```
 PRESERVE.
SET DECIMAL DOT.

GET DATA  /TYPE=TXT
  /FILE="/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM
/Path Analysis example/ex3.11.dat"
  /DELCASE=LINE
  /DELIMITERS="\t"
  /ARRANGEMENT=DELIMITED
  /FIRSTCASE=1
  /DATATYPEMIN PERCENTAGE=95.0
  /VARIABLES=
  y1 AUTO
  /MAP.
RESTORE.

CACHE.
EXECUTE.

Data written to the working file.
1 variables and 500 cases written.
Variable: y1                Type: String  Format : A77

DATASET NAME DataSet1 WINDOW=FRONT.
PRESERVE.
SET DECIMAL DOT.

GET DATA  /TYPE=TXT
  /FILE="/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM
/Path Analysis example/ex3.11 copy.dat"
  /ENCODING='Locale'
  /DELCASE=LINE
  /DELIMITERS=","
  /ARRANGEMENT=DELIMITED
  /FIRSTCASE=1
  /DATATYPEMIN PERCENTAGE=95.0
  /VARIABLES=
  blank AUTO
  y1 AUTO
  y2 AUTO
  y3 AUTO
  x1 AUTO
  x2 AUTO
  x3 AUTO
  /MAP.
RESTORE.

CACHE.
```

```
EXECUTE.

Data written to the working file.
7 variables and 500 cases written.
Variable: blank             Type: String  Format : A3
Variable: y1                Type: Number  Format : F10.6
Variable: y2                Type: Number  Format : F10.6
Variable: y3                Type: Number  Format : F10.6
Variable: x1                Type: Number  Format : F9.6
Variable: x2                Type: Number  Format : F9.6
Variable: x3                Type: String  Format : A30

DATASET NAME DataSet2 WINDOW=FRONT.

SAVE OUTFILE='/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples fo
r SEM/Path '+
    'Analysis example/assumption testing for PA.sav'
  /COMPRESSED.
DATASET ACTIVATE DataSet2.
DATASET CLOSE DataSet1.
ALTER TYPE  all (f8.2).
```

Alter Type

Notes

Output Created		**19-JAN-2017 09:40:06**
Comments		
Input	**Data**	**/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav**
	Active Dataset	**DataSet2**
	Filter	**<none>**
	Weight	**<none>**
	Split File	**<none>**
Syntax		**ALTER TYPE all (f8.2).**
Resources	**Processor Time**	**00:00:00.00**
	Elapsed Time	**00:00:00.00**

Altered Types

y1	F10.6	F8.2
y2	F10.6	F8.2
y3	F10.6	F8.2
x1	F9.6	F8.2
x2	F9.6	F8.2
x3	A30	F8.2

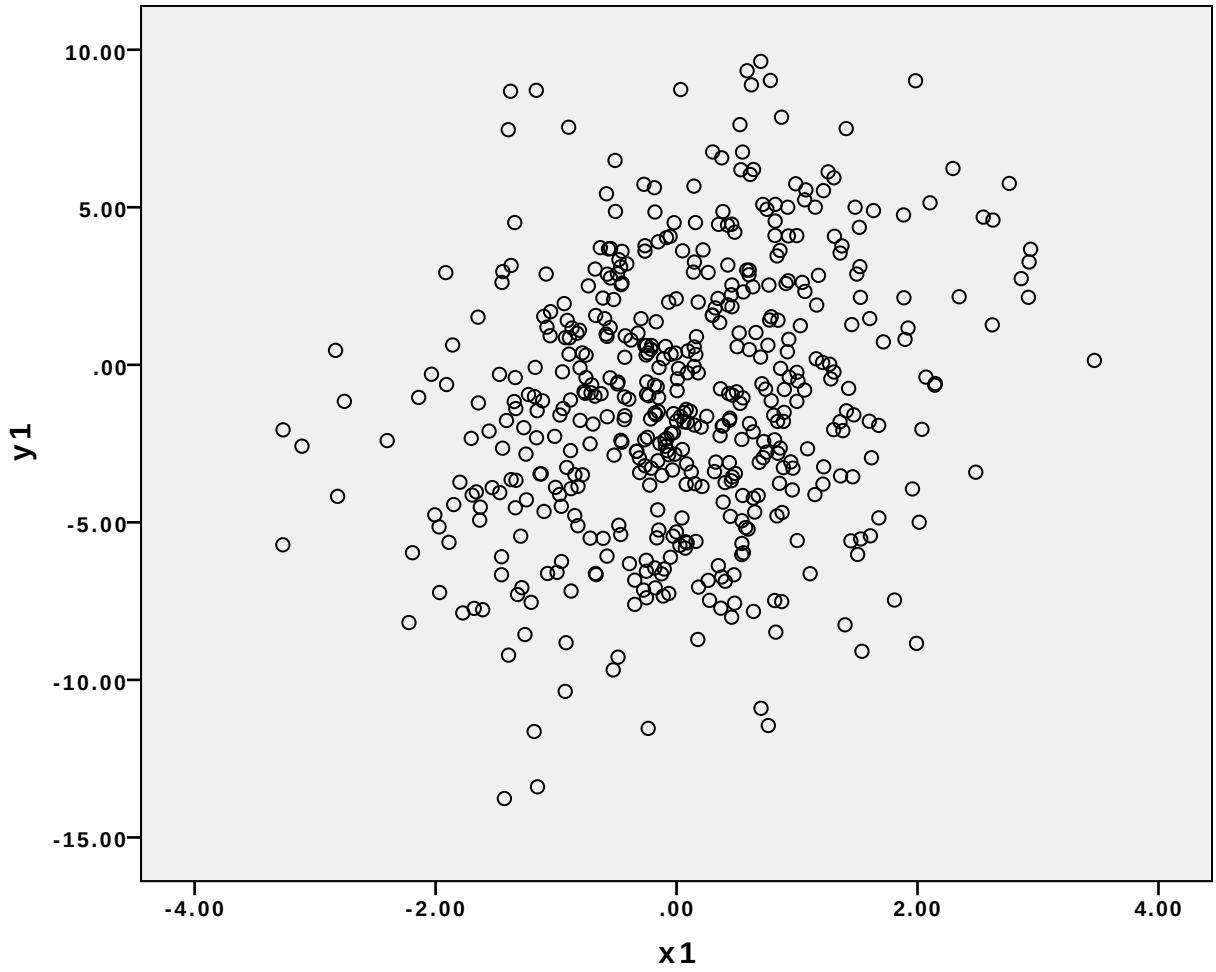
```
* Encoding: UTF-8.


DATASET ACTIVATE DataSet2.
GRAPH
  /SCATTERPLOT(BIVAR)=x1 WITH y1
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:32
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x1 WITH y1 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.97
	Elapsed Time	00:00:00.00

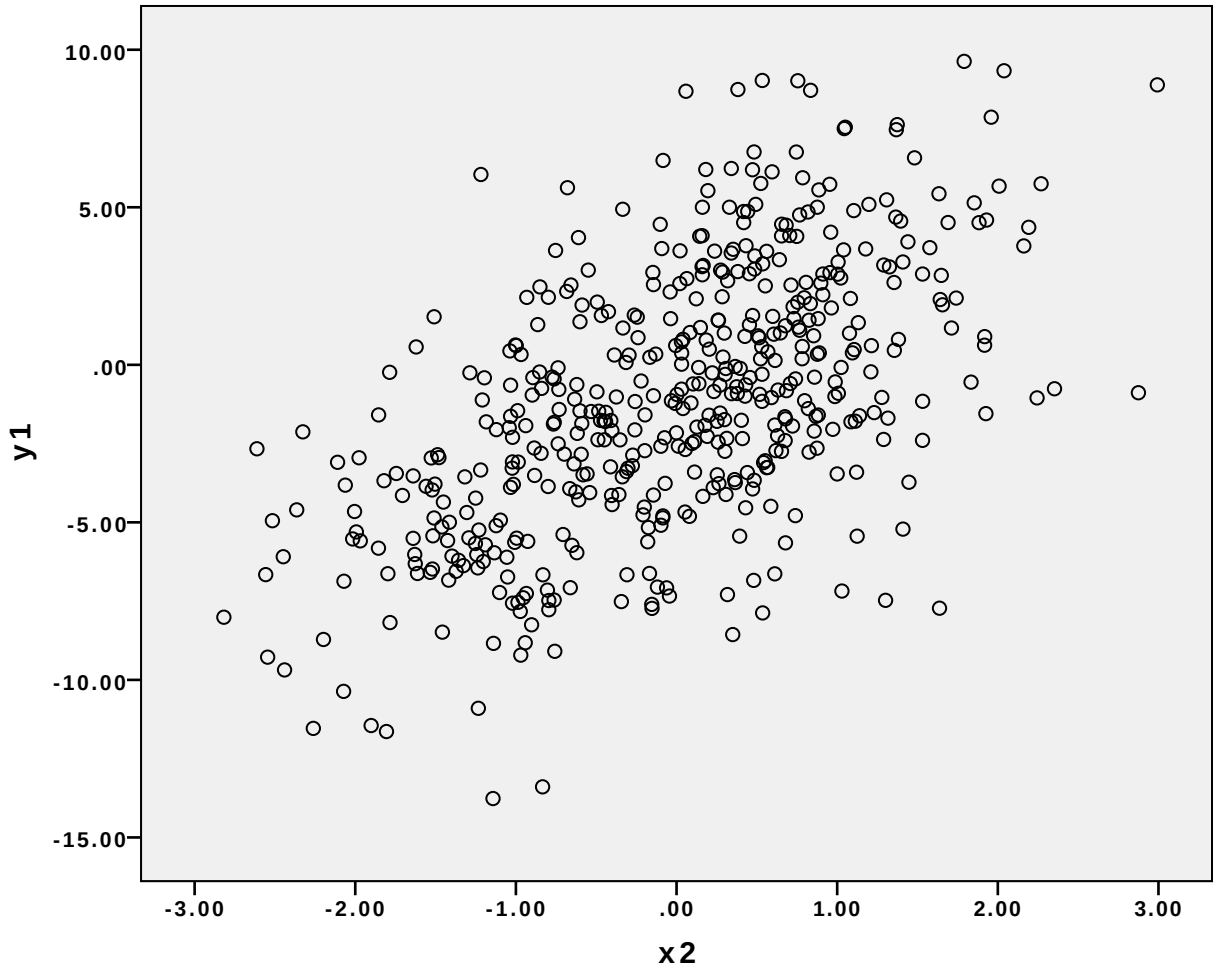



```
GRAPH
 /SCATTERPLOT(BIVAR)=x2 WITH y1
 /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:32
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x2 WITH y1 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.15
	Elapsed Time	00:00:00.00

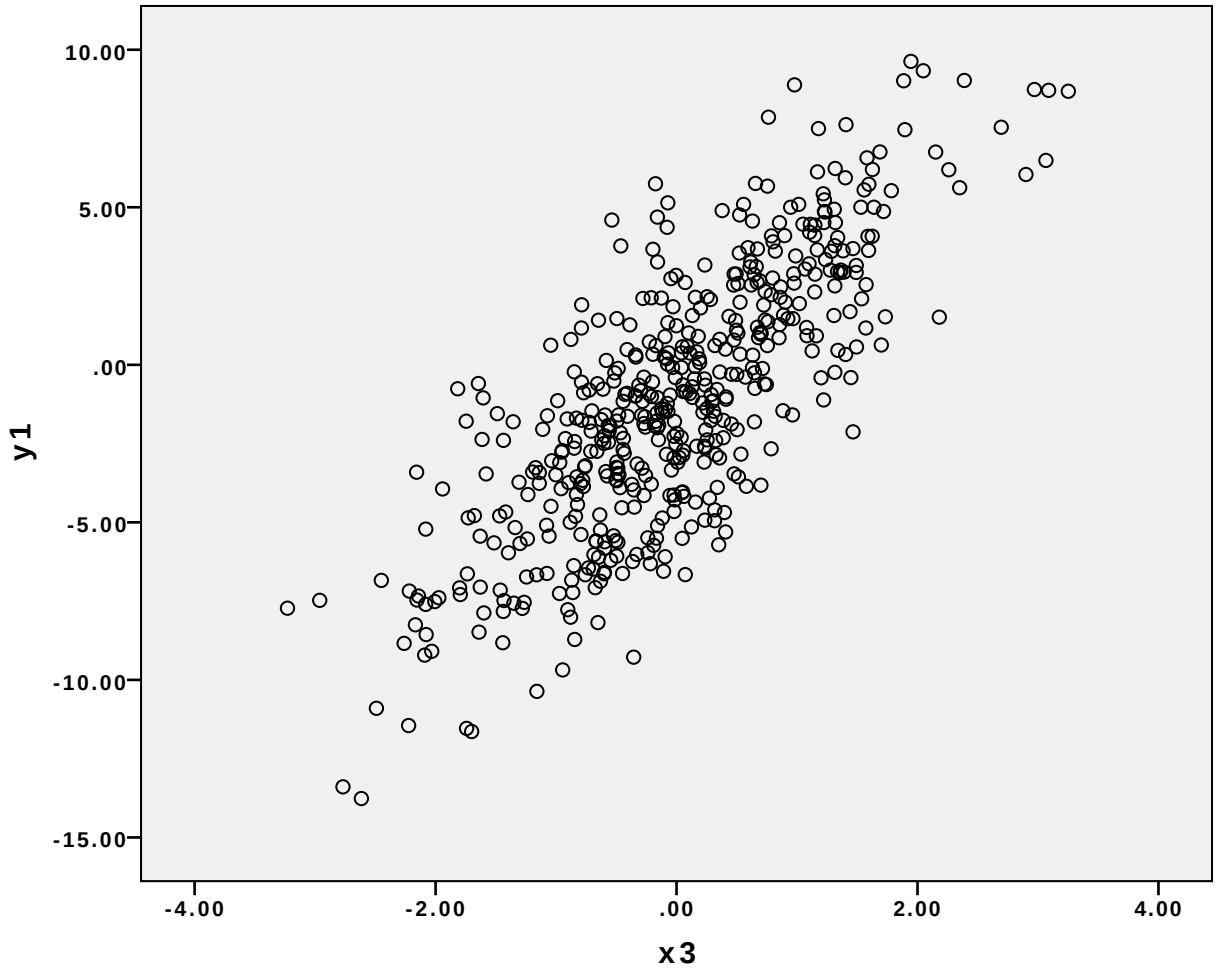



```
GRAPH
 /SCATTERPLOT(BIVAR)=x3 WITH y1
 /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:32
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x3 WITH y1 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.16
	Elapsed Time	00:00:01.00

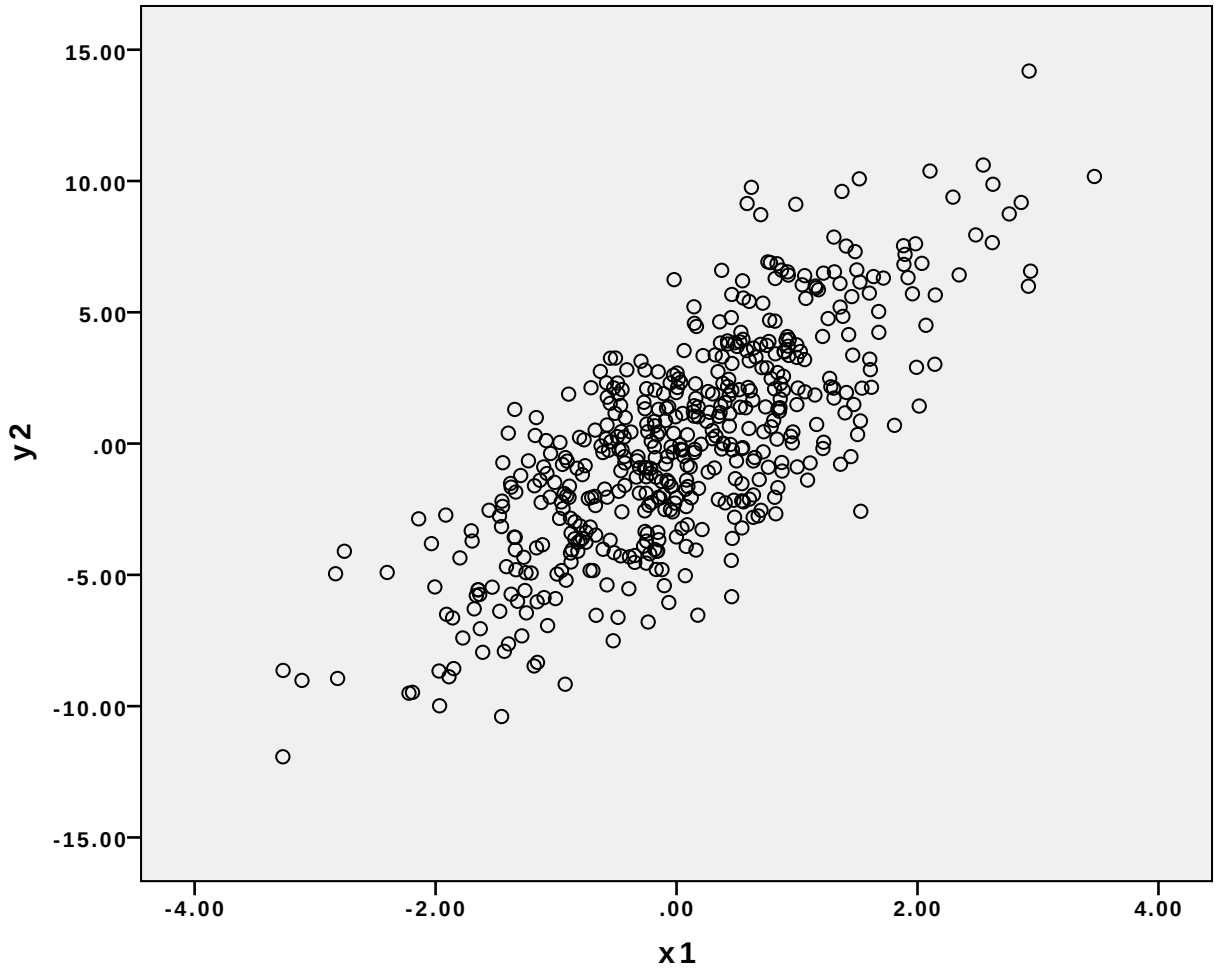



```
GRAPH
  /SCATTERPLOT(BIVAR)=x1 WITH y2
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:33
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x1 WITH y2 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.16
	Elapsed Time	00:00:00.00

