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Exercises Quantitative Methods

Worksheet: Additional Regression Methods

Exercise 7.1 (Binary Logistic Regression)
In a poll in the chocolate museum in Cologne we want to identify the determining factors for recommendation of the museum. In the file *schoki.sav* we consider the following variables:

$Y=$ Recommendation (1=yes, 0=no)

$X_1=$ Visiting Day (1= Tuesday, 2=Wednesday, ... 6=Sunday)

$X_2=$ Consumption of chocolate (1=yes, 0=no)

$X_3=$ Taste of chocolate; i.e. "Do you like the chocolate of the museum?" (0=never tasted, 1=yes, 2=no)

$X_4=$ Gender (1=male, 2=female)

$X_5=$ Age

$X_6=$ Time of visit (1=10 to 12 o'clock, 2=12 to 2 p.m., 3=2 to 4 p.m., 4=4 p.m. till closing time)

Consider the model $Y \approx b_0 + b_1 \cdot x_1 + b_2 \cdot x_2 + b_3 \cdot x_3 + b_4 \cdot x_4 + b_5 \cdot x_5 + b_6 \cdot x_6$ of a binary logsitic regression and identify the variables that influence the recommendation of the museum.

Hint for SPSS: Nominal levelled variables must be denoted as "categorial" variables.

Exercise 7.2 (Multinomial Logistic Regression)
Please open the file *customer_dbase.sav*. Consider the nominal leveled variable $Y =$ Reason = "Primary reason for being a customer here" (variable number 61) with the categories:

1. Prices
2. Convenience
3. Service
4. Other

Do you find some independent variables that influence the value of Y?

Exercise 7.3 (Ordinal Regression)
In the file *1991 US.sav* of a poll we want to detect the variables that influence the general happiness. We consider the following variables:

$Y =$ General Happiness (1=very satisfied, 2=pretty satisfied, 3=not very satisfied)

$X_1 =$ Ethnic group (1=white, 2=black, 3=others)

$X_2 =$ Years of the education = ausbild
1. class: up to 10 years
2. class: 11 up to 12 years
3: class: 13 up to 15 years
4. class: more than 15 years

$X_3 =$ Number of children
1. class: no kids
2. class: one child
3. class: two children
4. class: three or more children

$X_4 =$ job1 = no employment and searching for a job since more than one month (1=yes, 2=no)

Consider the model $Y \approx b_0 + b_1 \cdot x_1 + b_2 \cdot x_2 + b_3 \cdot x_3 + b_4 \cdot x_4$ of an ordinal regression and identify the variables that influence the degree of happiness.