Autocorrelation Test Report

Dependent / ordered variable: G3
Valid ordered cases: 649
Residual predictors: G1, G2, absences, studytime, failures
Series used: Regression residual series from target predicted by available numeric predictors.

H0: ordered values/residuals are not autocorrelated across tested lags.
H1: ordered values/residuals show serial dependence at one or more tested lags.

Main test summary:

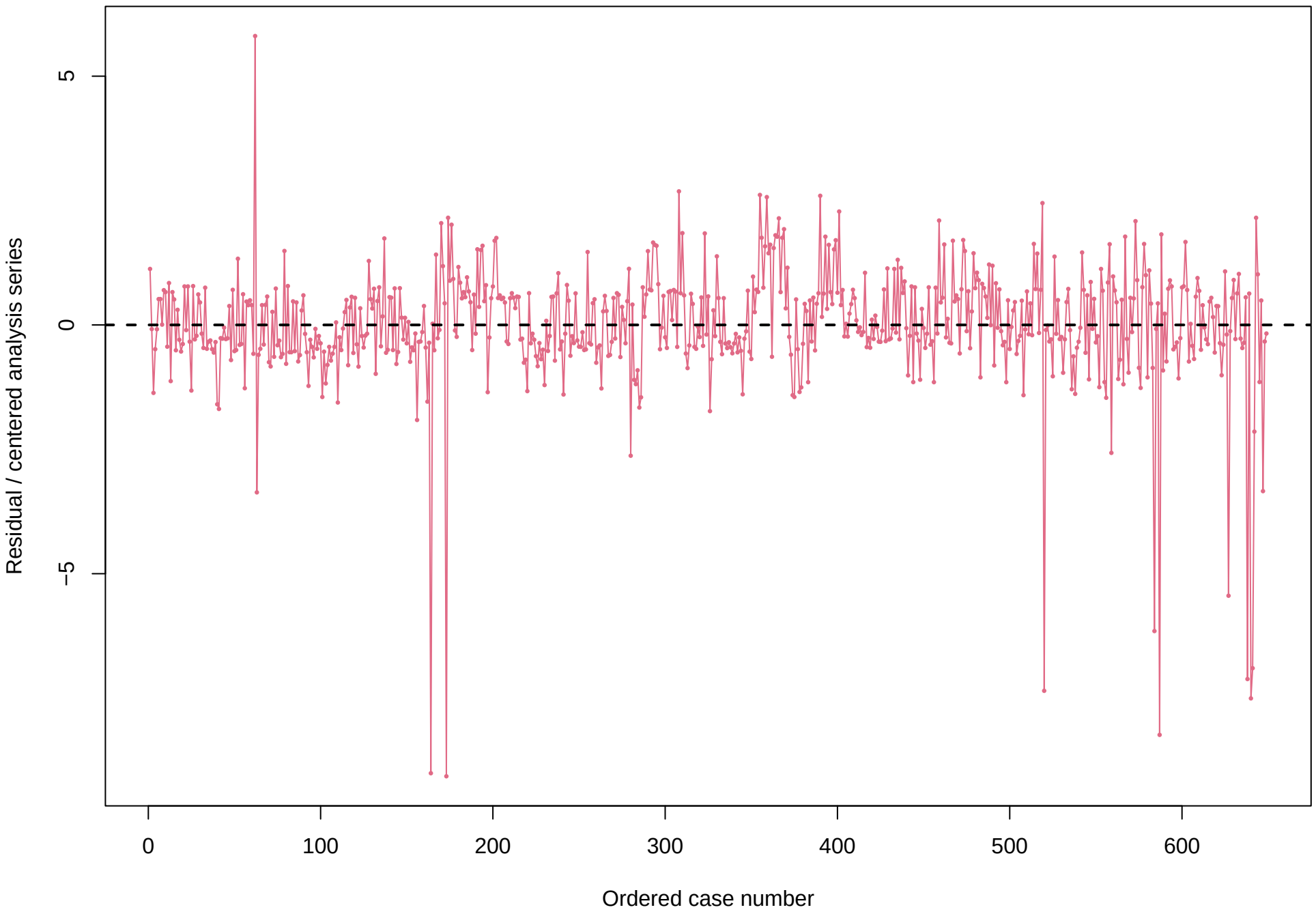
test	statistic	df	p_value	decision_alpha_0_05
Durbin−Watson first−order autocorrelation context	1.85734750	NA	NA	Near 2: little first−order autocorrelation signal
Lag 1 Pearson autocorrelation	0.07068484	647	7.197369e−02	No significant lag 1 autocorrelation
Ljung−Box portmanteau test through lag 10	45.06997385	10	2.112416e−06	Evidence of autocorrelation by Ljung−Box at selected lag
Approximate AR(1) coefficient from Durbin−Watson	0.07132625	NA	NA	Report as direction/size context, not a p−value decision

