

Problem Set 4

Applied Stats II Tianxin Zhang 21352232

Due: April 16, 2023

Instructions

- Please show your work! You may lose points by simply writing in the answer. If the problem requires you to execute commands in R, please include the code you used to get your answers. Please also include the .R file that contains your code. If you are not sure if work needs to be shown for a particular problem, please ask.
- Your homework should be submitted electronically on GitHub in .pdf form.
- This problem set is due before 23:59 on Sunday April 16, 2023. No late assignments will be accepted.

Question 1

We're interested in modeling the historical causes of infant mortality. We have data from 5641 first-born in seven Swedish parishes 1820-1895. Using the "infants" dataset in the `eha` library, fit a Cox Proportional Hazard model using mother's age and infant's gender as covariates. Present and interpret the output.

```
1 ## Import Data
2 data(infants)
3
4 ## Coz-Harzard
5 add_surv <- coxph(Surv(enter, exit, event) ~ age + sex, data = infants)
6 summary(add_surv)
7 stargazer(add_surv, title = "Infants Survivial")
```

Interpretation:

Holding other covariates constant, when mother's age increases by 1 year, the log hazard of infant death decreases by 0.040.

Holding other covariates constant, when the gender of infants moves from the category of female to male, the log hazard of death decrease by 0.485.

Table 1: Infants Survivial

	<i>Dependent variable:</i>
	enter
age	−0.040 (0.045)
sexboy	−0.485 (0.442)
Observations	105
R ²	0.019
Max. Possible R ²	0.800
Log Likelihood	−83.626
Wald Test	2.000 (df = 2)
LR Test	1.992 (df = 2)
Score (Logrank) Test	2.034 (df = 2)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01