Adaptive quadrature analysis of political efficacy data

We use adaptive quadrature and a probit link function in this analysis based on the six ordinal variables described above. Aish & Jöreskog (1990) analyzed data on political attitudes. Their data consist of 16 ordinal variables measured on the same people at two occasions. Six of the 16 variables were considered to be indicators of political Efficacy. The attitude questions corresponding to these six variables are:

- People like me have no say in what the government does ('NOSAYINMATTERS')
- Voting is the only way that people like me can have any say about how the government runs things (VOTING)
- Sometimes politics and government seem so complicated that a person like me cannot really understand what is going on (COMPLEX)
- I don't think that public officials care much about what people like me think (NOCARE4PEOPLE)
- Generally speaking, those we elect to Parliament lose touch with the people pretty quickly (TOUCH)
- Parties are only interested in people's votes but not in their opinions (INTEREST_LEVEL)

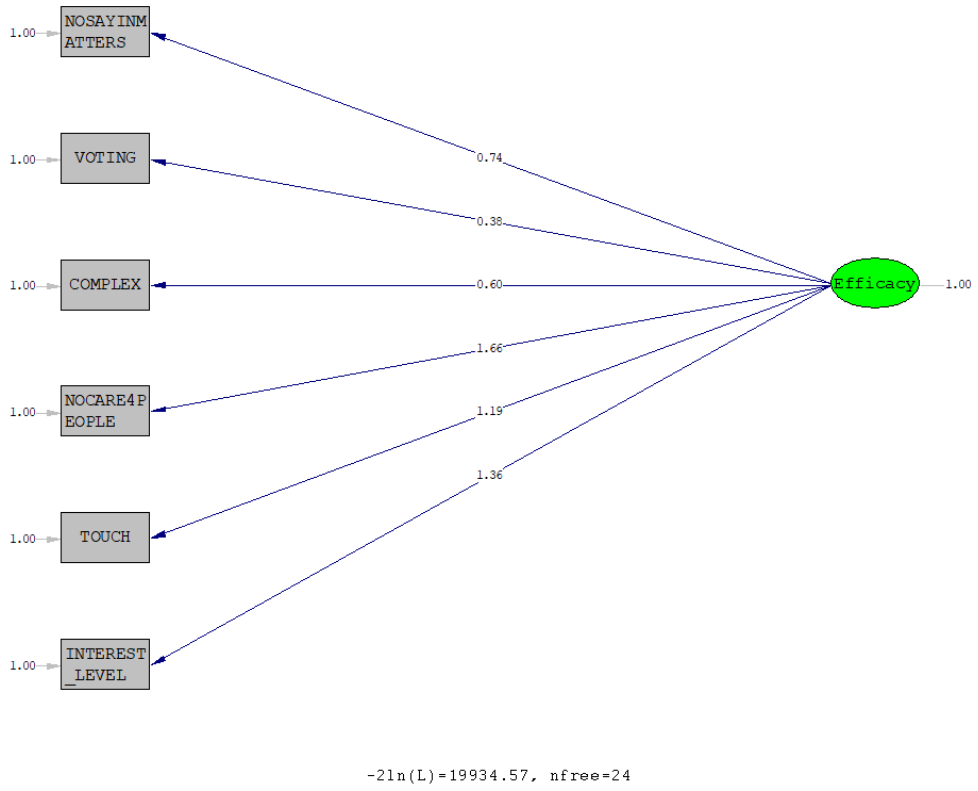
Permitted responses to these questions were agree strongly, agree, disagree, disagree strongly, don't know and no answer.

The model fitted to the data is given in the file **efficacy2a_16.spl**.

```
Efficacy: Model 1 Estimated by FIML
Raw Data from file EFFICACY_16.LSF
$ADAPQ(8) PROBIT
Latent Variable Efficacy
Relationships
NOSAYINMATTERS - INTEREST_LEVEL = Efficacy
Path Diagram
End of Problem
End of Problem
```

Eight quadrature points are specified. Again, in order to create a new LSF file with 16-character names, we export the data from the old LSF file, amend the names as needed, and create a new LSF file. Note that the new LSF file is not downward compatible and can only be read by LISREL 11. In contrast, LSF files made by previous versions can still be opened and used in LISREL 11.

The following path diagram is obtained for this analysis:



Portions of the output are given below:

```
   Measurement Equations
NOSAYINMATTERS = 0.739*Efficacy, Errorvar.= 1.000, R² = 0.353
Standerr  (0.0407)
Z-values   18.154
P-values   0.000

  VOTING = 0.377*Efficacy, Errorvar.= 1.000, R² = 0.124
Standerr  (0.0324)
Z-values   11.643
P-values   0.000
```

```
 COMPLEX = 0.601*Efficacy, Errorvar.= 1.000, R² = 0.265
Standerr  (0.0375)
Z-values   16.042
P-values   0.000

NOCARE4PEOPLE = 1.656*Efficacy, Errorvar.= 1.000, R² = 0.733
Standerr  (0.103)
Z-values   16.007
P-values   0.000

   TOUCH = 1.185*Efficacy, Errorvar.= 1.000, R² = 0.584
Standerr  (0.0632)
Z-values   18.754
P-values   0.000

INTEREST_LEVEL = 1.361*Efficacy, Errorvar.= 1.000, R² = 0.649
Standerr  (0.0744)
Z-values   18.290
P-values   0.000

Number of quadrature points =               8
     Number of free parameters =               24
     Number of iterations used =                7

     -2lnL (deviance statistic) =      19934.56514
     Akaike Information Criterion      19982.56514
     Schwarz Criterion                 20113.22711
```

When a cumulative log-log link function is used instead of a probit link function, the deviance statistic for that model is found to be 20069.22 with the same number of estimated parameters.

This indicates that the probit model fits the data better than the cumulative log-log model.