

Supplement 15.1. Mplus output for final example model presented in Chapter 15, as summarized in Table 15.6

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This supplement provides Mplus output, showing the code and results for the final model (Fig. 15.11) presented in the Chapter 15 extended example, as summarized in Table 15.6.

Mplus VERSION 5.2
MUTHEN & MUTHEN
11/23/2010 9:19 AM

INPUT INSTRUCTIONS

TITLE: ALT with all covariates, including fire and age

DATA: FILE IS KEELEY1_NOMISSING_data.csv;

VARIABLE:

NAMES ARE site age ppt94 ppt95 ppt96 ppt97 ppt98 covtot94 covtot95 covtot96
covtot97 covtot98 sr94 sr95 sr96 sr97 sr98 fireintl abio;

USEVARIABLES ARE sr94 sr95 sr96 sr97 sr98 covtot94 covtot95 covtot96
covtot97 covtot98 age fireintl abio;

MODEL:

i BY sr94@1 sr95@1 sr96@1 sr97@1 sr98@1;
s BY sr94@0 sr95@1 sr96@2 sr97@3 sr98@4;
i WITH s;
[sr94-sr98@0 i s p]; !sets intercepts for sr94-98 to 0, est means for i s p
p BY sr94@0 sr95@1 sr96@0 sr97@0 sr98@2;
p@0.01;
p WITH s@0;
p WITH i@0;
sr94 ON covtot94 ;
sr95 ON covtot95 (1);
sr96 ON covtot96 (1);
sr97 ON covtot97 (1);
sr98 ON covtot98 (1);
sr94 WITH sr95;
i ON abio;
i WITH sr94;
i WITH covtot94;
i WITH covtot95;
i WITH covtot96;
sr94 ON fireintl;
covtot94 ON fireintl;
fireintl ON age;
sr96 ON sr95; !HERE IS OUR AUTOREGRESSIVE EFFECT
!sr94 ON abio; !TEST OF DIRECT PATH FROM ABIO TO SR94

OUTPUT:

STDYX; !REQUEST STANDARDIZED COEFFS
! MOD (4); !REQUEST MODIFICATION INDICES

BEGINNING OF OUTPUT
INPUT READING TERMINATED NORMALLY

SUMMARY OF ANALYSIS

Number of groups	1
Number of observations	88
Number of dependent variables	7
Number of independent variables	6
Number of continuous latent variables	3

Observed dependent variables

Continuous					
SR94	SR95	SR96	SR97	SR98	COVTOT94
FIREINT1					

Observed independent variables

COVTOT95	COVTOT96	COVTOT97	COVTOT98	AGE	ABIO
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Continuous latent variables

I	S	P
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Estimator	ML
Information matrix	OBSERVED
Maximum number of iterations	1000
Convergence criterion	0.500D-04
Maximum number of steepest descent iterations	20

Input data file(s)
KEELEY1_NOMISSING_data.csv

Input data format FREE

THE MODEL ESTIMATION TERMINATED NORMALLY

TESTS OF MODEL FIT

Chi-Square Test of Model Fit	
Value	48.677
Degrees of Freedom	38
P-Value	0.1149

Chi-Square Test of Model Fit for the Baseline Model	
Value	389.974
Degrees of Freedom	63
P-Value	0.0000

CFI/TLI	
CFI	0.967
TLI	0.946

Loglikelihood	
H0 Value	-4562.833
H1 Value	-4538.494

Information Criteria	
Number of Free Parameters	52
Akaike (AIC)	9229.665
Bayesian (BIC)	9358.487
Sample-Size Adjusted BIC	9194.397
(n* = (n + 2) / 24)	

RMSEA (Root Mean Square Error Of Approximation)

Estimate	0.057	
90 Percent C.I.	0.000	0.099
Probability RMSEA <= .05	0.385	

SRMR (Standardized Root Mean Square Residual)

Value	0.080
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MODEL RESULTS (NOTE: 999.000 MEANS UNDEFINED QUANTITY)

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
I	BY				
	SR94	1.000	0.000	999.000	999.000
	SR95	1.000	0.000	999.000	999.000
	SR96	1.000	0.000	999.000	999.000
	SR97	1.000	0.000	999.000	999.000
	SR98	1.000	0.000	999.000	999.000
S	BY				
	SR94	0.000	0.000	999.000	999.000
	SR95	1.000	0.000	999.000	999.000
	SR96	2.000	0.000	999.000	999.000
	SR97	3.000	0.000	999.000	999.000
	SR98	4.000	0.000	999.000	999.000
P	BY				
	SR94	0.000	0.000	999.000	999.000
	SR95	1.000	0.000	999.000	999.000
	SR96	0.000	0.000	999.000	999.000
	SR97	0.000	0.000	999.000	999.000
	SR98	2.000	0.000	999.000	999.000
I	ON				
	ABIO	0.607	0.228	2.662	0.008
SR94	ON				
	COVTOT94	0.152	0.026	5.867	0.000
	FIREINT1	-1.625	0.424	-3.834	0.000
SR95	ON				
	COVTOT95	0.037	0.015	2.519	0.012
SR96	ON				
	COVTOT96	0.037	0.015	2.519	0.012
	SR95	0.073	0.017	4.210	0.000
SR97	ON				
	COVTOT97	0.037	0.015	2.519	0.012
SR98	ON				
	COVTOT98	0.037	0.015	2.519	0.012
COVTOT94	ON				
	FIREINT1	-8.434	1.803	-4.677	0.000
FIREINT1	ON				
	AGE	0.061	0.013	4.841	0.000

