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Exercises session 9

The topic of this lab is forecasting. Start by answering the following questions:

1. In the dataset of interest, 943 respondents are men and 871 are women. In the population of Switzerland, there are 97.3 men for 100 women. How can you compute the predicted market shares in order to handle the oversampling of women in the data?
2. Imagine that the public transportation company (for simplification assume that there is only one big company that owns all public transportation in Switzerland) intends to increase its (real) revenues. How would you proceed to find the public transportation costs which maximize the public transportation revenues? Find the optimal costs.  
*Hint:* For simplification you can consider either a global increase or decrease of public transportation costs in terms of percentage of the current rail costs.
3. While computing the market shares, the estimated parameters of the model are used. How standard errors of parameters can affect the predicted market shares?

On the webpage, we provide a final model for the dataset *Transportation mode choice in the Netherlands* and some results are presented in the file *summary\_forecasting.xls*. These results can help you find inspiration, in particular for Question 2. Proceed with the following computations:

- compute the current market shares for each of the three modes;
- find and present the effect of changes in one attribute, e.g. cost, on the market shares;
- find and show the optimal cost for public transport.