Advanced Non–Life Insurance Mathematics

Assignment 2 & 3: construct a car insurance tariff

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Deliverables: you deliver

- a detailed report (approach, technicalities, conclusions);
- for which lay–out, presentation and writing style matter (and will be graded);
- with graphs integrated in the text;
- a report that is brief, specific, reproducible and to the point!

Practical matters: hand in your solution through the Assignment tool on TOLEDO. Provide a report (in `pdf`) and programming code (using `R`).

Assignment question: you analyze the data set (in `.csv`) that is available on TOLEDO. This data set contains observations on the variables listed in the table printed below. Using these data you will construct a tariff structure for a car insurance product. Your report and analysis should (at least) contain a section on exploratory data analysis, model construction and the resulting pricing structure. You analyze both the frequency and severity information and combine both appropriately.

`ageph`	age of the policyholder
`CODPOSS`	postal code in Belgium
`duree`	exposure, fraction of the year the insured is covered
`lnexpo`	log of exposure
`nbrtotc`	total number of claims during period of exposure
`chargtot`	total claim amount
`agecar`	age of the car: $0-1$, $2-5$, $6-10$, >10
`sexp`	sex of the policyholder: male or female
`fuelc`	type of fuel: petrol or gasoil
`split`	split of the premium: monthly, once, twice, three times per year
`usec`	use of the car: private or professional
`fleetc`	car belonging to a fleet: yes or no
`sportc`	sport car: yes or no
`coverp`	coverage: MTPL, MTPL+, MTPL+++
`powerc`	power of the car: $<$ 66, 66-110, $>$110