

COMM 215: Business Statistics
Section EC
Fall 2019

Data Analysis Project (8%)

Topic: **Employee Satisfaction at Nasee Inc.**

Data file: *EmployeeSatisfaction.xlsx*

Report uploading Deadline: **November 25, 2019, 23:59:59**

Description

Nasee Inc. runs a Chain store with operations in several major locations. Recently, there have been several instances of work slowdown and walk out by protesting employees unhappy with management's response to their demands. Concerned about the issues and the current degree of employee satisfaction, management has initiated a study based on a sample of its employees from the three major work locations: Loc_A, Loc_B and Loc_C. As part of this study, employees in the sample were asked to indicate their degree of satisfaction in their work (WORK), their pay (PAY), and their opportunities for promotions (PROMO). Each of the three aspects of job satisfaction was measured on a scale from 0 to 100, with larger values indicating higher degrees of satisfaction. The data collected also show the following characteristics of employees: employee ID; job type (JOBTYPE: Managerial, Supervisory, Clerical and Technical), level of attained education (EDUC: HSDIP=High School Diploma, COLLEGE level, BAMA=Bachelors or Master's Degree).

The goal of the study is to identify factors that influence employee satisfaction and to develop an appropriate model to explain the issues.

For recent studies on 'Employee Job Satisfaction and Engagement', you may refer to the link below and some of the references cited in this report.

<https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/Documents/2016-Employee-Job-Satisfaction-and-Engagement-Report.pdf>

Managerial Report

Use *appropriate (applicable) methods of descriptive statistics, including tables and plots, to summarize the data* (depending on the data type - quantitative continuous or discrete and qualitative or categorical). That is, prepare appropriate tables of descriptive statistics (mean, standard deviation, coefficient of variation, quartiles, IQR, correlations) and appropriate plots (histograms, dotplots, bar/pie charts, stem plots, boxplots, scatterplots) of the variables, *overall and when appropriate, by categories*. You are expected to produce displays that will allow you to describe the distribution in terms of symmetry, dispersion, and outlying observations. Present the summaries of statistical results that will be beneficial in communicating to others. The results must be fully discussed and clearly explained in context addressing the issues.

Follow the guidelines for preparing the project report. As part of the analysis, you are expected to address the following questions:

1. On the basis of summary table of descriptive statistics (and plots) for the three job satisfaction variables, discuss the job aspects that is most satisfying and least satisfying for the employees. In what area(s), if any, do you feel improvements should be made?

2. On the basis of descriptive measures of variability, determine the job satisfaction that appears to generate the greatest and the least difference of opinions among the employees?
3. What can be said about the types of jobs, education levels and job locations in relation to satisfaction on the job? Does any particular type of job, level of education and job location seem to have better levels of satisfaction than the other types? Explore the questions on the basis of side-by-side boxplots (overlay plots on same scale for comparisons) along with descriptive statistics by categories of job type, education level and work location.
4. Use the contingency table analysis to test the hypotheses that
 - (i) The type of employee's job and level of employee's attained education are independent.
 - (ii) The type of employee's job and employee's work location are independent.
 - (iii) The level of employee's attained education and employee's work location are independent.
5. Develop and discuss the 95% confidence interval estimates of job satisfaction (work, pay and promotion) for
 - (i) all employees;
 - (ii) employees from each location;
 - (iii) employees from each job type;
 - (iv) employees from each education level.
6. Suppose that an employee is 'dissatisfied' with the job if the degree of satisfaction for at least one of the 3 expressed satisfactions (work, pay or promotion) is less than 70. Perform tests to determine if employees are dissatisfied with their job.
7. What can be said about the relationships between the job satisfaction variables? Discuss on the basis of scatter plots and correlations of the relevant variables.
8. Do your results suggest any recommendations for learning about and/or improving job satisfaction? Discuss based on your results from 1 to 7.