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L I S R E L 8.54

BY

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The following lines were read from file C:\Users\POLINY\Desktop\Asst. prof.  
Sasithorn\MODEL OF QA\model.spj:

MODEL OF QA  
Observed variable:  
LOA LOB LOC LOD LOE QA1 QA2 QA3 KMA KMB KMC KMD  
Raw data from file raw.dat  
Sample Size = 272  
Latent Variables LO QA KM  
Relationships  
LOA = LO  
LOB = LO  
LOC = LO  
LOD = LO  
LOE = LO  
QA1 = QA  
QA2 = QA  
QA3 = QA  
KMA = KM  
KMB = KM  
KMC = KM  
KMD = KM  
QA = LO  
LO = KM  
QA = KM  
Path Diagram  
End of Problem

Sample Size = 272

MODEL OF QA

Covariance Matrix

	LOA	LOB	LOC	LOD	LOE	QA1
	-----	-----	-----	-----	-----	-----
LOA	0.62					
LOB	0.36	0.65				
LOC	0.48	0.55	0.78			
LOD	0.46	0.49	0.61	0.69		
LOE	0.56	0.55	0.70	0.69	1.01	
QA1	0.40	0.39	0.46	0.43	0.58	0.55
QA2	0.31	0.39	0.40	0.42	0.51	0.41
QA3	0.34	0.33	0.38	0.38	0.49	0.40
KMA	0.32	0.29	0.36	0.36	0.46	0.32
KMB	0.40	0.50	0.50	0.49	0.56	0.44
KMC	0.42	0.43	0.48	0.48	0.56	0.42
KMD	0.44	0.49	0.55	0.55	0.59	0.44

Covariance Matrix

	QA2	QA3	KMA	KMB	KMC	KMD
QA2	0.53					
QA3	0.37	0.43				
KMA	0.32	0.30	0.48			
KMB	0.43	0.37	0.41	0.81		
KMC	0.38	0.36	0.35	0.57	0.66	
KMD	0.42	0.38	0.37	0.65	0.58	0.79

MODEL OF QA

Number of Iterations = 11

LISREL Estimates (Maximum Likelihood)

Measurement Equations

LOA = 0.61\*LO, Errorvar.= 0.25 , R<sub>y</sub> = 0.60  
 (0.023)  
 10.79

LOB = 0.65\*LO, Errorvar.= 0.23 , R<sub>y</sub> = 0.65  
 (0.045) (0.022)  
 14.54 10.56

LOC = 0.79\*LO, Errorvar.= 0.15 , R<sub>y</sub> = 0.81  
 (0.047) (0.016)  
 16.68 9.20

LOD = 0.76\*LO, Errorvar.= 0.11 , R<sub>y</sub> = 0.84  
 (0.044) (0.013)  
 17.19 8.46

LOE = 0.90\*LO, Errorvar.= 0.21 , R<sub>y</sub> = 0.79  
 (0.054) (0.022)  
 16.47 9.43

QA1 = 0.67\*QA, Errorvar.= 0.098 , R<sub>y</sub> = 0.82  
 (0.013)  
 7.75

QA2 = 0.62\*QA, Errorvar.= 0.15 , R<sub>y</sub> = 0.71  
 (0.031) (0.016)  
 19.74 9.59

QA3 = 0.59\*QA, Errorvar.= 0.082 , R<sub>y</sub> = 0.81  
 (0.026) (0.010)  
 22.59 8.11

KMA = 0.50\*KM, Errorvar.= 0.22 , R<sub>y</sub> = 0.54  
 (0.037) (0.020)  
 13.78 10.77

KMB = 0.79\*KM, Errorvar.= 0.18 , R<sub>y</sub> = 0.78  
 (0.043) (0.020)  
 18.28 8.92

KMC = 0.72\*KM, Errorvar.= 0.14 , R<sub>y</sub> = 0.79  
 (0.039) (0.016)  
 18.50 8.73

KMD = 0.80\*KM, Errorvar.= 0.16 , R<sub>y</sub> = 0.80  
 (0.043) (0.018)  
 18.74 8.50

## Structural Equations

LO = 0.87\*KM, Errorvar.= 0.25 , R<sub>y</sub> = 0.75  
(0.067) (0.040)  
13.04 6.18

QA = 0.56\*LO + 0.36\*KM, Errorvar.= 0.20 , R<sub>y</sub> = 0.80  
(0.090) (0.087) (0.030)  
6.23 4.14 6.81

## Reduced Form Equations

LO = 0.87\*KM, Errorvar.= 0.25, R<sub>y</sub> = 0.75  
(0.067)  
13.04

QA = 0.85\*KM, Errorvar.= 0.28, R<sub>y</sub> = 0.72  
(0.057)  
14.99

## Correlation Matrix of Independent Variables

-----  
KM  
-----  
1.00

## Covariance Matrix of Latent Variables

	LO	QA	KM
LO	1.00		
QA	0.87	1.00	
KM	0.87	0.85	1.00

## Goodness of Fit Statistics

Degrees of Freedom = 51  
Minimum Fit Function Chi-Square = 203.19 (P = 0.0)  
Normal Theory Weighted Least Squares Chi-Square = 211.85 (P = 0.0)  
Estimated Non-centrality Parameter (NCP) = 160.85  
90 Percent Confidence Interval for NCP = (119.66 ; 209.59)

Minimum Fit Function Value = 0.75  
Population Discrepancy Function Value (F0) = 0.59  
90 Percent Confidence Interval for F0 = (0.44 ; 0.77)  
Root Mean Square Error of Approximation (RMSEA) = 0.11  
90 Percent Confidence Interval for RMSEA = (0.093 ; 0.12)  
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.00

Expected Cross-Validation Index (ECVI) = 0.98  
90 Percent Confidence Interval for ECVI = (0.83 ; 1.16)  
ECVI for Saturated Model = 0.58  
ECVI for Independence Model = 30.76

Chi-Square for Independence Model with 66 Degrees of Freedom = 8311.43  
Independence AIC = 8335.43  
Model AIC = 265.85  
Saturated AIC = 156.00  
Independence CAIC = 8390.70  
Model CAIC = 390.20  
Saturated CAIC = 515.25

Normed Fit Index (NFI) = 0.98  
Non-Normed Fit Index (NNFI) = 0.98

Parsimony Normed Fit Index (PNFI) = 0.75

Comparative Fit Index (CFI) = 0.98

Incremental Fit Index (IFI) = 0.98

Relative Fit Index (RFI) = 0.97

Critical N (CN) = 104.22

Root Mean Square Residual (RMR) = 0.025

Standardized RMR = 0.040

Goodness of Fit Index (GFI) = 0.88

Adjusted Goodness of Fit Index (AGFI) = 0.82

Parsimony Goodness of Fit Index (PGFI) = 0.58

The Modification Indices Suggest to Add the

Path to	from	Decrease in Chi-Square	New Estimate
LOC	QA	10.4	-0.24
LOD	QA	8.0	-0.19
LOE	QA	16.0	0.35

The Modification Indices Suggest to Add an Error Covariance

Between	and	Decrease in Chi-Square	New Estimate
LOB	LOA	8.1	-0.05
LOC	LOB	11.7	0.05
LOE	LOB	12.3	-0.06
QA1	LOD	12.4	-0.03
QA1	LOE	9.3	0.04
QA2	LOA	12.0	-0.05
KMA	LOE	11.5	0.05
KMA	QA3	11.1	0.03
KMB	LOB	19.2	0.06
KMD	LOE	8.1	-0.04
KMD	KMA	17.0	-0.06
KMD	KMB	8.4	0.05

Time used: 0.062 Seconds