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Tutorial for Microeconometrics
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Problem Set 3
Multinomial Logit Model

Read in the data set *job.raw* from the L-drive in TSP. It contains selected variables from the SOEP data set from 2006. We will estimate a model of occupational choice. The data set contains the following variables in the given order:

Variable name	**Variable description**
job	Occupation: 1: Blue collar 2: Self employed 3: White collar 4: Civil service
age	In years
sex	Dummy, 1=woman
low	Dummy for low or no secondary schooling degree
med	Dummy for medium secondary schooling degree (Realschule/ Abitur)
high	Dummy for high educational degree: tertiary degree
exper	Years of job experience

1. **Descriptive statistics**
   Obtain some descriptive statistics. For example: What is the share of the different educational degrees in this sample? How many individuals work in each of the occupations?
   Hint: With: *select <expression> ;* you can limit the sample to a certain subsample. To get back to the entire sample use: *select 1;* which is always a true statement.

2. **Multinomial logit regression**
   Try to explain the occupational choice with the other available variables in a multinomial logit model.
   Hint: The TSP command is: *logit <dependent variable> <explanatory variables>;*
   and also works for a multinomial logit.

3. **Assumption**
   What assumption has to be fulfilled in order to appropriately use a multinomial logit model?

4. **Odds ratios = Relative risk ratios**
   Interpretation of the coefficients is not straightforward. Therefore estimate the odds ratios which are also known as „relative risk ratios“ and interpret them.
   The odds ratios are always estimated for choosing one alternative of the dependent variable in relation to one other possible alternative. Here, it is sufficient if you estimate the odds ratios for one occupation of choice in relation to the reference category.

5. **Marginal effects**
   How does the probability of choosing one of the outcomes change when one of the covariates changes? Thus, interpret the marginal effects.
   Additional exercise
   Estimate (one of) the marginal effects. Recall that you can choose to either estimate the marginal effect at the mean or the average marginal effect.