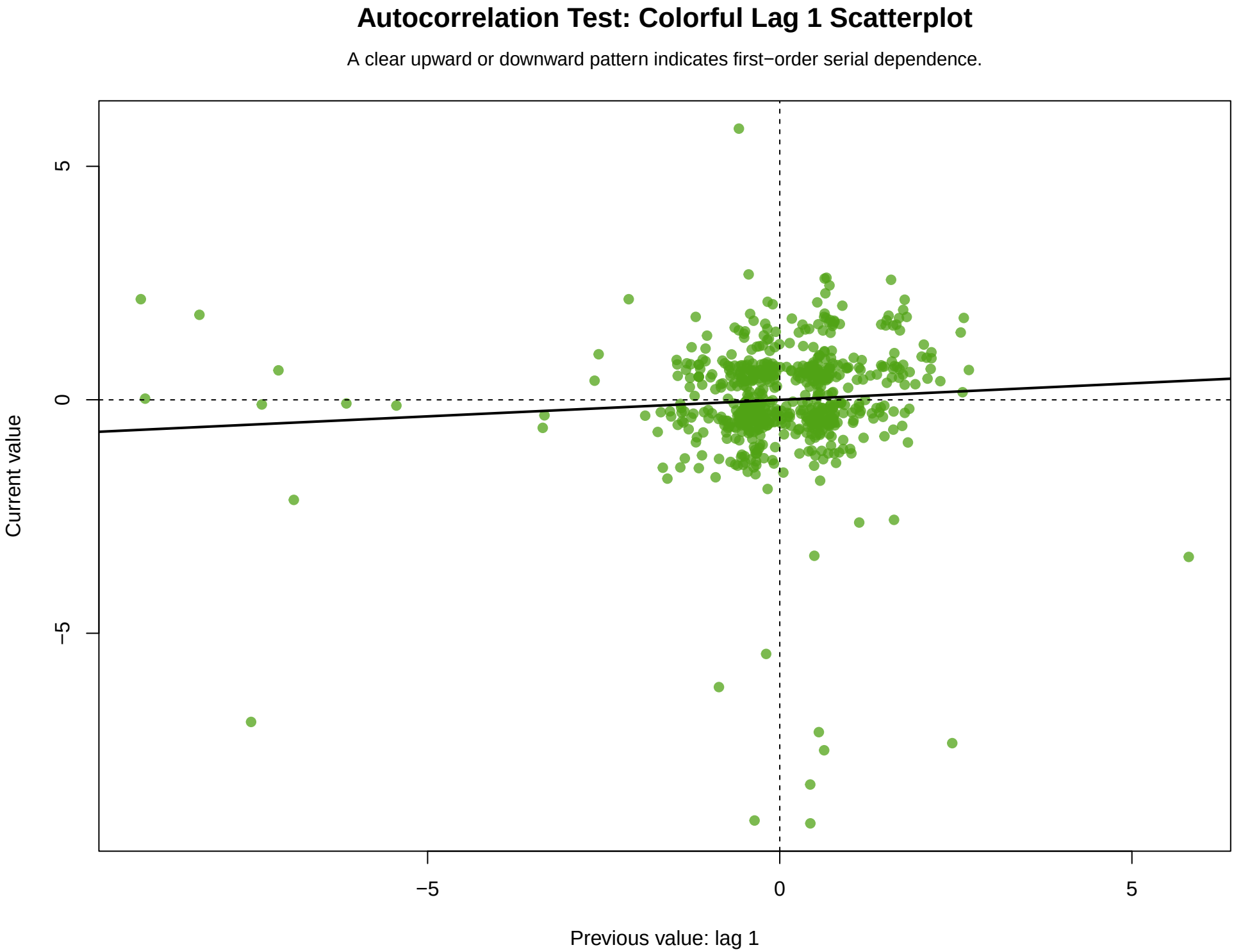
Durbin−Watson is interpreted around 2; values below 2 suggest positive autocorrelation and values above 2 suggest negat
This directly correlates the ordered series wi
Ljung−Box tests whether several autocorrelatio