I	WITH				
S		6.465	5.789	1.117	0.264
SR94		-35.323	12.501	-2.826	0.005
COVTOT94		-37.163	28.864	-1.288	0.198
COVTOT95		131.323	53.727	2.444	0.015
COVTOT96		35.568	48.649	0.731	0.465
P	WITH				
S		0.000	0.000	999.000	999.000
I		0.000	0.000	999.000	999.000
COVTOT95	WITH				
S		-13.372	15.517	-0.862	0.389
P		-18.165	22.340	-0.813	0.416
COVTOT96	WITH				
S		-3.688	14.505	-0.254	0.799
P		0.083	21.723	0.004	0.997
COVTOT97	WITH				
S		-6.263	14.646	-0.428	0.669
P		-10.189	22.548	-0.452	0.651
COVTOT98	WITH				
S		1.825	11.208	0.163	0.871
P		5.954	18.396	0.324	0.746
AGE	WITH				
S		0.103	3.363	0.031	0.975
P		-2.422	5.862	-0.413	0.680
ABIO	WITH				
S		-0.670	1.712	-0.392	0.695
P		3.914	2.454	1.595	0.111
SR94	WITH				
SR95		52.558	15.712	3.345	0.001
COVTOT96	WITH				
COVTOT95		307.490	202.489	1.519	0.129
COVTOT97	WITH				
COVTOT95		175.175	188.005	0.932	0.351
COVTOT96		527.990	187.738	2.812	0.005
COVTOT98	WITH				
COVTOT95		444.695	161.235	2.758	0.006
COVTOT96		461.183	160.797	2.868	0.004
AGE	WITH				
COVTOT95		-85.953	52.368	-1.641	0.101
COVTOT96		-27.415	52.269	-0.525	0.600
ABIO	WITH				
COVTOT95		-8.594	22.490	-0.382	0.702
COVTOT96		-99.585	21.627	-4.605	0.000
Means					
COVTOT95		113.534	4.356	26.066	0.000
COVTOT96		111.511	4.185	26.644	0.000
S		-4.803	0.372	-12.923	0.000
P		7.200	0.532	13.542	0.000

Intercepts				
SR94	0.000	0.000	999.000	999.000
SR95	0.000	0.000	999.000	999.000
SR96	0.000	0.000	999.000	999.000
SR97	0.000	0.000	999.000	999.000
SR98	0.000	0.000	999.000	999.000
COVTOT94	107.838	8.757	12.314	0.000
FIREINT1	3.005	0.357	8.411	0.000
I	16.338	11.428	1.430	0.153

Variances				
COVTOT95	1830.524	271.193	6.750	0.000
COVTOT96	1995.929	292.582	6.822	0.000
S	-3.181	1.886	-1.686	0.092
P	0.010	0.000	999.000	999.000

Residual Variances				
SR94	167.693	29.406	5.703	0.000
SR95	58.742	11.371	5.166	0.000
SR96	41.616	8.260	5.038	0.000
SR97	33.388	7.675	4.350	0.000
SR98	69.898	13.630	5.128	0.000
COVTOT94	803.182	121.086	6.633	0.000
FIREINT1	2.179	0.328	6.633	0.000
I	68.338	25.211	2.711	0.007

STANDARDIZED MODEL RESULTS
STDYX Standardization

		Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
I BY					
SR94		0.613	0.106	5.794	0.000
SR95		0.699	0.093	7.526	0.000
SR96		0.731	0.102	7.188	0.000
SR97		0.816	0.124	6.575	0.000
SR98		0.707	0.127	5.563	0.000
S BY					
SR94		999.000	999.000	999.000	999.000
SR95		999.000	999.000	999.000	999.000
SR96		999.000	999.000	999.000	999.000
SR97		999.000	999.000	999.000	999.000
SR98		999.000	999.000	999.000	999.000
P BY					
SR94		0.000	0.000	999.000	999.000
SR95		0.008	0.001	14.375	0.000
SR96		0.000	0.000	999.000	999.000
SR97		0.000	0.000	999.000	999.000
SR98		0.016	0.001	13.900	0.000
I ON					
ABIO		0.355	0.127	2.787	0.005
SR94 ON					
COVTOT94		0.333	0.058	5.782	0.000
FIREINT1		-0.187	0.048	-3.927	0.000
SR95 ON					
COVTOT95		0.126	0.050	2.496	0.013

