

BUS 735: Business Decision Making and Research

In-class Exercise: Logistic Regression

Learning Objectives:

- LO2: Be able to construct and use multiple regression models (including some limited dependent variable models) to construct and test hypotheses considering complex relationships among multiple variables.
- LO6: Be able to use standard computer packages such as SPSS and Excel to conduct the quantitative analyses described in the learning objectives above.
- LO7: Have a sound familiarity of various statistical and quantitative methods in order to be able to approach a business decision problem and be able to select appropriate methods to answer the question.

Directions: Work in groups of up to four people and answer the following questions. All papers will be collected, but only one member's paper will be randomly selected and graded and all members of the group will receive the same grade.

By signing below, you agree that the following work represents the efforts of everyone in the group, and you are willing to accept as your own grade for the group project the grade earned from this representation of your group's work. Every member must agree to these terms to earn a non-zero grade for this assignment.

_____ Signature Group Member 1	_____ Print Name	_____ Date
_____ Signature Group Member 2	_____ Print Name	_____ Date
_____ Signature Group Member 3	_____ Print Name	_____ Date
_____ Signature Group Member 4	_____ Print Name	_____ Date

- (b) Of the individuals who are not satisfied with their jobs, what percentage of them does the logistic regression model correctly predict will not be satisfied with their jobs.
- (c) Consider an employee who is male, 30 years old, has 2 years experience, is Jewish, married, and has a an undergraduate education, and has a workload measure equal to 12. What is the probability he will be unsatisfied with his job?
- (d) Consider an employee similar to the one part (c). What is the predicted impact of never being married on the probability he will be satisfied with his job?
- (e) Consider an employee similar to the one part (c). What is the predicted impact of being female on the probability he will be satisfied with his job?

Create the following binary variables regarding satisfaction for four specific aspects of the workers' jobs. Each of these new variables is equal to 1 when an employee is *not satisfied*, and 0 otherwise.

- COLLEAGUE_BIN = 1 if Colleague \leq 35.
- SUPERVISION_BIN = 1 if Supervision \leq 35.
- SALARY_BIN = 1 if Salary \leq 15.
- PROMOTION_BIN = 1 if Promotion \leq 20.

6. Test the hypothesis that there is a relationship between overall satisfaction (SATISFACTION_BIN) and...

- (a) COLLEAGUE_BIN
- (b) SUPERVISION_BIN
- (c) SALARY_BIN
- (d) PROMOTION_BIN