Statistical Analysis in the Lexis Diagram: Age-Period-Cohort models

Place

Max Plack Institute of Demographic Research, Rostock

Dates

2–6 May 2016

Instructor

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Course program

As the general rule, the daily program will have one lecture and one practical each morning and each afternoon.

Lectures will be between 45 and 90 minutes; normally with one or two breaks. Occasionally you will be asked to do small practical in the middle of the lectures.

The practicals will follow the lecture to fill the 3-hour slot. Sometimes we may need to push over some of the practical computing to take a bit of the beginning of the next slot.

The general rule is that there will be a walk-trhough of practicals after you have had a change to have a go at it yourself.

Monday 2nd

09:00 – 09:15		Welcome and introduction.
09:15 – 12:15		Morning slot:
–	L1:	Follow-up time and rates from register data `surv-rate`
–		Lexis machinery in `Epi lifetable`
–		Follow-up time and rates from population data `tab-mod`
–	P1:	Regression, linear algebra and reparametrization
–		Danish prime ministers `pm`
13:15 – 16:15		Afternoon slot:
–	L2:	Likelihood for rates: Cox and Poisson
–		Cox as limit of the Poisson `WntCma`
–		Poisson model for rates: Factor models
–		Practical handling of linear contrasts in `R` using `ci.lin() tab-mod`
–	P2:	Rates and survival, RR and RD
–		Linear and curved effects

Tuesday 3rd

09:00 – 09:30		**Recap of Monday**
09:30 – 12:15		Morning slot:
–	L3:	The age-period and the age-cohort model. `AP-AC`
–		The Age-drift model
–	P3:	Age-period model `age-per`
–		Age-cohort model `age-coh`
–		Age-drift model `age-drift`
13:15 – 16:15		Afternoon slot:
–	L4:	The Age-period-cohort model
–		Parametrizations
–		Lexis triangles
–	P4:	Age-period-cohort model
–		Using `apc.fit`

Wednesday 4th

09:00 – 09:30		**Recap of Tuesday**
09:30 – 12:15		Morning slot:
–	L5:	Parametrization revisted: The general case.
–		The Lee-Carter model
–	P5:	Age-period-cohort model for triangles
–	L5:	The implementation of `apc.fit`.
–		Parametrizations.
–		The residual parametrization.
–	P5:	Lee-Carter: Lung cancer in Danish women
13:15 – 16:15		Afternoon slot:
–	L6:	Several rates compared with APC-models:
–		Estimation and reporting of effects.
–		Parametrization options for several rates.
–	P6:	Lung cancer differences by sex `lung-sex`

Thursday 5th

09:00 – 16:00	Study free: Working with the assignments.

Friday 6th

09:00 – 09:30		**Recap of Wednesday**
09:30 – 12:15		Morning slot:
–	L7:	Predictions based on APC models
–		Managing splines for prediction
–	P7:	Predicting lung cancer `lung-pred`
–		Predicting breast cancer `breast-pred`
13:15 – 16:00		Afternoon slot:
–	L8:	APC-models for continuous outcome
–	P8:	BMI in Australia
16:00 – 16:15		Wrapping up, closure, evaluation and farewell