Cox Regression Answers

GET TO KNOW THE DATA

1. What is the mean time (months) for spell 2 to begin? *3.21 months*

2. What is the mean time (months) for spell 2 to end? *15.41 months*

3. What proportion of families earn less than £30K net? *.654 (or 65.4%)*

4. How many boys and how many girls are in the study? *172 boys & 169 girls*

5. How old is the youngest mother? *19 years*

6. How old is the oldest mother? *45 years*

7. What is the mean and standard deviation of mothers age (years)?
27.64 years s.d.=5.228

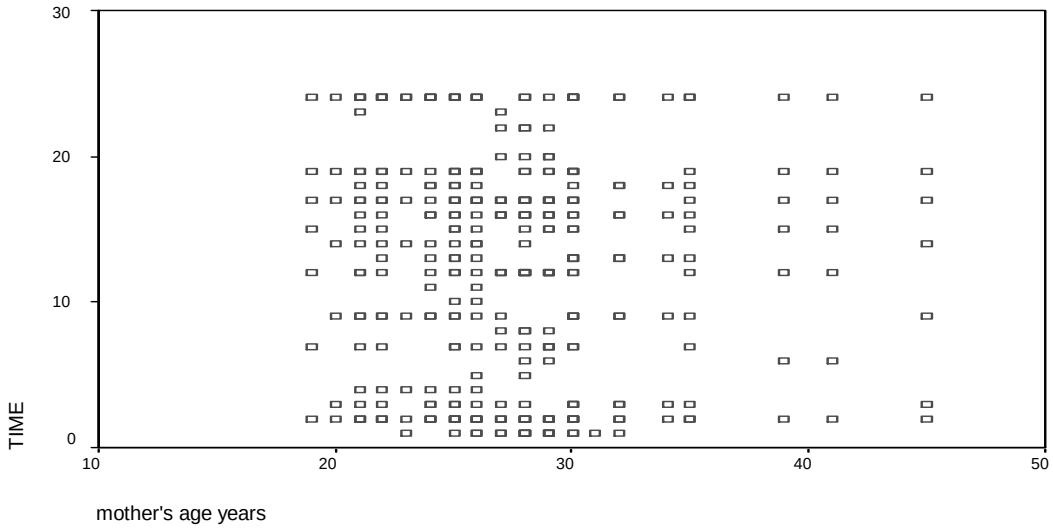
8. Compute the mean and the standard deviation of this variable.
12.1965 months s.d.=7.4813

9. How many cases are censored? *52 ; .152 (or 15.2%)*

13.

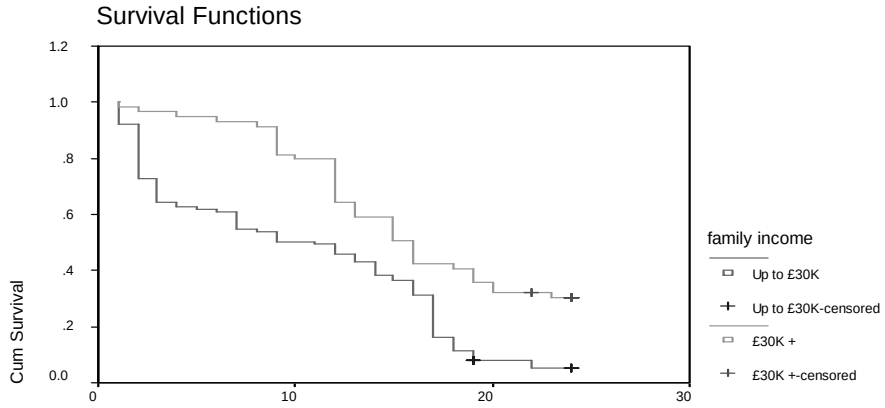
Covariate	**Mean**
inc p<.001	
£30K + net	16.19
Up to £30K net	10.09
gender p=.808	
Boy	12.10
Girl	12.30
childm p=.895	
No	12.23
Yes	12.11
nursery p<.001	
No	15.61
Yes	5.82

