

Lifetime working time - effects on health and fitness for duty: results from a pilot study*

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Decision of the German Parliament in 2007 to raise the normal retirement age from 65 to 67 years

- extension of lifetime working time
- extension of the exposure towards occupational workload / occupational risks
- increase of the dosis of workload
- increase of its effects on health and well being

Background

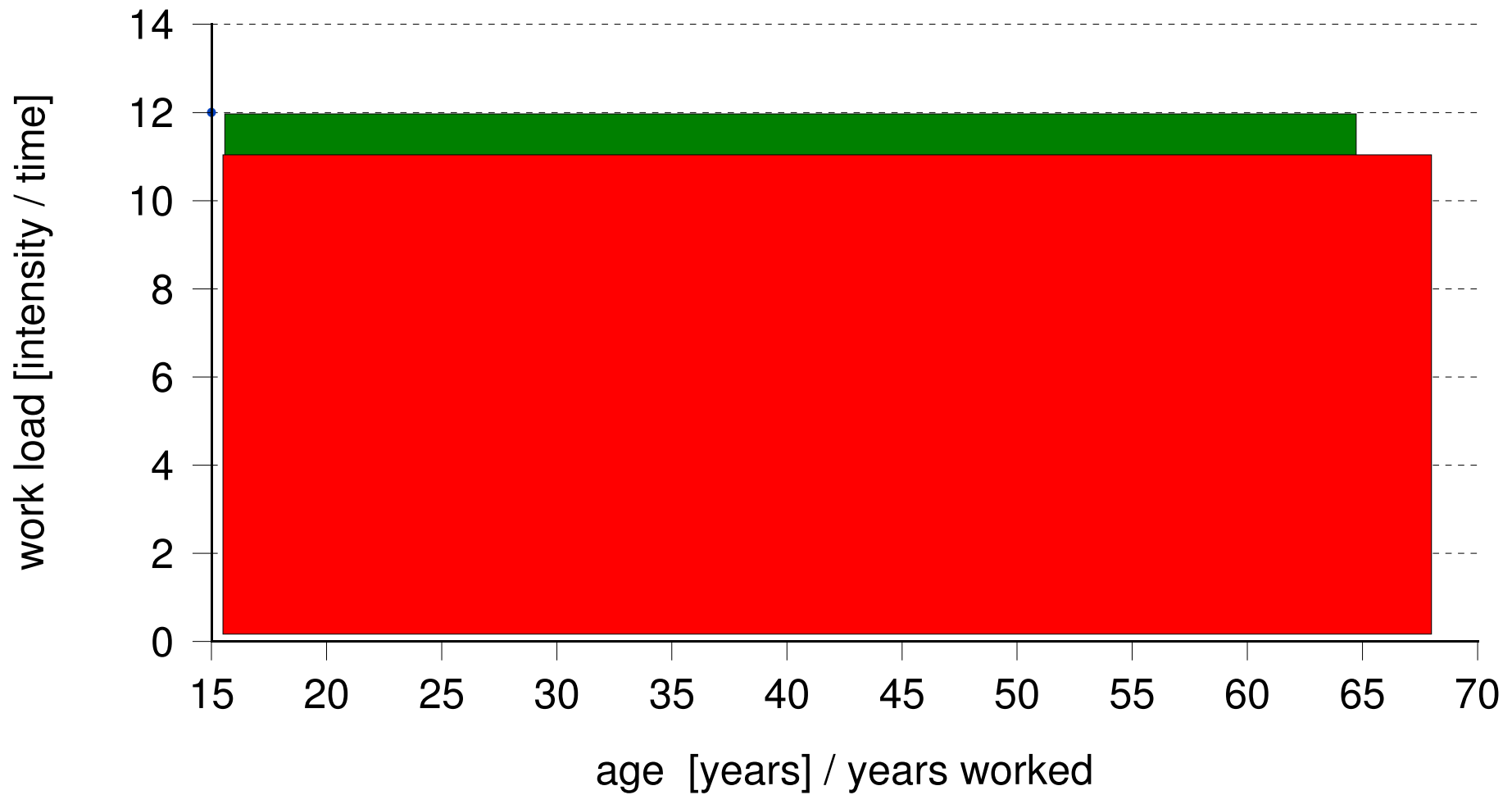
- is this harmless / acceptable from an ergonomics perspective?
 - especially with a view to unimpaired health and performance

- in fact, this decision was based purely on political / economical reasoning

Model: equivalent dose



Model: equivalent dose



Model: equivalent dose



Effective mean retirement age in the FRG

- total - ca. 61 years
- retirement due to age reasons - ca. 63 years
- retirement due to disability - ca. 50 years

- not even 1/10 of the working population reaches the current retirement age of 65 still working

But what do we know about lifetime working time?

✓ next to nothing !!!!!

Research questions

- ✓ What is the relation between the number of years worked and health impairments ?
- ✓ Is there any interaction between the type or intensity of work load and the number of years worked with regard to health and performance aspects ?

