SABRE

EXERCISE 3 STATE DEPENDENCE 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

5. Note the deviance and degrees of freedom for these models.
int Deviance=2054.4619   on 1579 residual degrees of freedom
int +mune Deviance=1970.9970 on 1578 residual degrees of freedom
int +mune + und5 Deviance= 1757.3600 on 1577 residual degrees of freedom

mixture model
Deviance=1237.1568   on 1574 residual degrees of freedom

dis e

Parameter	Estimate	S. Error	
int	2.0098	0.19833	
mune	-2.7033	0.42577	
und5	-2.6619	0.23273	
scale	2.1082	0.19258	
		PROBABILITY	
end-point 0	0.78410E-01	0.37373E-01	0.68815E-01
end-point 1	0.61023E-01	0.55981E-01	0.53556E-01

8.
drop y
  Model type: `dropped` binary logistic-normal mixture with end-points

  Number of observations   =   1425
  Number of cases   =   151

  X-vars df   =   3
  Scale df   =   1
  End-point df   =   2

  Deviance   =   1099.6531   on 1419 residual degrees of freedom

dis e

Parameter	Estimate	S. Error	
int	2.0887	0.19711	
mune	-2.8095	0.45169	
und5	-2.4720	0.24501	
scale	2.2569	0.19934	

PROBABILITY
_____

end-point 0	0.75473E-01	0.39736E-01	0.67582E-01
end-point 1	0.41291E-01	0.58963E-01	0.36974E-01

9. Now fit a lagged y variable.

lag y
  Deviance   =   878.93601   on 1420 residual degrees of freedom
  Deviance decrease =   220.71708   on 1 residual degree of freedom
THERE IS NOT AN ERROR IN SABRE HERE - THE DF SHOULD BE 1420

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	

PROBABILITY
_____

end-point 0	0.00000E+00	FIXED	0.00000E+00
end-point 1	0.00000E+00	FIXED	0.00000E+00

10. Is the lag significant?

Yes.

11. What does this mean substantively?

The wife's employment status in the previous year is important in the explanation of her current employment status.

(The wife's employment status at t-1 is important as an explanation of her employment status at t.)

12. Is there still significant residual heterogeneity?

Yes. Scale = 0.93090 with a standard error of 0.21221.

13. Now fit a two-state Markov model.

markov y
  Deviance   =   846.49334   on 1417 residual degrees of freedom

dis e

  Parameter   Estimate   S. Error
  _____

  State 0

  _____
  int   -1.3981   0.29059
  mune   -1.9934   0.74696
  und5   -0.25101   0.35122
  scale   1.2878   0.29949

  State 1

  _____
  int   3.0890   0.18017
  mune   -1.3567   0.46530
  und5   -1.8990   0.26430
  scale   0.11596   0.27669
                              PROBABILITY
                              _____
  end-point 0   0.00000E+00   FIXED   0.00000E+00
  end-point 1   0.00000E+00   FIXED   0.00000E+00

14. State 0 are the women who were unemployed at t-1. What is the effect of husband's employment status for these women?

A husband being unemployed has a significant negative effect.

15. State 1 are women who were employed at t-1. What is the effect of husbands's employment status for these women?

A husband being unemployed has a significant negative effect however this is smaller than for women who are unemployed at t-1 (State 0).

16. What is the effect of having a child age 1- 5 years old the same for women in State 0 and State 1?

They are not significant for women who were unemployed at t-1 (State 0) but are significant for women who were employed at t-1 (State 1).

17. Is there significant residual heterogeneity?
Yes, for women in State 0 but not for women in State 1.