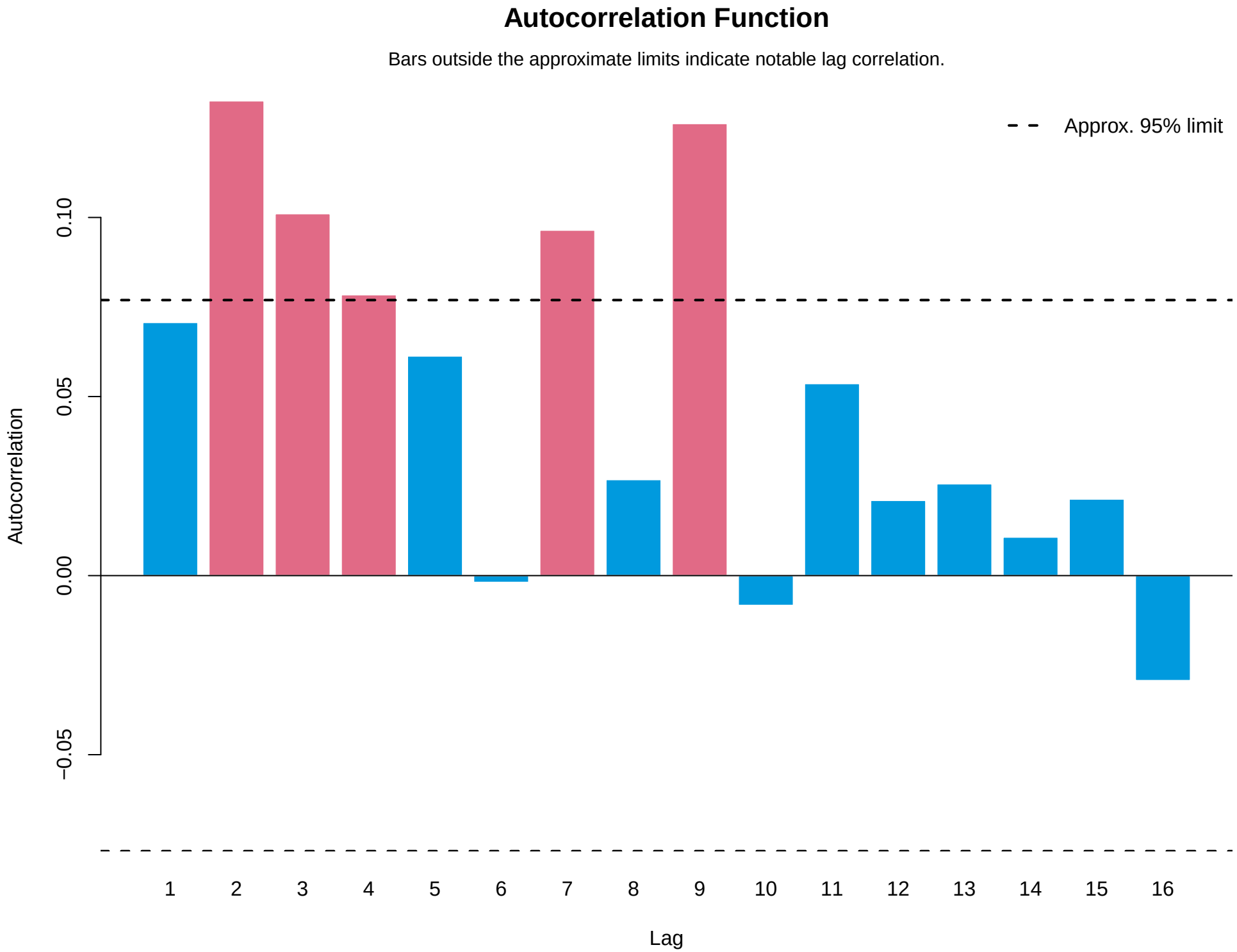
Dependent variable: G3 ; predictors used for residuals: G1, G2, absences, studytime, failures ; Regression residual series from target predicted by available