Methods

- ✓ type of study: pilot study / feasibility study
- ✓ internet based survey among active and retired police officers from 3 states of the FRG
- ✓ time period of the survey: 2008-07 to 2009-02
- ✓ participants:
 - number visiting web site n = 2 709
 - completed surveys n = 1 675 (= 61.8 %)
 - usable data sets **n = 1 417**

Methods

Contents of the questionnaire

- ✓ demographic characteristics

- ✓ factual questions on the occurrence and time of certain events
 - certified reduction in capability for duty
 - leaving the operative police force
 - leaving the police force / retirement

- ✓ shift work experience (years / times / type)
- ✓ predominant area of operation (office vs. operative jobs)

Methods

- ✓ **Survival analyses**
 - (proportion surviving / time to failure / hazard rates)

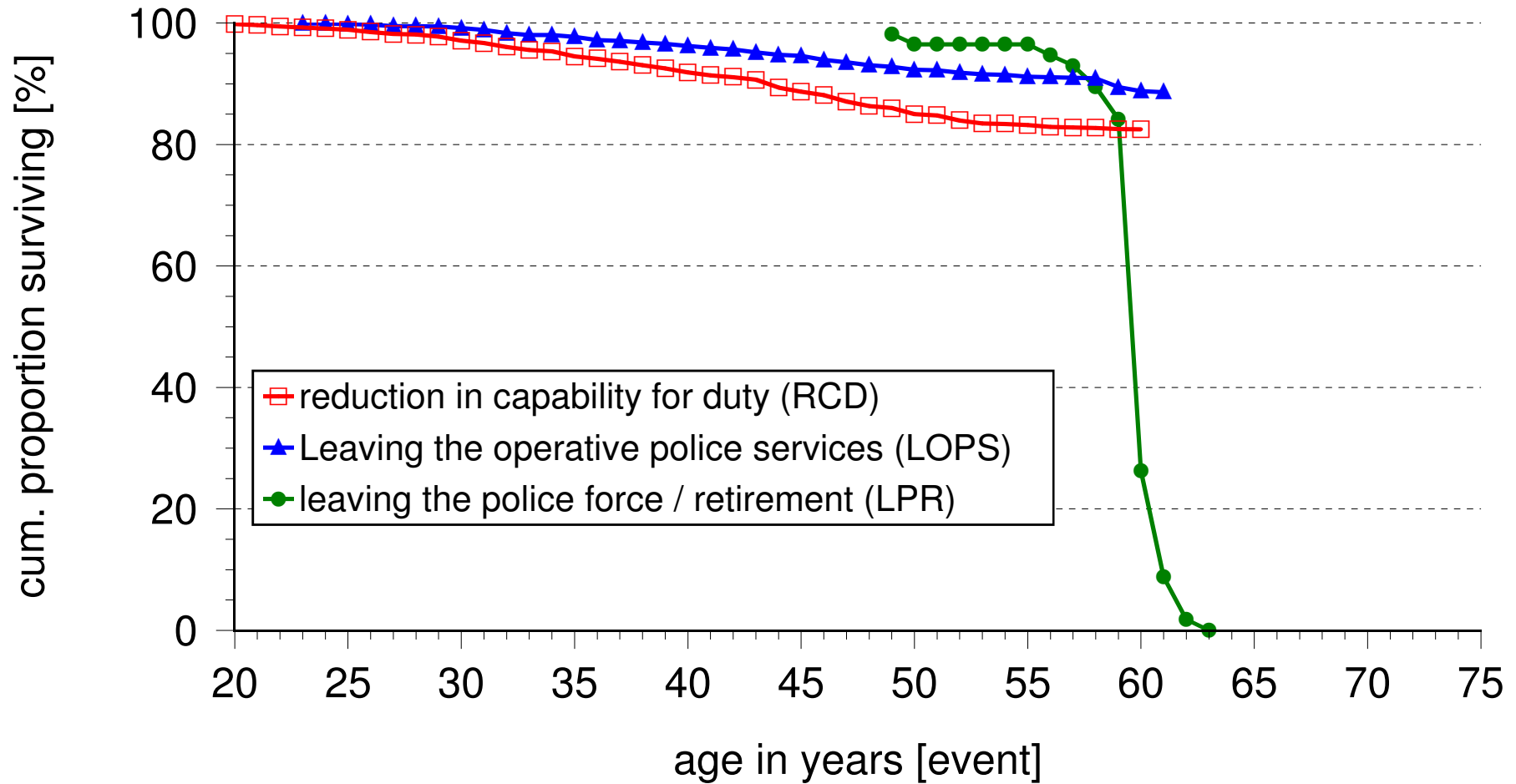
- ✓ **dependent variables (events):**
 - health status: certified reduction in capability for duty (RCD)
 - leaving the operative police force (LOPS)
 - leaving the police force / retirement (LPR)

- ✓ **independent variables (covariates):**
 - individual characteristics: age / gender
 - work situation: federal state / shift experience
ratio operative / office duties

