BIA 650 A Homework#4 W&A Chapter 4, Problem 42

# Management Overview

Problem Statement:

The objective is to determine which of the schools in question are efficient.

Data Sources:

* + The **inputs** are identified as educational Level of Mothers, number of Parent Visits to School and teacher to student ratio. The **known outputs** are average reading scores, average mathematics scores and average self-esteem scores.
  + **Constraints** are identified as
    - The total input costs cannot be lesser than the total output price
    - The total input costs for the selected school can have a maximum value of 1
  + **Output** is Efficiency. The cell can have values from 0 to 1

Model Approach:

* + Separate the data into inputs, known outputs, constraints and output.
  + An extra cell is added to select a particular school.
  + Then we conduct sensitivity analyses on each of the known outputs

Sensitivity Analysis:

Sensitivity analyses are done on each of the known output variables and efficiency. This answers the question “What should the value of the particular output be for the school to become efficient? “. We assume no change in other variables.

* **Efficiency Vs Average Reading Score:**

The reading score has to be at least 15 for School 4 to be efficient. It currently has only 9.

* **Efficiency Vs Average Math Score:**

When the average math score becomes 10 the school becomes efficient.

**Efficiency Vs Average Self-esteem Score:**

School 4 becomes efficient when average self-esteem score hits 11.

Solution:

* Schools 1, 2 and 3 are efficient and School 4 is inefficient as we only got a score of 0.949. Based on the three sensitivity analyses done, we can conclude that ‘Reading Scores’ is where the school sits really far behind other schools.