0**	**$1,487,196.00**	**10.3**

Compiled by Miguel Gassman from multiple data sources.

Utilities could be a combination or water, electricity, and gas to name but a few. Below is the breakdown of utilities for Christy's Burrito's (Table 24.4):

24.6 The food and beverage cost percentage on the P&L statement

The cost of food sold percentage is based on the total food revenue and not the total revenue. This is because we want to know how much of the revenue we earned in the sale of food did we spend to be able to make the food we sold.

TABLE 24.4 Breakdown of utilities expenses for Christy's Burrito's.

Water	$8,499.00
Electricity	$54,222.00
Gas	$15,178.00
Total utilities	**$77,899.00**

Compiled by Miguel Gassman from multiple data sources.

24.6.1 Food cost percentage (%)

The food cost consists of the costs of all ingredients required to prepare and serve the dishes that were sold. If an ingredient has been prepared but has not yet been sold, it is not considered part of the food cost.

24.6.2 Beverage cost percentage (%)

The same principle applies to the beverage cost %.

The beverage cost consists of all the ingredients, both alcoholic and nonalcoholic, that are used to prepare the drinks that are sold. If a bottle of whiskey has been opened and only two portions of that bottle have been sold, only the cost of the two portions is added to the cost of beverage sold. The remaining liquor in the bottle is not added as it has not been used yet.

The formulas for calculating the food cost % and the beverage cost % are as follows:

Equation 24.14: Calculating food and beverage costs

$$\text{Food cost \%} = \frac{\text{Food cost}}{\text{Total food revenue}}$$

$$\text{Beverage cost \%} = \frac{\text{Beverage cost}}{\text{Total beverage revenue}}$$

Compiled by Miguel Gassman from multiple data sources.

Therefore, to calculate the food and beverage cost percentages for Christy's Burrito's, we calculate the figures as follows (Equation 24.15):

Equation 24.15: Christy's Burrito's food cost % and beverage cost %

$$\text{Food cost \% this year} = \frac{\text{Food cost}}{\text{Total food cost}} = \frac{\$3,841,411}{\$11,034,576} = 34.8\%$$

$$\text{Beverage cost \% this year} = \frac{\text{Beverage cost}}{\text{Total beverage revenue}} = \frac{\$637,727}{\$3,403,830.20} = 18.7\%$$

Compiled by Miguel Gassman from multiple data sources.

24.7 Analyzing the P&L statement

You need to be able to analyze the P&L Statement. Very often you will be measured on your ability of a manager to see if you are ready for promotion on how you can read and analyze the P&L Statement.

When analyzing the P&L statement, we start at the top and work our way downward.

24.7.1 Analyzing the revenue

When analyzing the revenue, as indicated before, we have to analyze the sales variance from one year to the next. We analyze the total sales variance as well as the individual food sales and beverage sales variances as is shown in the following equations:

Equation 24.16: Christy's Burrito sales variance for this year in comparison to last year:

$$\text{Food sales variance \%} = \frac{\text{Food sales this year} - \text{Food sales last year}}{\text{Food sales last year}}$$

Therefore,

$$\text{Food sales variance \%} = \frac{\$11,034,576 - \$9,852,300}{\$9,852,300} = 12.0\%$$

Compiled by Miguel Gassman from multiple data sources.

There could be four reasons for this increase:

1. More guests were served with the same average check
2. The same amount of guests was served but with a higher average check
3. More guest were served with a higher average check
4. Fewer numbers of guests were served but they had a much higher average check.

24.7.2 Analysis of food and beverage expense

When analyzing any expense that is not a fixed expense, i.e., it is a variable expense, it is important to remember that the expense incurred is directly related to the amount of revenue that was earned. For example, serving $10,000.00 worth of beverages would incur a much higher cost than that of sales of only $5000.00. In principle, the cost of the beverage for $10,000.00 of sales should be double of the cost for $5000.00 worth or sales.

