

Decision Making Units (DMUs): They are the economic entities or units whose efficiencies will be measured by the model; those units should be homogeneous, work in the same field and have the same inputs and outputs variables.

Data Envelopment Analysis (DEA): It is a non-parametric quantitative model which is employed for measuring the relative efficiencies of DMU's, it was first put forward by Charnes, Cooper and Rhodes in 1978 of decision-making units (DMU's).

(Efficiency = weighted sum of outputs / weighted sum of inputs).

Efficiency: The DMU ability to produce the maximum amount of output with a given amount of inputs; or equivalently, using minimum amount of inputs to produce a given amount of output. The DMU is considered efficient if performances of other DMUs do not show that some of its inputs or outputs can be improved without worsening other inputs or outputs.

Economic Efficiency: It means, producing the maximum value of output with a given value of inputs; or equivalently, using minimum value of inputs to produce a given value of output.

Allocative Efficiency: This efficiency deals with the minimizing of cost of production with proper combination of inputs to a given level of outputs and a set of input costs. Allocative efficiency measures the DMU ability to minimize cost due to the proper combination of inputs.

Technical Efficiency (TE): Technical efficiency means producing maximum output with given inputs; or equivalently, using minimum inputs to produce a given output. It is noticed that the input and output variables are expressed in terms of units not values.

Scale Efficiency (SE): It measures the DMU's ability to work at its optimal level of operation. This efficiency affects and contributes to the DMU aggregate technical efficiency.

CCR Model: CCR model is named after its developers Charnes, Cooper and Rhodes. It is the first Data Envelopment Analysis (DEA) model put forward by Charnes,

Cooper and Rhodes in 1978 to measure the relative efficiencies of decision making units (DMU's) and it assumes constant returns to scale.

BCC Model: BCC model is named after its developers Banker, Charnes and Cooper. It is another DEA model put by Banker, Charnes and Cooper in 1984 to measure the relative efficiencies of *DMU's*, and it assumes variable returns to scale.

Constant Returns to Scale (CRS): It means that, if inputs are increased or decreased, outputs will be increased and decreased by the same proportions (if inputs are doubled, output will also be doubled).

Variable Returns to Scale (VRS): It means that, if inputs are increased or decreased, outputs will not be increased or decreased by the same proportions (if inputs are doubled, outputs will not be doubled).