

A Dynamic Programming-based Model for Determining the Optimum Workforce Size

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Abstract

The determination of the appropriate workforce size as part of production planning can be approached using a variety of mathematical tools. There are techniques based on Linear Programming while some are based on trial-and-error. In practice, the trial-and-error or informal techniques are more commonly used. This is because computations are easily done. However, because informal techniques are based on rules of thumb only, it is very rare that cost-wise optimum solutions are reached.

This paper proposes and discusses a model, called MPOVS, for determining the optimum workforce size using Dynamic Programming. Unlike the informal trial-and-error methods, this model is expected to arrive at best solutions more often; and unlike other mathematical models like those based on Linear Programming, this model gives solutions with relatively small number of iterations and with generally less complicated computational requirements.

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