

## **DECISION MAKING UNITS IN DATA ENVELOPMENT ANALYSIS AND ANALYTICAL HIERARCHY PROCESS**

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### **Abstract**

This paper proposes two-stage model for prioritization decision making units (DMU) where each unit has multiple inputs and outputs. The first stage model is a no cooperative game where each optimal input-output weight set of DMU is defined by the Data Envelopment Analysis (DEA) and each DMU evaluates other DMUs by its own weights. The equilibrium state obtained from the first stage motivates none of DMUs to change its optimal input-output weights from the current ones. In the second stage, the cross-evaluation matrix fixed by the equilibrium weights of the first stage is utilized to rank DMUs by the eigenvalue method in Analytical Hierarchy Process (AHP). In this paper, in addition to study this method, we have presented another way to rank decision making units by AHP and DEA, and then, we have compared them through one example.

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Key Words : Data envelopment analysis, Decision making units (DMU), Analytical hierarchy process, DEA, AHP.

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