

# **PROJECT APPRAISAL AND INVESTMENT ANALYSIS**

## **LECTURE 3**

### **CATEGORIES AND OBJECTIVES OF COST AND BENEFITS**

# **COST-BENEFIT ANALYSIS**

## **Learning Objectives:**

- How CBA important for an organization
- What are the Objectives of Costs and Benefits
- Capital Budgeting and its types

# **COST-BENEFIT ANALYSIS- AN OVERVIEW**

- Cost-benefit analysis (CBA) is a tool used to determine the worth of a project, programme or policy.
- It is used to assist in making judgments and appraising available options.
- CBA is a quantitative analytical tool to aid decision-makers in the efficient allocation of resources.
- It identifies and attempts to quantify the costs and benefits of a programme or activity and converts available data into manageable information.

# **COST-BENEFIT ANALYSIS**

There are some step which need to be take to while doing CBA

**General Description**

**Alternative Scenarios**

**Identify Costs and Benefits**

- **Cost:**

1. Principal Cost
2. Personnel Cost
3. Direct and Indirect Cost
4. Depreciation

- **Benefits:**

1. Revenue/ Production Increase
2. Staffing Reduction (Cost Control)
3. Organization Efficiency
4. Employer and customer Satisfaction

- **Time Period**

1. Calculate Present Value for future expense

- **Compare Alternatives**

- **Sensitivity Analysis**

# **COST-BENEFIT ANALYSIS**

The purpose of cost benefit analysis in project management is to have a systemic approach to figure out the pluses and minuses of various paths through a project, including transactions, tasks, business requirements and investments.

There are two main purposes in using CBA:

- To determine if the project is sound, justifiable and feasible by figuring out if its benefits outweigh costs.
- To offer a baseline for comparing projects by determining which project's benefits are greater than its costs

# **COST-BENEFIT ANALYSIS**

## **Basics about cost-benefit analysis**

- Cost-benefit analysis is a form of analysis derived from accounting.
- Policy-makers and project managers use CBAs to assess whether an action, planned change or project is worth undertaking
- Whereas a financial cost-benefit analysis builds on actual (financial) prices, an economic cost-benefit analysis integrates the viewpoint of society as a whole.
- Economic costs-benefit analysis is also called social cost-benefit analysis.

# **COST-BENEFIT ANALYSIS**

There are many ways to evaluate programmes and activities. However, there are three methods that have frequent relevance to public agencies. These methods are:

- CBA
- Financial evaluation
- Cost-effectiveness analysis

# **COST-BENEFIT ANALYSIS**

## **Cost-Benefit Analysis**

- CBA is a methodology for assessing the net benefits accruing to society as a whole as a result of a project, programme or policy
- The CBA method considers the flow of real resource costs and benefits.
- CBA attempts to measure the value of all costs and benefits that are expected to result from the activity.



# **COST-BENEFIT ANALYSIS**

## **Financial Evaluation**

- A financial evaluation (or 'investment evaluation') is generally conducted from the perspective of an individual firm or agency rather than from the point of the community as a whole.
- It is essentially concerned with assessing the impact of a programme or project on the organization's own financial performance

# **COST-BENEFIT ANALYSIS**

In a financial evaluation, only cash flows in and out of the organization are considered; cashflows involving other parties are excluded, as are 'unpriced' costs and benefits.

**Example of Unpriced**, inventory for a new product may be temporarily unpriced while a retailer decides how much to charge.

# **COST-BENEFIT ANALYSIS**

## **Cost Effectiveness Analysis**

- Cost-effectiveness analysis (CEA) is aimed at determining the cost of achieving a specific physical target.
- CEA is useful in areas such as health, accident safety and education where it is often easier to quantify benefits in physical terms than to value them in Rupees.

# **COST-BENEFIT ANALYSIS**

## **Objectives of Cost-Benefit Analysis**

- Determine scope and objectives
- Identify the constraints
- List feasible alternatives
- Specify costs and benefits
- Quantify costs and benefits
- Sensitivity test for uncertainty
- Outline equity issues
- Report

# **COST-BENEFIT ANALYSIS- OBJECTIVES**

**Determine the Scope & Objective:** There are some point that need to be considered, how to achieve the objectives of related organization, beneficial for economy or public and also consistent with the govt. Policies.

**Identify the constraint:** Constraints may be financial, distributional, institutional, managerial, environmental and political in nature.

# **COST-BENEFIT ANALYSIS- OBJECTIVES**

**Consider Alternatives:** A CBA involves the identification and specification of a set of alternatives that costs and benefits are nearly always measured as incremental to what would have happened had the project not gone ahead.