Also, if you were told that your cost of beverage is $2,500,000, you might have a panic attack and immediately wonder what went wrong. But if you were told that you made $18,000.000 worth of sales from the $2,500,000, then you would be a lot more relaxed. As a result, whenever asked what your expenses were, you should always use percentage (%) to answer.

24.7.2.1 Analyzing the food cost

So, when analyzing the food cost for Christy's Burritos, we should compare the percentage of the last two respective years. In this case, we can see that this year, the food cost was 1.8% higher than the previous year's food cost % (Table 24.5).

To see the problem, we will have to delve deeper into the different categories that make up this 1.8% difference (Table 24.6).

By looking at these two reports, we can immediately pick up a few points of concern that should be looked into. Why is this year's meat figures so much higher than last year? In the opposing direction is the value for seafood, this year is much higher than last year. Was there

TABLE 24.5 Food cost for two years.

	Last year	Percentage (%)	This year	Percentage (%)
Food revenue	$9,852,300.00		$11,034,576.00	
Cost of food	$3,255,620.00	33.0	$3,841,411.00	34.8

Compiled by Miguel Gassman from multiple data sources.

TABLE 24.6 Breakdown of two years food costs.

Categories	Last year	Percentage (%)	This year	Percentage (%)
Meat	$1,256,897.00	12.8	$1,229,252.00	11.1
Seafood	$675,887.00	6.9	$998,767.00	9.1
Vegetables	$675,552.00	6.9	$845,111.00	7.7
Fruit	$190,504.00	1.9	$230,485.00	2.1
Dairy	$87,613.00	0.9	$103,716.00	0.9
Dry ingredients	$114,796.00	1.2	$130,607.00	1.2
Others	$254,371.00	2.6	$303,473.00	2.8
Total cost of food	$3,255,620.00	33.0	$3,841,411.00	34.8
Total food revenue	**$9,852,300.00**		**$11,034,576.00**	

Compiled by Miguel Gassman from multiple data sources.

an accounting error? What is the reason for the fish to be so high this year in comparison to last year?

You should then breakdown the fish categories even further and find out what the reason is for such high cost. It is possible your suppliers overcharged you or the cost of fish has substantially increased and you have not changed your pricing structure. You could have had a fridge that broke down and you had to throw a lot of food away.

You will have to go through each category one by one until you find the justification for the increase. Once you have found the reasons, you will have to take corrective measures and make sure they do not occur again.

24.7.2.2 Analyzing the beverage cost

The beverage cost % is analyzed in much the same way as the analysis for food was done (Table 24.7).

TABLE 24.7 Analyzing the beverage cost.

	Last year	Percentage (%)	This year	Percentage (%)
Beverage revenue	$3,122,780.00		$3,403,830.00	
Cost of beverage	$625,870.00	20.0	$637,727.00	18.7

Compiled by Miguel Gassman from multiple data sources.

Here we can see that this year we have controlled our beverage cost much better than the previous years. It might be required to investigate if the difference in beverage cost was very large. Also, we would have to compare our beverage cost with our budgeted beverage cost.

24.7.3 Analyzing the labor expense

To calculate the labor expense %, we use the following formula (the following equation):

Equation 24.17: Calculating the labor cost

$$\text{Labor cost \%} = \frac{\text{Cost of labor \$}}{\text{Total revenue}}$$

Compiled by Miguel Gassman from multiple data sources.

When analyzing the labor cost %, we can see that this year we are doing better than last year. We are 1.4% lower this year compared to last year, although we spent more money on labor. The reason for this is that revenue increased substantially as well (Table 24.8).

As many of your wagers are a fixed expense, as long as labor expenses do not make up 100% of your revenues, an increase in your sales revenue normally helps decrease your labor cost %.

Variable labor costs increase monetary-wise as long as revenue increases. However, the % value tends to remain the same.

