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The effects of lifetime exposure to shift work on fitness for duty and health in the police force of a federal state of the Federal Republic of Germany

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- Ageing and demographic change in Europe and other global economies
- Increase in retirement age
 - Extension of working time and exposure time
 - Increase of work load (equivalent dosis)
 - Health and safety effects ???

Research Question

- How does lifetime shift work exposure effect health/fitness for duty in police officers?
 - Is there an increase in health impairments with increasing years worked in shiftwork?
- Compare results with previous findings from an internet survey (Nachreiner et al., 2010)

Study sample

- Police officers in a German federal state
- Employment records 2002-2008
 - Overall sample (whole police force)
n ≈ 10,000 per year
 - n=2460 cases from 8 police districts
- Information about
 - Fitness for duty
 - Years in shift work until first limitation in fitness for duty
 - age

➤ Cox-Regression

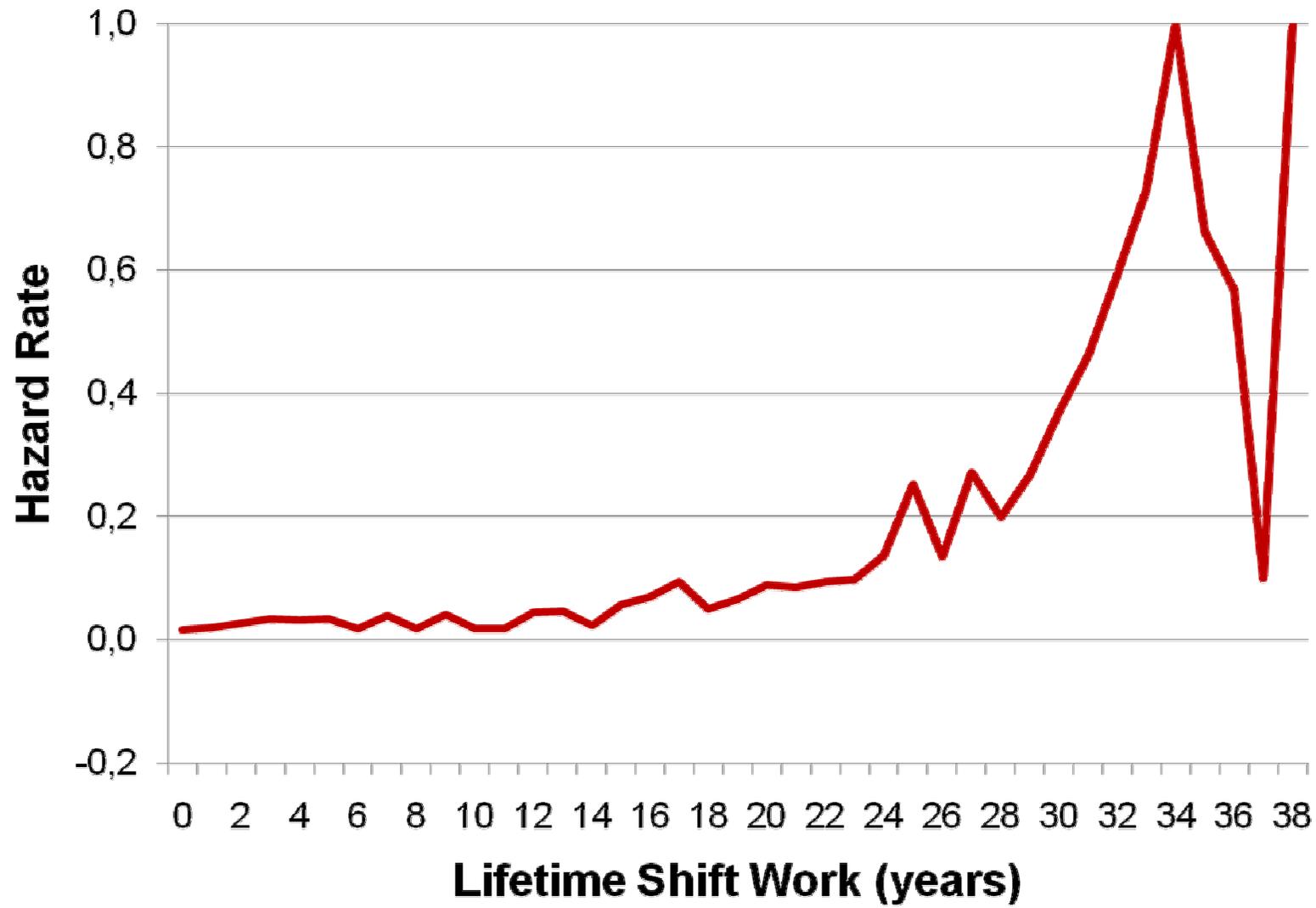
– predicting **reduced fitness for duty**