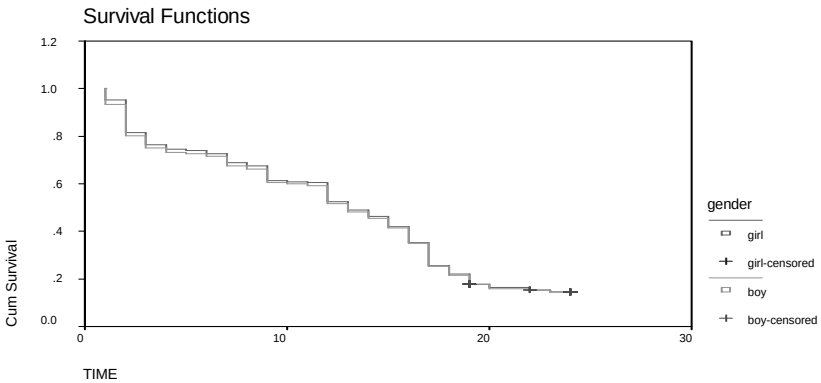
14. What do these results suggest?
Income and nursery care are significant; gender and childminder care are not.



r = -.019; p=.722.

15. What does this suggest?
Mother's age is not significant.





16. What does this suggest?
Families with a net income of up to £30K have a lower duration for childcare spell number 2 compared with families with a net income of £30K plus.

17. What do these plot tell us?
The plots tell us the same story in a different way.

18. Plot a Kaplan-Meier (survival) curve for gender. What does this suggest?
Gender does not affect duration in childcare spell number 2.

19. Which covariates are significant?
inc, ***childm*** *and* ***nursery***.

20. What are the effects of family income and type of childcare?

Families with a net income of up to £30K have an increased hazard (i.e. lower duration) for childcare spell number 2 compared with families with a net income of £30K plus.

Mothers who use either childminders or nurseries have an increased hazard (i.e. lower duration) for childcare spell number 2 compared with mothers who use a relative (i.e. extended family member).

21. Could type of childcare have a different effect depending on family income?
Yes.

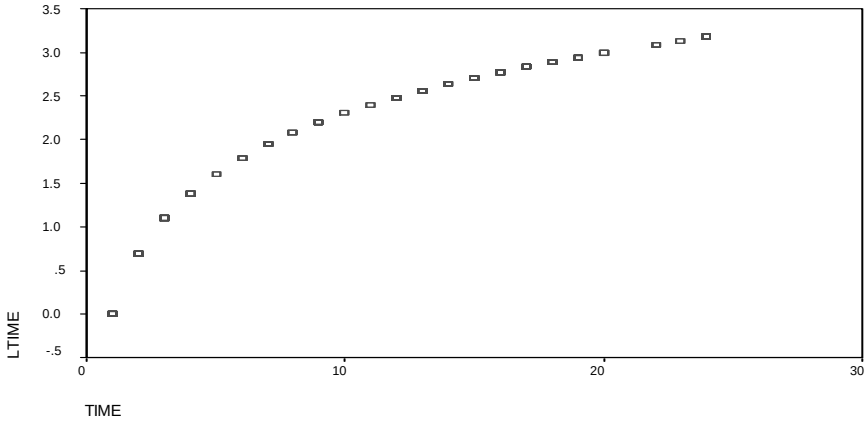
22. Which variables are significant?
inc, ***childm***, ***inc*childm***, ***inc*nursery***

23. Might the cost of nurseries be implicated in these results?
Possibly.

24. Which variables are significant?
inc, ***type***, ***inc*type***

25. Examine the distribution of this new variable and the compute its mean and standard deviation. *2.1696 s.d. =.96756*

26.



27. Which variables are significant?
inc*, *childm*, *nursery

28 What do you notice about the signs of the estimates (B) compared with the Cox model?
The signs are reversed.

29. Why might this be?
Because we are now modelling $\log_e$ time rather than the hazard.

30. Why is this model inappropriate?
Because it does not take account of the 52 censored cases.

Well Done!