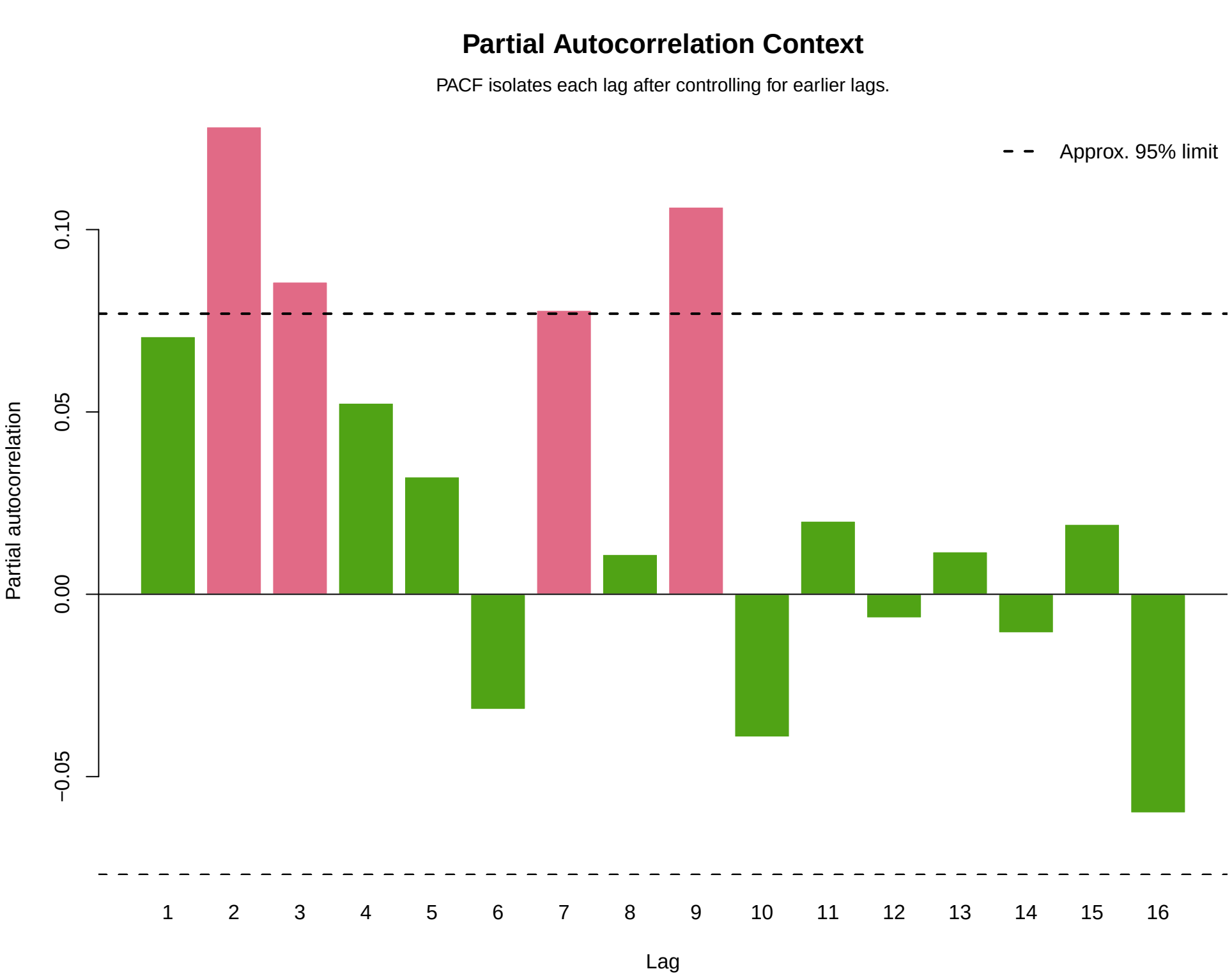
Lag table:

