Latent variable scores

To obtain scores for the latent variables of a structural equation model, the following three steps are required.

Step 1

If the data are not available as a LISREL system data file (*.**lsf**) yet, use the **Import Data in Free Format** or **Import External Data in Other Formats** options from the **File** menu to create a *.**lsf** file.

Step 2

Use this *.**lsf** file to compute the desired sample covariance or correlation matrix to which the structural equation model should be fitted. This may be done by running the appropriate PRELIS syntax file or by using the **Output Options** option from the **Statistics** menu. Either action will result in the creation a LISREL data summary file (*.**dsf**). A *.**dsf** file contains all the data information that LISREL requires to fit the structural equation model to the data.

Step 3

In SIMPLIS syntax, use the line

System File from file <filename>.DSF

to specify the data to be analyzed and insert the command line

LSFfile <filename>.LSF

after the Relationships paragraph where <filename> denotes the path and name of the *.**lsf** file. The System File command replaces the Observed Variables paragraph and the Sample Size line.

In LISREL syntax, use the command line

SY = <filename>.DSF

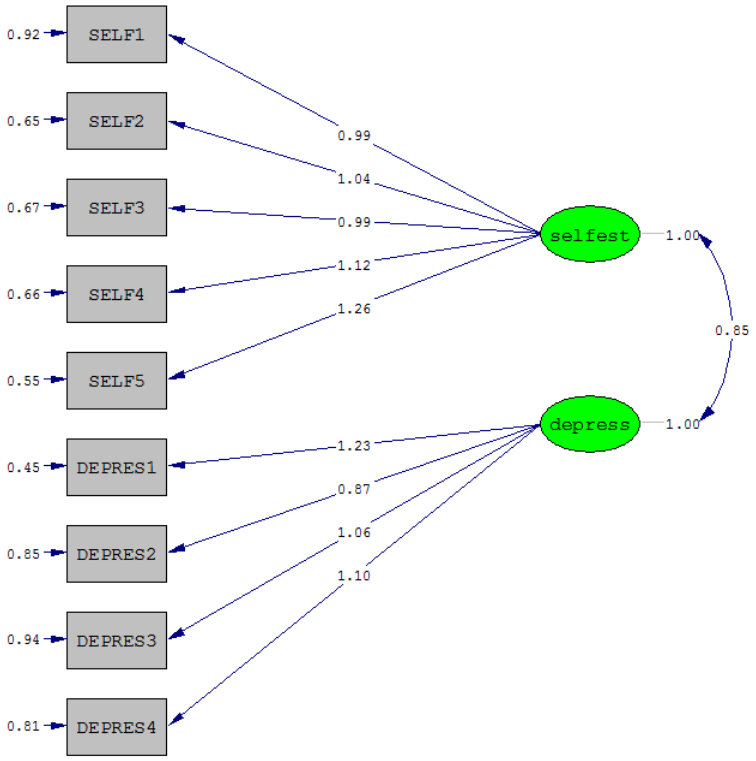
to specify the *.**dsf** file and the

LS = <filename>.LSF

command line to specify the *.**lsf** file. The SY command replaces the LA and the DA commands.

When done, run the syntax file by clicking the **Run LISREL** icon button. When the output file is displayed, open the relevant *.**lsf** file using the **Open** option from the **File** menu. The latent variable scores appear as the last set of columns of this file.

Chow (2000) used five indicators of self-esteem (Selfest) and four indicators of depression (Depress) to formulate a measurement model for the latent variables Self Esteem and Depression. A path diagram of this measurement model is shown below.