Fixed labor cost, the monetary value remains the same whether you have an increase or a decrease in revenue as it is a fixed cost. As such the labor cost % will decrease as revenue increases. Vice versa, the labor cost % will increase as revenue decreases (the following equation) (Table 24.9).

Note a drastic decrease in labor cost is not necessarily a good sign. Remember we work in a labor-intensive industry. If your labor costs decrease too much, you might be providing very bad service to your customers.

TABLE 24.8 The cost of labor.

	Last year	Percentage (%)	This year	Percentage (%)
Total revenue	**$12,975,080**		**$14,438,406**	
Cost of labor	$4,756,541	36.7	$5,094,173	35.3
Employee benefits	$342,555	2.6	$355,824	2.5
Total cost of labor	**$5,099,096**	**39.3**	**$5,449,997**	**37.7**

Compiled by Miguel Gassman from multiple data sources.

TABLE 24.9 Labor cost movement.

	Decrease in sales	Percentage (%)	Normal	Percentage (%)	Increase in sales	Percentage (%)
Total sales	**$400,000**		**$500,000**		**$600,000**	
Fixed labor cost of $120,000	$120,000	30.0	$120,000	24.0	$120,000	20.0
Variable labor cost of 8.5%	$34,000	8.5	$42,500	8.5	$51,000	8.5
Total labor cost	$154,000	38.5	$162,500	32.5	$171,000	28.5

Compiled by Miguel Gassman from multiple data sources.

24.7.4 Analyzing other expenses

Other expenses are normally the minor costs; however, it is important to keep a close eye on your other expenses as they can build up quickly. In addition, many of the other expenses are uncontrollable expenses such as rent, maintenance, laundry. It is better to focus on items that can be easier controlled such as food cost.

Analyzing other expenses is done in the same way as the labor and food and beverage costs—we analyze the % figure and compare to previous years. When there is a discrepancy, we will have to find out what happened and take corrective action when necessary.

Calculating your other expense % is done using the following formula:

Equation 24.18: Calculating other expenses

$$\textit{Other expenses } \% = \frac{\text{Other expense}}{\text{Total sales}}$$

Compiled by Miguel Gassman from multiple data sources.

24.7.5 Analyzing the profit

When analyzing profit, it is important to remember we always want to take more profit to the bank. The more money we earn, the more our owners are satisfied with our performance. As such we compare profit from one financial period to another using the following formula:

Equation 24.19: Analysing the profit

$$\text{Profit variance } \% = \frac{\text{Net income from this period} - \text{Net income from last period}}{\text{Net income from last period}}$$

Compiled by Miguel Gassman from multiple data sources.

If we look at Christy's Burrito, we can see that net profit has increased this year in comparison to last year by $190,995.00. There was also an increase of 0.35 in the profit percentage. But how much better did they really do (the following equation):

Equation 24.20: Calculating profit variance

$$\text{Profit variance } \% = \frac{\text{Net income this year} - \text{Net income last year}}{\text{Net income last year}}$$

Therefore,

$$\frac{\$1,487,196 - \$1,296,201}{\$1,296,201} = \$190,995 \quad \text{PV} = 14.70\%$$

Compiled by Miguel Gassman from multiple data sources.

Now we can see how much Better Christy's Burrito really did; 14.7% increase in profit is a really good result.

24.8 Cost/volume/profit analysis

Every food and beverage operation wants to know how much business they need to do to start making money. This could be on an annual basis, monthly basis, or even on a meal basis. They all want to know when they will start making money.

The point where the restaurant will start to earn money is called the break-even point. At break-even point, the revenue earned is exactly equal to the expenses. There is zero profit at zero loss at this point.

Only once the restaurant earns more money that the break-even point will it start to earn a profit. Once you have passed the break-even point, you will want to know how much business you have to do to make a certain amount of money. To find out your break-even point and how much money you need to earn to make a certain amount of profit, you will need to the cost/volume/profit analysis.

24.8.1 Fixed and variable expenses

Before we go on, it is important to understand the difference between a fixed and a variable expense.

