SECTION 10

MARGINAL AND ABSORPTION COSTING, BREAK-EVEN ANALYSIS & BUDGETARY CONTROL OPERATIONS

Cost Accounting

Analysing Information for Control and Decision-Making

Introduction

This section focuses on techniques for cost analysis which is essential for decision-making and control in organisations. It covers two key costing methods: marginal costing and absorption costing, explaining their concepts, differences and significance in decision-making. The section also examines break-even analysis, including its assumptions, limitations and importance in identifying the point where total revenue equals total costs. Finally, it discusses budgetary control, emphasising its role in planning and monitoring financial performance against set objectives. By the end of the section, you will be able to apply these techniques to analyse costs effectively for various managerial purposes.

At the end of this section, you will be able to

- Explain the concepts of marginal and absorption costing and their importance
- Explain the concept of break-even analysis, its assumptions and importance
- Explain budgetary control and its importance in planning

Key Ideas:

- Marginal Costing is a costing technique where only variable costs are considered when making decisions. Fixed costs are treated as period costs and not allocated to individual products. This method helps in analysing the impact of production changes on profitability.
- Absorption Costing is a costing method where both variable and fixed manufacturing costs are allocated to products. This approach ensures that all costs of production are absorbed by the products, which affects inventory valuation and profit reporting.
- Break-even Analysis is a financial calculation used to determine the point at which total revenues equal total costs, resulting in neither profit nor loss. It helps in assessing the minimum sales required to cover fixed and variable costs.
- Budgetary Control is the process of comparing actual financial performance with budgeted figures to ensure that an organisation remains within its financial plan. It involves planning budgets, monitoring performance and making adjustments as needed to achieve financial goals.

MARGINAL AND ABSORPTION COSTING

Here, we will concentrate on marginal and absorption costing as a costing technique. We will identify some of the advantages and disadvantages of using these costing techniques.

Marginal Costing

This is a technique in which variable costs are charged to cost units and the total fixed costs of the period are written off in full against the aggregate contribution.

Marginal costing, also known as direct costing or the contribution approach, distinguishes between variable costs and fixed costs. The marginal cost of a product is the sum of all variable costs incurred on the product.

Advantages Of Marginal Costing

1. Marginal costing can be combined with standard costing and budgetary control to make the control mechanism more effective.
2. A clear–cut division of costs into fixed and variable elements makes the flexible budgetary control system easy and effective; thereby, facilitating greater practical cost control.
3. It helps profit planning through break-even charts and profit graphs. Comparative profitability can easily be assessed and brought to the notice of management for decision-making.
4. It helps in the pricing of products.
5. It is an effective tool to support decision making.

Disadvantages Of Marginal Costing

1. It is often challenging to clearly separate all costs into fixed and variable categories.
2. In marginal costing, more emphasis is placed on sales. This can lead to the production process being treated as less important.
3. Leaving out fixed costs when valuing inventory does not make much sense. This is because these costs are also part of the production process.
4. It is unrealistic to base pricing decisions solely on contribution.

Absorption Costing

Absorption costing is an accounting method that captures all manufacturing costs associated with the production of one unit of goods. It includes the cost of materials, labour and overheads. It is commonly referred to as the Full Costing Method.

Advantages Of Absorption Costing

1. It is widely used and easy to understand.
2. Absorption costing recognises the importance of including fixed production costs when determining product cost and a suitable pricing policy.
3. Absorption costing will more accurately show profit compared to variable costing.
4. Absorption costing conforms with accrual and matching accounting concepts which require matching costs with revenue for a particular accounting period.
5. Absorption costing avoids the separation of costs into fixed and variable elements which cannot be easily and accurately done.
6. The process of allocating and apportioning fixed factory overheads to cost centres or departments makes managers more responsible for the costs and services provided to their centres/departments.

Disadvantages of Absorption Costing:

1. It can lead to wrong decision-making when irrelevant costs are taken into consideration.
2. Fixed costs are treated as product costs which can inflate inventory valuations during periods of low production.