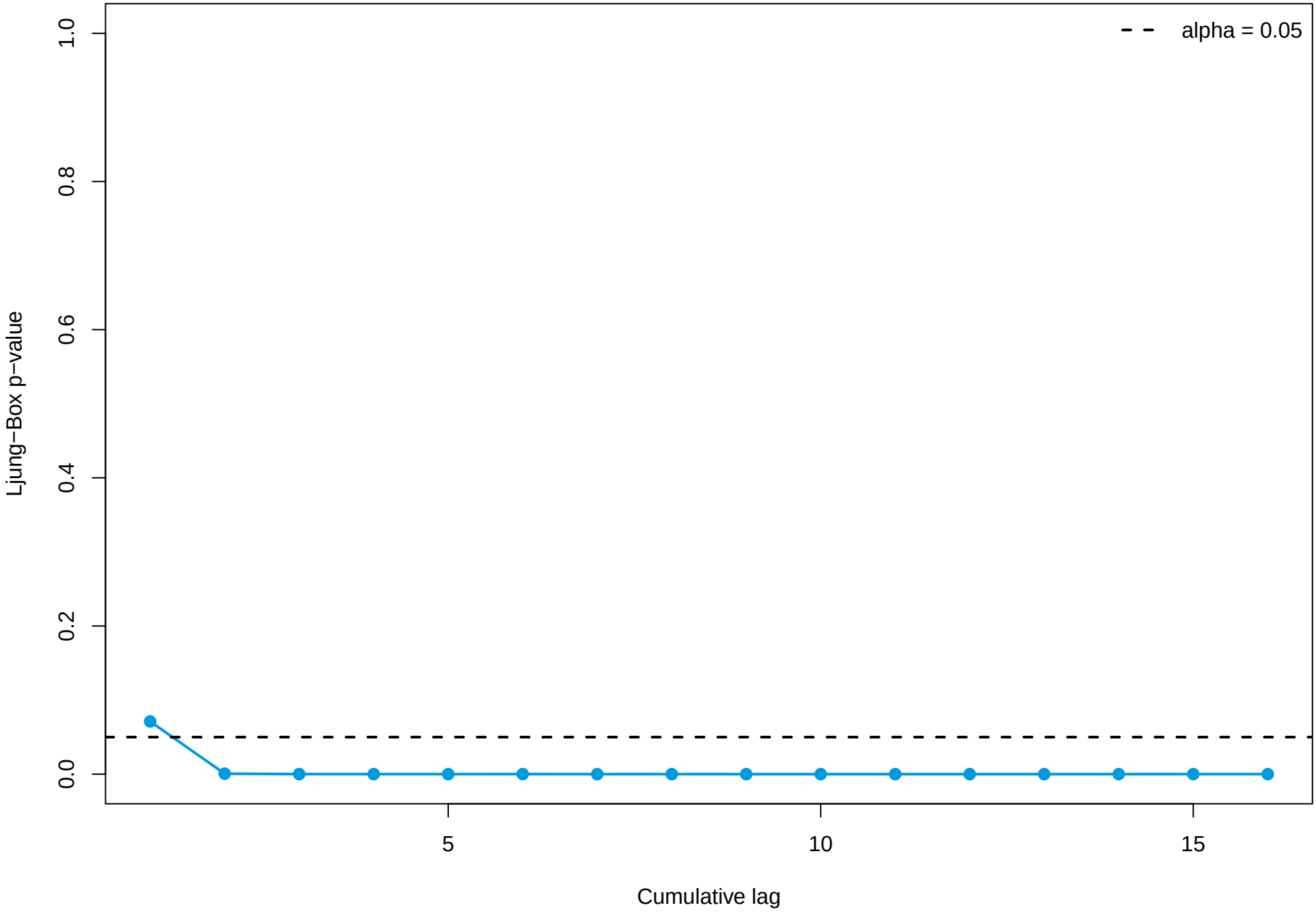
lag	autocorrelation	standard_error_approx	lower_approx_95_limit	upper_approx_95_limit	ljung_box_q_cumulative	ljung_box_df
1	0.070684841	0.03925343	−0.07693673			
2	0.132565975	0.03925343	−0.07693673			
3	0.101060872	0.03925343	−0.07693673			
4	0.078412481	0.03925343	−0.07693673			
5	0.061317777	0.03925343	−0.07693673			
6	−0.001885665	0.03925343	−0.07693673			
7	0.096456733	0.03925343	−0.07693673			
8	0.026806633	0.03925343	−0.07693673			
9	0.126224749	0.03925343	−0.07693673			
10	−0.008308632	0.03925343	−0.07693673			
11	0.053616245	0.03925343	−0.07693673			
12	0.021002133	0.03925343	−0.07693673			
13	0.025628320	0.03925343	−0.07693673			
14	0.010752370	0.03925343	−0.07693673			
15	0.021376268	0.03925343	−0.07693673			
16	−0.029317072	0.03925343	−0.07693673			

