

**Case study**

Data used here are called COMP.

A firm CEO leads by developing and implementing a strategic policy for the firm. CEO salaries in the united states are of interest because of their relationship to salaries in international firms and to salaries of people that do not belong to Corporate America.

The data for this study were drawn in 1992. The goal of this report is to study CEO and firm characteristics to determine the important factors influencing CEO compensation.

99 observation were selected from 800 companies representing the largest publicly traded companies in the United States.

Firm characteristics studied in this report include:

1. Sum of the salary, bonus and other compensation, "COMP",
2. Sales revenues: measure of size and profitability of the firm, "SALES".
3. Educational level, GRAD.
4. Percentage of the company's market value owned by the CEO, "PCTOWN".
5. The market value of the CEOs stock in natural log, "VAL".
6. Number of years as the firm CEO, "EXPER".
7. Number of years employed by the firm, "TENURE".
8. Profits of the firm, before taxes, PROF

- Plot the histogram of the variable "COMP" .
- What do you observe? Is it symmetric?
- How do you act here?
- We may think that that more profitable firms may have more generous compensation packages as rewards for strong performance because of the greater responsibilities that the CEOs must assume. Can we verify this assumption?
- Use Stepwise regression to affirm that a best model to recommend for this data analysis is the following :

$$\log(\text{COMP}) = \beta_0 + \beta_1 \log(\text{SALES}) + \beta_2 \text{EXPER} + \beta_3 \text{GRAD} + \beta_4 \text{PERCENT5} + e$$

where PERCENT5 is an indicator variable which indicates whether the CEO does owns more than 5% of the firm's stock, "PERCENT5"

- What does a negative sign associated with PERCENT5 mean?

- What does a negative sign associated with GRAD mean?
- What does a positive sign associated with log(SALES) mean?
- What does a positive sign associated with EXPER mean?
- Estimate the compensation for the following executive who was a CEO of Ameritech and who:
  - who earned \$2,27 million in total compensation.
  - had 8 years of experiences as CEO,
  - who has a bachelor
  - who owned approximately 0.05% of the Ameritech stock
  - which had profits of \$1,166 millions on sales of \$10,818 millions.
  
- What percentage does the model explain of the variation in compensation?
- What kind of output explain the remaining variability in compensation? Is it lower or larger than the original variability in compensation.
  
- Is each explanatory variable important? why?
- Is there any collinearity within the variables?
- How many unusual observations we have? which one is a leverage point and which one is an outlier?
- Does the model improve when removing those observations
- Check if there is a heteroscedasticity problem.