A fixed expense is an expense that does not change irrespective of how much money you have earned. An example would be rent: if you have signed a rental agreement with your landlord that you will pay him a fixed fee of $10,000.00 per month, then your rent is a fixed expense.

A variable expense is an expense that varies with the amount of revenue you have earned. Once again let us use the example of rent. If you have signed a rental agreement with your landlord that you will pay 10% of your revenue as a rental fee, then your rental fee will increase as your revenue increases.

You then have a mixed expense, which is a combination of fixed and variable expenses. Once again let us refer to your rent. You could have signed an agreement with your landlord that you will pay him a fixed rental fee of $3500 per month plus an additional 4% of your revenue.

See the table below (Table 24.10) for an example of how much you will pay for all three different types of expense.

24.8.2 Contribution margin

The contribution margin is defined as the dollar amount that contributes to covering fixed costs and providing for a profit. The contribution margin is calculated as follows:

$$\text{Total sales} - \text{Variable costs} = \text{Contribution margin}$$

Gulantoo who runs an Indian Bistro in Taipa has rearranged P&L Statement to become a Contribution Margin P&L Statement as shown below in Equation 24.21

Equation 24.21: Contribution margin P&L Statement

$$(\text{Total sales} - \text{Variable costs gives contribution margin}) - \text{Fixed costs} = \text{Profit}$$

Therefore

$$(\$650,000 - \$227,500 \text{ gives } \$422,500) - \$200,000 = \$222,500 \text{ profit}$$

Compiled by Miguel Gassman from multiple data sources.

TABLE 24.10 An example of fixed, variable, and mixed rents.

Example of fixed rent		**Example of variable rent**	
Fixed rent:	$10,000.00	Variable rent:	10% of rent
Revenue	Rent due	Revenue	Rent due
$	$10,000.00	$	$
$50,000.00	$10,000.00	$50,000.00	$5000.00
$100,000.00	$10,000.00	$100,000.00	$10,000.00
$150,000.00	$10,000.00	$150,000.00	$15,000.00
$200,000.00	$10,000.00	$200,000.00	$20,000.00
Example of mixed rent			
Mixed rent = fixed rent + variable rent, i.e., $3500 + 3.50%			
Revenue	Fixed rent	Variable rent	Rent due
$ = $0	$3500.00	$ = 3.5%	$3500.00
$50,000.00	$3500.00	$1750.00	$5250.00
$100,000.00	$3500.00	$3500.00	$7000.00
$150,000.00	$3500.00	$5250.00	$8750.00
$200,000.00	$3500.00	$7000.00	$10,500.00

It will also be helpful for Gulantoo to view his contribution margin income statement in terms of per guest (or per unit). We can calculate the average check (AC) per guest by the following equation:

Equation 24.22: Average check (AC) per guest

$$\text{Average check (AC)} = \frac{\text{Total revenue}}{\text{No. of guests served}}$$

$$\text{Equates to} \frac{\$650,000}{5200 \text{ guests}} = \$125 \text{ per guest}$$

Compiled by Miguel Gassman from multiple data sources.

Furthermore, knowing the average check ($125) and the number of guests served ($5200), we can calculate the variable costs (VC) per guest (the following equation)

Equation 24.23: Calculating the variable costs per guest

$$\text{Variable cost per guest (VC/gst)} = \frac{\text{Variable cost}}{\text{No. of guests served}}$$

$$= \frac{\$227,500}{5200 \text{ guests}} = \text{(VC) } \$43.75/\text{gst}$$

Compiled by Miguel Gassman from multiple data sources.

And lastly, we can calculate the contribution margin (CM) on a per guest basis by the following equation:

Equation 24.24: Calculating contribution margin per guest

$$\text{Contribution margin (CM) per guest} = \frac{\text{Contribution margin}}{\text{No. of guests served}}$$

Therefore

$$\text{Contribution margin (CM) per guest} = \frac{\$422,500}{5200 \text{ guests}} = \text{(CM) } \$81.25/\text{gst}$$

Compiled by Miguel Gassman from multiple data sources.