SR96	ON				
COVTOT96		0.137	0.056	2.466	0.014
SR95		0.076	0.018	4.329	0.000
SR97	ON				
COVTOT97		0.154	0.063	2.458	0.014
SR98	ON				
COVTOT98		0.115	0.047	2.462	0.014
COVTOT94	ON				
FIREINT1		-0.443	0.085	-5.215	0.000
FIREINT1	ON				
AGE		0.459	0.084	5.447	0.000
I	WITH				
S		999.000	999.000	999.000	999.000
SR94		-0.330	0.094	-3.507	0.000
COVTOT94		-0.159	0.123	-1.293	0.196
COVTOT95		0.371	0.135	2.749	0.006
COVTOT96		0.096	0.131	0.734	0.463
P	WITH				
S		999.000	999.000	999.000	999.000
I		0.000	0.000	999.000	999.000
COVTOT95	WITH				
S		999.000	999.000	999.000	999.000
P		-4.246	5.203	-0.816	0.414
COVTOT96	WITH				
S		999.000	999.000	999.000	999.000
P		0.019	4.862	0.004	0.997
COVTOT97	WITH				
S		999.000	999.000	999.000	999.000
P		-2.268	5.022	-0.452	0.652
COVTOT98	WITH				
S		999.000	999.000	999.000	999.000
P		1.546	4.777	0.324	0.746
AGE	WITH				
S		999.000	999.000	999.000	999.000
P		-1.952	4.728	-0.413	0.680
ABIO	WITH				
S		999.000	999.000	999.000	999.000
P		7.574	4.783	1.584	0.113
SR94	WITH				
SR95		0.530	0.091	5.839	0.000
COVTOT96	WITH				
COVTOT95		0.161	0.102	1.573	0.116
COVTOT97	WITH				
COVTOT95		0.091	0.098	0.934	0.350
COVTOT96		0.263	0.091	2.884	0.004

COVTOT98 WITH				
COVTOT95	0.270	0.095	2.851	0.004
COVTOT96	0.268	0.091	2.948	0.003

AGE WITH				
COVTOT95	-0.162	0.098	-1.649	0.099
COVTOT96	-0.049	0.094	-0.525	0.600

ABIO WITH				
COVTOT95	-0.039	0.102	-0.382	0.702
COVTOT96	-0.431	0.087	-4.959	0.000

Means				
COVTOT95	2.654	0.221	11.987	0.000
COVTOT96	2.496	0.206	12.144	0.000
S	999.000	999.000	999.000	999.000
P	71.997	5.317	13.542	0.000

Intercepts				
SR94	0.000	0.000	999.000	999.000
SR95	0.000	0.000	999.000	999.000
SR96	0.000	0.000	999.000	999.000
SR97	0.000	0.000	999.000	999.000
SR98	0.000	0.000	999.000	999.000
COVTOT94	3.411	0.260	13.102	0.000
FIREINT1	1.809	0.309	5.863	0.000
I	1.848	1.431	1.291	0.197

Variances				
COVTOT95	1.000	0.000	999.000	999.000
COVTOT96	1.000	0.000	999.000	999.000
S	999.000	999.000	999.000	999.000
P	1.000	0.000	999.000	999.000

Residual Variances				
SR94	0.807	0.142	5.696	0.000
SR95	0.367	0.076	4.822	0.000
SR96	0.284	0.054	5.304	0.000
SR97	0.284	0.067	4.213	0.000
SR98	0.447	0.080	5.604	0.000
COVTOT94	0.804	0.075	10.672	0.000
FIREINT1	0.790	0.077	10.229	0.000
I	0.874	0.090	9.667	0.000

R-SQUARE

Observed Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
SR94	0.193	0.142	1.365	0.172
SR95	0.633	0.076	8.328	0.000
SR96	0.716	0.054	13.353	0.000
SR97	0.716	0.067	10.611	0.000
SR98	0.553	0.080	6.925	0.000
COVTOT94	0.196	0.075	2.608	0.009
FIREINT1	0.210	0.077	2.723	0.006

Latent Variable	Estimate	S.E.	Est./S.E.	Two-Tailed P-Value
I	0.126	0.090	1.393	0.163

QUALITY OF NUMERICAL RESULTS

Condition Number for the Information Matrix
(ratio of smallest to largest eigenvalue)

0.591E-07

Beginning Time: 09:19:54

Ending Time: 09:19:54

Elapsed Time: 00:00:00

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