Results

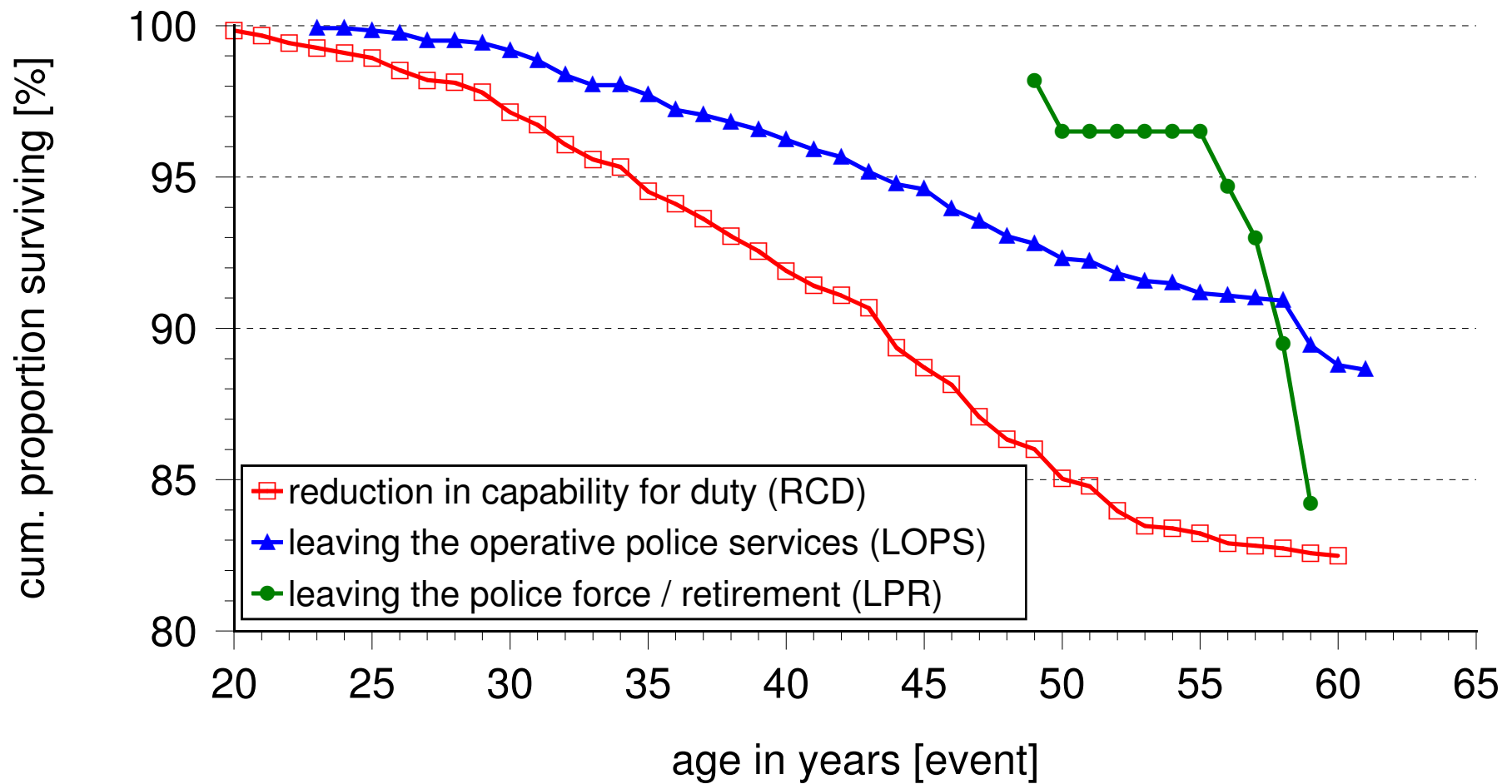
Results

Survival functions

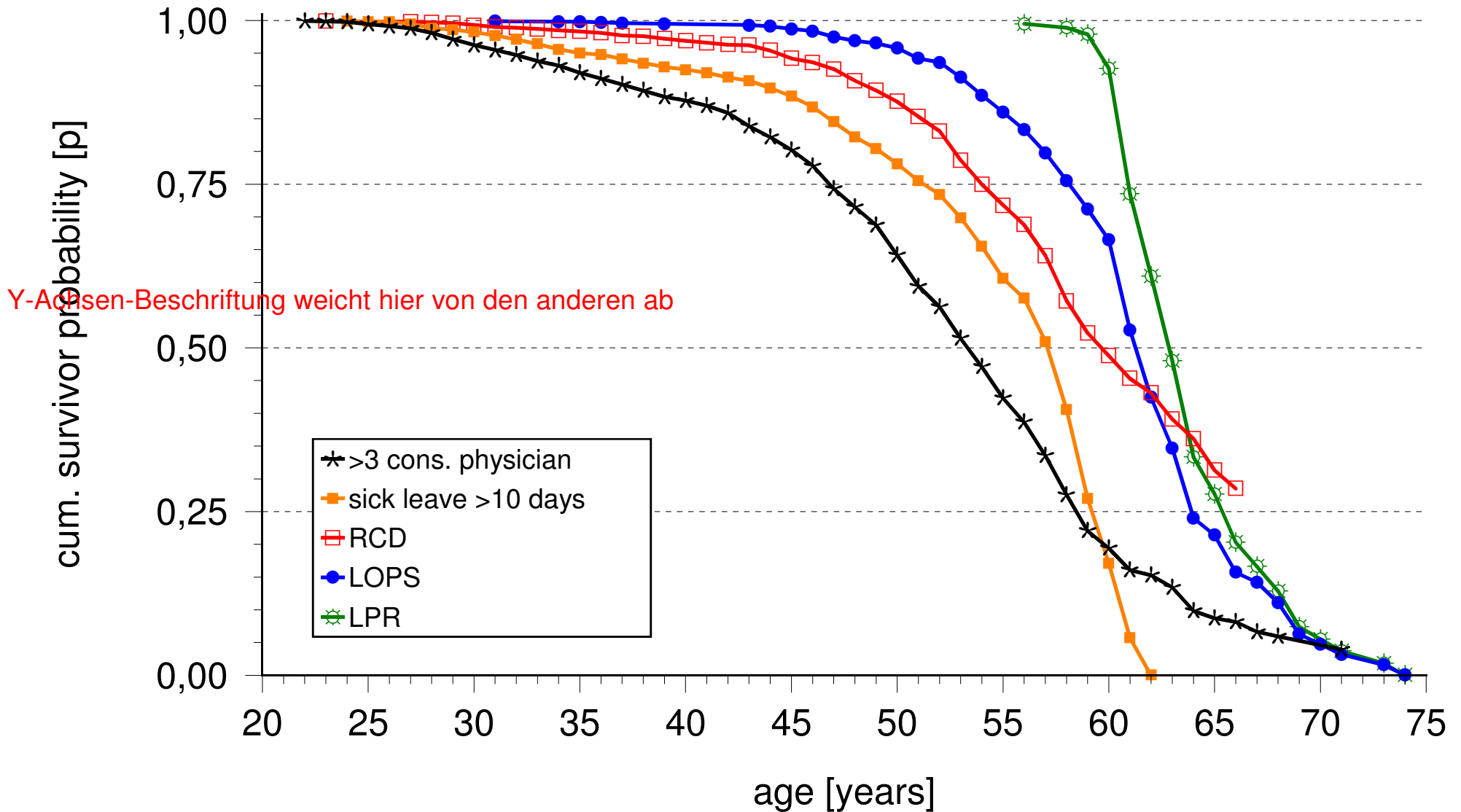