From this point we can further calculate the percentages for the average check, contribution margin, and variable cost (see the following Equation 24.25):

Equation 24.25: Calculating contribution margin and variable cost

$$\text{AC\%} = 100\% = \$125.00$$

$$\text{VC\%} = \frac{\text{Variable cost/gst}}{\text{Average check}} = \$43.75 = 35\%$$

$$\text{CM\%} = \frac{\text{CM/gst}}{\text{Average check}} = \frac{\$81.25}{\$125.00} = 65\%$$

Furthermore from a P&L Statement to a contribution margin statement

$$\text{AC\%} - \text{VC\%} = \text{CM\%}$$

Ergo

$$100\% - 35\% = 65\%$$

Compiled by Miguel Gassman from multiple data sources.

Now that Gulantoo's P&L Statement has been converted to a Contribution Margin P&L Statement and he has calculated his per unit values as well as his percentages, he is now capable of calculating his break-even point.

To calculate the break-even point, the following formula is used:

Equation 24.26: The break – even point %

$$\frac{\text{Fixed costs}}{\text{Contribution margin \%}} = \text{Break} - \text{even point in sales}$$

Compiled by Miguel Gassman from multiple data sources.

So Gulantoo's Indian Bistro would reach its break-even point at

Equation 24.27: The break – even point $

$$\frac{\$200,000}{65\%} = \$307,692.31$$

Compiled by Miguel Gassman from multiple data sources.

From this we can see that Gulantoo will have to make at least $307,692.31 before he can earn any profit. Any sales less that this amount will result in a loss for the operation.

However, how many guests will Gulantoo have to serve before he breaks even, to calculate the break-even point in number of guests served, we use the following formula:

Equation 24.28: The break – even point in number of guests

$$\text{Fixed costs} = \frac{\text{No. of guests to serve to break even}}{\text{Contribution margin per guest}}$$

Therefore

$$\frac{\$200,000}{\$81.25} = 2,461.54 \text{ guests}$$

Compiled by Miguel Gassman from multiple data sources.

To break even, Gulantoo will have to serve a minimum of 2462 guests. If he serves less than this, he will be running at a loss.

Now let us assume Gulantoo wants to make $222,500 profit from this year's operation. How much revenue will he have to make to achieve this profit and how many guests will he have to serve? We use the following formula to calculate how much revenue Gulantoo will have to make to reach the desired profit:

Equation 24.29: Creating revenue to reach a desired profit

$$\frac{\text{Fixed costs} + \text{Desired profit}}{\text{Contribution margin \%}} = \text{Sales to achieve desired profit}$$

Therefore

$$\frac{\$200,000 + \$222,500}{65\%} = \$650,000$$

Following on from this:

$$\frac{\text{Fixed costs} + \text{Desired profit}}{\text{Contribution margin per guest}} = \text{Guests to serve to achieve desired profit}$$

$$\frac{\$200,000 + \$222,500}{\$81.25/\text{guest}} = 5200 \text{ guests}$$

Compiled by Miguel Gassman from multiple data sources.

From these calculations, we can see that to achieve a desired profit of $222,500, Gulantoo will have to achieve a minimum total sales of $650,000.00 and serve a minimum of 5200 guests.

Further reading

Dittmer, P.R., Heefe Iii, J.D., 2009. Principles of Food, Beverage, and Labor Cost Controls. John wiley and Sons, INC, USA.

Dopson, L.R., Hayes, D.K., 2011. Food and Beverage Cost Control, fifth ed. Willey and Sons, INC.

Keiser, J., Demicco, F.J., Cobanoglu, C., Grimes, R.N., 2008. Analyzing and Controlling Foodservice Costs, fifth ed. Pearson Education Ltd.