Activity 10.1

1. In pairs discuss the meaning of marginal and absorption costing and agree on a definition of each process.
2. Identify the differences between marginal and absorption costing.
3. Explain four advantages and four disadvantages of both marginal and absorption costing
4. Make a poster presentation of your responses and share with another group for feedback. Think about how to clearly present your answers.

THE CONCEPT OF BREAK-EVEN ANALYSIS, ITS ASSUMPTIONS AND IMPORTANCE

Break-Even Analysis

Break-even analysis or cost volume profit analysis (CVP) is the study of the relationship between costs, volume and profit at different levels of activity. It is a system of analysing cost into fixed and variable components to determine the probable profit at any given level of activity.

Break even analysis can be shown graphically. An example is included below

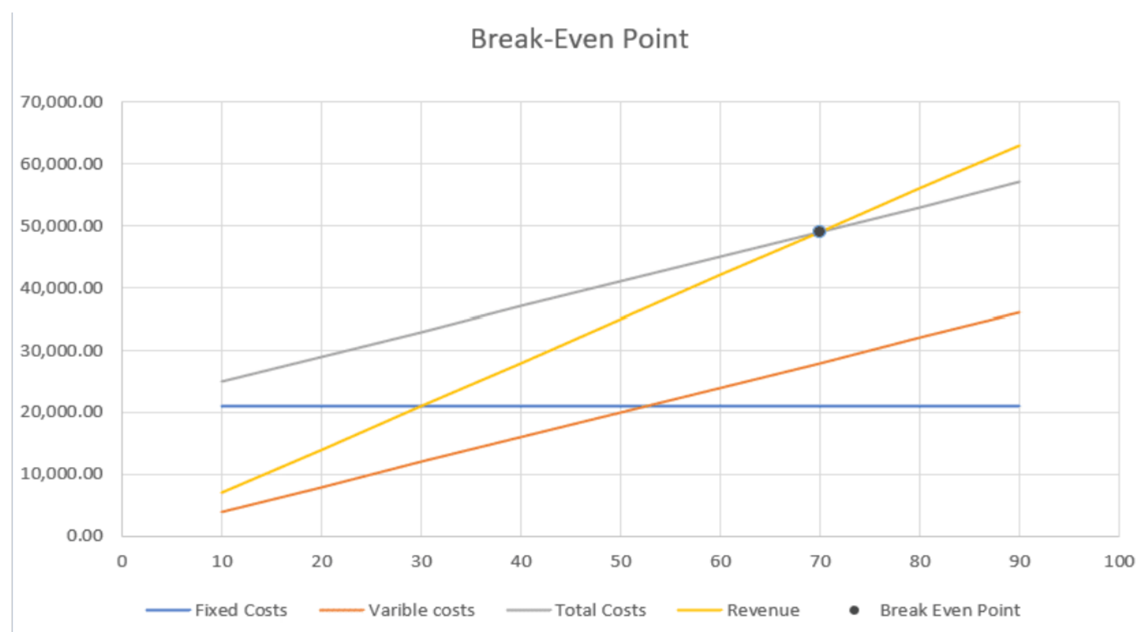


Fig. 10.1: *Graphical presentation of Break-even analysis*

Assumptions Under Break-Even Analysis

1. All costs can be segregated into fixed and variable.
2. The selling price per unit remains constant irrespective of the levels of activity.
3. Production volume is equal to sales volume.
4. The only factor that affects cost and revenue is volume (output)
5. The analysis relates to one product or to a constant product mix
6. Production methods (technology) will remain constant.
7. Fixed cost per period will remain the same and variable cost in total will vary with the level of activity.
8. There is no change in the general price level.

Terms Used in Break-Even Analysis

1. Break-even point

   This is the point at which total cost is equal to total sales revenue. It can be calculated in units of production and revenue.

2. Contribution

   Contribution is the excess of sales over variable costs. It shows how much a product is contributing towards fixed costs and profits. It is calculated as sales less variable cost.

3. Margin of safety

   The margin of safety is the excess of sales or output over the break-even point. It indicates how much sales can fall before the business starts incurring losses.