Survival functions

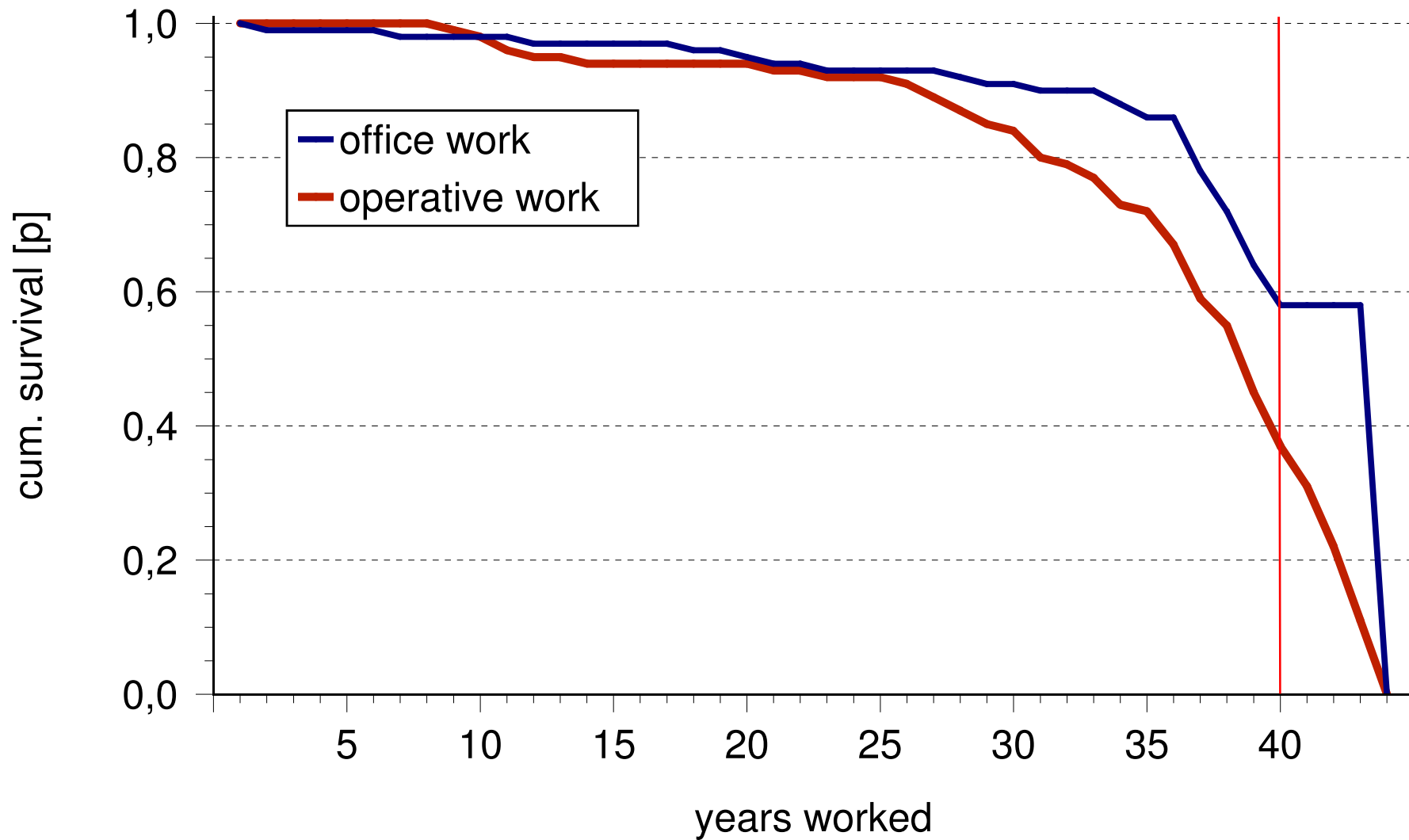
detail



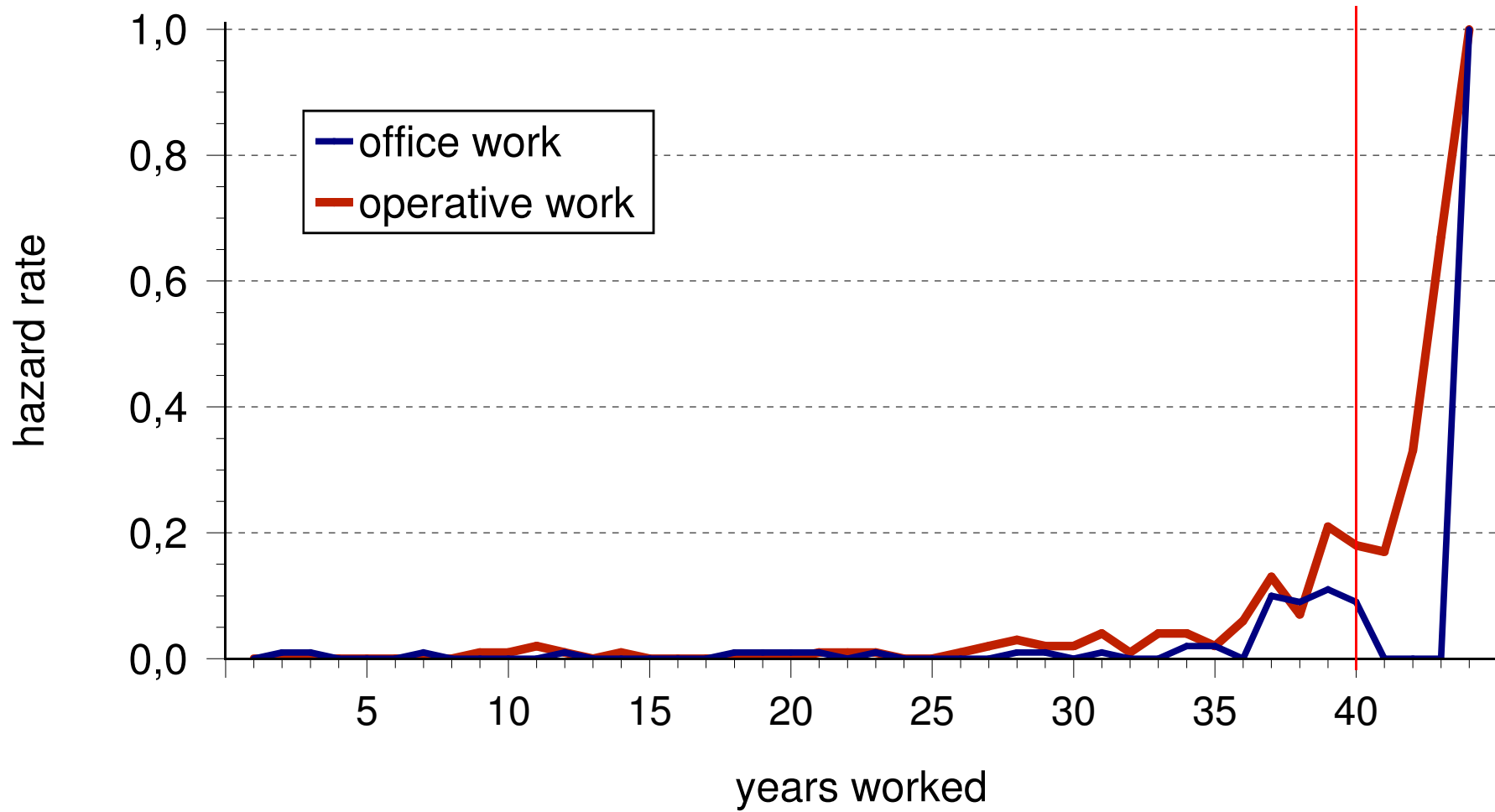
Cumulative survivor probabilities for consult. physician, sick leave, RCD, LOPS, LPR