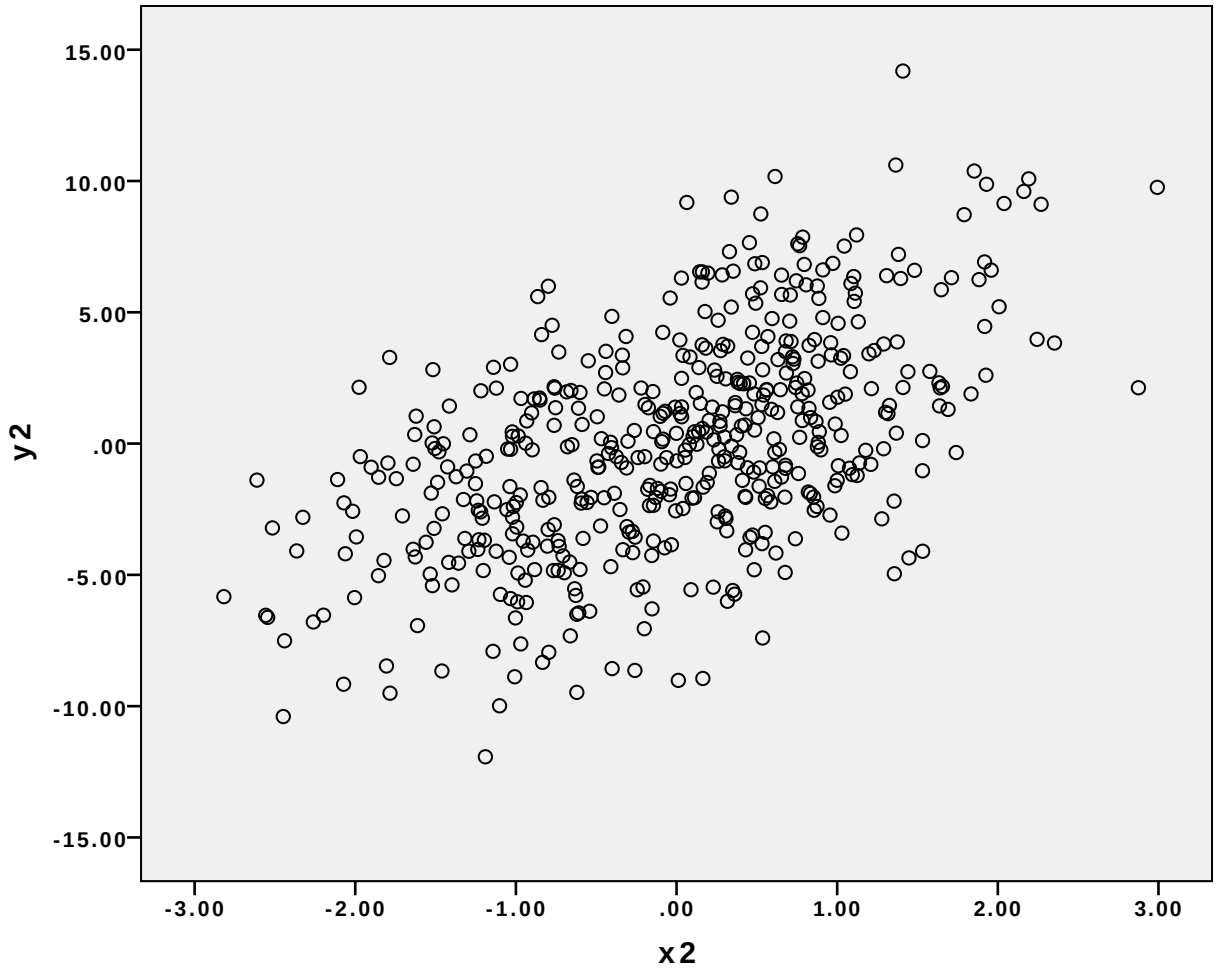



```
GRAPH
  /SCATTERPLOT(BIVAR)=x2 WITH y2
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:33
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x2 WITH y2 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.19
	Elapsed Time	00:00:00.00

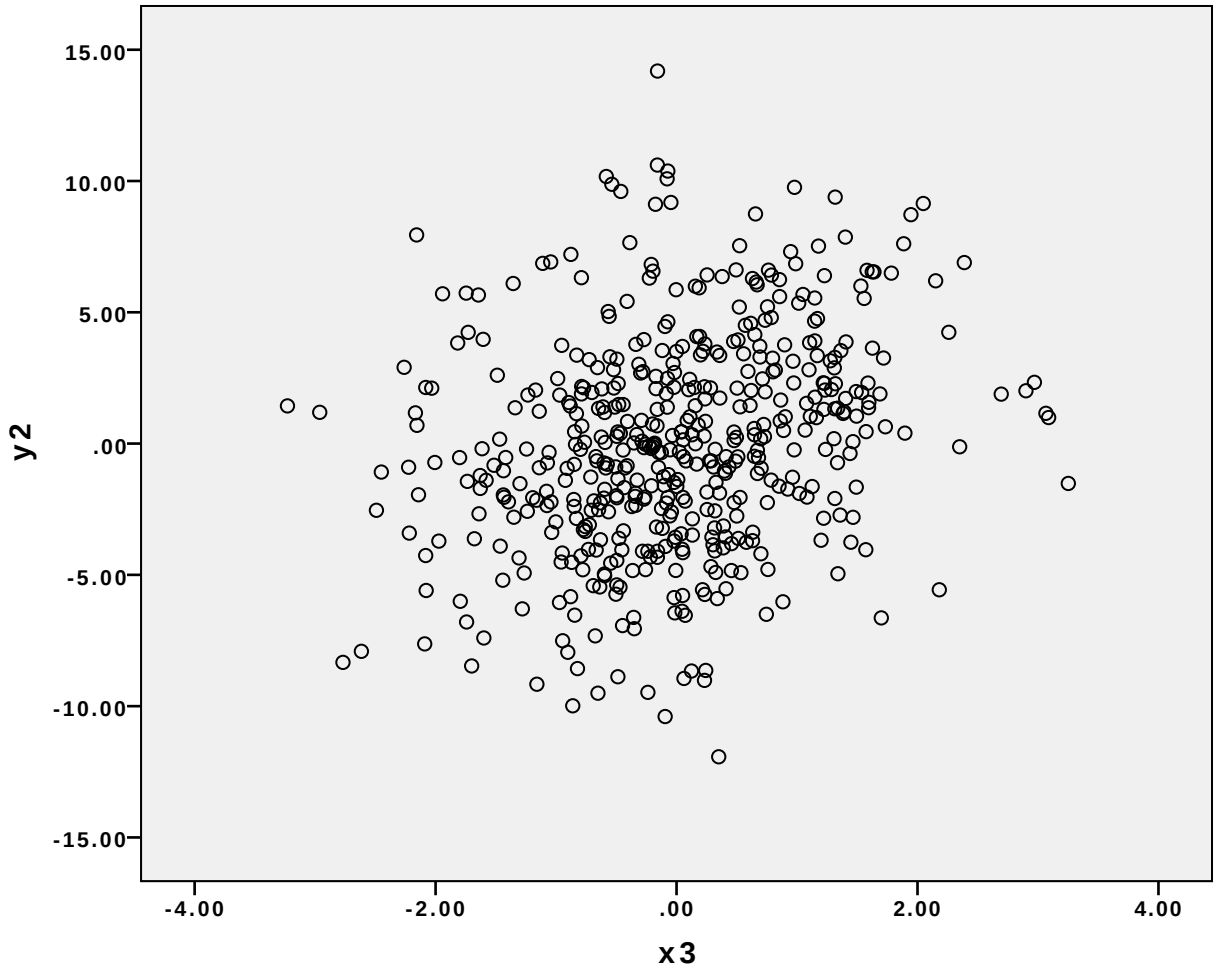



```
GRAPH
  /SCATTERPLOT(BIVAR)=x3 WITH y2
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:33
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x3 WITH y2 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.20
	Elapsed Time	00:00:00.00

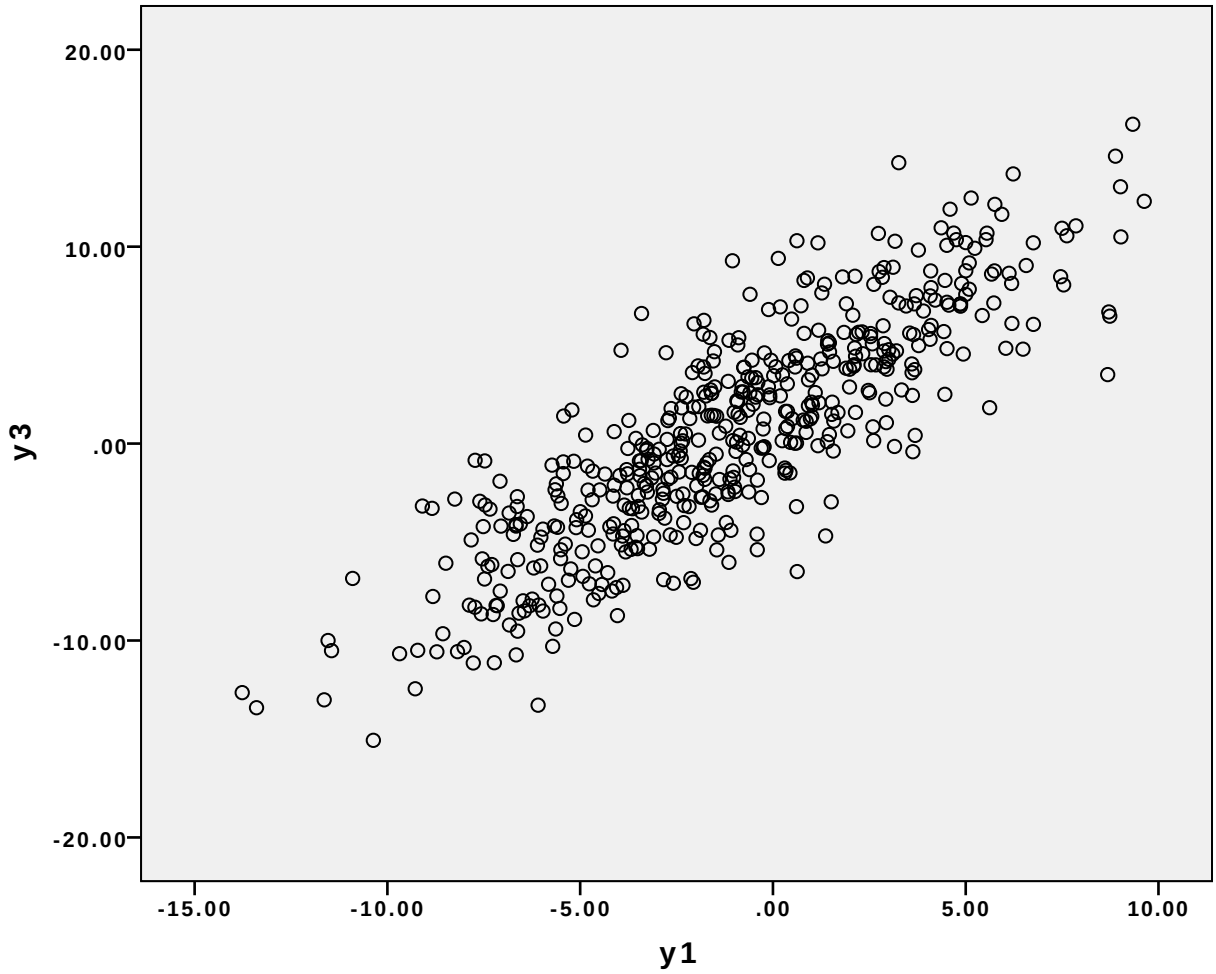



```
GRAPH
  /SCATTERPLOT(BIVAR)=y1 WITH y3
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:33
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =y1 WITH y3 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.16
	Elapsed Time	00:00:00.00

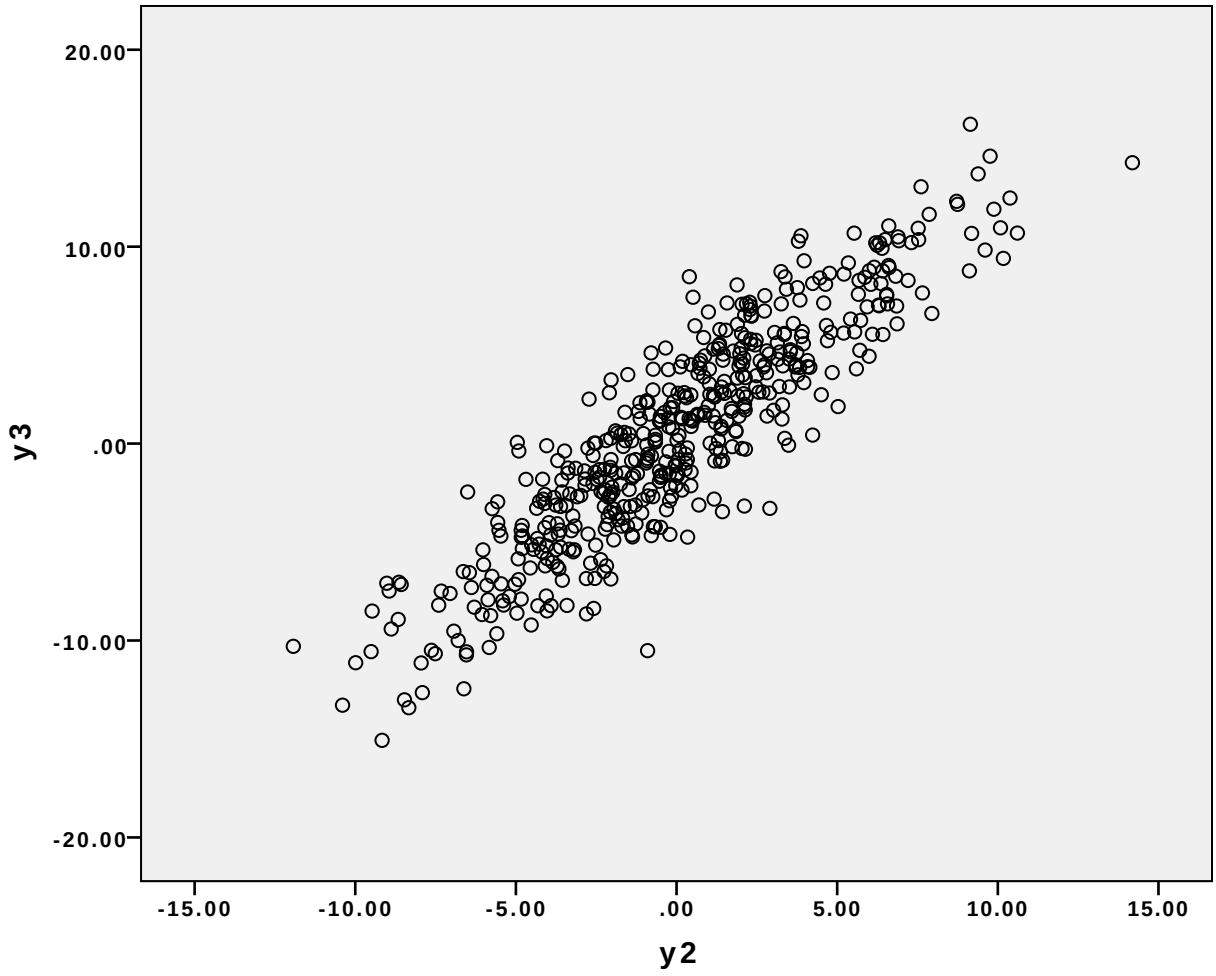



```
GRAPH
  /SCATTERPLOT(BIVAR)=y2 WITH y3
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:33
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =y2 WITH y3 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.15
	Elapsed Time	00:00:00.00

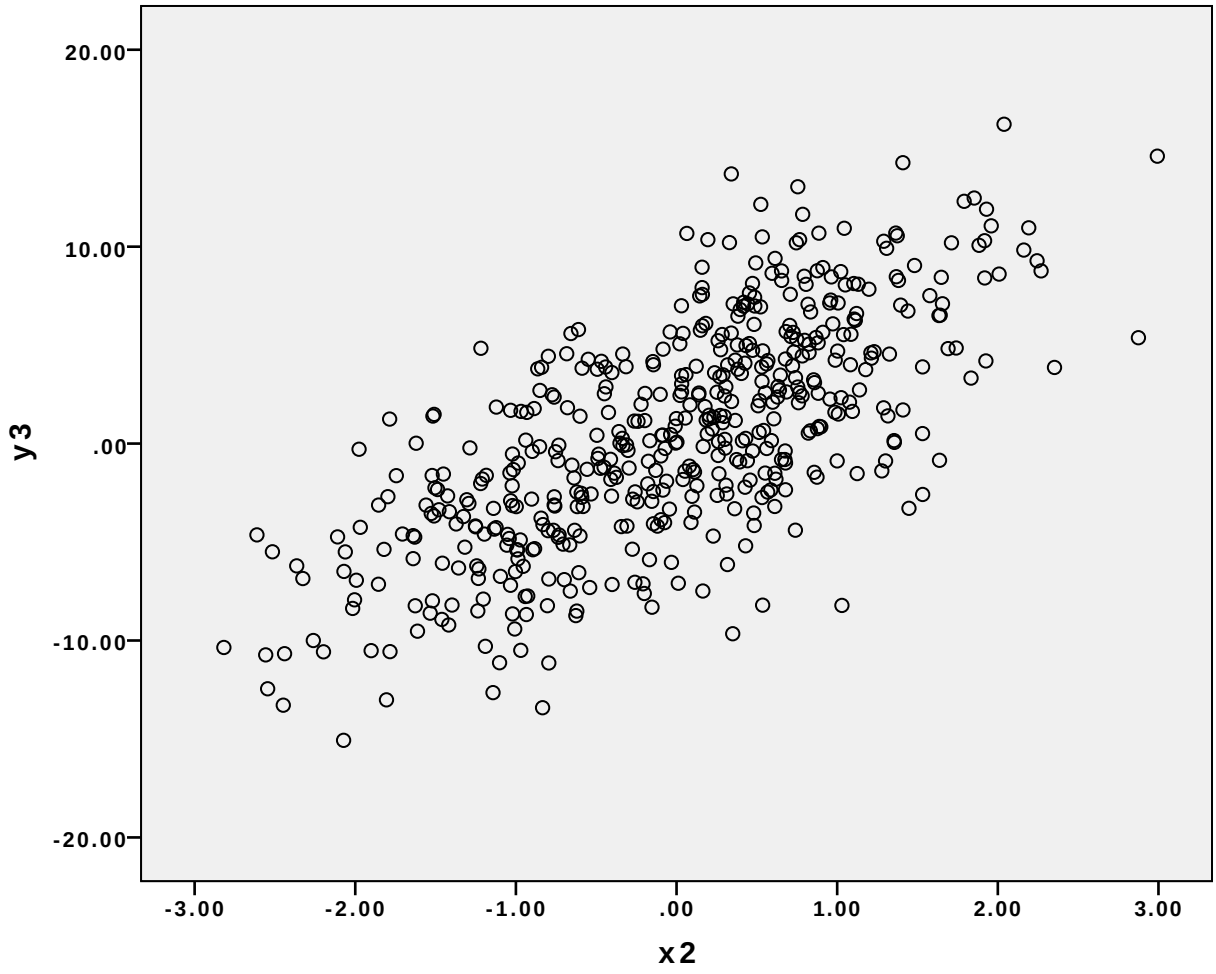



```
GRAPH
  /SCATTERPLOT(BIVAR)=x2 WITH y3
  /MISSING=LISTWISE.
```

Graph

Notes

Output Created		19-JAN-2017 09:44:33
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Syntax		GRAPH /SCATTERPLOT(BIVAR) =x2 WITH y3 /MISSING=LISTWISE.
Resources	Processor Time	00:00:00.17
	Elapsed Time	00:00:00.00




```
FREQUENCIES VARIABLES=y1 y2 y3
  /FORMAT=NOTABLE
  /STATISTICS=STDDEV VARIANCE MEAN MEDIAN SKEWNESS SESKEW KURTOSIS SEKURT
  /HISTOGRAM NORMAL
  /ORDER=ANALYSIS.
```