**Identify and quantify Cost-Benefits:** A critical step in the CBA process involves identifying, quantifying and valuing the costs and benefits of each alternative. The **costs include** initial capital costs, operating and maintenance costs, costs which cannot be valued in money terms (intangibles); the **benefits include** benefits which can be valued in money terms, in the form of revenues, cost savings or non-market outputs.

# **COST-BENEFIT ANALYSIS- OBJECTIVES**

**Sensitivity test for uncertainty:** The quantitative risk assessment of how changes impact the output of the model sensitivity analysis allows you to identify which task's duration with uncertainty has the strongest correlation with the finish time of the project.

**Outline Equity Issue:** There may also be broader social justice considerations where a project involves a significant redistribution of income, regardless of the net economic gains to the community.

**Reports:** The final stage in the CBA process is to write up the analysis and prepare recommendations.

# CAPITAL BUDGETING

Capital budgeting is a company's formal process used for evaluating potential expenditures or investments that are significant in amount. It involves the decision to invest the current funds for addition, disposition, modification or replacement of fixed assets. The large expenditures include the purchase of fixed assets like land and building, new equipments, rebuilding or replacing existing equipments, research and development, etc.



# CAPITAL BUDGETING

The large amounts spent for these types of projects are known as capital expenditures. Capital Budgeting is a tool for maximizing a company's future profits since most companies are able to manage only a limited number of large projects at any one time.



# **CAPITAL BUDGETING**

## **FEATURES OF CAPITAL BUDGETING**

1. It involves high risk
2. Large profits are estimated
3. Long time period between the initial investments and estimated returns

# CAPITAL BUDGETING- TYPES

There are different types or methods of analysis to determine the economic efficiency of a project.

**The types that will be covered in this section are:**

1. Benefit Cost Ratio (BCR)
2. The Payback Period (PBP)
3. Internal Rate of Return (IRR)
4. Net Present Value (NPV)

# CAPITAL BUDGETING- TYPES

## Benefit Cost Ratio (BCR)

This is the ratio of project benefits versus project costs. It involves summing the total discounted benefits for a project over its entire duration/life span and dividing it over the total discounted costs of the project.

## Understanding the results of BCR

- In economic terms, the costs exceed the benefits. Solely on this criterion, the project should not proceed.
- Costs equal the benefits, which means the project should be allowed to proceed, but with little viability.
- The benefits exceed the costs, and the project should be allowed to proceed.

# CAPITAL BUDGETING- TYPES

## Payback Period

The Payback Period measures the amount of time it would take to earn back the initial investment in the project. Management then decides how long they are willing to wait to recover their investment and compares the calculated payback period to the critical acceptance level.

The decision rule for independent projects is to accept all projects that have a payback period less than the critical acceptance level (T). For mutually exclusive projects, the project with the lowest payback period would be chosen

# CAPITAL BUDGETING- TYPES

For example, let's assume that Jim's Printing is considering the purchase of a new printing press. The press will cost \$2000 to produce and will generate cash flows of \$900 per year for 3 years. What is the payback period for this press? If Jim's assigns a critical acceptance level (Pay back Period) of 2.0 years, should they accept the project?

If the Payback Period is greater than 2.0 years, we should reject the project.

# CAPITAL BUDGETING- TYPES

## Internal Rate of Return

The internal rate of return measures the rate of return the investment in the project is achieving. It can be compared to the rate of return of the stock market or other investments.

The acceptance rule for independent projects is to accept all projects where the IRR is above the required return for those projects. If projects are mutually exclusive, accept the one with the highest IRR.

# CAPITAL BUDGETING- TYPES

Let's look at the IRR of our printing press example

CLEAR WORKSHEET

$$CF_0 = -2000$$

$$CF_1 = 900$$

$$CF_2 = 900$$

$$CF_3 = 900$$

SOLVE FOR IRR AND GET 16.65%



# CAPITAL BUDGETING- TYPES

## Net Present Value

The net present value represents the value, in today's currency, of all of the inflows and outflows generated by the project.

Every project represents a series of cash inflows and outflows. Due to the time value of money, an apples to apples comparison must be made between money received today and money received later. To make an investment decision, each future inflow/outflow is converted to today's value using a discount rate.

# REFERENCES

[https://www.paho.org/disasters/index.php?option=com\\_docman&view=download&category\\_slug=smart-hospitalstoolkit&alias=2178-smart-hospitals-toolkit-cost-benefit-analysis-cba&Itemid=1179&lang=en](https://www.paho.org/disasters/index.php?option=com_docman&view=download&category_slug=smart-hospitalstoolkit&alias=2178-smart-hospitals-toolkit-cost-benefit-analysis-cba&Itemid=1179&lang=en)