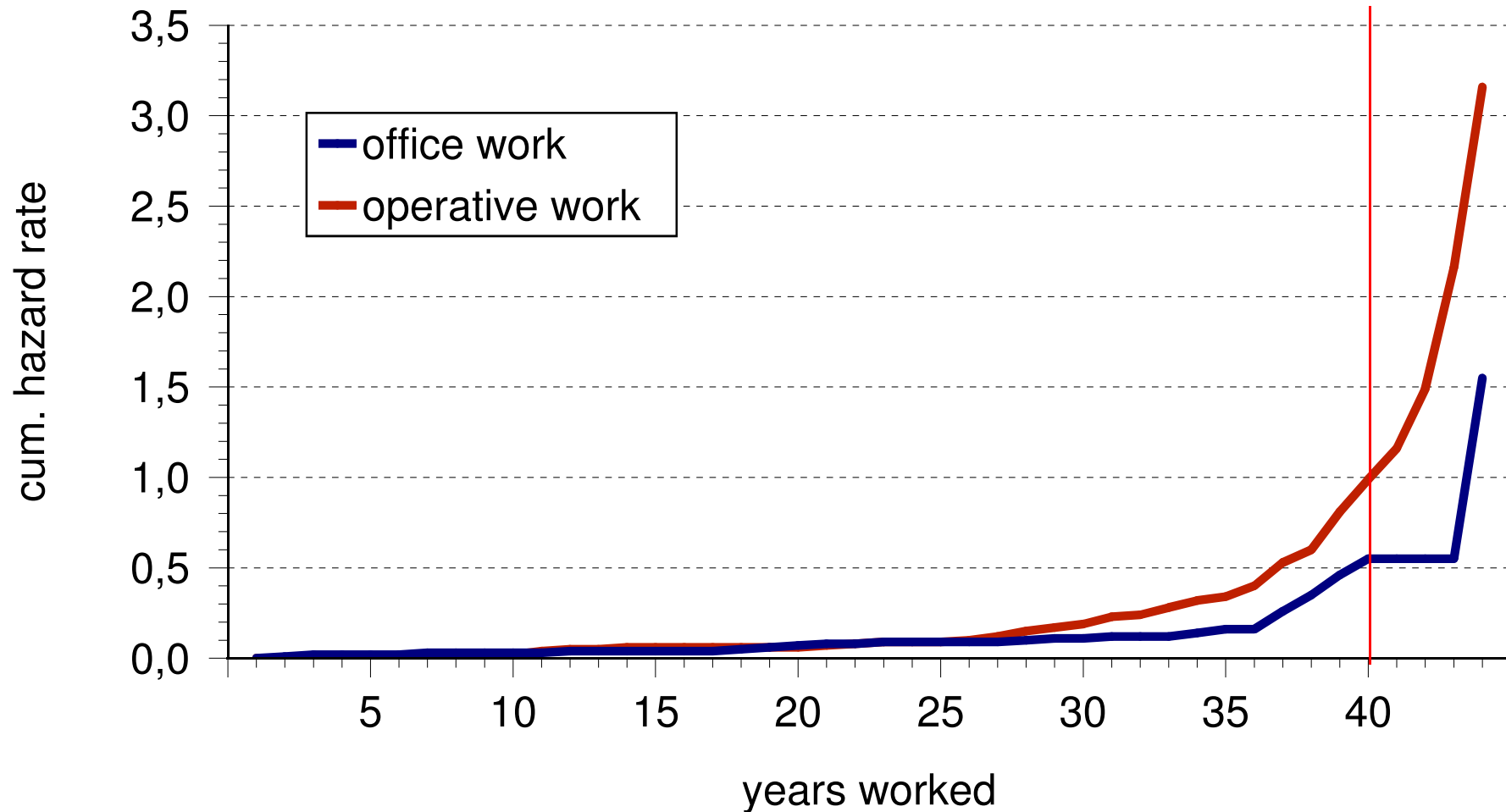
Survival probabilities for RCD - type of job