Frequencies

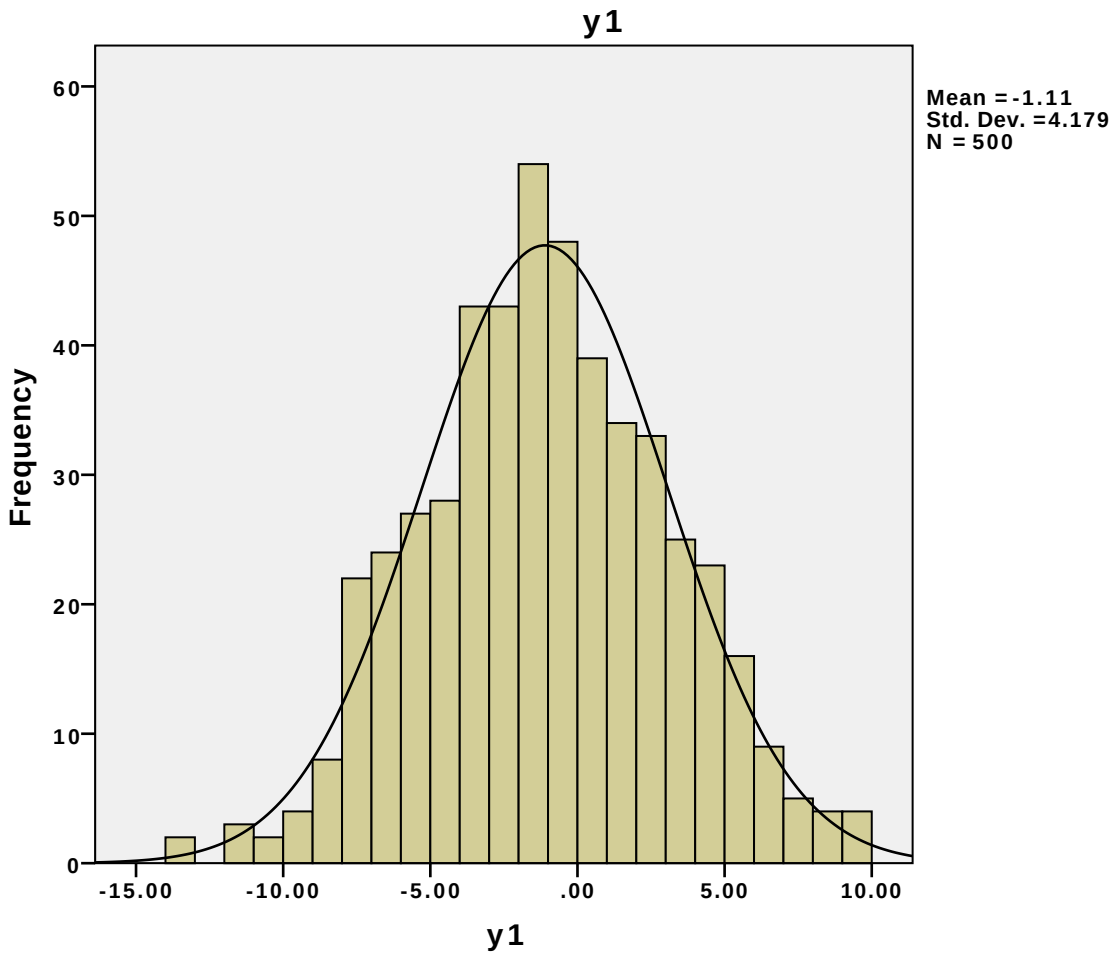
Notes

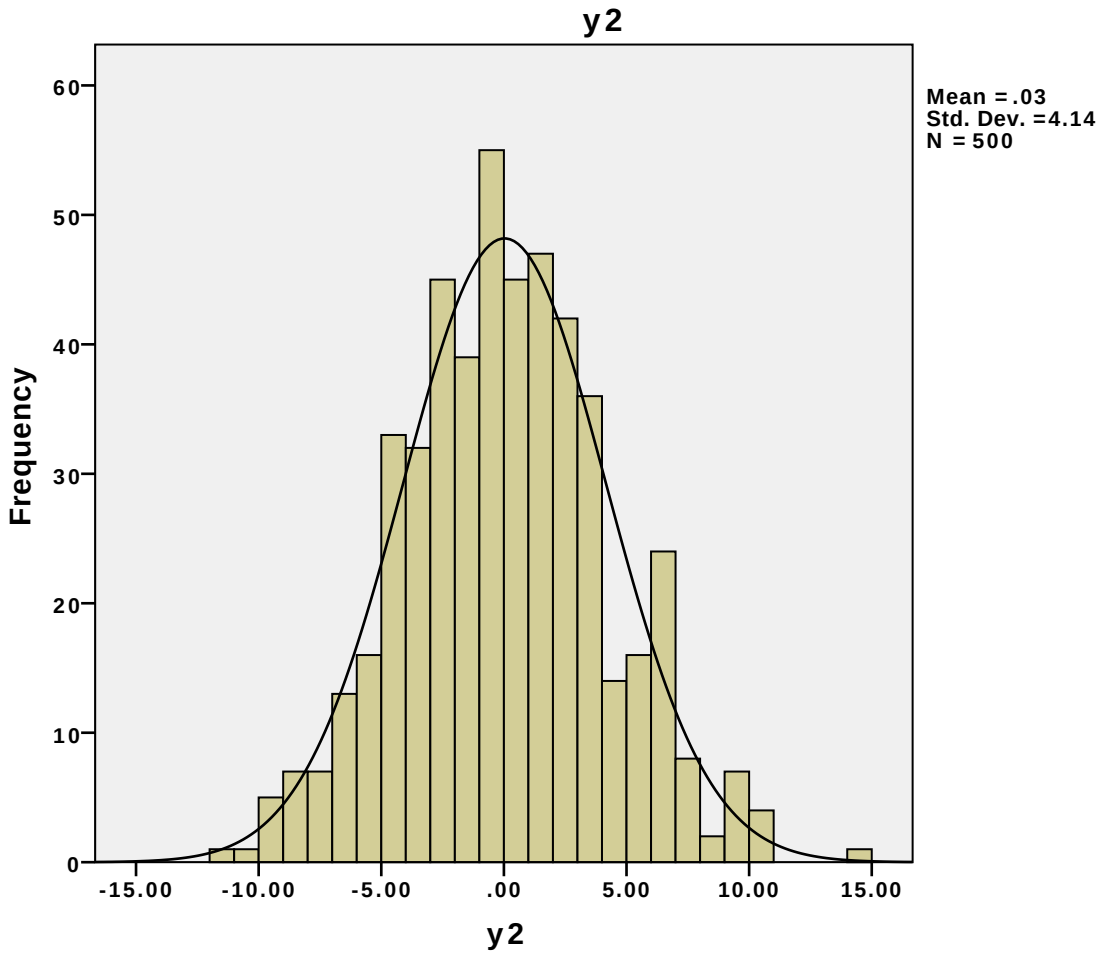
Output Created		19-JAN-2017 09:45:52
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=y1 y2 y3 /FORMAT=NOTABLE /STATISTICS=STDDEV VARIANCE MEAN MEDIAN SKEWNESS SESKEW KURTOSIS SEKURT /HISTOGRAM NORMAL /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.32
	Elapsed Time	00:00:00.00

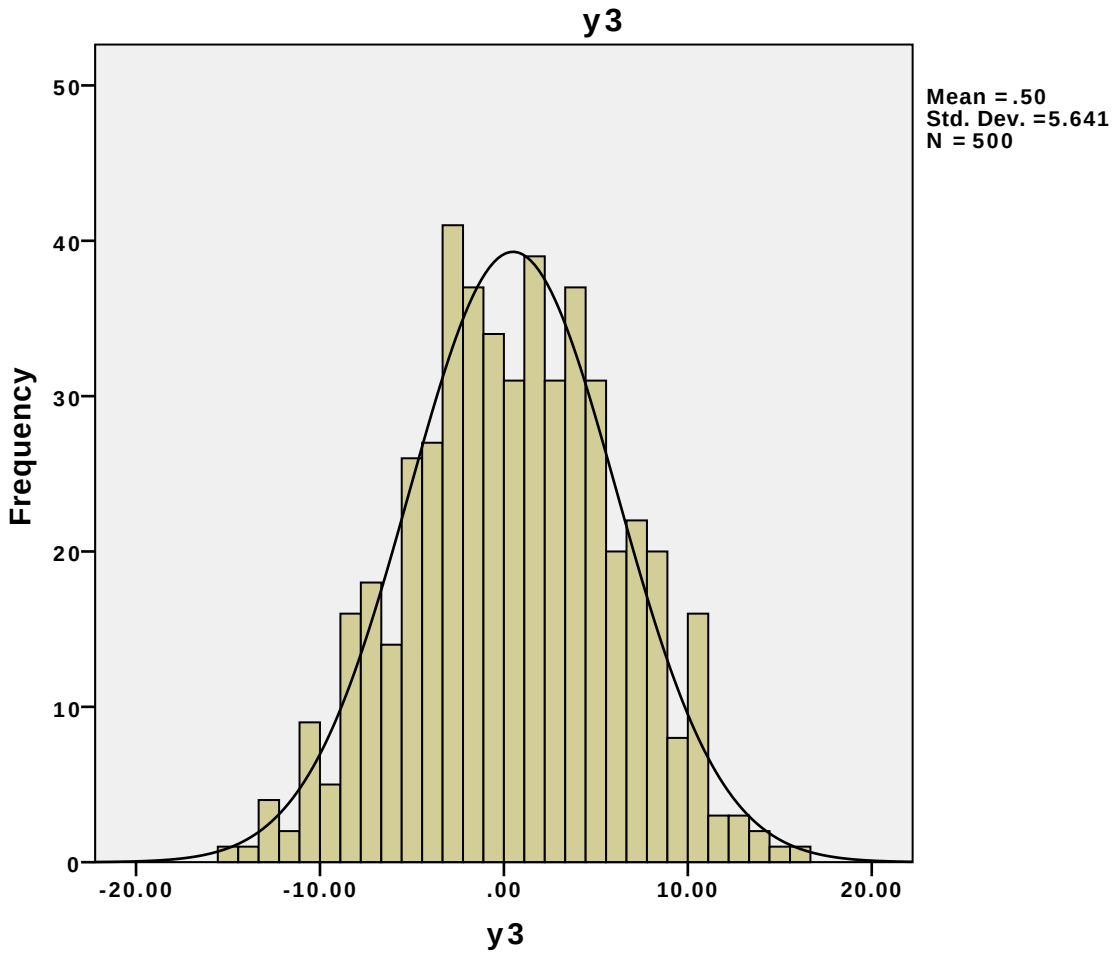
Statistics

		y1	y2	y3
N	Valid	500	500	500
	Missing	0	0	0
Mean		-1.1076	.0266	.4990
Median		-1.1591	-.0667	.4186
Std. Deviation		4.17945	4.13978	5.64099
Variance		17.468	17.138	31.821
Skewness		.018	.121	-.009
Std. Error of Skewness		.109	.109	.109
Kurtosis		-.183	.046	-.375
Std. Error of Kurtosis		.218	.218	.218

Histogram


y1
Mean = -1.11
Std. Dev. =4.179
N = 500
Frequency
60
50
40
30
20
10
0
-15.00
-10.00
-5.00
.00
5.00
10.00
y1


y2
Mean = .03
Std. Dev. =4.14
N = 500
Frequency
60
50
40
30
20
10
0
-15.00
-10.00
-5.00
.00
5.00
10.00
15.00
y2




```
NPAR TESTS
 /K-S(NORMAL)=y1 y2 y3
 /MISSING ANALYSIS.
```

NPar Tests

Notes

Output Created		19-JAN-2017 09:46:57
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each test are based on all cases with valid data for the variable(s) used in that test.
Syntax		NPAR TESTS /K-S(NORMAL)=y1 y2 y3 /MISSING ANALYSIS.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00
	Number of Cases Allowed[a]	524288

a. Based on availability of workspace memory.

One-Sample Kolmogorov-Smirnov Test

		y1	y2	y3
N		500	500	500
Normal Parameters[a,b]	Mean	-1.1076	.0266	.4990
	Std. Deviation	4.17945	4.13978	5.64099
Most Extreme Differences	Absolute	.022	.031	.028
	Positive	.022	.031	.021
	Negative	-.020	-.022	-.028
Test Statistic		.022	.031	.028
Asymp. Sig. (2-tailed)		.200[c,d]	.200[c,d]	.200[c,d]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

```
PPLOT
 /VARIABLES=y1 y2 y3
 /NOLOG
 /NOSTANDARDIZE
 /TYPE=Q-Q
 /FRACTION=BLOM
 /TIES=MEAN
 /DIST=NORMAL.
```

PPlot

Notes

Output Created		19-JAN-2017 09:48:22
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
	Date	<none>
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	For a given sequence or time series variable, cases with missing values are not used in the analysis. Cases with negative or zero values are also not used, if the log transform is requested.
Syntax		PPLOT /VARIABLES=y1 y2 y3 /NOLOG /NOSTANDARDIZE /TYPE=Q-Q /FRACTION=BLOM /TIES=MEAN /DIST=NORMAL.
Resources	Processor Time	00:00:00.74
	Elapsed Time	00:00:01.00
Use	From	First observation
	To	Last observation
Time Series Settings (TSET)	Amount of Output	PRINT = DEFAULT
	Saving New Variables	NEWVAR = CURRENT
	Maximum Number of Lags in Autocorrelation or Partial Autocorrelation Plots	MXAUTO = 16
	Maximum Number of Lags Per Cross-Correlation Plots	MXCROSS = 7

Notes

Maximum Number of New Variables Generated Per Procedure	MXNEWVAR = 60
Maximum Number of New Cases Per Procedure	MXPREDICT = 1000
Treatment of User-Missing Values	MISSING = EXCLUDE
Confidence Interval Percentage Value	CIN = 95
Tolerance for Entering Variables in Regression Equations	TOLER = .0001
Maximum Iterative Parameter Change	CNVERGE = .001
Method of Calculating Std Errors for Autocorrelations	ACFSE = IND
Length of Seasonal Period	Unspecified
Variable Whose Values Label Observations in Plots	Unspecified
Equations Include	CONSTANT

Model Description

Model Name		MOD_1
Series or Sequence	1	y1
	2	y2
	3	y3
Transformation		None
Non-Seasonal Differencing		0
Seasonal Differencing		0
Length of Seasonal Period		No periodicity
Standardization		Not applied
Distribution	Type	Normal
	Location	estimated
	Scale	estimated
Fractional Rank Estimation Method		Blom's
Rank Assigned to Ties		Mean rank of tied values

Applying the model specifications from MOD_1

Case Processing Summary

		y1	y2	y3
Series or Sequence Length		500	500	500
Number of Missing Values in the Plot	User-Missing	0	0	0
	System-Missing	0	0	0

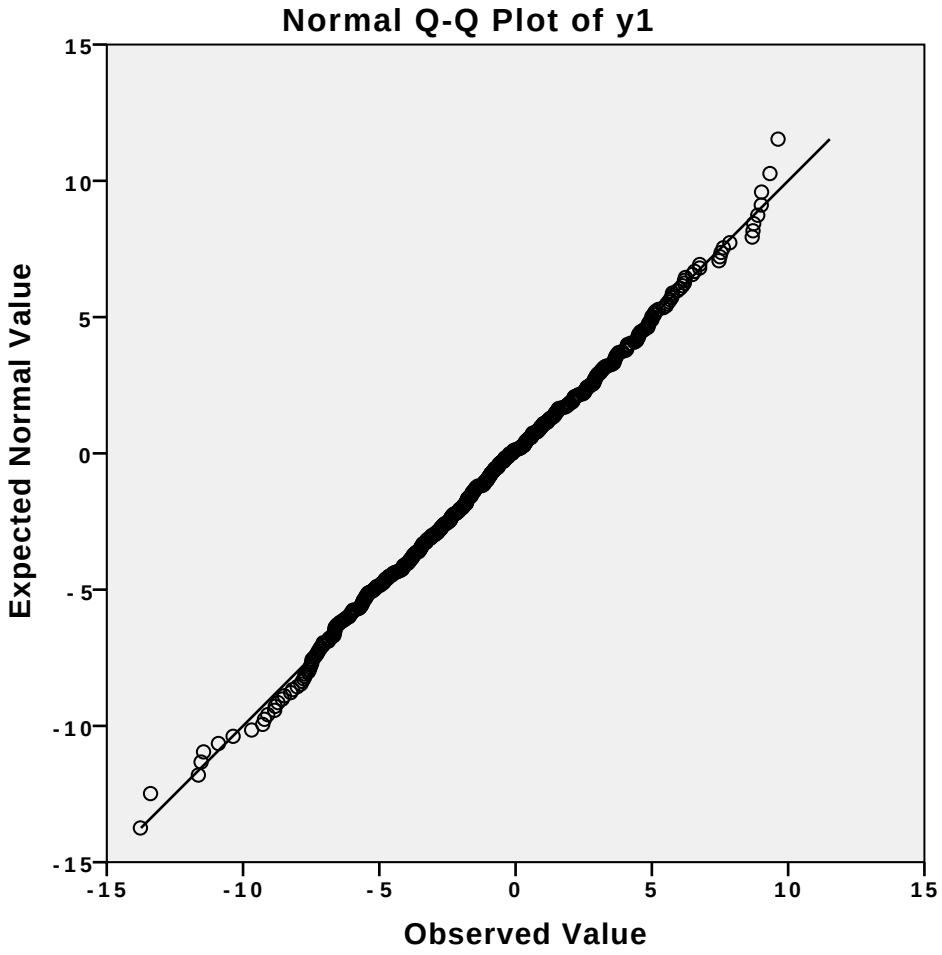
The cases are unweighted.

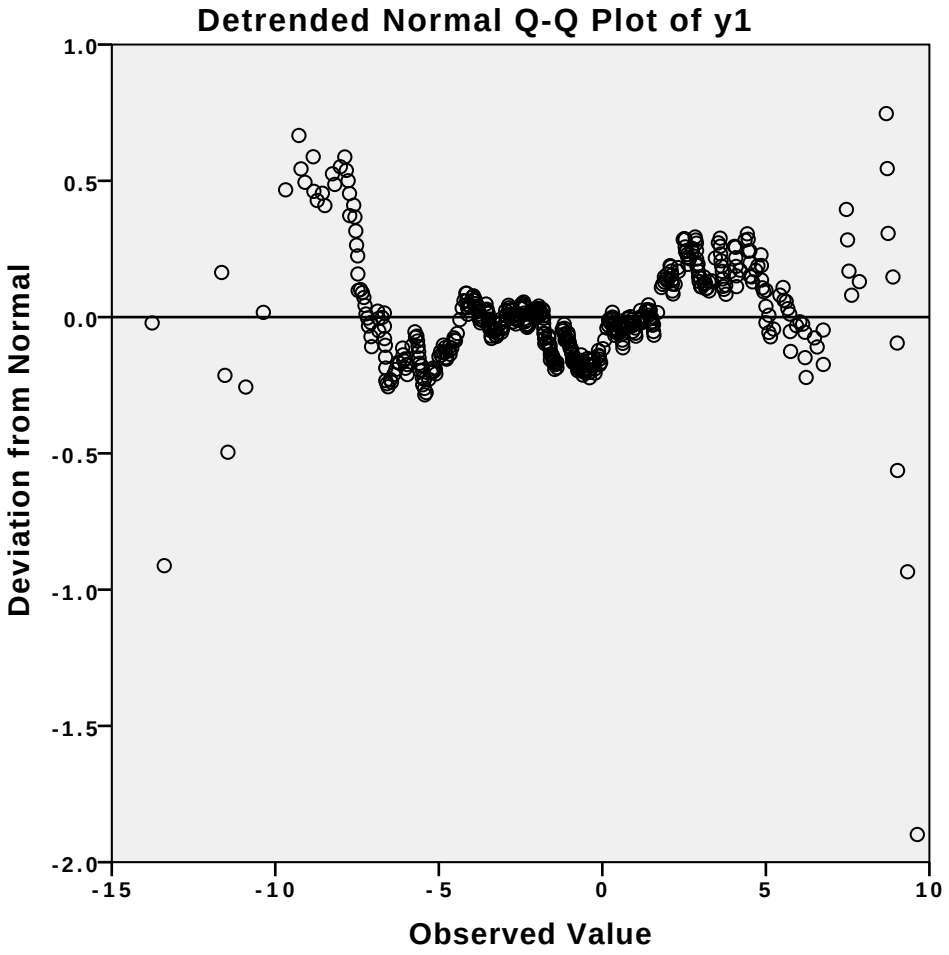
Estimated Distribution Parameters

		y1	y2	y3
Normal Distribution	Location	-1.1076	.0266	.4990
	Scale	4.17945	4.13978	5.64099

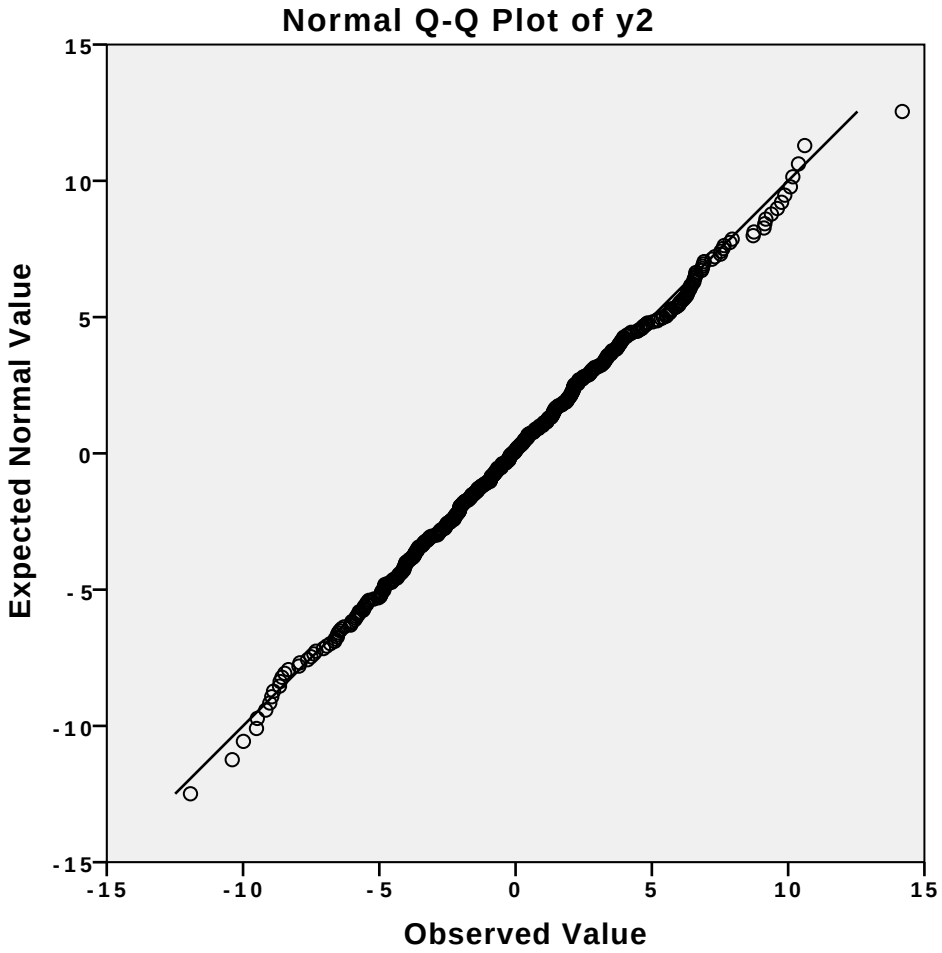
The cases are unweighted.