4. Angle of incidence

   This is the angle where the sale revenue line and total cost line meet on the break-even chart (or graph). This angle is formed from the start of the break-even point and shows the rate at which a company is making profits. The bigger the angle of incidence, the higher the rate of profits.

Advantages/Uses of Break-Even Analysis

1. It helps in setting target profits
2. It helps in setting selling prices
3. It assists in determining the changes in selling price and its impact on profit.
4. It can be used to work out the amounts involved in obtaining a particular volume of output
5. It shows at what point the level of sales will start to generate profit on costs

Limitations of Break-Even Analysis

1. Not all costs can be divided into fixed and variable
2. It relies on a number of assumptions that may not always be true:
   - The assumption that fixed cost remains- in the long run, fixed costs can become variable.
   - The assumption that variable costs per unit remain constant- quantity discounts can change the variable cost per unit.
   - The assumption that technology for production remains the same.

Activity 10.2

1. In pairs, discuss the meaning of break-even analysis.
2. Identify and explain the assumptions of break-even analysis.
3. Write down four (4) advantages and four (4) limitations of break-even analysis.
4. Compare your responses with another pair for discussion and feedback.

You may wish to record your answers in a worksheet similar to the one below:

Break-even analysis	
Definition	
Assumptions	
Advantages	Limitations

Activity 10.3

1. Copy the diagram below into your book and study it carefully

2. Draw lines to match the definitions in the boxes on your left to the appropriate term in the boxes on your right.
3. Compare your answers with that of your colleague for feedback.

Extended task 1

Answer the following questions to support the review of your learning:

1. Explain marginal and absorption costing.
2. Explain break-even analysis.
3. Identify and explain the assumptions underlying break-even analysis.

Explain how break-even analysis supports decision making.

BUDGETARY CONTROL AND ITS IMPORTANCE IN PLANNING

In this segment, we are going to look at the meaning, objectives and process of budgetary control. The importance of budgetary control in planning will also be covered as we highlight some of its advantages and disadvantages.

Budgetary Control

Budgetary control is a system of controlling costs, which includes the preparation of budgets, establishing responsibilities of departments, comparing the performance with the budget and acting upon the results to maximise profits.

The process of budgetary control

1. Preparation of various functional and subsidiary budgets.
2. Coordination of the subsidiary budgets into a master budget.
3. Continuous comparison of actual performance with budgetary performance.
4. Revision of budgets in the light of changing circumstances.

Objectives of Budgetary Control

1. To establish a plan or budget covering all activities of a business to decide the policies and objectives of the business.
2. To fix in monetary terms the objective which the business has set out to achieve within a period.
3. To enable management to put in place a system of control to ensure that work is progressing as per the plan.
4. To help management in planning how to efficiently use the resources of the business.
5. It ensures coordination among departments who rely on each other to achieve the businesses' stated goals.

Advantages of Budgetary Control

1. **Improved planning and forecasting**: Budgetary control enables organisations to plan their financial activities and forecast future results. This helps to identify potential problems and make corrections to the budget accordingly.
2. **Increased efficiency**: It helps organisations to allocate resources more effectively, reduce waste and increase efficiency.
3. **Better decision-making:** Providing detailed financial information facilitates better decision making at all levels of an organisation.

4. **Increased accountability:** It assists in increasing accountability within an organisation by providing clear performance targets and measures of success.
5. **Better cash flow management:** This process gives organisations a clear understanding of their cash flow, helping them make informed decisions about managing their cash resources.
6. **Enhanced control and monitoring:** It provides organisations with a systematic approach to monitoring and controlling their financial activities, reducing the risk of financial errors and mismanagement.