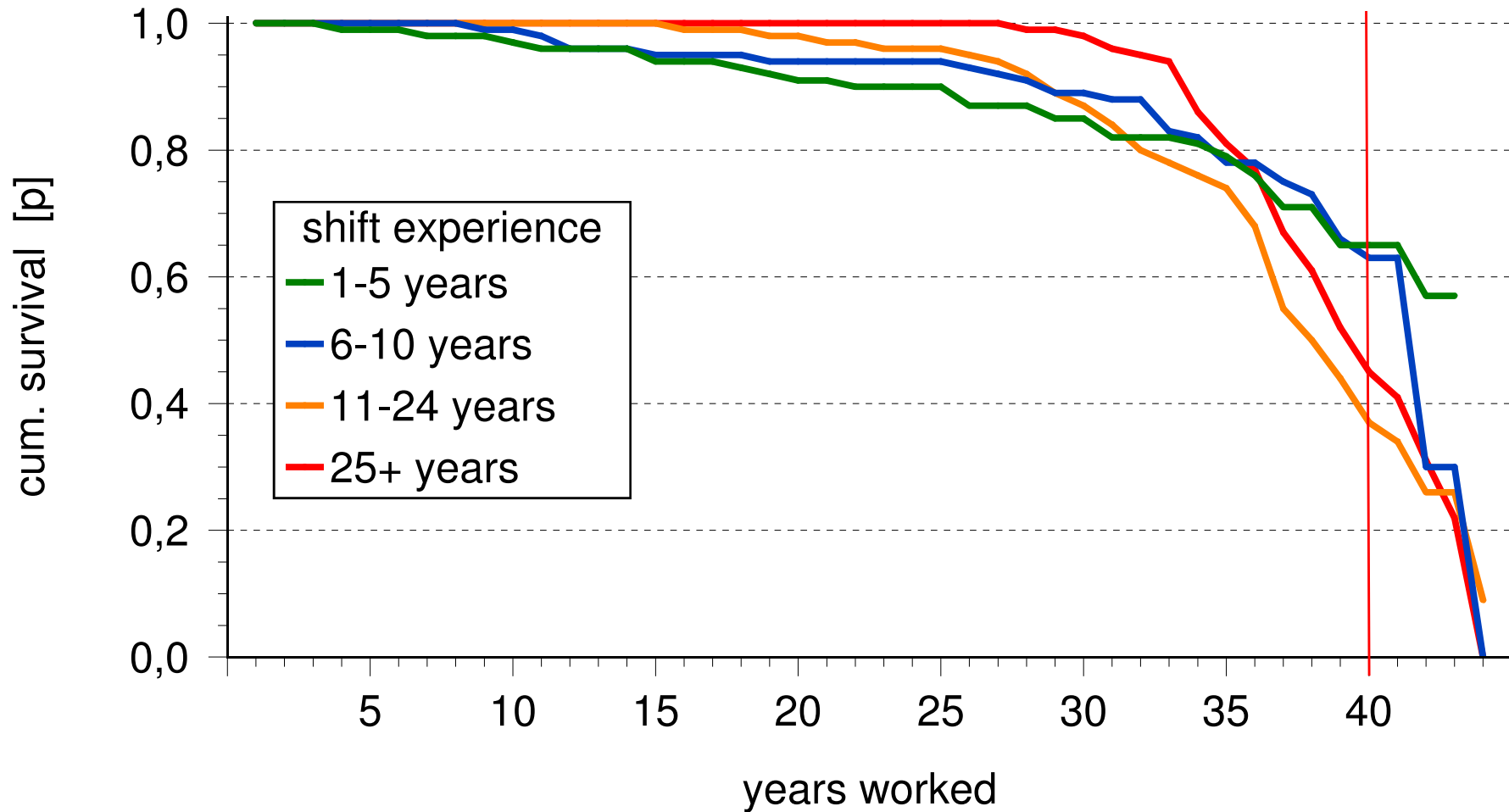
Hazard rate for RCD - type of job



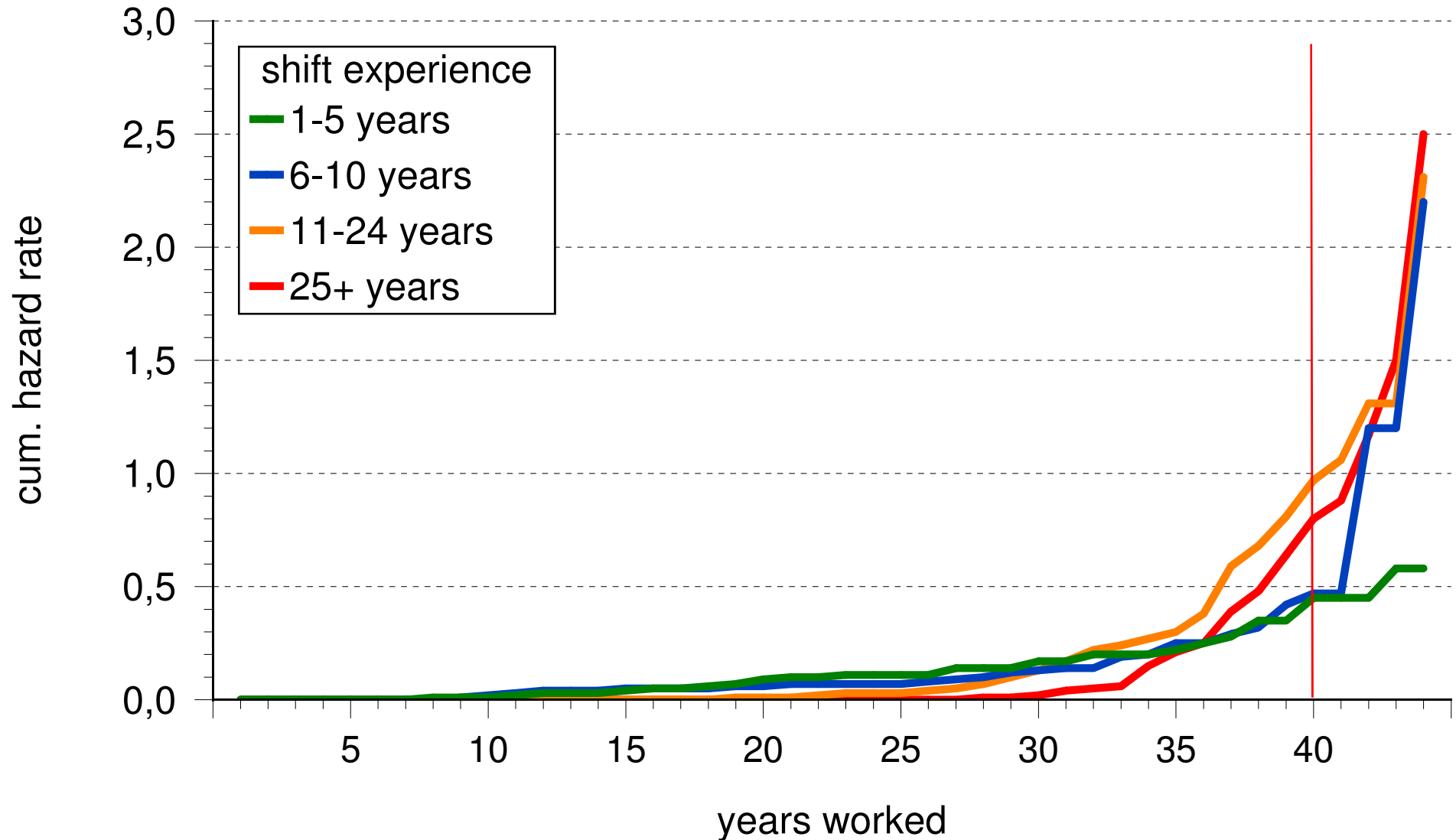
Cumulated hazard rate for RCD - type of job



