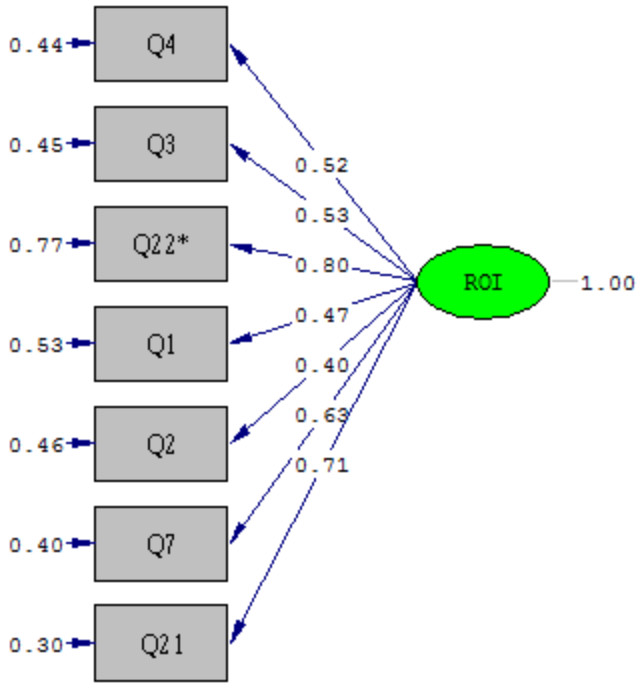

Chi-Square=59.79, df=14, P-value=0.00000, RMSEA=0.166

DATE: 7/30/2015
TIME: 15:49

L I S R E L 8.80

BY

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The following lines were read from file C:\Users\Dallas-PC\Documents\answerssem.SPJ:

Raw Data from file 'C:\Users\Dallas-PC\Documents\answerssem.psf'

Latent Variables ROI
Relationships
Q4 = ROI
Q3 = ROI
'Q22*' = ROI
Q1 = ROI
Q2 = ROI
Q7 = ROI
Q21 = ROI
Path Diagram
End of Problem

Sample Size = 120

Covariance Matrix

	Q4	Q3	Q22*	Q1	Q2	Q7
Q4	0.71					
Q3	0.39	0.73				
Q22*	0.40	0.31	1.41			
Q1	0.34	0.31	0.23	0.75		
Q2	0.23	0.30	0.25	0.24	0.62	
Q7	0.28	0.33	0.50	0.24	0.27	0.79
Q21	0.30	0.31	0.71	0.34	0.22	0.48

Covariance Matrix

	Q21
Q21	0.80

Number of Iterations = 9

LISREL Estimates (Maximum Likelihood)

Measurement Equations

Q4 = 0.52*ROI, Errorvar.= 0.44 , R^2 = 0.38
(0.075) (0.064)
6.94 6.83

Q3 = 0.53*ROI, Errorvar.= 0.45 , R^2 = 0.38
(0.076) (0.066)
6.92 6.84

Q22* = 0.80*ROI, Errorvar.= 0.77 , R^2 = 0.45
(0.10) (0.12)
7.73 6.52

Q1 = 0.47*ROI, Errorvar.= 0.53 , R^2 = 0.30
(0.079) (0.074)
5.99 7.10

Q2 = 0.40*ROI, Errorvar.= 0.46 , R^2 = 0.25
(0.073) (0.064)
5.43 7.23

Q7 = 0.63*ROI, Errorvar.= 0.40 , R^2 = 0.50
(0.076) (0.063)
8.19 6.30

Q21 = 0.71*ROI, Errorvar.= 0.30 , R^2 = 0.63
(0.074) (0.057)
9.58 5.31

Correlation Matrix of Independent Variables

	ROI
ROI	1.00

Goodness of Fit Statistics

Degrees of Freedom = 14
Minimum Fit Function Chi-Square = 56.03 (P = 0.00)
Normal Theory Weighted Least Squares Chi-Square = 59.79 (P = 0.00)
Estimated Non-centrality Parameter (NCP) = 45.79
90 Percent Confidence Interval for NCP = (25.56 ; 73.57)

Minimum Fit Function Value = 0.47
Population Discrepancy Function Value (F0) = 0.38
90 Percent Confidence Interval for F0 = (0.21 ; 0.62)
Root Mean Square Error of Approximation (RMSEA) = 0.17
90 Percent Confidence Interval for RMSEA = (0.12 ; 0.21)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.00

Expected Cross-Validation Index (ECVI) = 0.74
90 Percent Confidence Interval for ECVI = (0.57 ; 0.97)
ECVI for Saturated Model = 0.47
ECVI for Independence Model = 3.86

Chi-Square for Independence Model with 21 Degrees of Freedom = 445.20
Independence AIC = 459.20
Model AIC = 87.79
Saturated AIC = 56.00
Independence CAIC = 485.71
Model CAIC = 140.82
Saturated CAIC = 162.05

Normed Fit Index (NFI) = 0.87

```
Non-Normed Fit Index (NNFI) = 0.85
Parsimony Normed Fit Index (PNFI) = 0.58
Comparative Fit Index (CFI) = 0.90
Incremental Fit Index (IFI) = 0.90
Relative Fit Index (RFI) = 0.81

Critical N (CN) = 62.89


Root Mean Square Residual (RMR) = 0.065
Standardized RMR = 0.077
Goodness of Fit Index (GFI) = 0.87
Adjusted Goodness of Fit Index (AGFI) = 0.75
Parsimony Goodness of Fit Index (PGFI) = 0.44
```

The Modification Indices Suggest to Add an Error Covariance

Between	and	Decrease in Chi-Square	New Estimate
Q3	Q4	11.3	0.16
Q1	Q22*	8.4	-0.20
Q21	Q4	8.2	-0.13
Q21	Q22*	24.5	0.33

INTERPRETATION (in parenthesis, the desirable values):

- Root Mean Square Error of Approximation/RSMEA (< 0.08): **0.17**
- Normed Fit Index/NFI (> 0.9): **0.87**
- Parsimony Normed Fit Index/PNFI (> 0.9): **0.58**
- Comparative Fit Index/CFI (> 0.9): **0.90**
- Incremental Fit Index/IFI (> 0.9): **0.90**
- Relative Fit Index/RFI (> 0.9): **0.81**
- Root Mean Square Residual/RMR (the smaller the better): **0.065**
- Goodness of Fit Index/GFI (> 0.9): **0.87**
- Parsimony Goodness of Fit Index/PGFI (> 0.9): **0.44**
- Chi-square: **59.79** (accepts alternative hipothesys, *the data are related*)

All the indices are on the verge of not being a good fit, although they are quite close of a plausible model. The poorest result is the PGFI, which means that the data is not the problem (they are indeed related), although they were not modelled in the best shape. Even with a poor model where the questions are only affected by the hidden variable

and do not affect each other, the indices were good. The fact that the RMSEA is also out of the boundaries for a good model even though the other ones are not that bad may indicate that the model is slightly off and needs to be changed, since this index tends to reward simple models (our model is simple) with a fair amount of data (our N is above 100, which makes it also good).