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## PRODUCTIVITY

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### CONCEPT AND DEFINITION

Productivity may be defined as the ratio between output and input. Output means the amount produced or the number of items produced and inputs are the various resources employed, e.g, land, building, equipment and machinery, material, labour, etc.

Productivity of a production system is analogous to the efficiency of a machine.

According to Peter Drucker, “Productivity means a balance between all factors of production that will give the maximum output with smallest efforts.

ILO defines productivity as the ratio of aggregate output to aggregate input.

### FACTORS AFFECTING PRODUCTIVITY

#### (a) Factors affecting National Productivity:

*Human Resources:* General level of education, computing skills, motivation towards work, etc.

☛ *Technology and Capital Investment:* Adoption of new technologies, investment in new machinery and equipment

☛ *Government Regulation:* An excessive amount of regulation may have detrimental effect on productivity.

#### (b) Factors affecting Productivity in Manufacturing and Services Sectors:

☛ *Product and System Design:* Standardization of the product and the use of group technology are the design factors that make possible greater productivity in the factory.

☛ *Machinery and Equipment:* The equipment used –machines. Tools, conveyors, factory layout – all affect the productivity.

☛ *Skill and Effectiveness of the Worker:* The trained and experience worker can do the same job in much shorter time.

☛ *Production Volume:* If the output is doubled the productivity of support people (like Engineers Design People, Headquarter staff or other support personnel) is doubled.

### Measurement of Productivity

The basic objectives of productivity measurement are:

- (1) To study performance of a system over time.
- (2) To have relative comparison of different systems for a given level; and
- (3) To compare the actual productivity of the system with its planned productivity.

The measurement of the productivity creates problem,

- when the production system produces different types of output,
- whenever different kinds of input like capital and labor, are to be added to arrive at an aggregate output and aggregate input figures respectively, a common unit of measurement is needed for these outputs and inputs.

The most common way is to express both outputs and the inputs in monetary terms. If the outputs and inputs for

the period for which productivity is measure, are expressed in rupees, then

Aggregate output = Gross sales= G(say); and

Aggregate input = Cost= C (say)

$$\text{Thus Total Productivity } T_p = \frac{\text{Aggregate Output}}{\text{Aggregate Input}}$$

### Kinds of Productivity Measurement

**1. Land Productivity:** The productivity of land and building is said to have increased if the output of goods and services within that area is increased.

**2. Material Productivity:** The productivity of the materials becomes key factor in economic production / operation.

$$\text{Material Productivity} = \frac{\text{Number of units produced}}{\text{Cost of material}}$$

***Raw material productivity can be increased by:***

- i. Proper choice of design;
- ii. Better handling of materials and reduction of rejection;
- iii. Recycling and reuse of materials.
- iv. Searching alternative cheaper material.