Cumulated survival probability for RCD - shift work

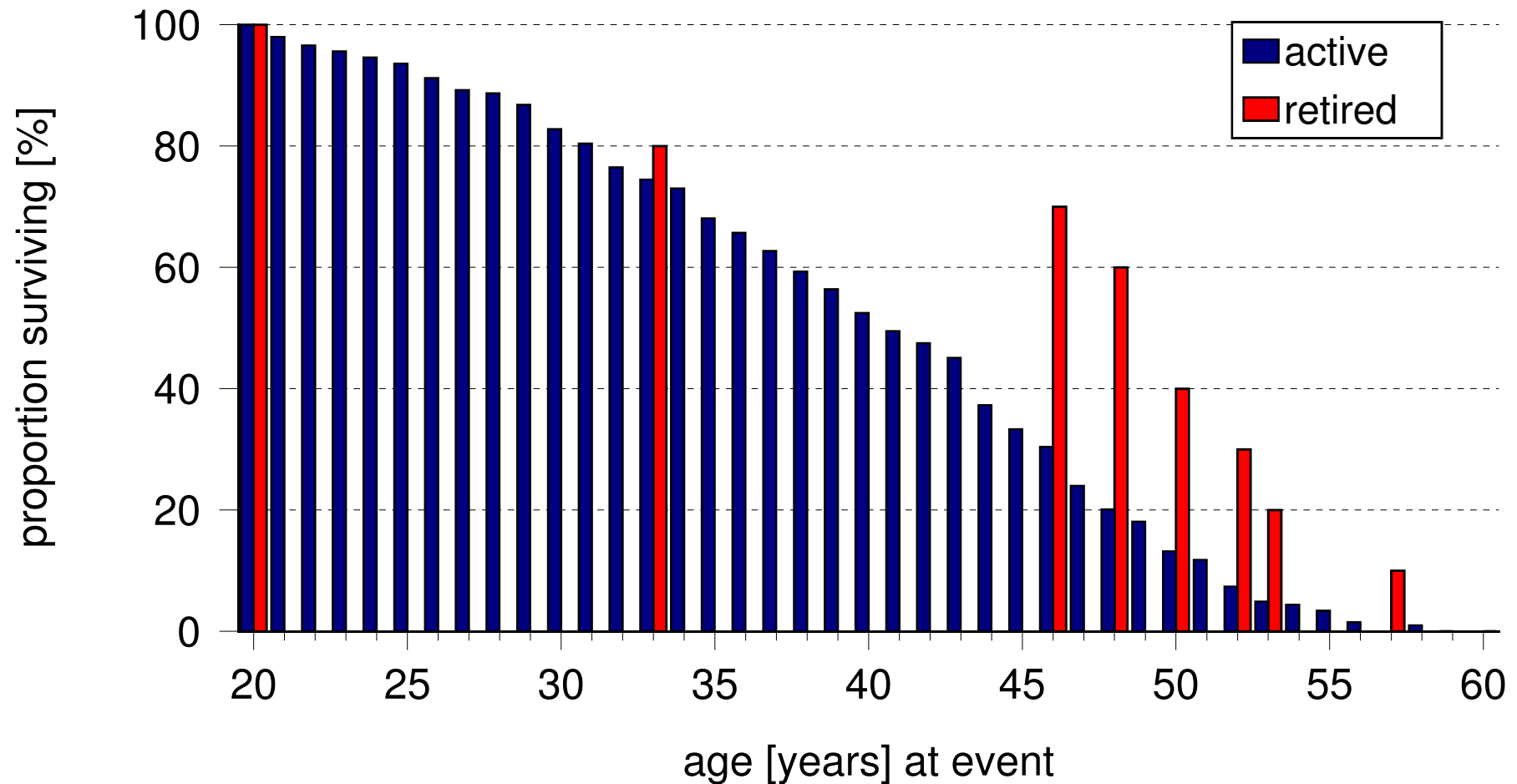


Cumulated hazard rate for RCD - shiftwork



Survival function "Reduced capability for duty"

active vs. retired police officers



Conclusions

- ✓ At the current normal age of retirement, the probability of surviving without a RCD in this population is about 50%
- ✓ This population thus obviously does not achieve the aim of unimpaired performance / health over their lifetime employment
- ✓ The risk of this health impairment obviously depends on characteristics of the kind of work done
 - this is a clear indication of *a **working time*** as opposed to *a **pure age effect***

Conclusions (2)

- ✓ It would be interesting to see whether a larger sample, including more drop outs, would allow for a more detailed analysis of age vs. working time effects

- ✓ The results presented suggest that this approach might be successfully applied to other populations, occupations, and constellations of work load
 - in order to be able to estimate an acceptable lifetime working time *from an ergonomics point of view*

Thank you for your attention!

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