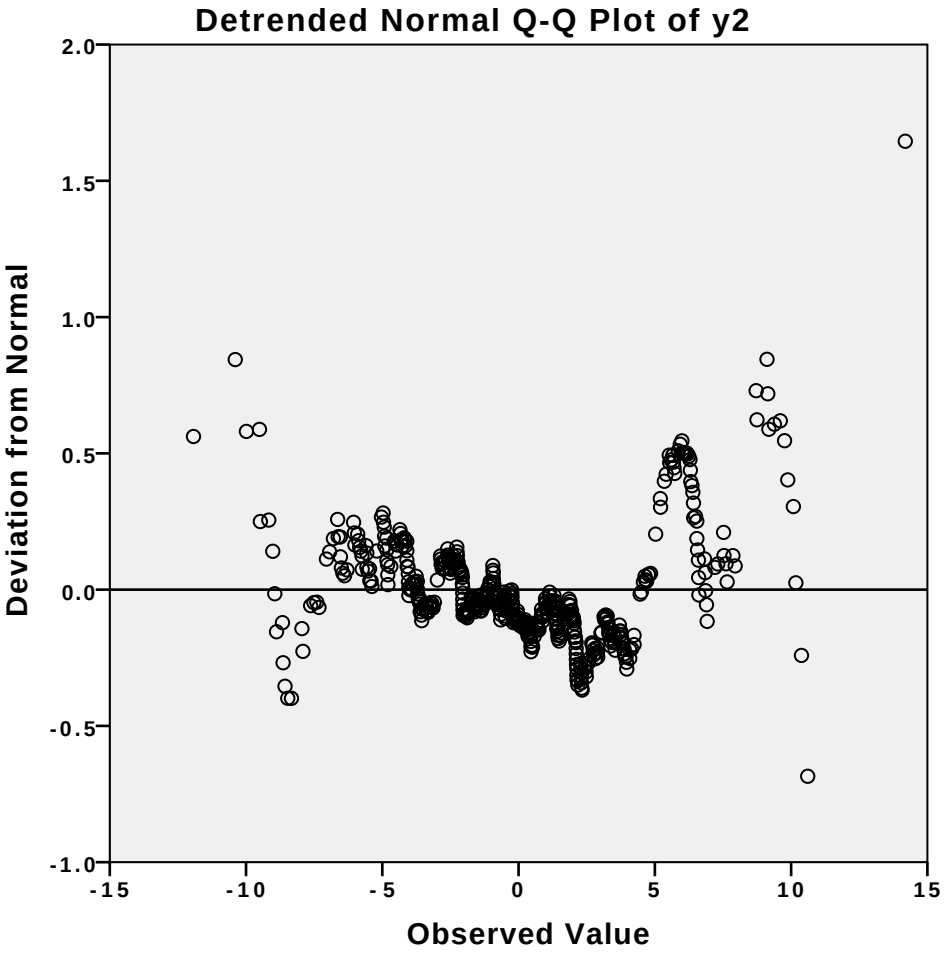
y1



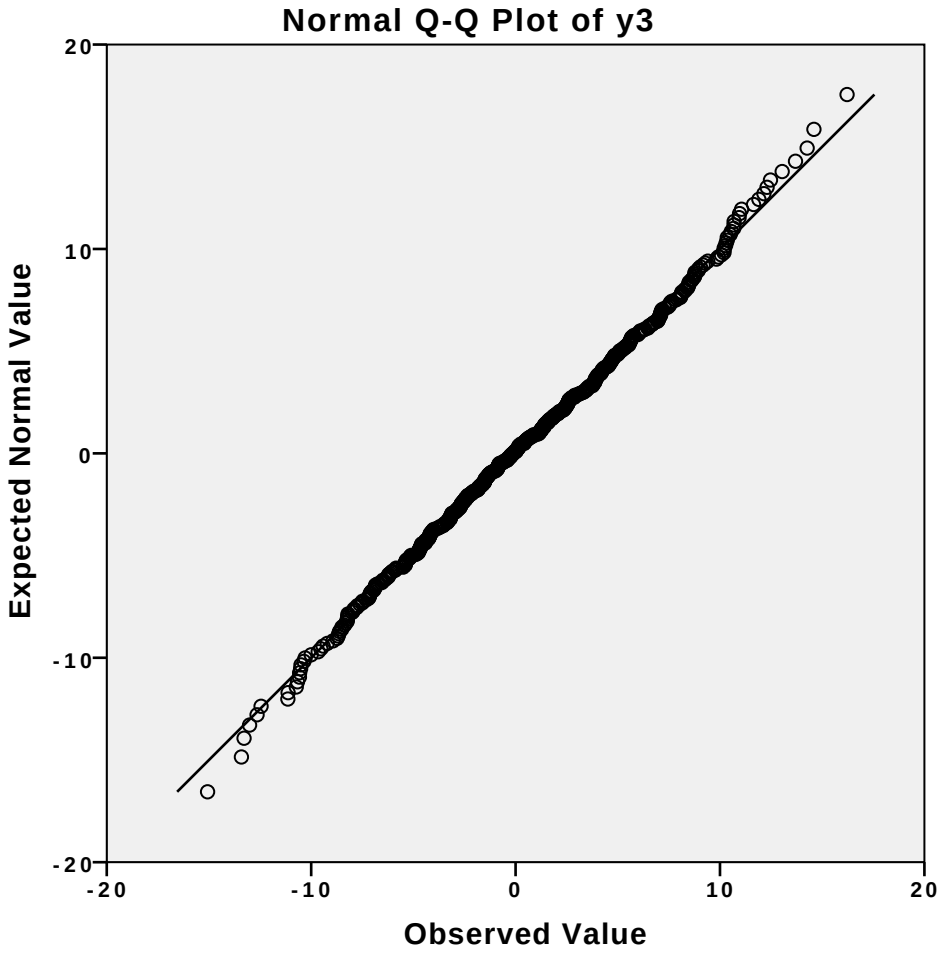

Detrended Normal Q-Q Plot of y1
Deviation from Normal
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-15
-10
-5
0
5
10
Observed Value

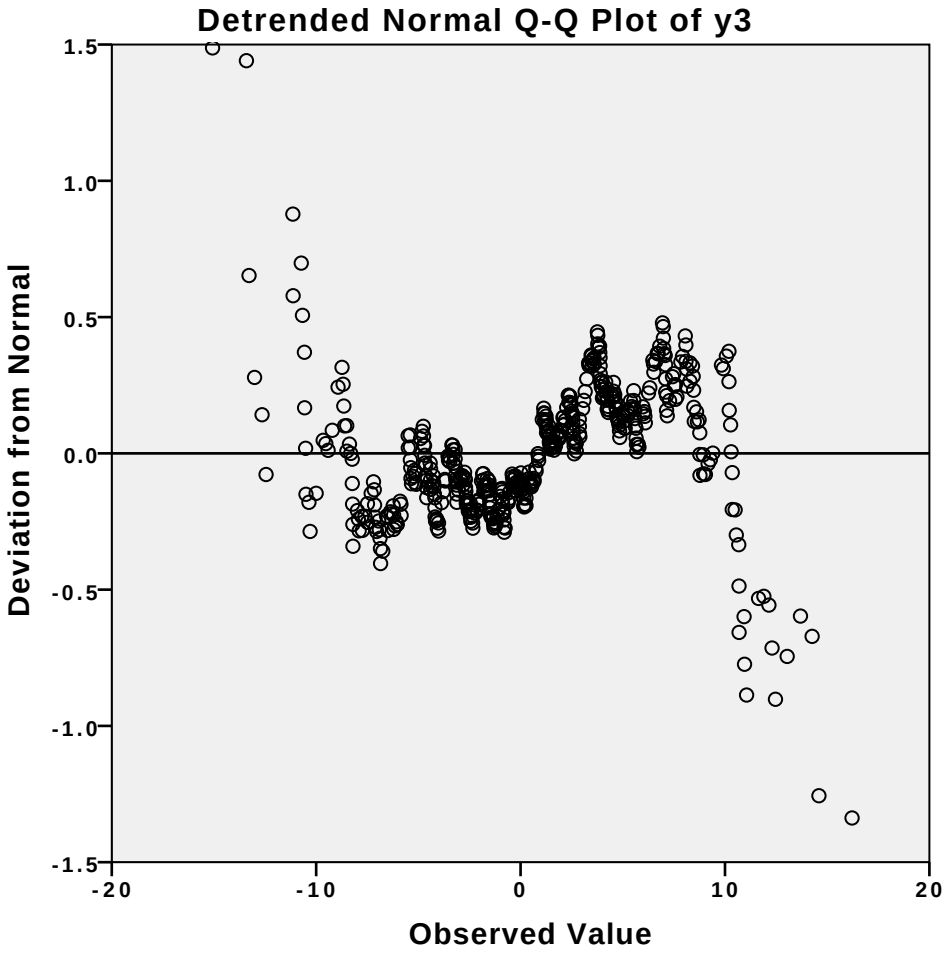
y2


Normal Q-Q Plot of y2
Expected Normal Value
Observed Value
15
10
5
0
-5
-10
-15
-15
-10
-5
0
5
10
15


Detrended Normal Q-Q Plot of y2
Deviation from Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-15
-10
-5
0
5
10
15
Observed Value

y3


Normal Q-Q Plot of y3
Expected Normal Value
Observed Value
20
10
0
-10
-20
-20
-10
0
10
20




```
CORRELATIONS
  /VARIABLES=y1 y2 y3 x1 x2 x3
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		19-JAN-2017 09:49:18
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=y1 y2 y3 x1 x2 x3 /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.01
	Elapsed Time	00:00:00.00

Correlations

		y1	y2	y3	x1	x2	x3
y1	Pearson Correlation	1	.662**	.847**	.232**	.572**	.789**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	500	500	500	500	500	500
y2	Pearson Correlation	.662**	1	.901**	.763**	.547**	.261**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	500	500	500	500	500	500
y3	Pearson Correlation	.847**	.901**	1	.508**	.705**	.458**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	500	500	500	500	500	500
x1	Pearson Correlation	.232**	.763**	.508**	1	.035	-.052
	Sig. (2-tailed)	.000	.000	.000		.429	.242
	N	500	500	500	500	500	500
x2	Pearson Correlation	.572**	.547**	.705**	.035	1	.089*
	Sig. (2-tailed)	.000	.000	.000	.429		.046
	N	500	500	500	500	500	500
x3	Pearson Correlation	.789**	.261**	.458**	-.052	.089*	1
	Sig. (2-tailed)	.000	.000	.000	.242	.046	
	N	500	500	500	500	500	500

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
 DATASET ACTIVATE DataSet2.

SAVE OUTFILE='/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples fo
r SEM/Path '+
    'Analysis example/assumption testing for PA.sav'
  /COMPRESSED.
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT y1
  /METHOD=ENTER x1 x2 x3
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3).
```

Regression

Notes

Output Created		19-JAN-2017 09:55:57
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /DESCRIPTIVES MEAN STDDEV CORR SIG N /MISSING LISTWISE /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT y1 /METHOD=ENTER x1 x2 x3 /SCATTERPLOT=(*ZRESID ,*ZPRED) /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID) /CASEWISE PLOT(ZRESID) OUTLIERS(3).
Resources	Processor Time	00:00:00.40
	Elapsed Time	00:00:01.00
	Memory Required	3600 bytes
	Additional Memory Required for Residual Plots	864 bytes

Descriptive Statistics

	Mean	Std. Deviation	N
y1	-1.1076	4.17945	500
x1	.0455	1.07024	500
x2	-.0269	1.03335	500
x3	-.0115	1.03749	500

Correlations

		y1	x1	x2	x3
Pearson Correlation	y1	1.000	.232	.572	.789
	x1	.232	1.000	.035	-.052
	x2	.572	.035	1.000	.089
	x3	.789	-.052	.089	1.000
Sig. (1-tailed)	y1	.	.000	.000	.000
	x1	.000	.	.214	.121
	x2	.000	.214	.	.023
	x3	.000	.121	.023	.
N	y1	500	500	500	500
	x1	500	500	500	500
	x2	500	500	500	500
	x3	500	500	500	500

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	x3, x1, x2[b]	.	Enter

a. Dependent Variable: y1

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.969[a]	.939	.939	1.03440	1.944

a. Predictors: (Constant), x3, x1, x2

b. Dependent Variable: y1

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8185.738	3	2728.579	2550.108	.000[b]
	Residual	530.713	496	1.070		
	Total	8716.451	499			

a. Dependent Variable: y1

b. Predictors: (Constant), x3, x1, x2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.064	.046		-22.966	.000
	x1	.992	.043	.254	22.887	.000
	x2	2.001	.045	.495	44.439	.000
	x3	3.052	.045	.758	68.000	.000

Coefficients[a]

Model		95.0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-1.155	-.973		
	x1	.907	1.078	.996	1.004
	x2	1.913	2.089	.990	1.010
	x3	2.964	3.140	.989	1.011

a. Dependent Variable: y1

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	x1	x2	x3
1	1	1.104	1.000	.10	.08	.30	.42
	2	1.042	1.029	.16	.53	.26	.01
	3	.982	1.060	.68	.13	.04	.17
	4	.872	1.125	.06	.27	.40	.41

a. Dependent Variable: y1

Casewise Diagnostics[a]

Case Number	Std. Residual	y1	Predicted Value	Residual
467	3.324	.31	-3.1269	3.43868

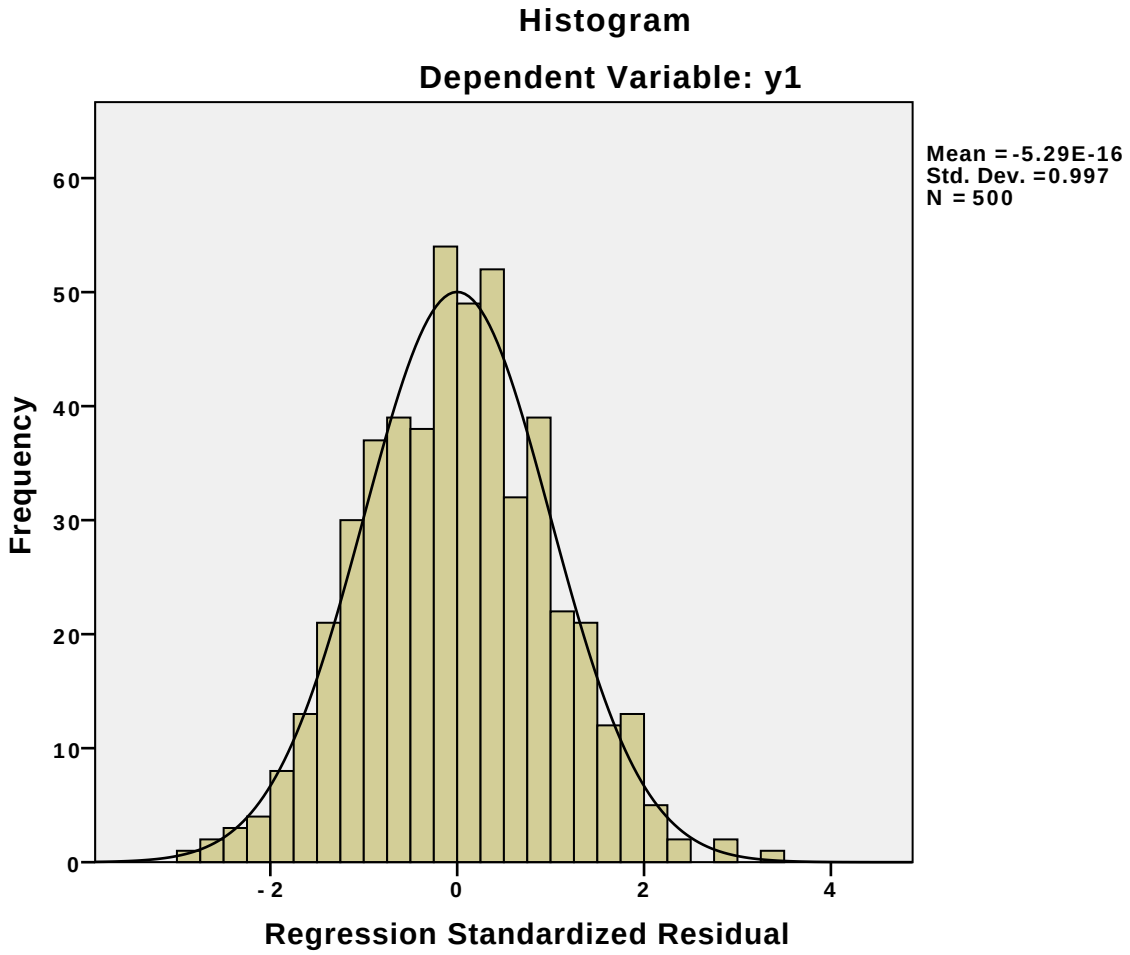
a. Dependent Variable: y1

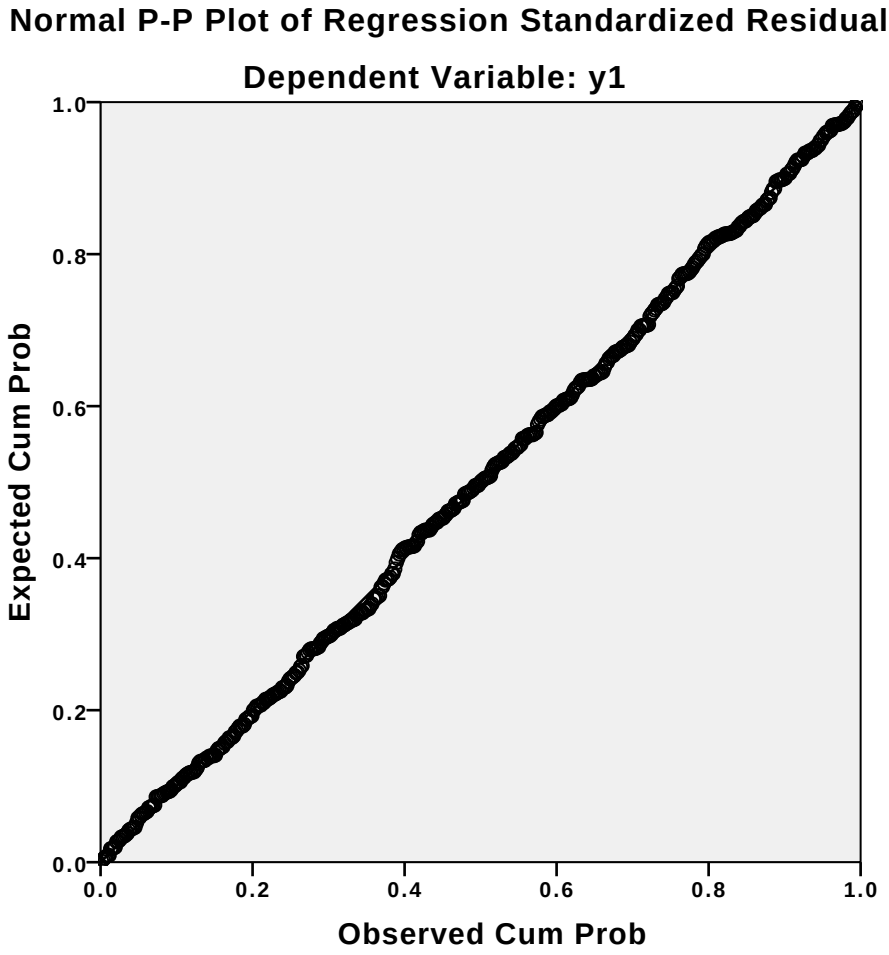
Residuals Statistics[a]

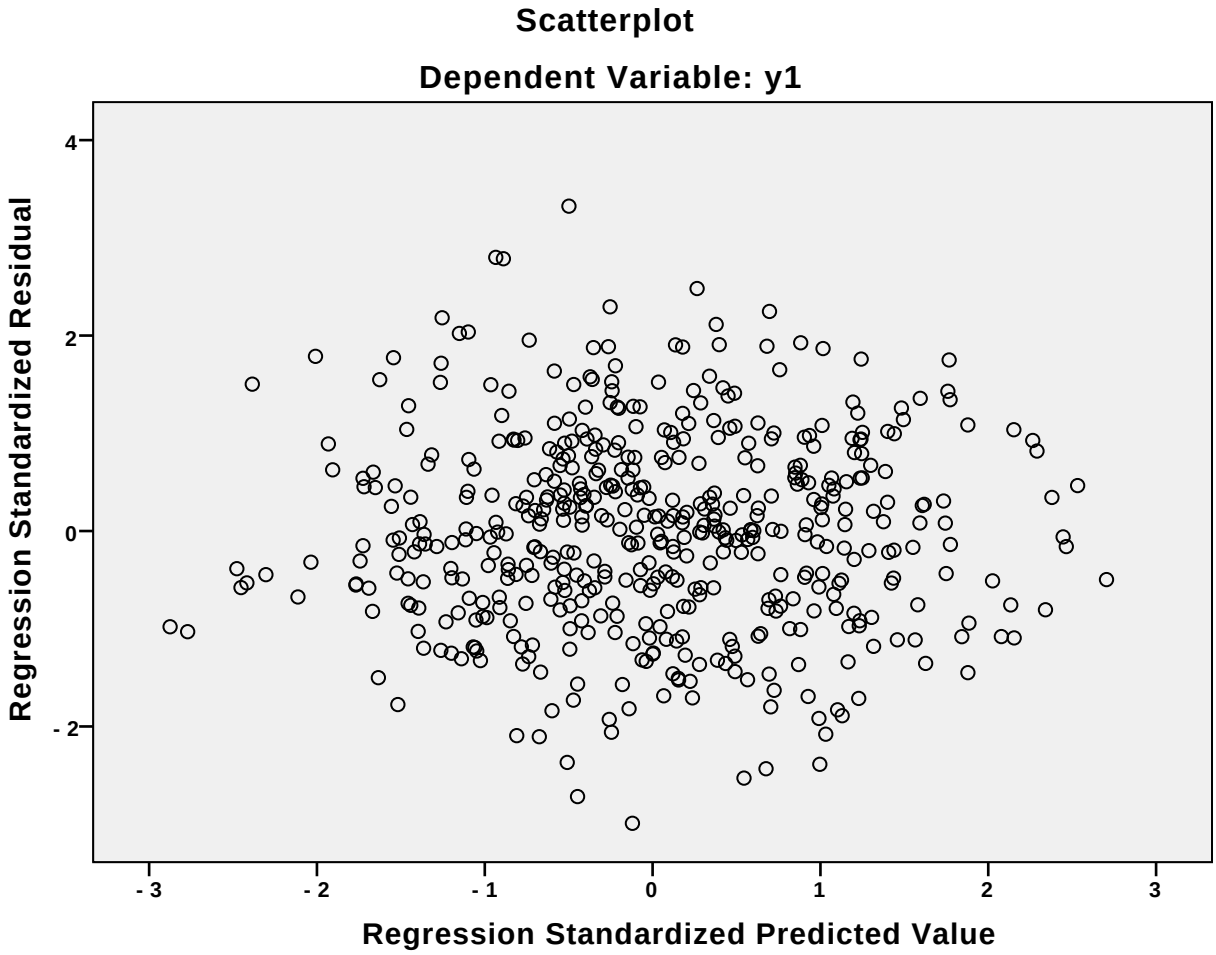
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-12.7521	9.8469	-1.1076	4.05022	500
Residual	-3.09404	3.43868	.00000	1.03129	500
Std. Predicted Value	-2.875	2.705	.000	1.000	500
Std. Residual	-2.991	3.324	.000	.997	500

a. Dependent Variable: y1

Charts


Histogram
Dependent Variable: y1
Mean =-5.29E-16
Std. Dev. =0.997
N = 500
Frequency
60
50
40
30
20
10
0
-2
0
2
4
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: y1
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0




```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT y2
  /METHOD=ENTER x1 x2 x3
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3).
```