across

number of years worked in shiftwork

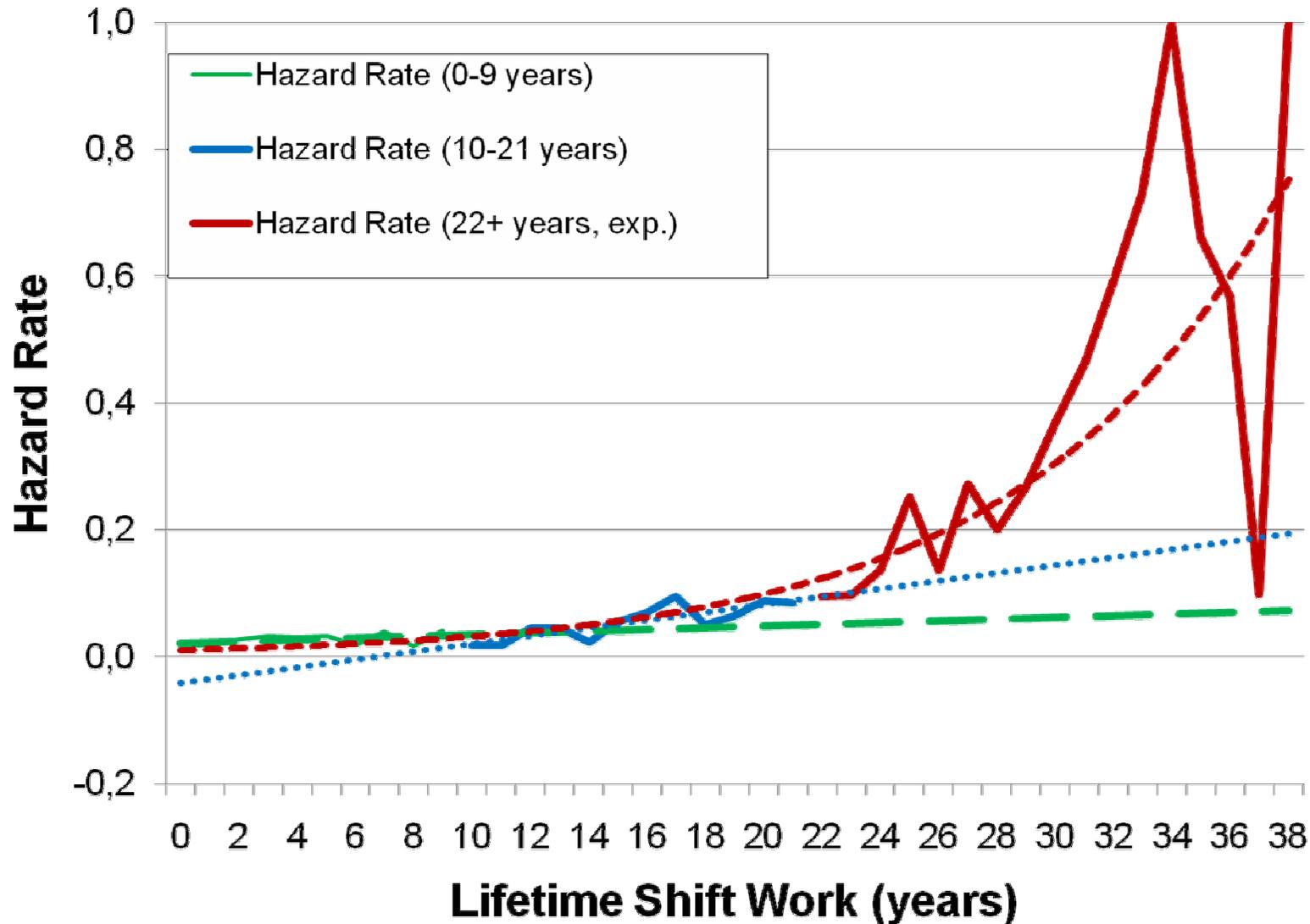
– Covariates: age, police district

