SABRE

EXERCISE 4 SOME ADVANCED ISSUES ANSWERS

File: WEMP2.DAT

THE VARIABLES

case	individual identifier
femp	wife's employment status; 1=employed, 0=unemployed
mune	husband's employment status; 1=unemployed, 0=employed
time	calendar time (year-1975)
und1	children aged < 1 year old; 1=yes, 0=no
und5	children aged 1 - 5 years old; 1=yes, 0=no
age	mother's age

3. Fit a logistic mixture regression model with mune and und5 as explanatory variables but with no endpoints.

Model type: standard binary logistic-normal mixture

Number of observations = 1580
Number of cases = 155

X-vars df = 3
Scale df = 1

Deviance = 1245.4309 on 1576 residual degrees of freedom

dis e

Parameter	Estimate	S. Error
int	2.0290	0.18934
mune	-2.7616	0.42823
und5	-2.7605	0.23819
scale	2.3995	0.15598

4. Note the deviance and degrees of freedom.

Deviance = 1245.4309 on 1576 residual degrees of freedom

Note the number of observations.

1580

5. Now fit the drop model.

dis e

Parameter	*Estimate*	*S. Error*
int	*2.0998*	*0.18333*
mune	*-2.8860*	*0.46020*
und5	*-2.5276*	*0.24946*
scale	*2.4843*	*0.16277*

6. Note the number of observations.
1425

7. Now fit the lag model. Note the number of observations, the deviance and the degrees of freedom.
dis e

Parameter	*Estimate*	*S. Error*
int	*-0.81251*	*0.22417*
mune	*-1.6864*	*0.41477*
und5	*-1.0872*	*0.23191*
lag	*3.5967*	*0.22898*
scale	*0.93090*	*0.21221*

Number of observations = 1580
Deviance = 878.93601 on 1420 residual degrees of freedom
Deviance decrease = 226.78224 on 1 residual degree of freedom

8. Is the lag model an improvement on the drop model?
Yes a change in deviance of 227 at 1 df.

10. Does the inclusion of endpoints significantly improve the model?

Yes. A change in deviance of 12 @ 2 df.

11. What does this tell us about mover/stayers?

Extra control for mover/stayers is appropriate.

12. Could the effects of husband's employment status vary depending on the structure of the family (i.e. having children)?

Perhaps.

15. Is int1 significant?

Yes a change in deviance of 6.1 @ 1 df.

16. What can we conclude?

The effect of husband's employment status varies across the two groups of women (i.e. those with a child aged between 1 and 5 those without a child aged between 1 and 5).

17. What does the sign of the parameter estimate for int2 suggest about the effects of husband's employment status and having a child aged between 1 and 5?

The positive sign suggests that a wife who has an unemployed husband and a child between 1 and 5 does not experience the combined negative effect of both of these main effects. However she has lower odds of being employed than a counterpart who has only one of these 'conditions' (i.e. either an unemployed husband, or a child between 1 and 5).

19. Is int2 significant?

No.

20. What does this tell us?

State dependence is important and when increased controlled for state dependence is included in the model the interaction is no longer significant.

21. Are the endpoints significant?

No.

22. What does this suggest?

IN THIS MODEL when improved control for state dependence is incorporated into the model the endpoints are no longer required.