Disadvantages of Budgetary Control

1. **Budgetary controls are based on estimates** - Budgeting is based on a certain amount of estimation. A revision or modification of estimates should be made when variations from the estimates warrant a change of plans.
2. **Requires cooperation of all departments** - The success of implementing budgets requires the cooperation and participation of all relevant members of an organisation.
3. **There is a need for flexibility** - Budgets are prepared in advance, based on estimates, for future use. Some changes may be required but the estimates may remain the same. Thus, flexibility becomes necessary for the success of the budget.
4. **It is expensive** - The use of budgetary control techniques is expensive. It requires detailed analysis and planning. Most small organisations cannot afford the cost.
5. **It is time-consuming** - The installation of budgetary control takes substantial time. The budgeted plan must be explained to the responsible persons, who must be guided, trained on the fundamental steps, methods and purpose of budgetary control.

Activity 10.4

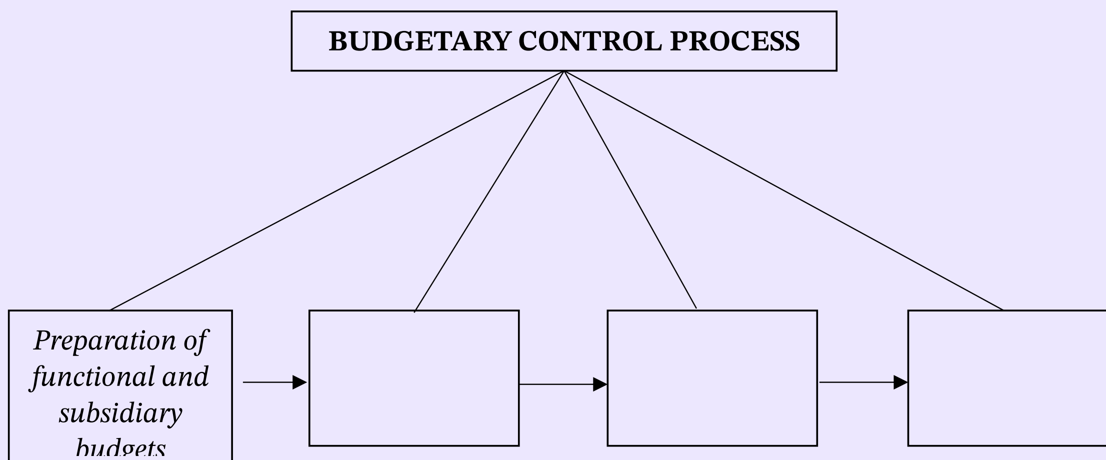
1. In pairs, discuss the meaning of budgetary control and agree on its definition.
2. Identify and explain five (5) objectives of budgetary control.
3. Write down four (4) advantages and four (4) disadvantages of budgetary control.
4. Compare your responses with another pair for feedback and discussion.

   You may wish to record your answers in a worksheet similar to the one below:

Budgetary control	
Definition	
Objectives	
1.	
2.	
3.	
4.	
5.	
Advantages	Disadvantages
1.	1.
2.	2.
3.	3.
4.	4.

Activity 10.5

1. Copy and complete the flow chart below to summarise the budgetary control process



2. Exchange your response with a colleague for feedback

Activity 10.6

1. You have been put in charge of organising an event as part of SRC Week celebrations and have been set a budget.

   Working in groups, describe how you would apply the budgetary control process to this scenario in order to keep control of costs.
2. Record your response in MS Word and share with another group for feedback.

Extended task 2

Answer the following questions to support the review of your learning.

1. Explain budgetary control and its processes.
2. Analyse four (4) objectives of budgetary control.
3. Discuss the advantages and disadvantages of budgetary control.

Review Questions

1. Compare and contrast the usefulness of marginal and absorption costing approaches.
2. Analyse the importance of variable costs in marginal costing and their impact on profitability.
3. What key conditions need to hold true for break-even analysis to work accurately?
4. As a financial management consultant, describe to a client how to practically set up and run a system for managing and controlling a budget in an organisation.
5. What are **four** key goals that organisations aim to achieve through effective budget management, and how do these goals help improve financial performance?