Adjusted* risk of reduced fitness for duty over lifetime shift work



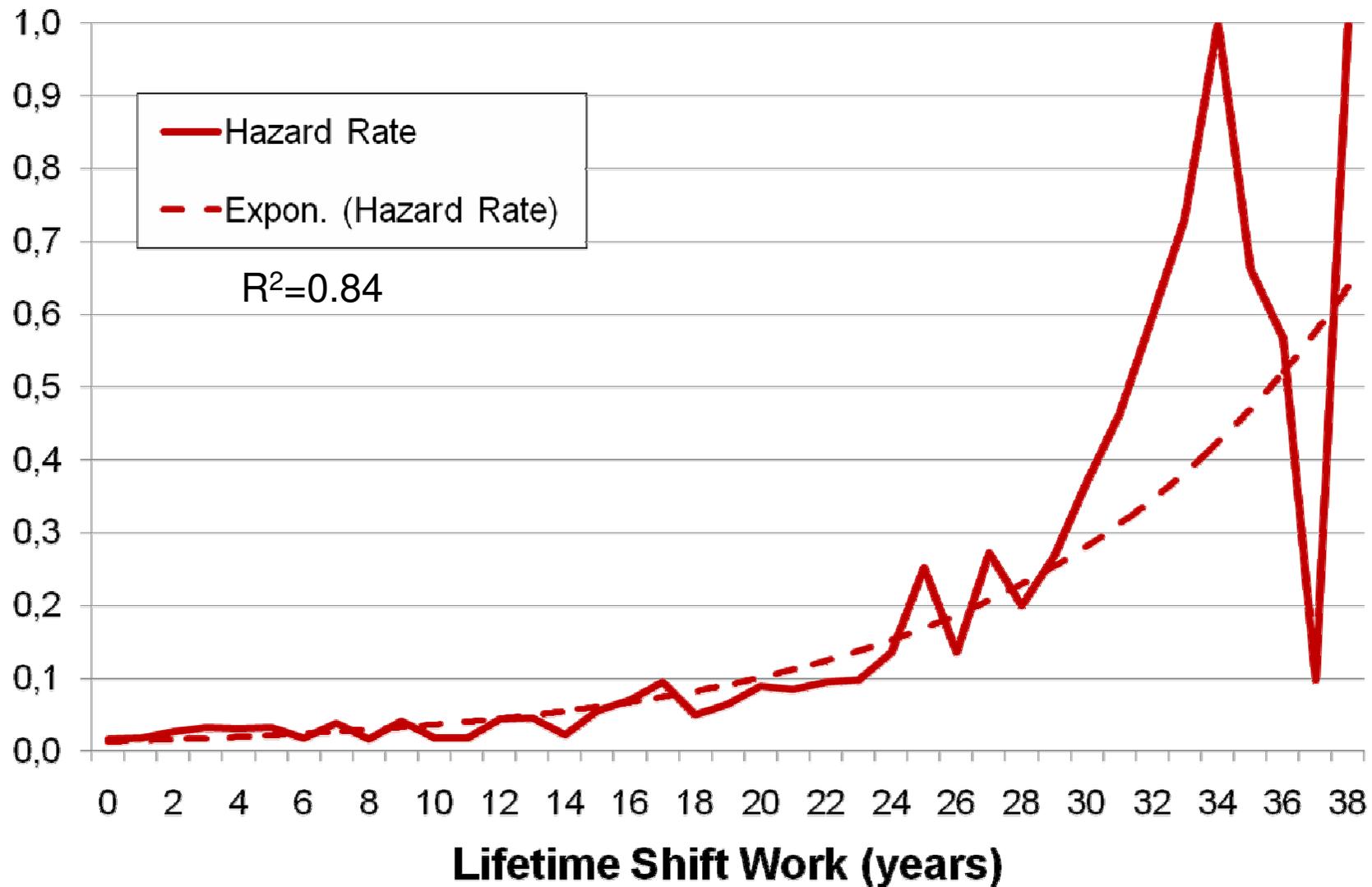
*Cox Model adjusted for age and police district

