

Cost of inpatient cases – Distribution and prediction of treatment costs

Background

The costs of inpatient costs are highly skewed with systematic outliers. For that reason, modelling the distribution of costs faces multiple statistical challenges. Finding solutions to these challenges would be of high value, however, as prediction models with for instance chronic diseases and other comorbidities as features, would then allow to predict treatment costs before hospital admission. Implications of such prediction for payers (i.e., health insurances) and providers (i.e., hospitals) would be manifold.

Data

At our chair, there are two datasets available from the Swiss federal office of statistics including all patients undergoing hospital treatment between 2010 and 2019. Among others, the datasets include patients' observed medical information and one dataset also includes treatment costs.

Possible research topic « *Distribution and prediction of treatment costs* »

As bachelor or master thesis, it could be investigated what distribution the cost of inpatient cases follows, and which model performs best in predicting the costs, based on diagnosis. To this end, a sophisticated statistical strategy needs to be developed.

If you are interested in and/or have questions about the above-mentioned topic area and would like to write your thesis at our chair, please contact Johannes.Cordier@unisg.ch and Justus.Vogel@unisg.ch. You can also propose your own research topic, and we will be happy to advise you. We can generally supervise all students of management, finance, economics, and medicine (Joint Medical Master). Generally, we would recommend this research topic for an economics major.

We look forward to receiving your exposé with a proposal for a concrete research question, methodology, and approach!