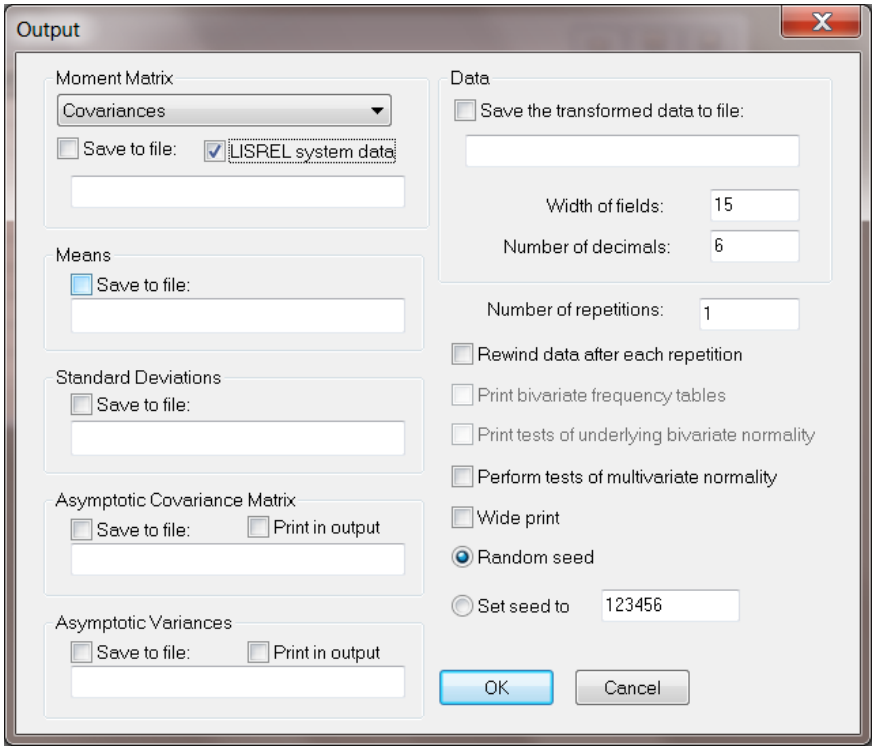


The nine indicators were observed for a random sample size of 230 college graduates. The resulting raw data are listed in the PRELIS System File **depression.lsf**, located in the **SIMPLIS Examples** folder. A portion of the spreadsheet is shown below.

Depression.lsf

	SELF1	SELF2	SELF3	SELF4	SELF5	DEPRES1	DEPRES2
1	3.00	2.00	3.00	4.00	4.00	4.00	2.00
2	2.00	1.00	2.00	3.00	2.00	3.00	0.00
3	2.00	1.00	4.00	2.00	2.00	2.00	0.00
4	1.00	1.00	2.00	2.00	4.00	4.00	3.00
5	2.00	0.00	1.00	2.00	3.00	2.00	1.00
6	4.00	3.00	3.00	2.00	4.00	2.00	1.00
7	0.00	0.00	1.00	2.00	1.00	2.00	0.00
8	4.00	2.00	2.00	2.00	2.00	2.00	0.00
9	3.00	3.00	2.00	2.00	3.00	4.00	2.00
10	0.00	3.00	3.00	3.00	1.00	3.00	1.00

The PRELIS syntax file **depression.prl** contains the required syntax to compute the sample covariance and to create the desired LISREL Data Summary File **depression.dsf**. This file is generated by selecting the **Output Options** option from the **Statistics** menu. The **Output** dialog box is shown below. Select **Covariances** and check the **LISREL system data** box. Click **OK** to run PRELIS.



The contents of **depression.prl** are listed below.

```
SY= Depress.lsf
OU MA=CM XM XB XT
```

The SIMPLIS syntax file **depress.spl** is used to compute the latent variable scores for the latent variables Self Esteem and Depression. The contents of this file are listed below.

DEPRESS.SPL

```
System File from file DEPRESSION.DSF
Latent Variables: selfest depress

Relationships
SELF1-SELF5 = selfest
DEPRES1-DEPRES4 = depress

LSFFile DEPRESSION.LSF
Lisrel Output: ND=3
Path Diagram
End of Problem
```

If LISREL is executed, a LISREL system data file **depressionnew.lsf** is created with the latent variable scores as shown below.

DEPRESSIONnew.lsf

	SELF5	DEPRES1	DEPRES2	DEPRES3	DEPRES4	selfest	depress
1	4.00	4.00	2.00	0.00	4.00	1.14	0.97
2	2.00	3.00	0.00	0.00	1.00	-0.01	-0.25
3	2.00	2.00	0.00	4.00	4.00	0.20	0.47
4	4.00	4.00	3.00	4.00	4.00	0.39	1.50
5	3.00	2.00	1.00	4.00	4.00	-0.14	0.53
6	4.00	2.00	1.00	3.00	4.00	1.02	0.58
7	1.00	2.00	0.00	2.00	1.00	-0.91	-0.44
8	2.00	2.00	0.00	4.00	4.00	0.28	0.48
9	3.00	4.00	2.00	4.00	4.00	0.66	1.42
10	1.00	3.00	1.00	4.00	4.00	0.16	0.90

The LISREL syntax file corresponding to the SIMPLIS syntax file **depress.spl** is shown below.

*Depress.lis - Notepad

File Edit Format View Help

```
TI
DA NI=12 NO=204 MA=CM
RA=DEPRESSION.LSF
MO NX=9 NK=2 TD=SY
LK
selfest depress
FR LX(1,1) LX(2,1) LX(3,1) LX(4,1) LX(5,1) LX(6,2) LX(7,2) LX(8,2) LX(9,2)
LS Depression.lsf
PD
OU
```

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