Answers To Review Questions

Question 1

Marginal Costing is a costing approach where only variable costs (direct materials, direct labour and variable overheads) are charged to the cost of production. Fixed costs are treated as period costs and charged against revenue in the period incurred. However, under *Absorption Costing* approach, both variable and fixed production costs are included in the cost of the product. Fixed overheads are absorbed into the cost of goods produced. Marginal Costing and Absorption Costing are two different approaches to accounting for production costs. Below is a comparison of the usefulness of these costing approaches

1. **Decision Making:** Marginal Costing is useful for *short-term decision-making* because it provides clear insights into the impact of production changes on profit, as fixed costs are separated from variable costs. In contrast, Absorption Costing is more suitable for *long-term decision-making*, as it considers all production costs, giving a fuller picture of product profitability.
2. **Profit Reporting:** Marginal Costing leads to *more stable profit* reporting in periods of fluctuating production, as fixed costs are not allocated to stock. However, under Absorption Costing, *profit can fluctuate* with changes in inventory levels, as fixed overheads are spread over the units produced.
3. **Stock Valuation:** Under Marginal Costing, stock is valued at variable costs only, resulting in a *lower inventory value*. However, under Absorption Costing, stock is valued at both variable and fixed costs, resulting in *higher inventory value.*
4. **External Reporting:** Marginal Costing is *not accepted for external financial reporting* under most accounting standards, as it understates inventory costs. In contrast, Absorption Costing is *required for external financial reporting*, as it reflects the total production cost in inventory.

In conclusion, marginal costing is more useful for internal decision-making, especially for analysing variable costs, while absorption costing is important for financial reporting and understanding the full cost of production, including fixed overheads.

Question 2

Variable costs (e.g., direct materials, direct labour and direct expenses) are costs which fluctuate with production volume. This means they rise or fall based on the level of output. Under marginal costing, variable costs play a crucial role as they are the only costs considered when calculating the contribution margin, which shows how much revenue is available to cover fixed costs and generate profit.

This makes variable cost an important factor when it comes to profitability analysis and managerial decision making. For instance, higher variable costs reduce the contribution margin, thereby lowering profitability. If variable costs are well-managed, a business can maintain a healthier contribution margin and enhance profitability.

On the other hand, lower variable costs increase the contribution margin, leading to higher profitability as more of each sale is available to cover fixed costs and generate profit.

Furthermore, managers use marginal costing to assess how changes in output levels affect profitability. By focusing on variable costs, they can make decisions such as pricing, product mix and whether to continue or discontinue a product. Thus, variable costs are critical in determining how changes in sales volume impact profit levels and guiding management decisions for cost control and profit optimisation.

Question 3

Here are the key assumptions that must hold true for break-even analysis to work

1. All costs are classified as either fixed or variable.
2. The selling price per unit remains constant.
3. Variable costs per unit stay consistent, regardless of production levels.
4. Variable cost in total will vary with the level of activity
5. Fixed cost per period will remain the same
6. Production levels equal sales levels (no inventory changes).
7. Production methods (technology) remain constant

Question 4

To practically set up a budgetary control system to manage a budget, these steps must be followed.

1. **Define Objectives**
   What the organisation or department aims to achieve with the budget must be clearly outlined. For instance, is it to reduce costs, increase profitability, or improve operational efficiency? Setting specific goals will help guide the budgeting process.

2. **Identify Key Budget Areas**
   The organisation must be broken down into key areas like revenue, expenses, production, marketing and others. Each area will need its own budget.

3. **Gather Historical Data**
   Collect financial data from past periods. This includes sales figures, expenses and any other financial metrics. Analysing this helps in predicting future performance more accurately.

4. **Prepare the Budget and Set Targets**
   Using the gathered data, create a detailed budget. This may include Revenue Forecasting (i.e. how much the company will make) Cost Estimation (i.e. Projecting fixed and variable costs) Capital Expenditure (i.e. Planning for major investments like equipment or infrastructure). Set realistic targets for income,

costs and other financial metrics. These targets must align with the company's strategic goals.

5. **Assign Responsibilities**
   Designate managers or teams for each budget area. They will be responsible for managing and controlling the budget within their department to ensure accountability.

6. **Communicate the Budget**
   Make sure everyone involved in the budgetary process understands their roles, targets and the overall budget. Conduct meetings or distribute the budget document.

