1. Checking whether or not the causal cmd result is similar with Tetard result.

Base the CFI and SRMR.

Cau - CFI : 0.837 SRMR: 0.097 Test statistic: 3898.100

Tetard - CFI : 0.837 SRMR: 0.097 Test statistic: 3519.588

Base on the test statistic which is similar. So the result for both of the graphs should be same.

Conclusion: I think my result is right so that I can have two softwares have the similar results.

1. Important causal relationship (Y0\_ARREST, Y1\_ARREST)

For without standlizion.

Regression : relationship Estimate Std.Err z-value

Y0\_AU\_Freq ~ Y0\_ARREST 0.691 0.130 5.325

Y0\_CD ~ Y0\_ARREST 1.467 0.204 7.178

Y0\_DB\_Gen\_Del ~ Y0\_ARREST 0.993 0.150 6.607

Y1\_ARREST ~ Y0\_ARREST 0.363 0.056 6.525

Y1\_IMP\_Depr\_Anx ~ Y0\_ARREST -1.252 0.353 -3.541

Y1\_ARREST ~Y0\_CD 0.081 0.009 8.744

Y1\_DB\_Alone ~Y1\_ARREST 0.622 0.073 8.521

Y1\_DB\_Group ~ Y1\_ARREST 0.627 0.074 8.537

Y1\_MUD ~ Y1\_ARREST 0.446 0.083 5.350

Covariances:

Y0\_ARREST ~~ M0\_CJSI 0.166 0.038 4.325

With standlizion

Regression : Relationship Estimate Std.Err z-value

Y1\_ARREST ~ Y0\_ARREST 0.241 0.037 6.525

Y1\_ARREST ~ Y0\_CD 0.334 0.038 8.744

Y1\_DB\_Alone ~Y1\_ARREST 0.305 0.036 8.521

Y1\_DB\_Group ~ Y1\_ARREST 0.311 0.036 8.537

Y1\_MUD ~ Y1\_ARREST 0.192 0.036 5.350

Y0\_AU\_Freq ~ Y0\_ARREST 0.190 0.036 5.325

Y0\_CD ~ Y0\_ARREST 0.236 0.033 7.178

Y0\_DB\_Gen\_Del ~ Y0\_ARREST 0.182 0.028 6.607

Y1\_ARREST ~ Y0\_ARREST 0.241 0.037 6.525

Y1\_IMP\_Depr\_Anx ~ Y0\_ARREST -0.121 0.034 -3.541

Covariances:

Y0\_ARREST ~~ M0\_CJSI 0.166 0.038 4.325

For example, Y1\_ARREST ~Y0\_CD 0.081 0.009 8.744(Estimate Std.Err z-value)

Means that when Y0\_CD increases by 1 unit, Y1\_ARREST will increase by 0.081. Standard error shows how the data is different from the sample data. Z-value just a indicted shows that should we include the variable or not.

Base on All of these, we can have the numeric relationship that we need.

(I don’t think R has the interception part for linear relationships as the Tetard has.)

Causal cmd result

lavaan 0.6.16 ended normally after 211 iterations

Estimator ML

Optimization method NLMINB

Number of model parameters 316

Number of observations 601

Model Test User Model:

Test statistic 3898.100

Degrees of freedom 1637

P-value (Chi-square) 0.000

Model Test Baseline Model:

Test statistic 15799.229

Degrees of freedom 1891

P-value 0.000

User Model versus Baseline Model:

Comparative Fit Index (CFI) 0.837

Tucker-Lewis Index (TLI) 0.812

Loglikelihood and Information Criteria:

Loglikelihood user model (H0) -55697.246

Loglikelihood unrestricted model (H1) -53748.196

Akaike (AIC) 112026.493

Bayesian (BIC) 113416.449

Sample-size adjusted Bayesian (SABIC) 112413.234

Root Mean Square Error of Approximation:

RMSEA 0.048

90 Percent confidence interval - lower 0.046

90 Percent confidence interval - upper 0.050

P-value H\_0: RMSEA <= 0.050 0.960

P-value H\_0: RMSEA >= 0.080 0.000

Standardized Root Mean Square Residual:

SRMR 0.097

Parameter Estimates:

Standard errors Standard

Information Expected

Information saturated (h1) model Structured

Tetrad result

lavaan 0.6.16 ended normally after 182 iterations

Estimator ML

Optimization method NLMINB

Number of model parameters 305

Number of observations 601

Model Test User Model:

Test statistic 3519.588

Degrees of freedom 1648

P-value (Chi-square) 0.000

Model Test Baseline Model:

Test statistic 15799.229

Degrees of freedom 1891

P-value 0.000

User Model versus Baseline Model:

Comparative Fit Index (CFI) 0.865

Tucker-Lewis Index (TLI) 0.846

Loglikelihood and Information Criteria:

Loglikelihood user model (H0) -55507.991

Loglikelihood unrestricted model (H1) -53748.196

Akaike (AIC) 111625.981

Bayesian (BIC) 112967.553

Sample-size adjusted Bayesian (SABIC) 111999.260

Root Mean Square Error of Approximation:

RMSEA 0.043

90 Percent confidence interval - lower 0.041

90 Percent confidence interval - upper 0.045

P-value H\_0: RMSEA <= 0.050 1.000

P-value H\_0: RMSEA >= 0.080 0.000

Standardized Root Mean Square Residual:

SRMR 0.097

Parameter Estimates:

Standard errors Standard

Information Expected

Information saturated (h1) model Structured

Scale standized coefficient in Tetrad

lavaan 0.6.16 ended normally after 30 iterations

Estimator ML

Optimization method NLMINB

Number of model parameters 305

Number of observations 601

Model Test User Model:

Test statistic 3519.588

Degrees of freedom 1648

P-value (Chi-square) 0.000

Model Test Baseline Model:

Test statistic 15799.229

Degrees of freedom 1891

P-value 0.000

User Model versus Baseline Model:

Comparative Fit Index (CFI) 0.865

Tucker-Lewis Index (TLI) 0.846

Loglikelihood and Information Criteria:

Loglikelihood user model (H0) -46701.642

Loglikelihood unrestricted model (H1) -44941.847

Akaike (AIC) 94013.283

Bayesian (BIC) 95354.855

Sample-size adjusted Bayesian (SABIC) 94386.562

Root Mean Square Error of Approximation:

RMSEA 0.043

90 Percent confidence interval - lower 0.041

90 Percent confidence interval - upper 0.045

P-value H\_0: RMSEA <= 0.050 1.000

P-value H\_0: RMSEA >= 0.080 0.000

Standardized Root Mean Square Residual:

SRMR 0.097

Parameter Estimates:

Standard errors Standard

Information Expected

Information saturated (h1) model Structured

Intervention for some variables and rerun the file