Regression

Notes

Output Created		19-JAN-2017 10:18:25
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /DESCRIPTIVES MEAN STDDEV CORR SIG N /MISSING LISTWISE /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT y2 /METHOD=ENTER x1 x2 x3 /SCATTERPLOT=(*ZRESID ,*ZPRED) /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID) /CASEWISE PLOT(ZRESID) OUTLIERS(3).
Resources	Processor Time	00:00:00.35
	Elapsed Time	00:00:01.00
	Memory Required	3600 bytes
	Additional Memory Required for Residual Plots	864 bytes

Descriptive Statistics

	Mean	Std. Deviation	N
y2	.0266	4.13978	500
x1	.0455	1.07024	500
x2	-.0269	1.03335	500
x3	-.0115	1.03749	500

Correlations

		y2	x1	x2	x3
Pearson Correlation	y2	1.000	.763	.547	.261
	x1	.763	1.000	.035	-.052
	x2	.547	.035	1.000	.089
	x3	.261	-.052	.089	1.000
Sig. (1-tailed)	y2	.	.000	.000	.000
	x1	.000	.	.214	.121
	x2	.000	.214	.	.023
	x3	.000	.121	.023	.
N	y2	500	500	500	500
	x1	500	500	500	500
	x2	500	500	500	500
	x3	500	500	500	500

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	x3, x1, x2[b]	.	Enter

a. Dependent Variable: y2

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.958[a]	.918	.917	1.19136	2.156

a. Predictors: (Constant), x3, x1, x2

b. Dependent Variable: y2

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7847.758	3	2615.919	1843.066	.000[b]
	Residual	703.988	496	1.419		
	Total	8551.745	499			

a. Dependent Variable: y2

b. Predictors: (Constant), x3, x1, x2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.042	.053		-.781	.435
	x1	2.935	.050	.759	58.765	.000
	x2	1.992	.052	.497	38.401	.000
	x3	1.023	.052	.256	19.790	.000

Coefficients[a]

Model		95.0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-.146	.063		
	x1	2.837	3.033	.996	1.004
	x2	1.890	2.093	.990	1.010
	x3	.921	1.125	.989	1.011

a. Dependent Variable: y2

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	x1	x2	x3
1	1	1.104	1.000	.10	.08	.30	.42
	2	1.042	1.029	.16	.53	.26	.01
	3	.982	1.060	.68	.13	.04	.17
	4	.872	1.125	.06	.27	.40	.41

a. Dependent Variable: y2

Casewise Diagnostics[a]

Case Number	Std. Residual	y2	Predicted Value	Residual
123	-3.220	-4.79	-.9586	-3.83603

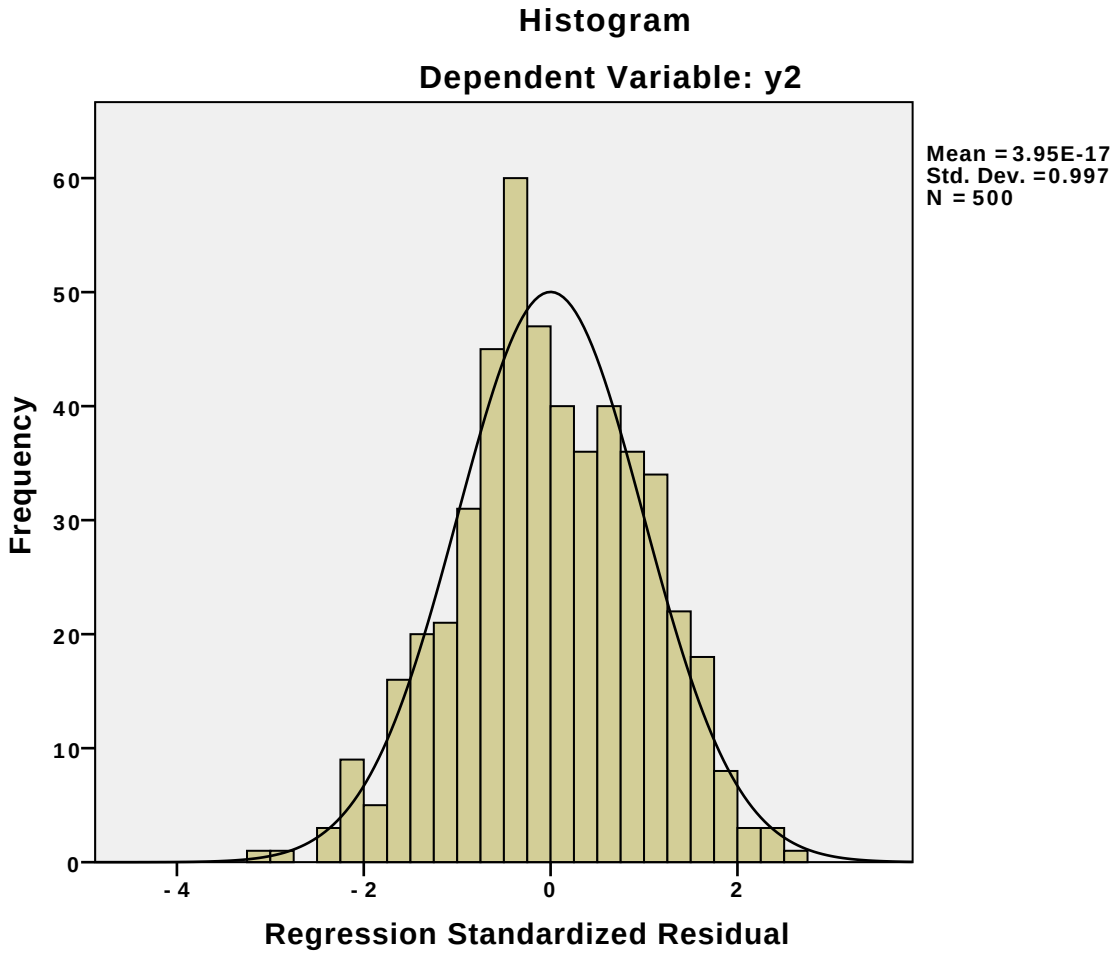
a. Dependent Variable: y2

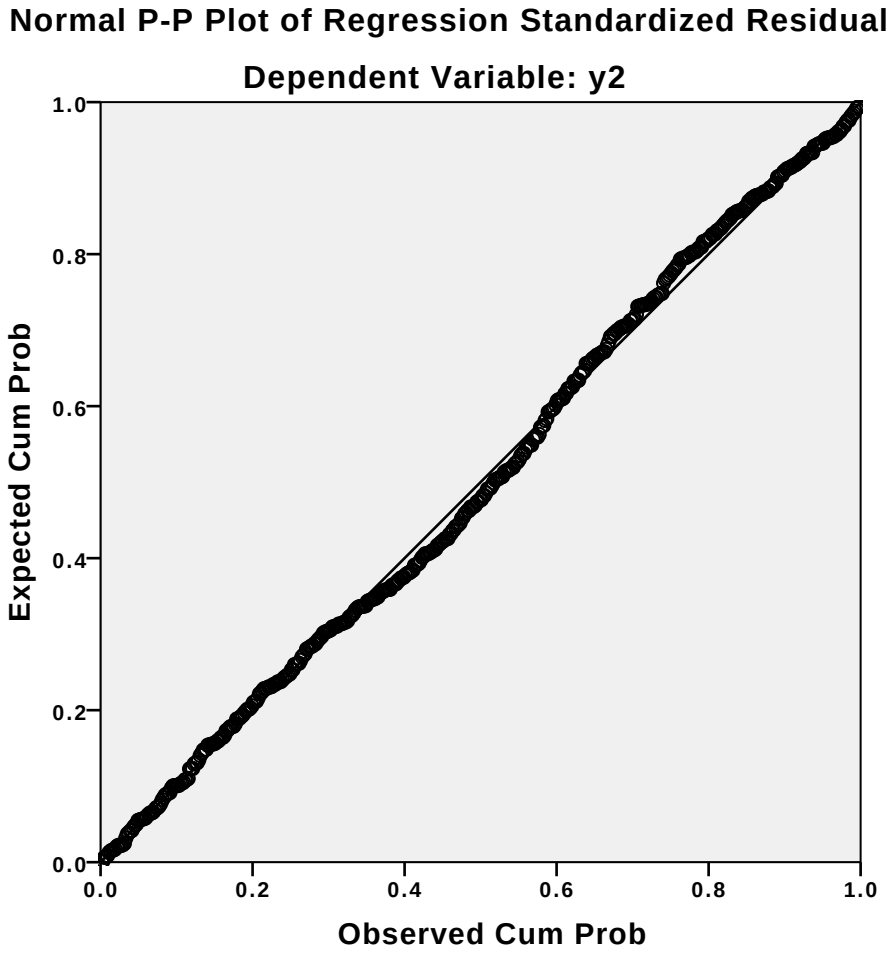
Residuals Statistics[a]

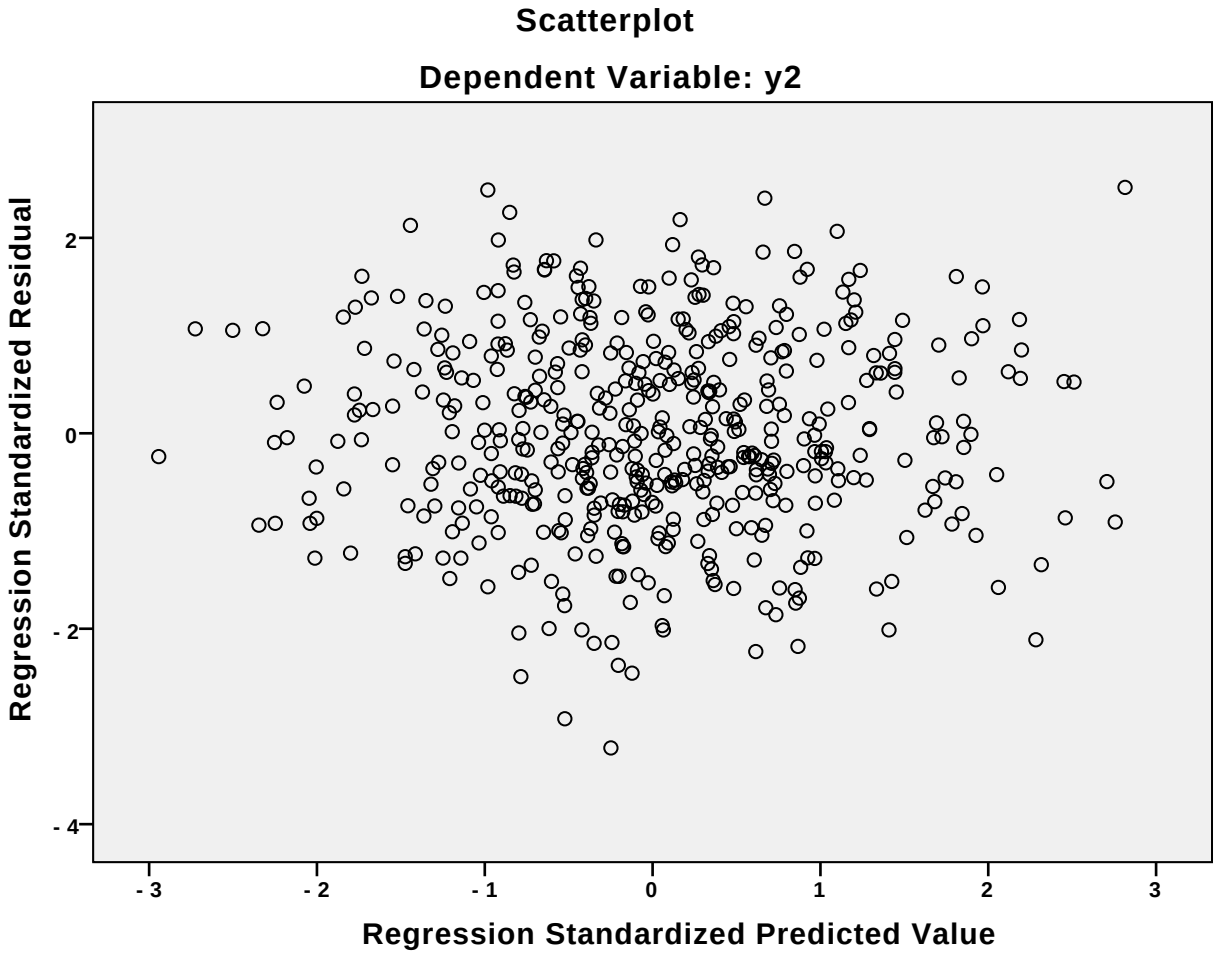
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-11.6438	11.1907	.0266	3.96572	500
Residual	-3.83603	2.99758	.00000	1.18777	500
Std. Predicted Value	-2.943	2.815	.000	1.000	500
Std. Residual	-3.220	2.516	.000	.997	500

a. Dependent Variable: y2

Charts


Histogram
Dependent Variable: y2
Mean = 3.95E-17
Std. Dev. = 0.997
N = 500
Frequency
60
50
40
30
20
10
0
- 4
- 2
0
2
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: y2
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0




```
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT y3
  /METHOD=ENTER y1 y2 x2
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3).
```

Regression

Notes

Output Created		19-JAN-2017 10:19:08
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /DESCRIPTIVES MEAN STDDEV CORR SIG N /MISSING LISTWISE /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT y3 /METHOD=ENTER y1 y2 x2 /SCATTERPLOT=(*ZRESID ,*ZPRED) /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID) /CASEWISE PLOT(ZRESID) OUTLIERS(3).
Resources	Processor Time	00:00:00.38
	Elapsed Time	00:00:01.00
	Memory Required	3600 bytes
	Additional Memory Required for Residual Plots	864 bytes

Descriptive Statistics

	Mean	Std. Deviation	N
y3	.4990	5.64099	500
y1	-1.1076	4.17945	500
y2	.0266	4.13978	500
x2	-.0269	1.03335	500

Correlations

		y3	y1	y2	x2
Pearson Correlation	y3	1.000	.847	.901	.705
	y1	.847	1.000	.662	.572
	y2	.901	.662	1.000	.547
	x2	.705	.572	.547	1.000
Sig. (1-tailed)	y3	.	.000	.000	.000
	y1	.000	.	.000	.000
	y2	.000	.000	.	.000
	x2	.000	.000	.000	.
N	y3	500	500	500	500
	y1	500	500	500	500
	y2	500	500	500	500
	x2	500	500	500	500

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	x2, y2, y1[b]	.	Enter

a. Dependent Variable: y3

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.973[a]	.946	.946	1.31564	1.951

a. Predictors: (Constant), x2, y2, y1

b. Dependent Variable: y3

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15020.050	3	5006.683	2892.529	.000[b]
	Residual	858.527	496	1.731		
	Total	15878.577	499			

a. Dependent Variable: y3

b. Predictors: (Constant), x2, y2, y1

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.068	.063		17.025	.000
	y1	.507	.020	.375	25.390	.000
	y2	.746	.020	.547	37.763	.000
	x2	1.046	.072	.192	14.481	.000

Coefficients[a]

Model		95.0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.945	1.192		
	y1	.467	.546	.499	2.005
	y2	.707	.784	.519	1.926
	x2	.904	1.188	.623	1.606

a. Dependent Variable: y3

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	y1	y2	x2
1	1	2.186	1.000	.01	.08	.08	.09
	2	1.038	1.452	.76	.01	.02	.02
	3	.470	2.156	.01	.06	.31	.86
	4	.306	2.673	.22	.85	.59	.03

a. Dependent Variable: y3

Casewise Diagnostics[a]

Case Number	Std. Residual	y3	Predicted Value	Residual
17	-3.328	8.77	13.1480	-4.37894
306	-3.180	-8.22	-4.0353	-4.18322

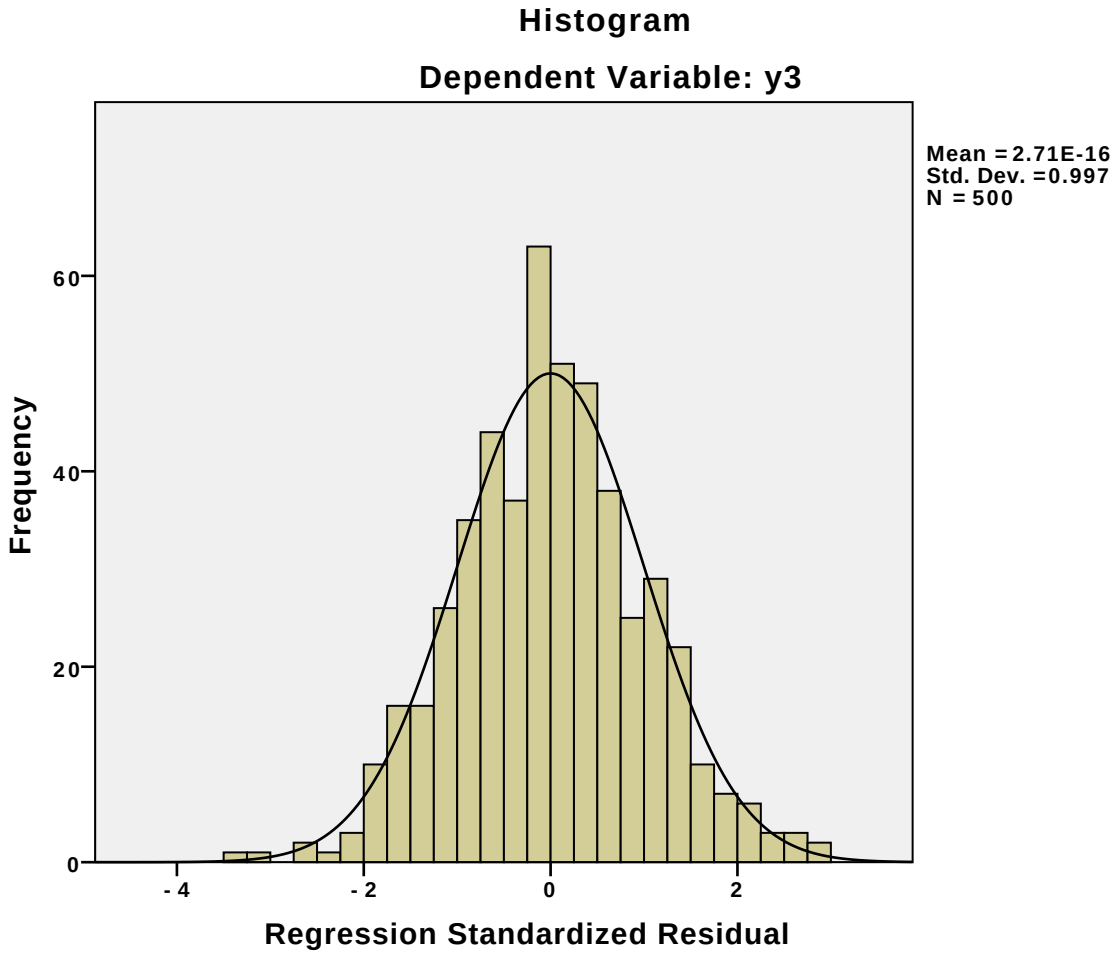
a. Dependent Variable: y3

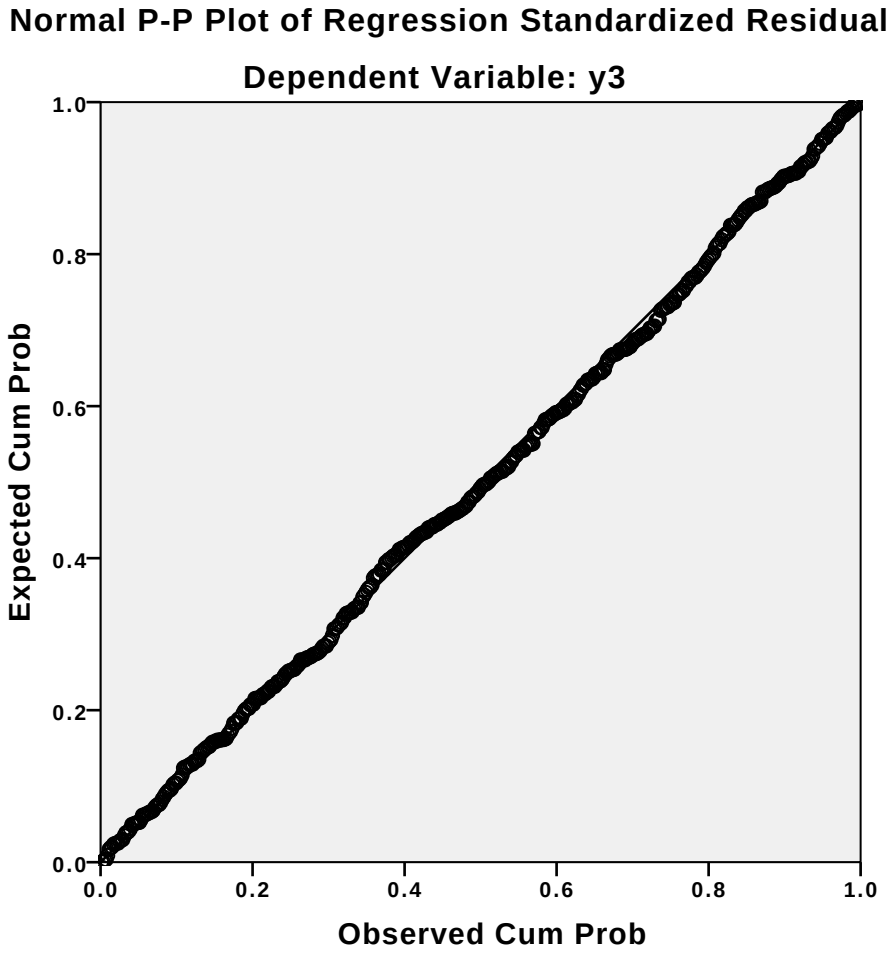
Residuals Statistics[a]