7. **Establish Controls and Monitoring Systems**
   Set up processes for regularly tracking performance against the budget. This can be done through monthly or quarterly financial reports, variance analysis (comparing budgeted vs. actual performance) and dashboards or software to provide real-time insights.

8. **Monitor and Adjust**
   Regularly review financial performance. If actual results significantly deviate from the budget, investigate the reasons and take corrective actions. This may involve adjusting the budget or finding ways to manage costs.

9. **Report and Evaluate**
   At the end of the budget period, compare the actual results with the budgeted figures. Evaluate what worked and what did not work to improve the next budgeting cycle.

   By following this practical approach, an organisation can effectively manage its resources, control costs and meet financial goals.

Question 5

Effective budget management is crucial for organisations seeking to optimise their financial performance and achieve long-term success. Four key goals that organisations aim to achieve through effective budget management and how these goals contribute to improved financial performance are as follows:

1. **Resource Allocation:**

   Goal: Ensure that financial resources are allocated efficiently and effectively to different departments or projects based on strategic priorities and anticipated returns.

   How It Helps: By allocating resources where they are most needed and can generate the highest value, organisations can enhance operational efficiency and increase the likelihood of achieving their strategic objectives. This helps to avoid wasteful spending and maximises the impact of every dollar spent.

2. **Cost Control:**

   Goal: Monitor and control expenditures to stay within budgeted limits and prevent overspending.

   How It Helps: Effective cost control helps organisations maintain financial discipline and avoid budget overruns. This ensures that resources are used judiciously, helps maintain profitability and allows for better financial stability and predictability.

3. **Performance Measurement:**

   Goal: Track and measure financial performance against budgeted targets to assess how well the organisation is achieving its financial goals.

   How It Helps: By comparing actual performance to budgeted expectations, organisations can identify variances and understand their causes. This insight allows for timely corrective actions, informs future budgeting decisions and helps improve overall financial performance.

4. **Financial Forecasting and Planning:**

   Goal: Develop accurate financial forecasts and plans to anticipate future financial conditions and make informed decisions.

   How It Helps: Accurate forecasting and planning help organisations prepare for potential financial challenges and opportunities. By anticipating changes in revenue, expenses and cash flow, organisations can make proactive adjustments to their strategies and operations, enhancing their financial resilience and growth potential.

Achieving these goals through effective budget management helps organisations enhance their overall financial performance by ensuring efficient use of resources, maintaining cost control, measuring success accurately and planning strategically for the future.

EXTENDED READING

- Eric Oduro (2012), Principles of Cost Accounting for Senior High Schools 4th Edition, Terror Publications. (**Pages 225 – 366**)
- Dadzie Barnabas (2013) Costing for "U", 5th Edition. Obuasi: For U Printing House (**Pages 251-275**)

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GLOSSARY

Allocation	The process of assigning specific costs to individual cost objects, such as products, departments, or projects, based on a reasonable basis or driver.
Apportionment	The distribution of indirect costs or overheads among different cost objects or departments in a fair and systematic manner. Apportionment is used to divide shared costs (such as administrative expenses) based on a predetermined formula or basis, ensuring that each department or product bears a proportionate share of the costs.
Cash Flow	The movement of cash into and out of an organisation over a specific period. In cost accounting, cash flow is crucial for understanding the liquidity and financial health of a business, as it reflects the cash generated from operations, investments and financing activities.
Forecasting	The process of estimating future financial outcomes based on historical data, trends and assumptions. In cost accounting, forecasting involves predicting future costs, revenues and other financial metrics to support budgeting, planning and decision-making.
Monetary	Pertaining to or measured in terms of money. In cost accounting, monetary considerations involve the financial aspects of costs, revenues and investments, focusing on their impact on an organisation's financial performance and position.
Quantity Discount	A reduction in the price of a product or service offered to customers who purchase in larger quantities. In cost accounting, quantity discounts are analysed to understand their effect on purchasing decisions, cost savings and overall financial performance.

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