Trends in risk of reduced fitness for duty over lifetime shift work*



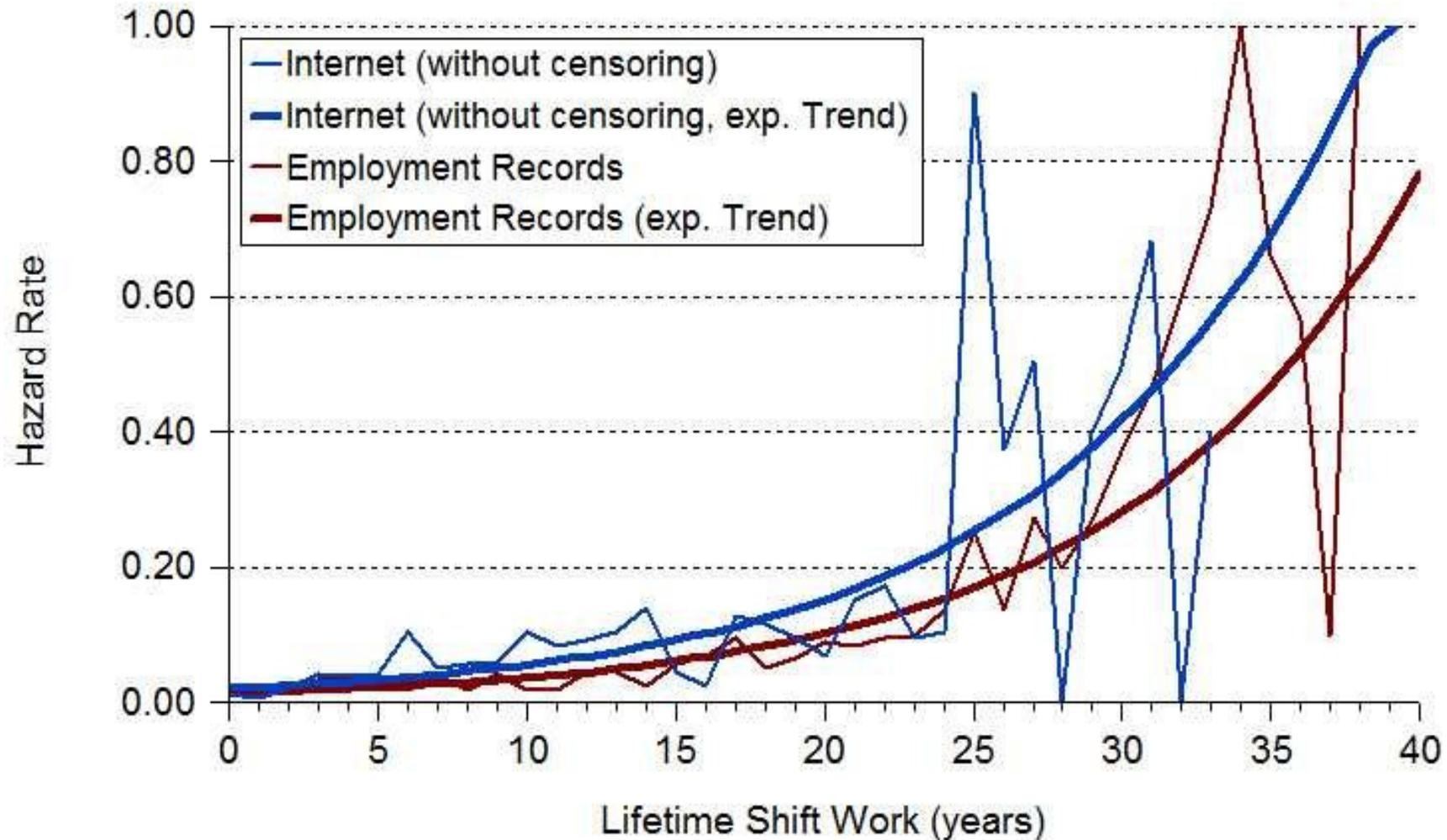
*Cox Model adjusted for age and police district

Exponential trend in risk of reduced fitness for duty over lifetime shift work*



*Cox Model adjusted for age and police district

Comparison of hazard rates in 2 studies



Internet Survey (n=137): Results adjusted for age, gender, type of duty; exp. $R^2=0.35$
Employment Records (n=2460): Results adjusted for age, police station; exp. $R^2=0.84$

Conclusions

- exposure to shift work during working life has an impact on fitness for duty among police officers
- Results of 2 different methods of data collection showed consistent results
 - exponential trend
 - rapid risk increase after 20 years of shift work

Limitations

- confounding variables
- censored data could not be included
- quality of the data ?

Thank you for your attention !

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