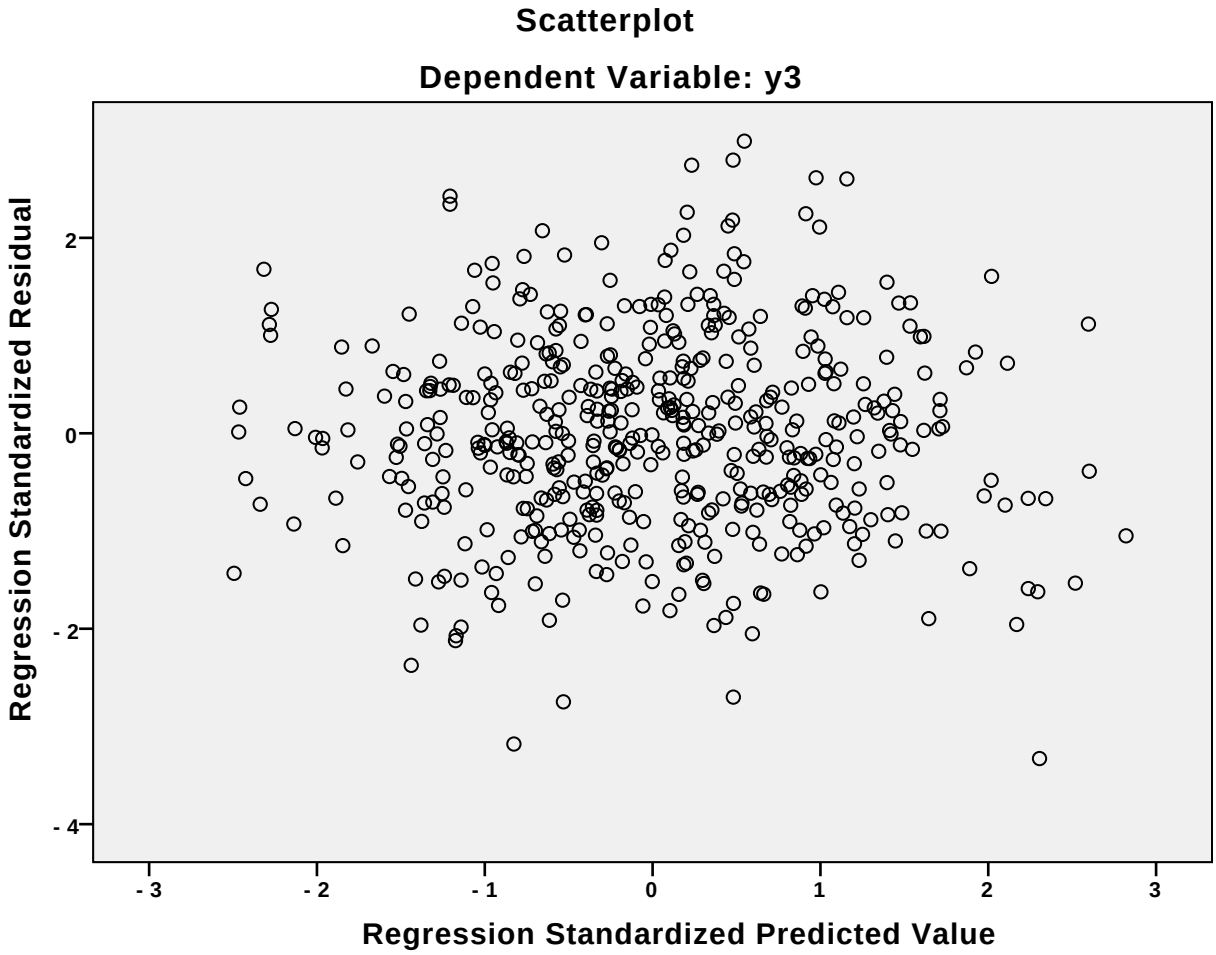
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-13.1834	15.9760	.4990	5.48637	500
Residual	-4.37894	3.93269	.00000	1.31168	500
Std. Predicted Value	-2.494	2.821	.000	1.000	500
Std. Residual	-3.328	2.989	.000	.997	500

a. Dependent Variable: y3

Charts


Histogram
Dependent Variable: y3
Mean = 2.71E-16
Std. Dev. = 0.997
N = 500
Frequency
60
40
20
0
- 4
- 2
0
2
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: y3
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0




```
ACF VARIABLES=y1 y2 y3 x1 x2 x3
  /NOLOG
  /MXAUTO 16
  /SERROR=IND
  /PACF.
```

ACF

Notes

Output Created		19-JAN-2017 10:20:29
Comments		
Input	Data	/Users/markprince/Dropbox/Teaching/Spring 2017/mplus examples for SEM/Path Analysis example/assumption testing for PA.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	500
	Date	<none>
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	For a given time series variable, cases with missing values are not used in the analysis. Also, cases with negative or zero values are not used, if the log transform is requested.
Syntax		ACF VARIABLES=y1 y2 y3 x1 x2 x3 /NOLOG /MXAUTO 16 /SERROR=IND /PACF.
Resources	Processor Time	00:00:01.27
	Elapsed Time	00:00:01.00
Use	From	First observation
	To	Last observation
Time Series Settings (TSET)	Amount of Output	PRINT = DEFAULT
	Saving New Variables	NEWVAR = CURRENT
	Maximum Number of Lags in Autocorrelation or Partial Autocorrelation Plots	MXAUTO = 16
	Maximum Number of Lags Per Cross-Correlation Plots	MXCROSS = 7

Notes

Maximum Number of New Variables Generated Per Procedure	MXNEWVAR = 60
Maximum Number of New Cases Per Procedure	MXPREDICT = 1000
Treatment of User-Missing Values	MISSING = EXCLUDE
Confidence Interval Percentage Value	CIN = 95
Tolerance for Entering Variables in Regression Equations	TOLER = .0001
Maximum Iterative Parameter Change	CNVERGE = .001
Method of Calculating Std Errors for Autocorrelations	ACFSE = IND
Length of Seasonal Period	Unspecified
Variable Whose Values Label Observations in Plots	Unspecified
Equations Include	CONSTANT

Model Description

Model Name		MOD_2
Series Name	1	y1
	2	y2
	3	y3
	4	x1
	5	x2
	6	x3
Transformation		None
Non-Seasonal Differencing		0
Seasonal Differencing		0
Length of Seasonal Period		No periodicity
Maximum Number of Lags		16
Process Assumed for Calculating the Standard Errors of the Autocorrelations		Independence (white noise)[a]
Display and Plot		All lags

Applying the model specifications from MOD_2

a. Not applicable for calculating the standard errors of the partial autocorrelations.

Case Processing Summary

		y1	y2	y3	x1	x2
Series Length		500	500	500	500	500
Number of Missing Values	User-Missing	0	0	0	0	0
	System-Missing	0	0	0	0	0
Number of Valid Values		500	500	500	500	500
Number of Computable First Lags		499	499	499	499	499

Case Processing Summary

		x3
Series Length		500
Number of Missing Values	User-Missing	0
	System-Missing	0
Number of Valid Values		500
Number of Computable First Lags		499

y1

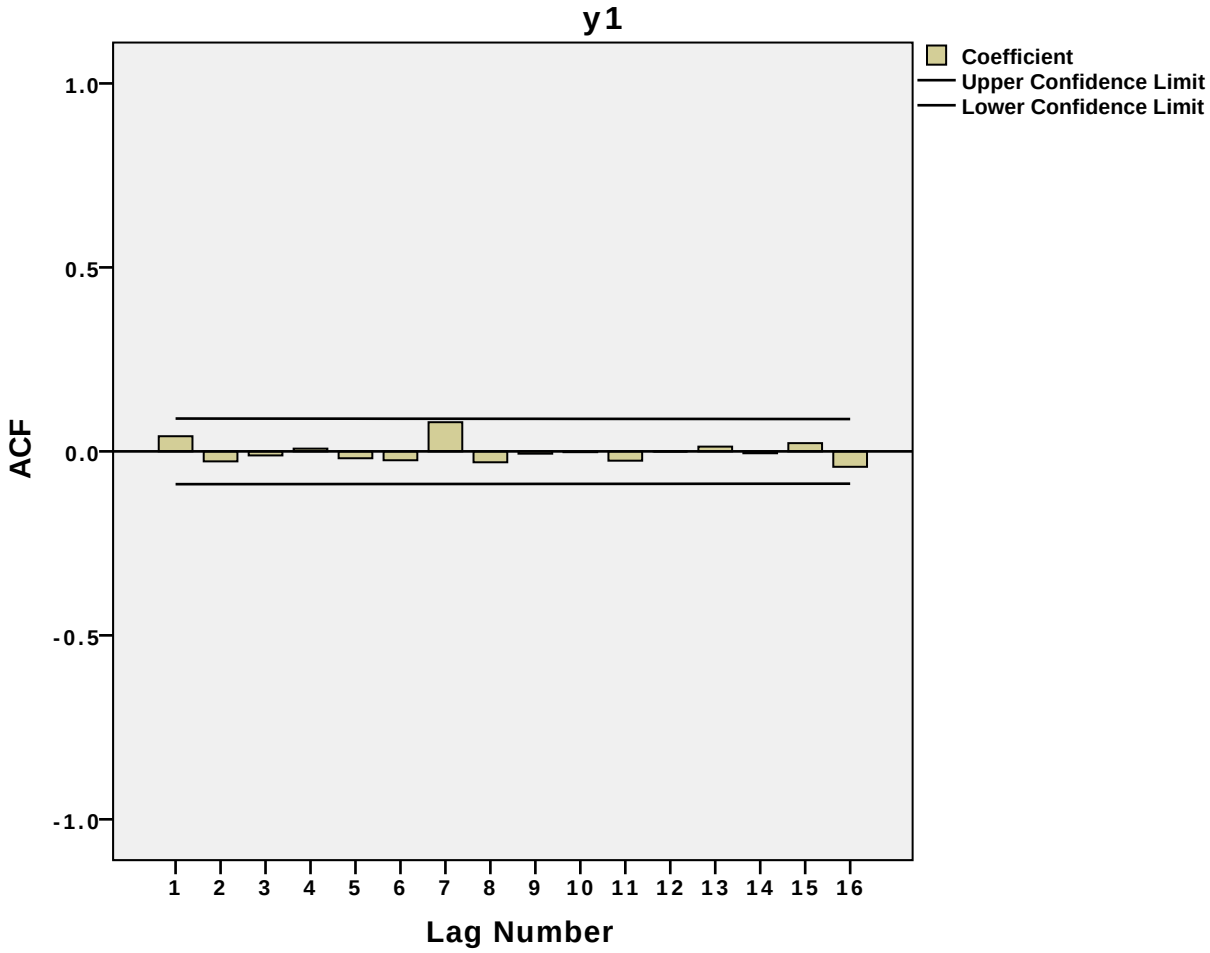
Autocorrelations

Series: y1

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic		
			Value	df	Sig.[b]
1	.041	.045	.853	1	.356
2	-.027	.045	1.226	2	.542
3	-.011	.044	1.287	3	.732
4	.007	.044	1.316	4	.859
5	-.019	.044	1.493	5	.914
6	-.024	.044	1.789	6	.938
7	.079	.044	4.990	7	.661
8	-.030	.044	5.438	8	.710
9	-.006	.044	5.458	9	.793
10	-.002	.044	5.460	10	.858
11	-.025	.044	5.789	11	.887
12	.000	.044	5.789	12	.926
13	.013	.044	5.874	13	.951
14	-.005	.044	5.888	14	.969
15	.022	.044	6.148	15	.977
16	-.042	.044	7.060	16	.972

a. The underlying process assumed is independence (white noise).

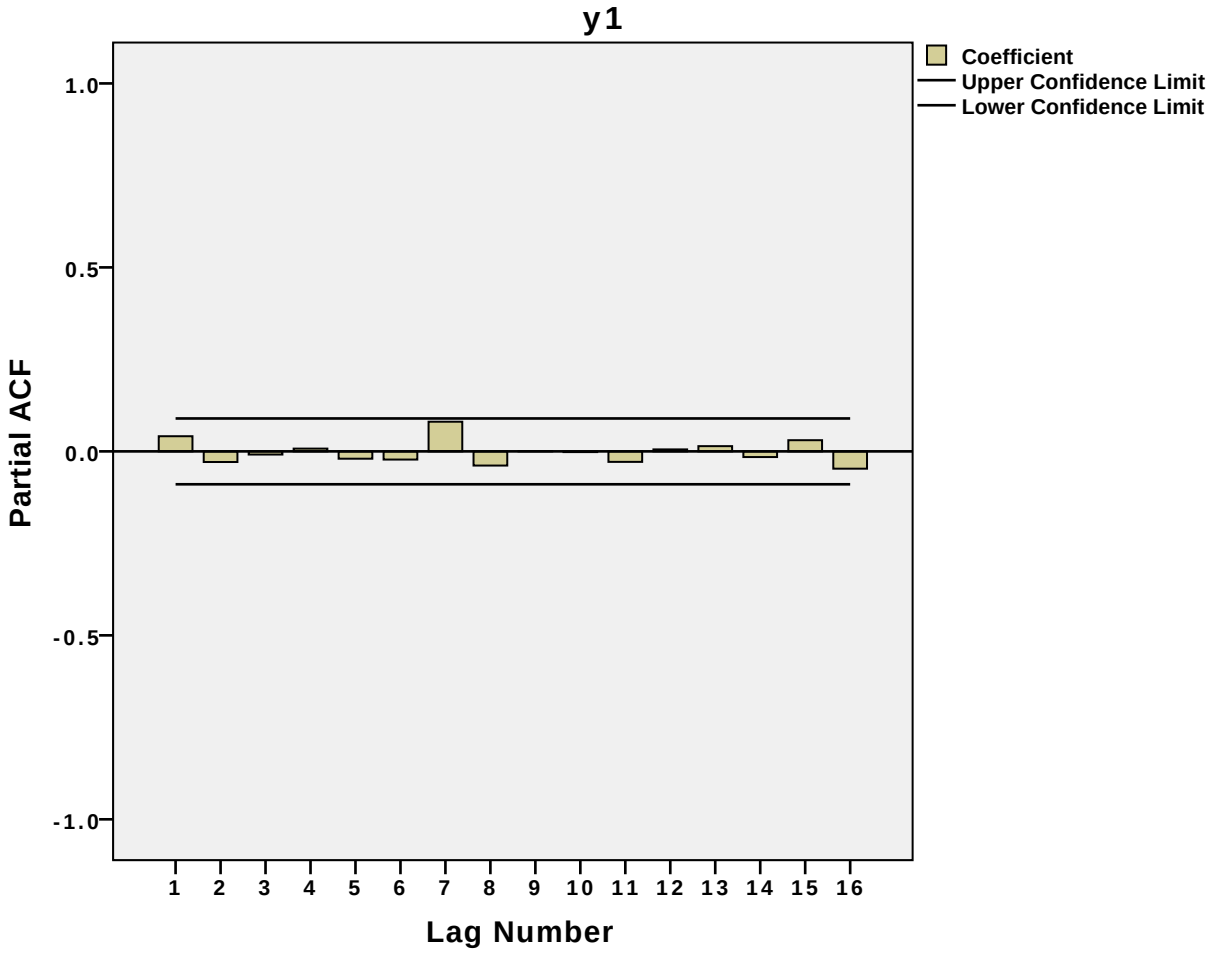
b. Based on the asymptotic chi-square approximation.


y1
Coefficient
Upper Confidence Limit
Lower Confidence Limit
ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

Partial Autocorrelations

Series: y1

Lag	Partial Autocorrelation	Std. Error
1	.041	.045
2	-.029	.045
3	-.009	.045
4	.008	.045
5	-.020	.045
6	-.022	.045
7	.081	.045
8	-.039	.045
9	.001	.045
10	-.002	.045
11	-.029	.045
12	.005	.045
13	.014	.045
14	-.015	.045
15	.030	.045
16	-.047	.045


y1
Coefficient
Upper Confidence Limit
Lower Confidence Limit
Partial ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

y2

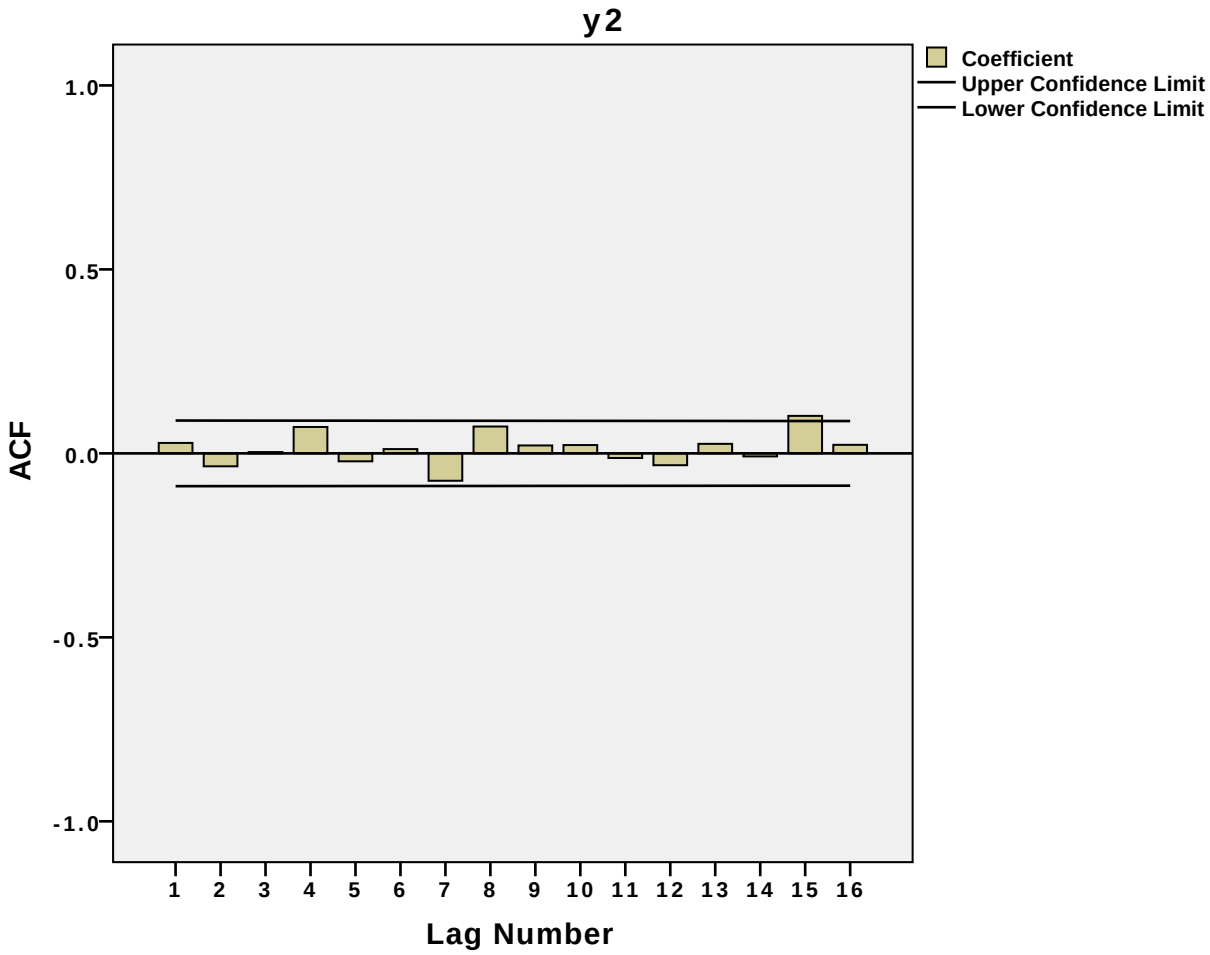
Autocorrelations

Series: y2

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic		
			Value	df	Sig.[b]
1	.028	.045	.403	1	.525
2	-.035	.045	1.027	2	.598
3	.004	.044	1.033	3	.793
4	.072	.044	3.638	4	.457
5	-.022	.044	3.875	5	.568
6	.012	.044	3.944	6	.684
7	-.074	.044	6.767	7	.454
8	.073	.044	9.483	8	.303
9	.022	.044	9.720	9	.374
10	.023	.044	9.983	10	.442
11	-.013	.044	10.064	11	.525
12	-.032	.044	10.597	12	.564
13	.026	.044	10.943	13	.616
14	-.008	.044	10.978	14	.688
15	.102	.044	16.348	15	.359
16	.023	.044	16.627	16	.410

a. The underlying process assumed is independence (white noise).