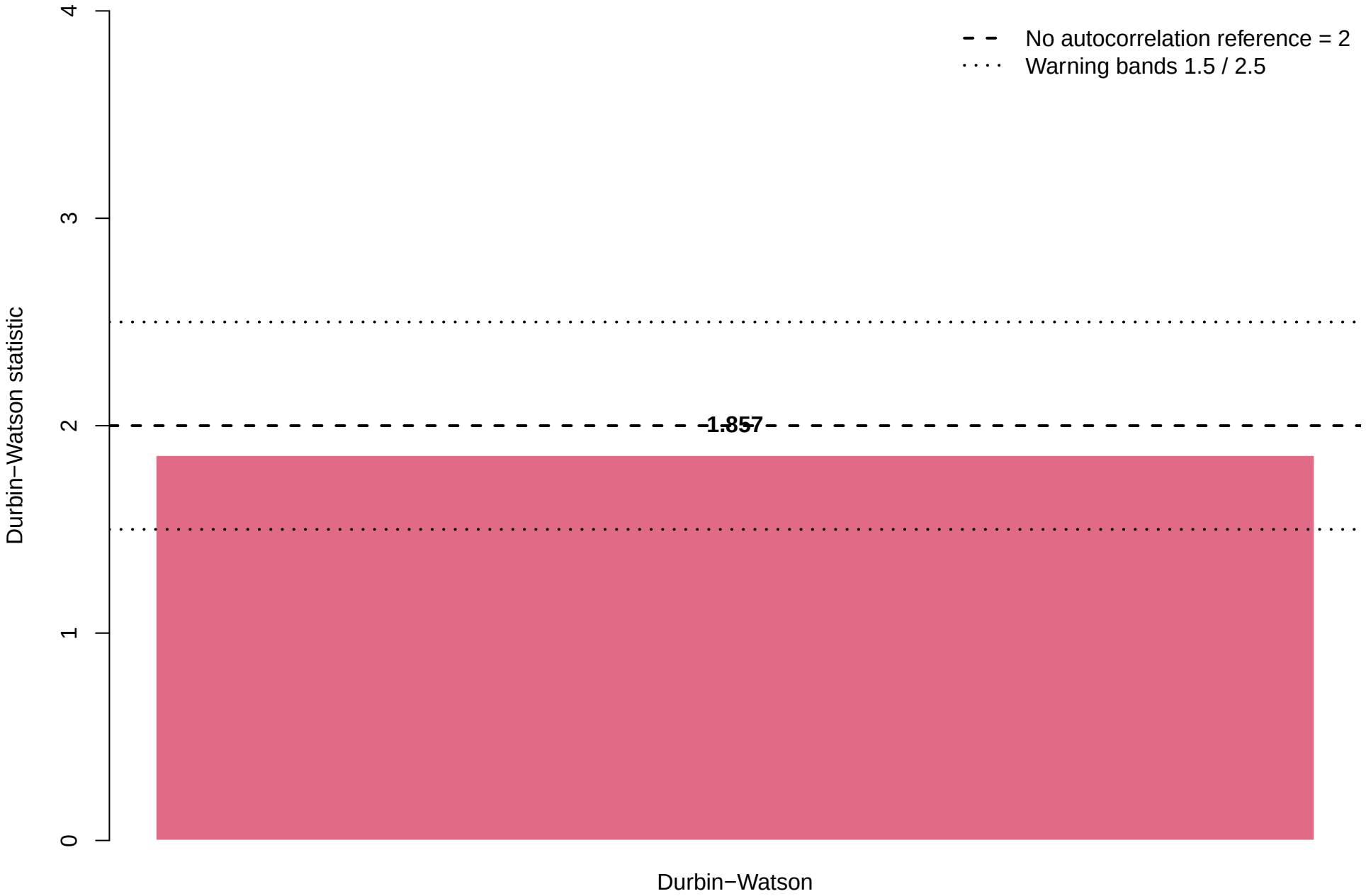

Autocorrelation Test: Colorful Ordered Series Plot
The G3 series is inspected in its current row order before lag tests.
Residual / centered analysis series
5
0
−5
0
100
200
300
400
500
600
Ordered case number


Autocorrelation Test: Colorful Lag 1 Scatterplot
A clear upward or downward pattern indicates first−order serial dependence.
Current value
5
0
−5
−5
0
5
Previous value: lag 1


Autocorrelation Function
Bars outside the approximate limits indicate notable lag correlation.
Approx. 95% limit
Autocorrelation
0.10
0.05
0.00
−0.05
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Lag


Partial Autocorrelation Context
PACF isolates each lag after controlling for earlier lags.
Approx. 95% limit
Partial autocorrelation
0.10
0.05
0.00
−0.05
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Lag


Ljung−Box Autocorrelation Decision
P−values below alpha indicate jointly non−zero autocorrelations.
alpha = 0.05
Ljung−Box p−value
1.0
0.8
0.6
0.4
0.2
0.0
5
10
15
Cumulative lag


Durbin−Watson First−Order Autocorrelation Context
Values close to 2 are usually treated as weak first−order autocorrelation evidence.
No autocorrelation reference = 2
Warning bands 1.5 / 2.5
1.857
Durbin−Watson statistic
0
1
2
3
4
Durbin−Watson