**5 CVP: Capacity Constraints**

Every manufacturing business has a limit on the number of products that it can make.

This constraint may be the limited availability of:

* Machine hours
* Labour hours
* Skilled workers
* Raw materials

Where the business manufactures a number of products it must decide how many of each product to manufacture to maximize profits, within the constraint. The business should maximize production of product that gives the highest contribution per limited resources.

Step 1 Calculate the contribution margin per unit of each product.

Step 2 Calculate the contribution margin per limiting factor

Step 3 Identify the product which gives the highest contribution per limiting factor.

The production of this product must be maximized.

Step 4 Calculate the limiting factor used up if the maximum number of this product is manufactured.

Step 5 Calculate the remaining limiting factor.

Step 6 Divide this by the limiting factor per unit of the other product to find the number of units that can be manufactured using the remaining capacity.

*Refer to example in pg 65*

**Qualitative factors**

CVP provides quantitative answer to help decision making. However qualitative factors also affect the final decision. The above analysis results in low contribution products, eliminated/reduced and replaced with high contribution products. By limiting customer choice the business may lose customers to competitors. Customers look for variety and convenience when making purchases.

**6 CVP: Other Decisions**

CVP is used to help managers make decisions where they have to choose between alternative options.

* To accept or reject a special order
* To make or buy a product or component
* To continue or close down a department

To evaluate these options, only relevant information is considered

**Relevant information includes**

Relevant costs and income – costs that differ between alternatives

Avoidable costs – cost that can be eliminated if a particular alternative is adopted.

Opportunity costs – the potential benefit given up by choosing one alternative instead of another

**Relevant information does not include**

Unavoidable costs – costs the business will incur in the future no matter which alternative is chosen

Sunk costs – a cost already incurred and will not change irrespective of alternative chosen.

**Special Order Decisions**

On occasions, an organisation will be offered a special, once only order. The price offered for the organisations products will normally be below the normal selling price.

Using relevant information managers must decide whether this order should be accepted or rejected. Relevant expenses and revenue refer to future expenses and revenue that change because of a decision.

When a special order is received, only the revenue from the special order and the variable expenses are relevant in deciding whether to accept or reject the special order.

That is, only the contribution margin is relevant. The fixed expenses will be incurred no matter what decision is made.

*Qualitative factors to consider*

* The existence of *spare production capacity* to accommodate the special order must also be considered.
* Cutting down on existing products could result in losing loyal customers if their orders cannot be met.
* Existing customers may also want the special price. The business may be accused of discriminatory pricing.

**Keep Open or Close Down Decisions**

Here the decision is whether to close or continue the operation of a poorly performing segment of the business.

CVP Analysis is used to see if the segment, for example a department is making a positive contribution to fixed expenses of the business.

*Qualitative factors to consider*

* Decision to close a department may result in retrenchment, transfers and relocation of employees. If not handled well this may affect employee- management relationship. This could lead to inefficiencies and losses.
* The department that is making a loss may be attracting customers to the business. Other department’s sales may be affected if it closes down.

**Make or buy decision**

A manufacturer must sometimes have to decide whether it is cheaper to make a component part or buy it from an outside source.

A service business may also consider whether it should outsource a service. For example it may outsource the handling of enquiries to a call centre.

*Qualitative factors to consider*

* Buying (instead of making) may mean retrenchment or transfer of employees. This may involve costs and employee problems.
* The business needs to consider the reliability of the supplier and its ability to continue to supply.
* The business may find it difficult to monitor quality when it outsources production.

**Limitations of CVP**

CVP helps in decision making. However it is based on assumptions which may not occur in practice. This should not be overlooked.

**Fixed costs only remain constant over relevant range.**

In reality it consists of different costs (rent, depreciation etc) which move in steps at different points as volume increases.

**Variable costs are assumed to be directly proportionate to output**.

This may not be so. Raw material unit price may drop because of quantity discounts at higher volumes.

It may be necessary to pay higher rates to recruit additional workers to meet higher outputs.

**Efficiency is assumed to remain unaltered.**

Efficiency of labour may improve at higher output levels because of specialization. This may reduce labour cost per unit.

**Costs are assumed to be easily identified as fixed or variable.**

Many costs are mixed and it may be difficult to accurately separate the fixed from variable elements.

**Sales price is assumed to remain constant**

It may not be possible to achieve higher sales levels without a drop in selling price.

**It is assumes that all products produced are sold.**

Competition and changes in customer demand affects sales

**It assumes that changes in volume are the only factors that affect costs and revenue.**

Competitor’s actions, changes in trends, shortages of resources are among the other factors