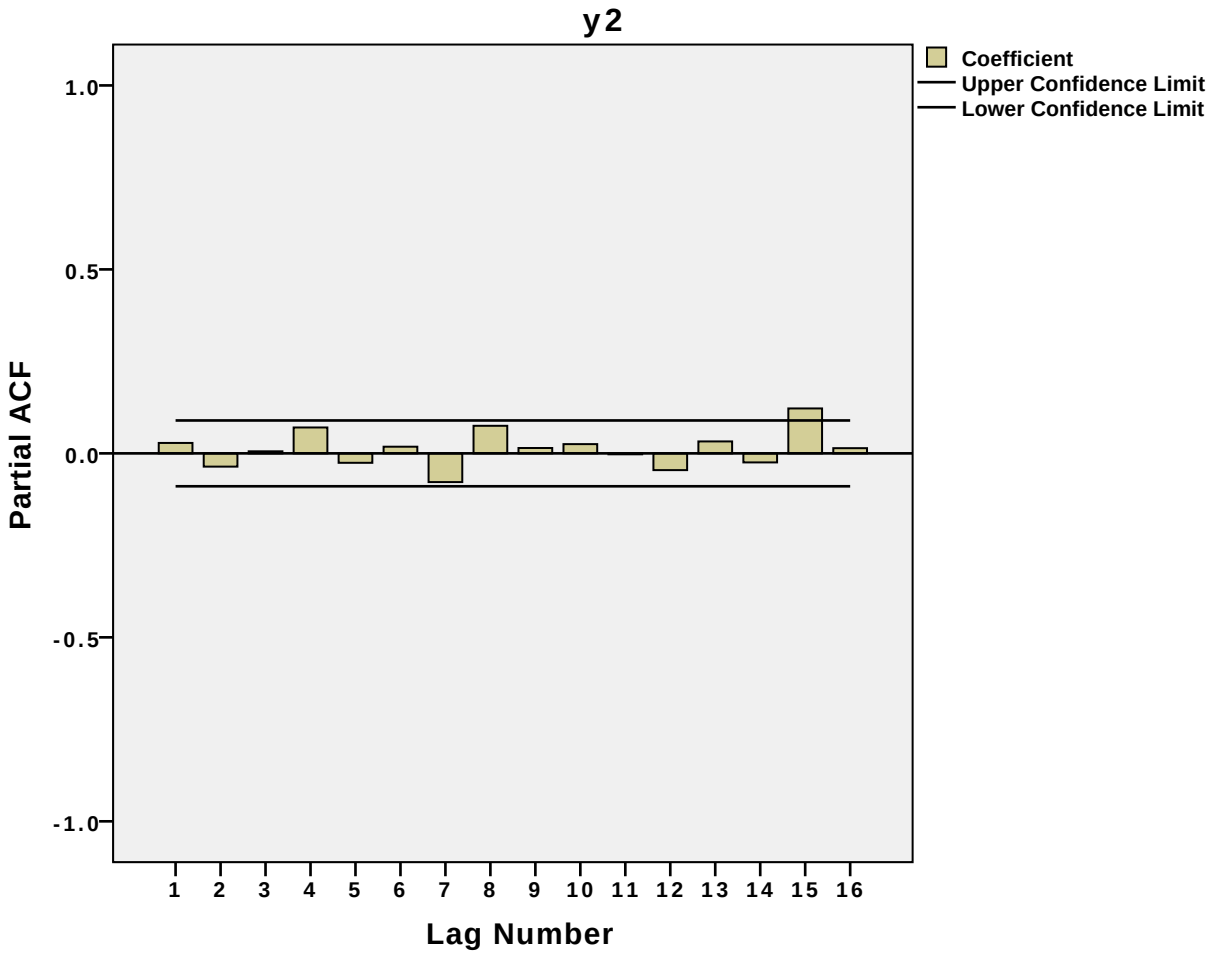
b. Based on the asymptotic chi-square approximation.


y2
Coefficient
Upper Confidence Limit
Lower Confidence Limit
ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

Partial Autocorrelations

Series: y2

Lag	Partial Autocorrelation	Std. Error
1	.028	.045
2	-.036	.045
3	.006	.045
4	.070	.045
5	-.026	.045
6	.018	.045
7	-.078	.045
8	.075	.045
9	.015	.045
10	.025	.045
11	-.003	.045
12	-.046	.045
13	.032	.045
14	-.025	.045
15	.122	.045
16	.014	.045


y2
Coefficient
Upper Confidence Limit
Lower Confidence Limit
Partial ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

y3

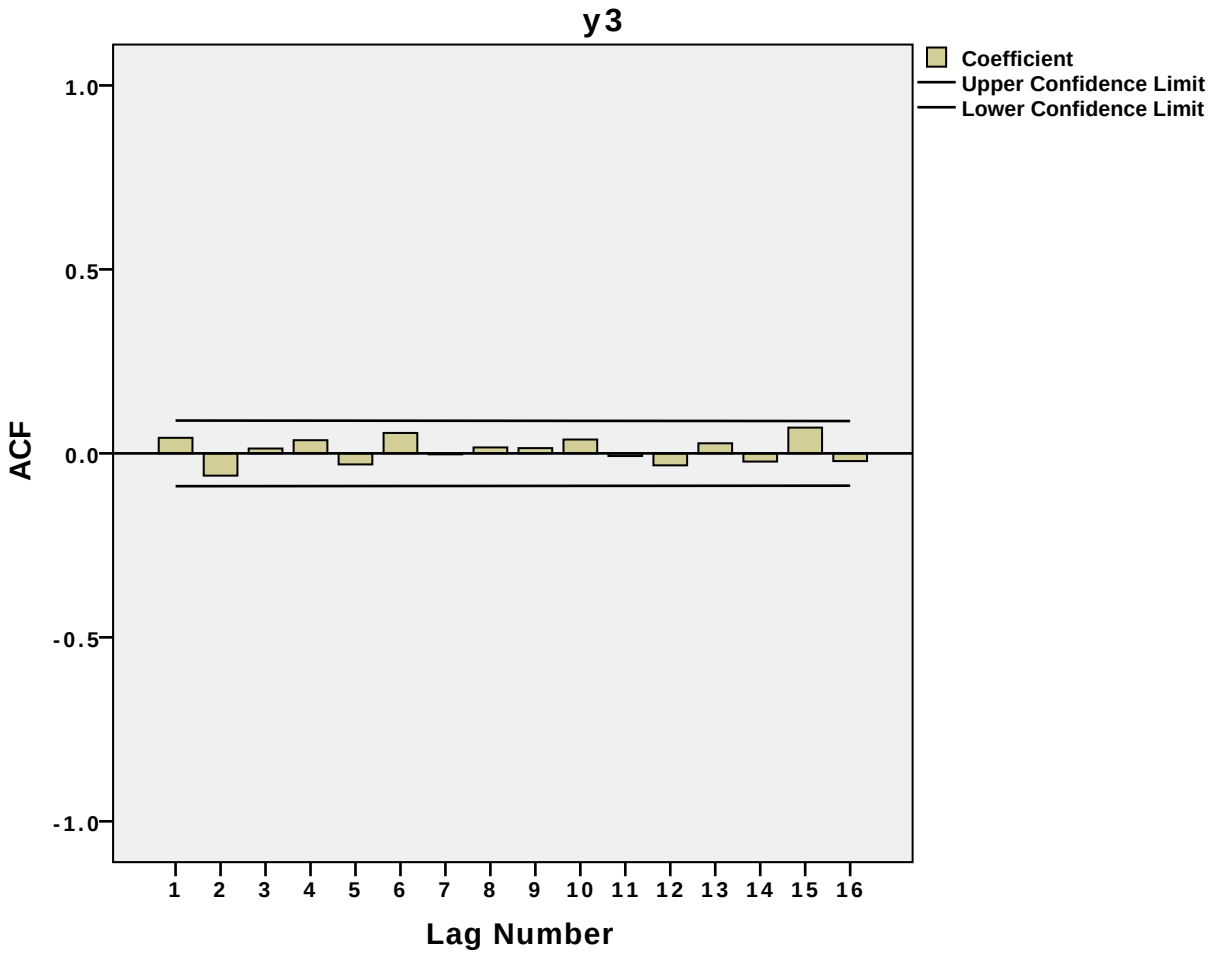
Autocorrelations

Series: y3

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic		
			Value	df	Sig.[b]
1	.042	.045	.899	1	.343
2	-.060	.045	2.744	2	.254
3	.013	.044	2.831	3	.418
4	.036	.044	3.480	4	.481
5	-.030	.044	3.936	5	.559
6	.055	.044	5.500	6	.481
7	-.003	.044	5.503	7	.599
8	.016	.044	5.636	8	.688
9	.014	.044	5.740	9	.766
10	.038	.044	6.466	10	.775
11	-.007	.044	6.492	11	.839
12	-.033	.044	7.037	12	.855
13	.027	.044	7.423	13	.879
14	-.022	.044	7.681	14	.905
15	.070	.044	10.216	15	.806
16	-.021	.044	10.445	16	.842

a. The underlying process assumed is independence (white noise).

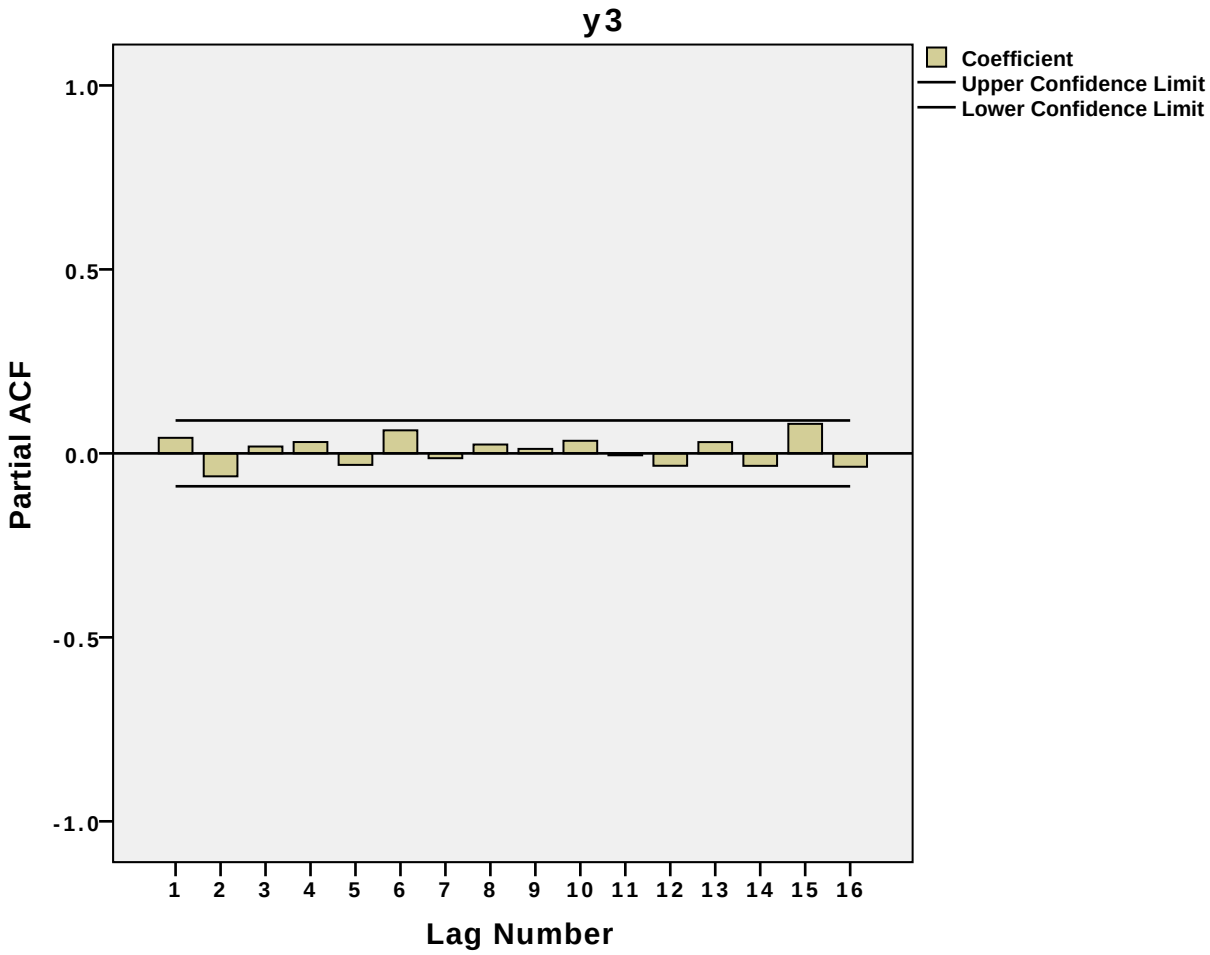
b. Based on the asymptotic chi-square approximation.


y3
Coefficient
Upper Confidence Limit
Lower Confidence Limit
ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

Partial Autocorrelations

Series: y3

Lag	Partial Autocorrelation	Std. Error
1	.042	.045
2	-.062	.045
3	.019	.045
4	.031	.045
5	-.031	.045
6	.063	.045
7	-.013	.045
8	.024	.045
9	.012	.045
10	.034	.045
11	-.005	.045
12	-.034	.045
13	.031	.045
14	-.034	.045
15	.080	.045
16	-.036	.045


y3
Coefficient
Upper Confidence Limit
Lower Confidence Limit
Partial ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

x1

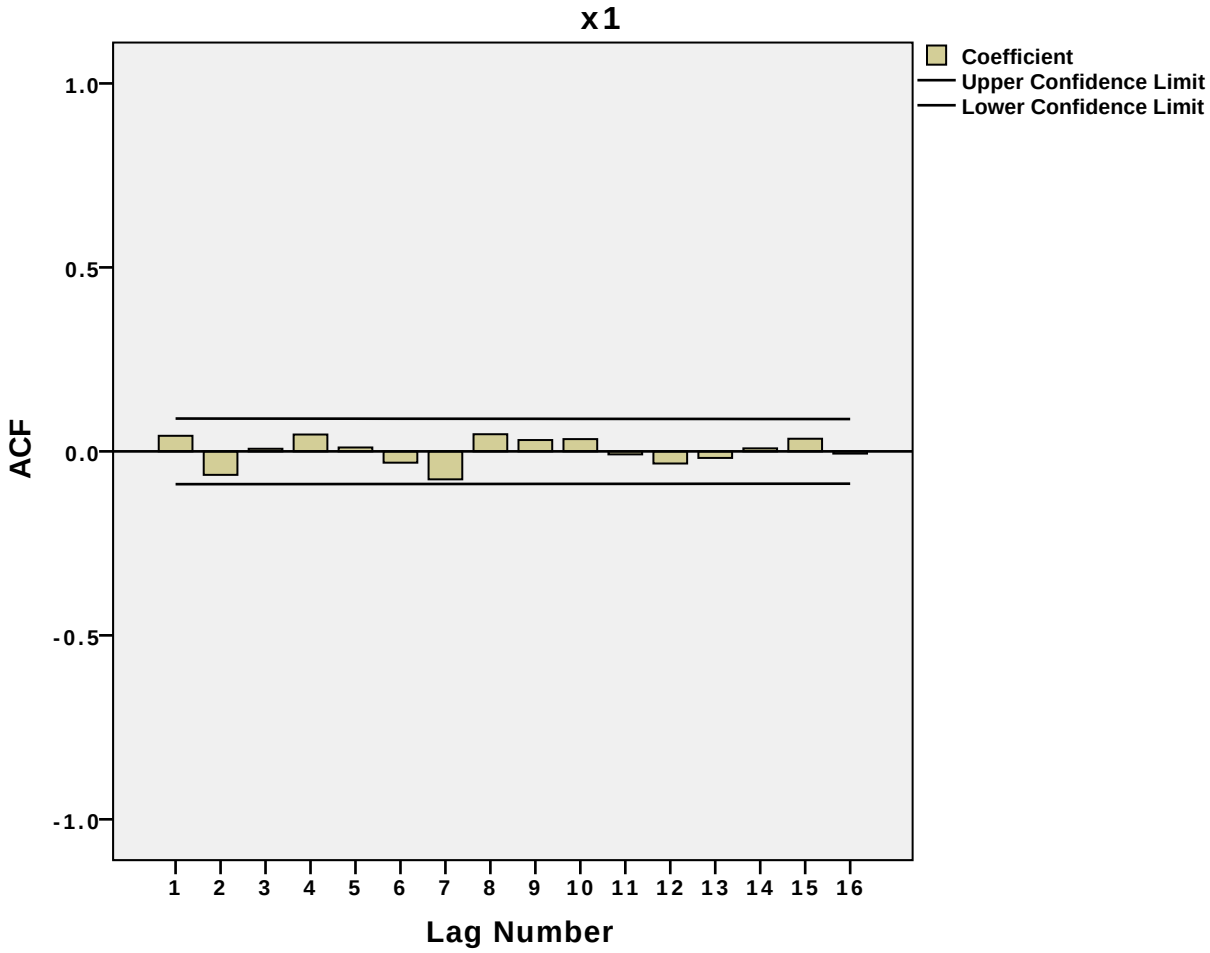
Autocorrelations

Series: x1

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic		
			Value	df	Sig.[b]
1	.042	.045	.900	1	.343
2	-.064	.045	2.957	2	.228
3	.007	.044	2.982	3	.394
4	.046	.044	4.044	4	.400
5	.011	.044	4.101	5	.535
6	-.031	.044	4.580	6	.599
7	-.076	.044	7.525	7	.376
8	.047	.044	8.633	8	.374
9	.031	.044	9.117	9	.427
10	.033	.044	9.686	10	.468
11	-.008	.044	9.721	11	.556
12	-.033	.044	10.281	12	.591
13	-.018	.044	10.444	13	.657
14	.008	.044	10.479	14	.726
15	.034	.044	11.090	15	.746
16	-.006	.044	11.109	16	.803

a. The underlying process assumed is independence (white noise).

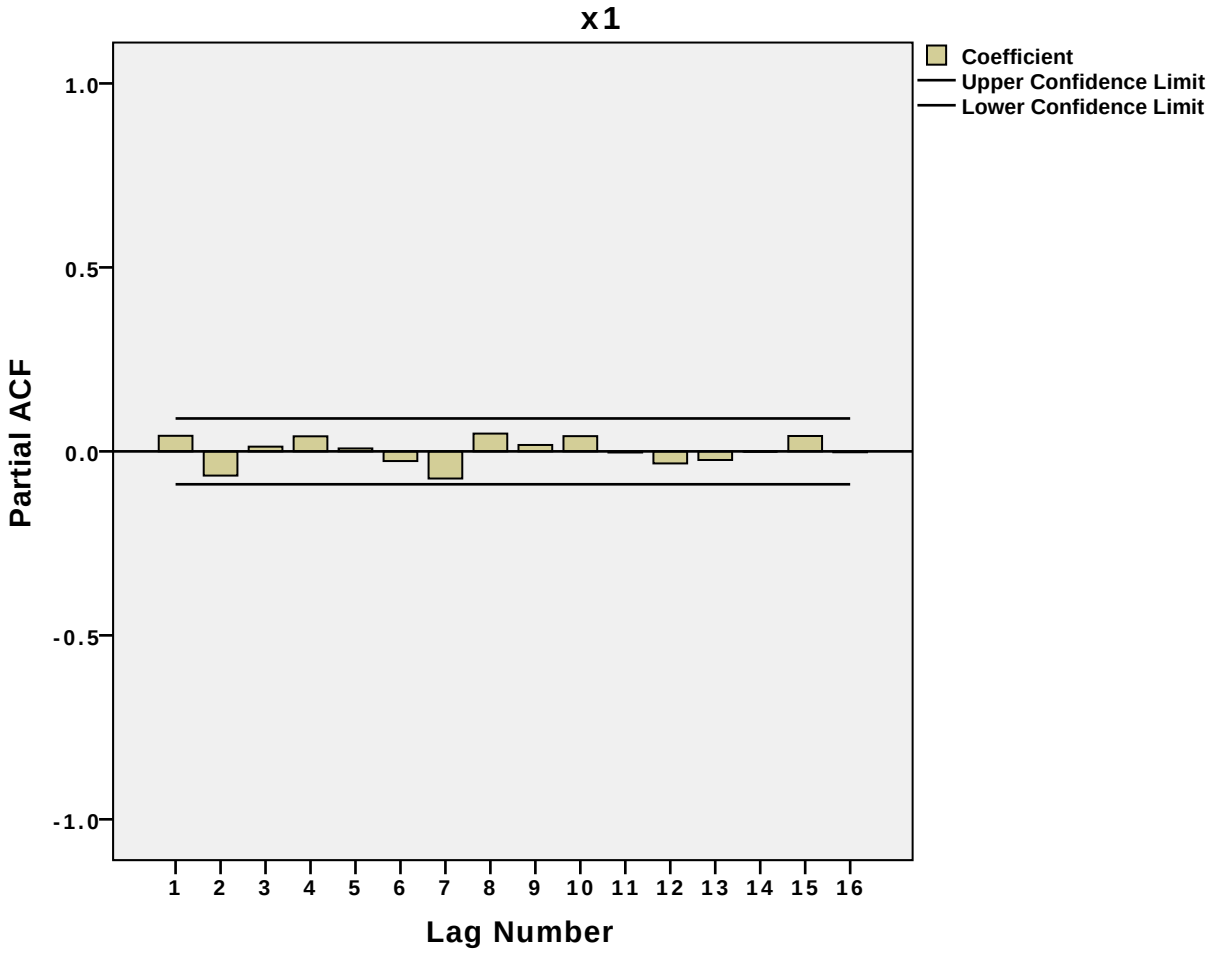
b. Based on the asymptotic chi-square approximation.


x1
Coefficient
Upper Confidence Limit
Lower Confidence Limit
ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

Partial Autocorrelations

Series: x1

Lag	Partial Autocorrelation	Std. Error
1	.042	.045
2	-.066	.045
3	.013	.045
4	.041	.045
5	.008	.045
6	-.026	.045
7	-.074	.045
8	.048	.045
9	.017	.045
10	.041	.045
11	-.003	.045
12	-.033	.045
13	-.023	.045
14	.000	.045
15	.042	.045
16	-.002	.045


x1
Coefficient
Upper Confidence Limit
Lower Confidence Limit
Partial ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

x2

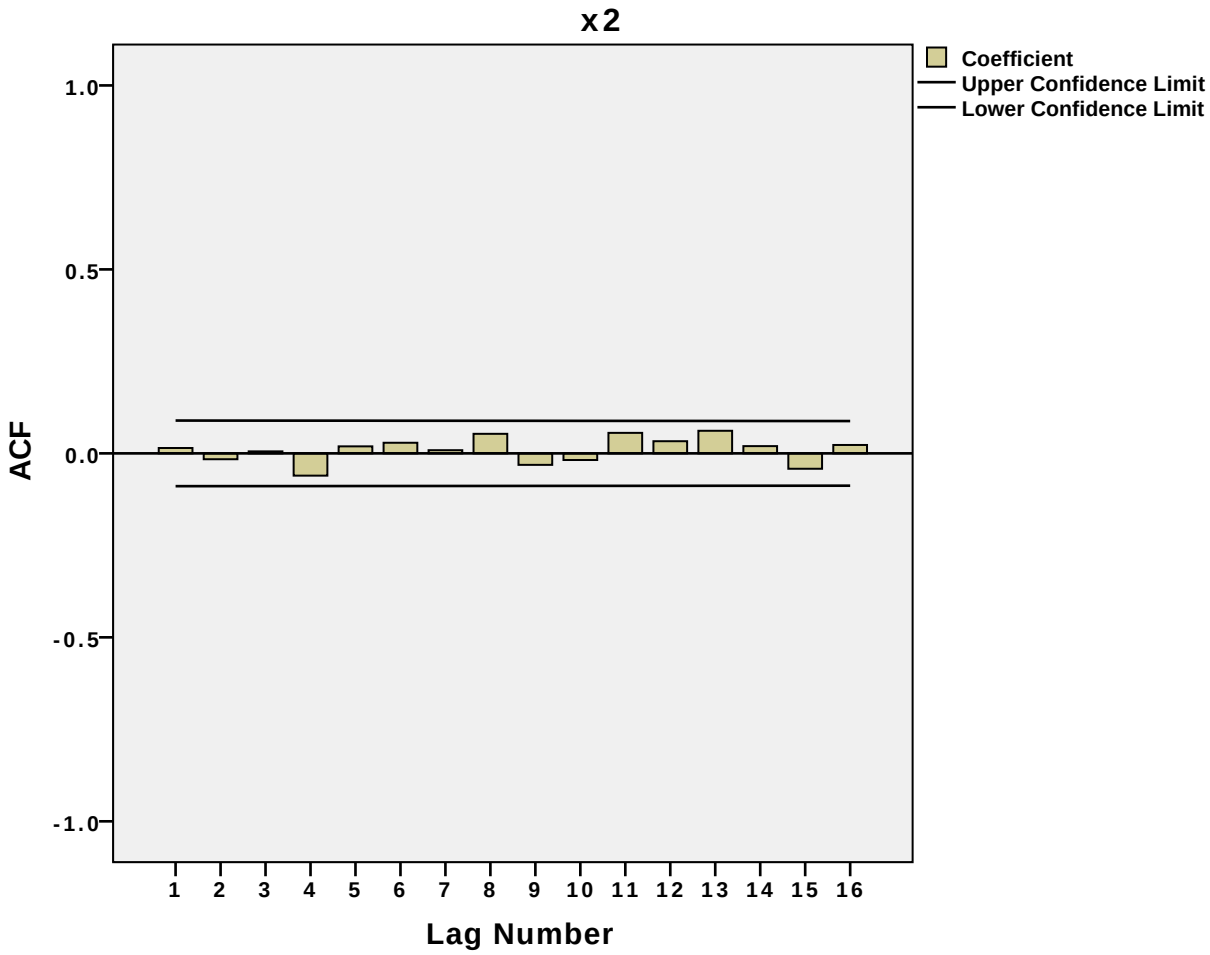
Autocorrelations

Series: x2

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic		
			Value	df	Sig.[b]
1	.015	.045	.107	1	.744
2	-.016	.045	.235	2	.889
3	.005	.044	.250	3	.969
4	-.061	.044	2.106	4	.716
5	.019	.044	2.290	5	.808
6	.029	.044	2.712	6	.844
7	.009	.044	2.750	7	.907
8	.053	.044	4.190	8	.840
9	-.031	.044	4.689	9	.861
10	-.018	.044	4.856	10	.901
11	.056	.044	6.451	11	.842
12	.033	.044	7.012	12	.857
13	.061	.044	8.953	13	.777
14	.020	.044	9.154	14	.821
15	-.042	.044	10.059	15	.816
16	.023	.044	10.329	16	.849

a. The underlying process assumed is independence (white noise).

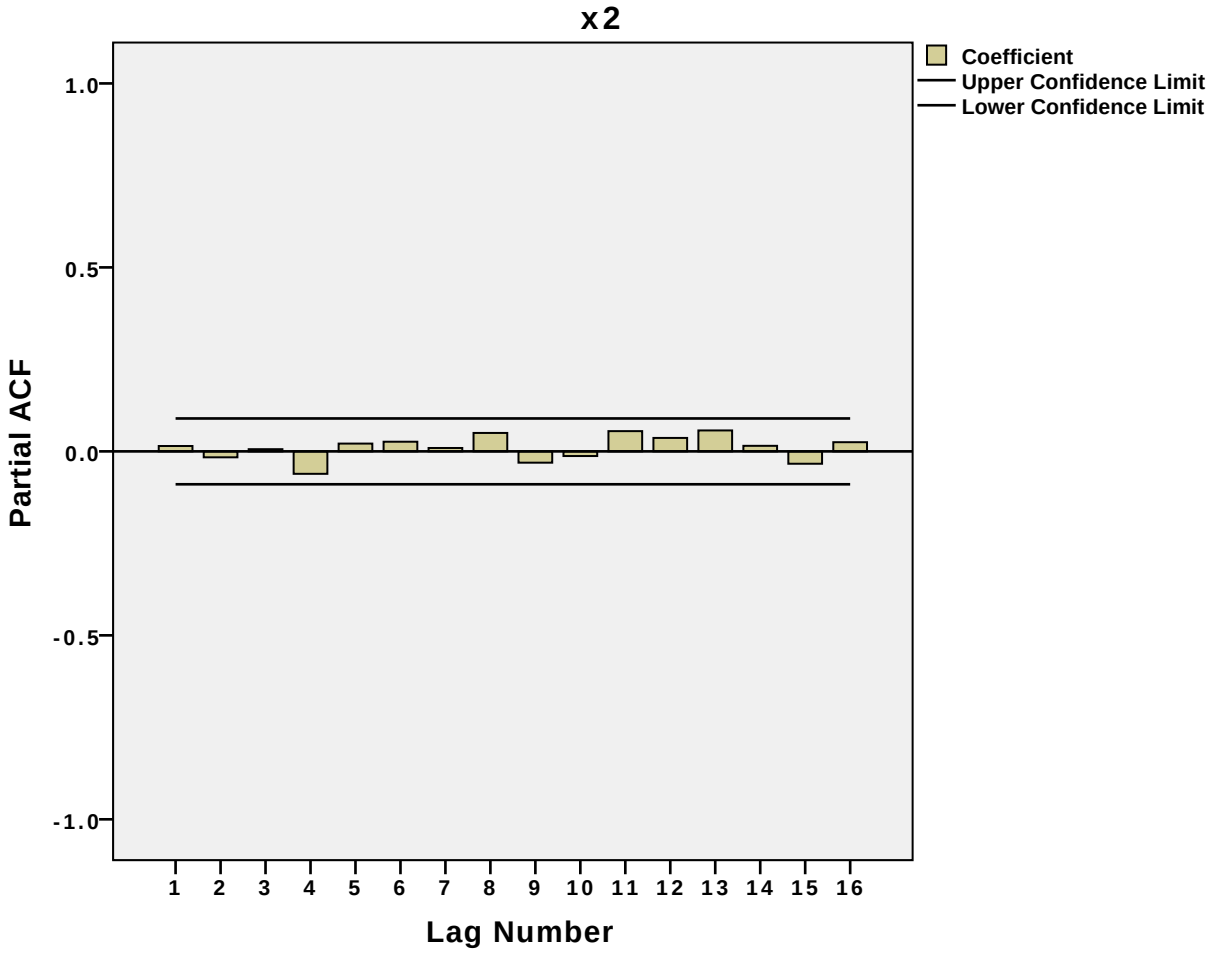
b. Based on the asymptotic chi-square approximation.


x2
Coefficient
Upper Confidence Limit
Lower Confidence Limit
ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

Partial Autocorrelations

Series: x2

Lag	Partial Autocorrelation	Std. Error
1	.015	.045
2	-.016	.045
3	.006	.045
4	-.061	.045
5	.021	.045
6	.026	.045
7	.009	.045
8	.050	.045
9	-.031	.045
10	-.013	.045
11	.055	.045
12	.037	.045
13	.057	.045
14	.015	.045
15	-.034	.045
16	.025	.045


x2
Coefficient
Upper Confidence Limit
Lower Confidence Limit
Partial ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

x3

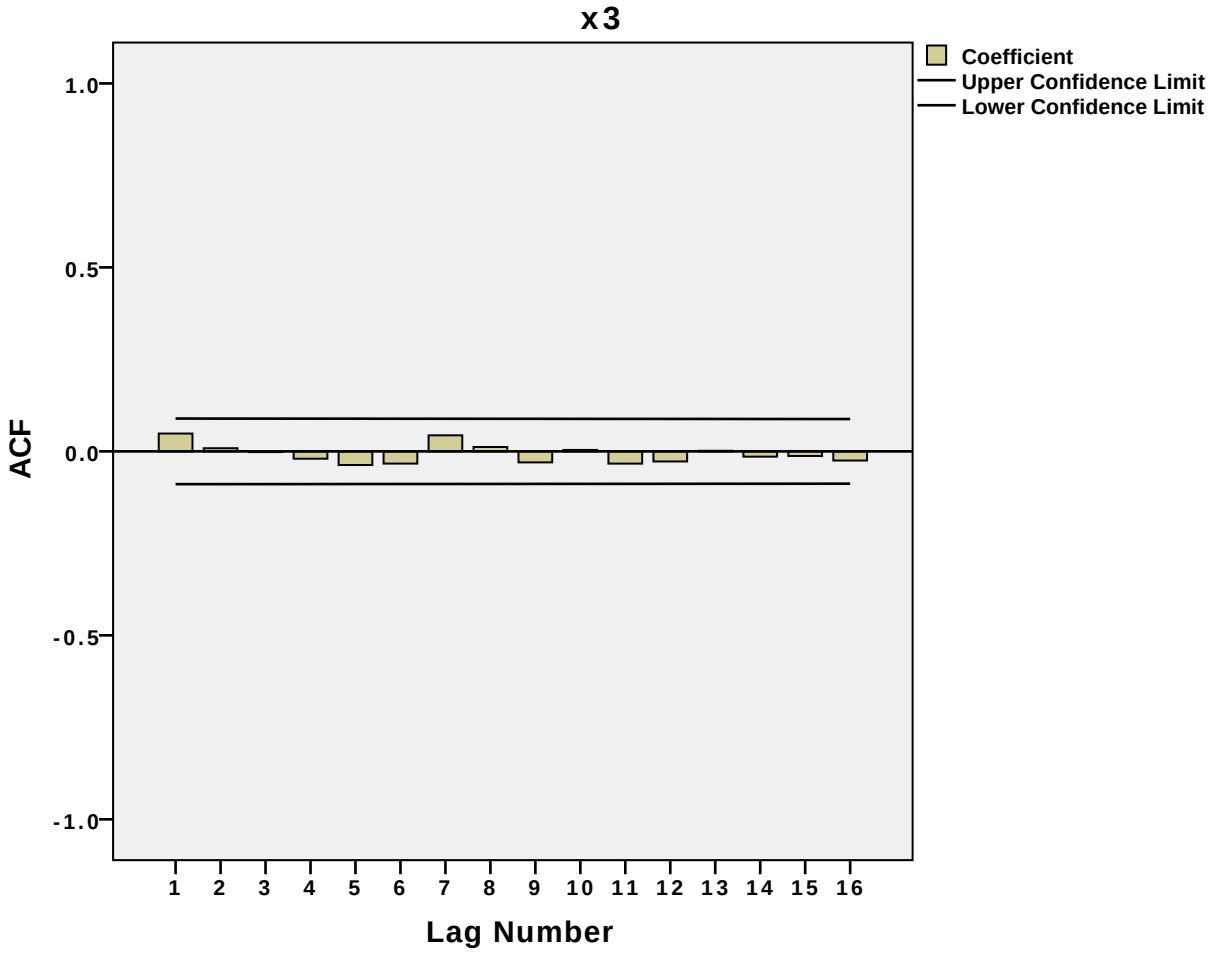
Autocorrelations

Series: x3

Lag	Autocorrelation	Std. Error[a]	Box-Ljung Statistic		
			Value	df	Sig.[b]
1	.048	.045	1.181	1	.277
2	.009	.045	1.218	2	.544
3	-.002	.044	1.220	3	.748
4	-.020	.044	1.421	4	.841
5	-.037	.044	2.120	5	.832
6	-.033	.044	2.681	6	.848
7	.044	.044	3.650	7	.819
8	.012	.044	3.722	8	.881
9	-.030	.044	4.181	9	.899
10	.004	.044	4.189	10	.938
11	-.033	.044	4.757	11	.942
12	-.027	.044	5.145	12	.953
13	.002	.044	5.146	13	.972
14	-.014	.044	5.252	14	.982
15	-.012	.044	5.332	15	.989
16	-.025	.044	5.654	16	.991

a. The underlying process assumed is independence (white noise).

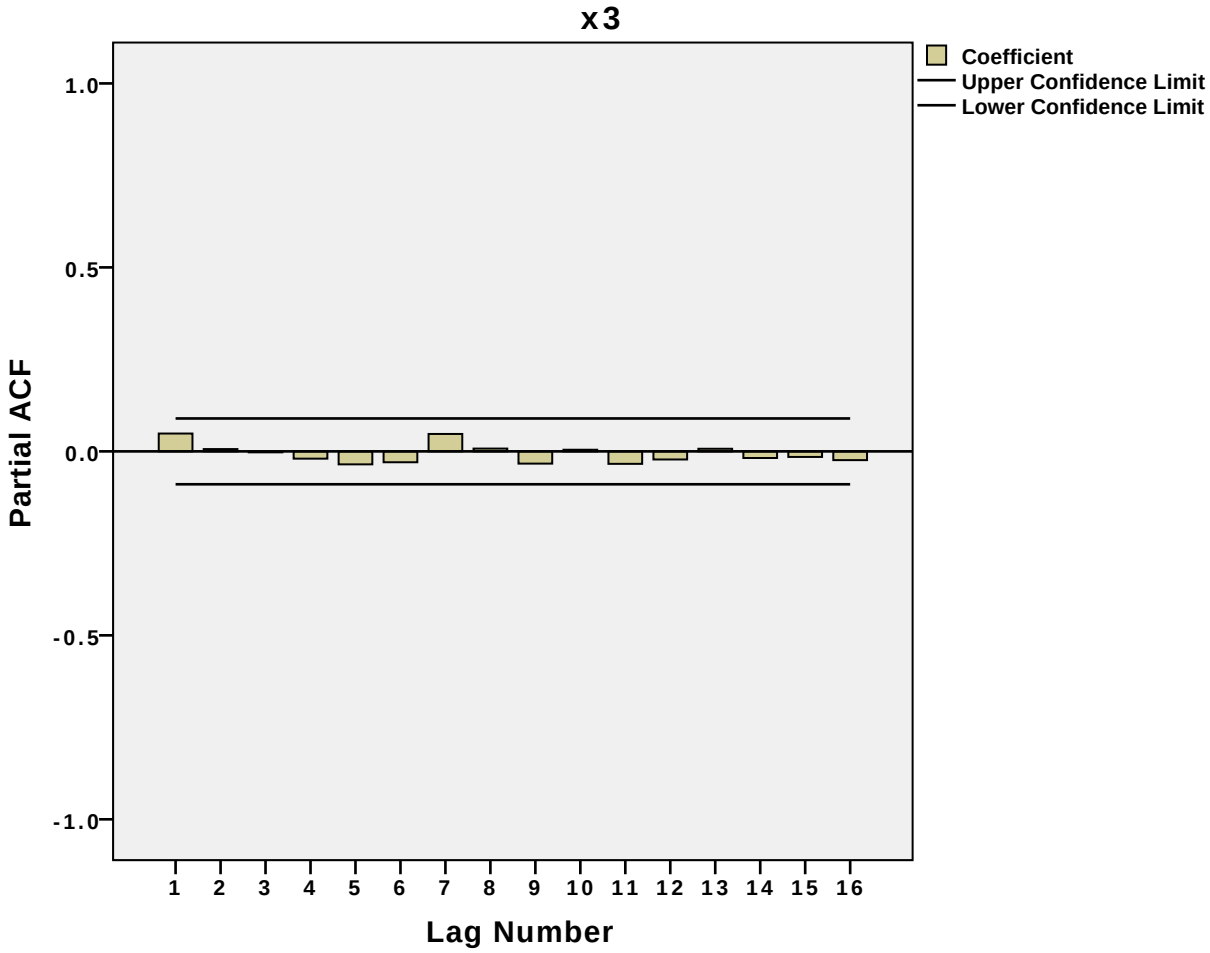
b. Based on the asymptotic chi-square approximation.


x3
Coefficient
Upper Confidence Limit
Lower Confidence Limit
ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number

Partial Autocorrelations

Series: x3

Lag	Partial Autocorrelation	Std. Error
1	.048	.045
2	.006	.045
3	-.003	.045
4	-.020	.045
5	-.035	.045
6	-.030	.045
7	.047	.045
8	.008	.045
9	-.033	.045
10	.004	.045
11	-.034	.045
12	-.022	.045
13	.007	.045
14	-.018	.045
15	-.015	.045
16	-.024	.045


x3
Coefficient
Upper Confidence Limit
Lower Confidence Limit
Partial ACF
1.0
0.5
0.0
-0.5
-1.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Lag Number