```
1169  0  OUTPUT ACTIVATE TimeSeriesinExcelOutput.
1169  0 M>  OUTPUT ACTIVATE TimeSeriesinExcelOutput.
1170  0  TITLE 'Time Series in Excel'.
1170  0 M>  TITLE 'Time Series in Excel'.
```

```
1171  0  GET DATA /TYPE=TXT /FILE='D:\DATA ANALYSIS\N Time Series Tests and Fo
recasting\Time Series in Excel\dataset.csv' /ENCODING=
            'UTF8' /DELCASE=LINE /DELIMITERS=',' /QUALIFIER='"' /ARRANGEMENT=D
ELIMITED /FIRSTCASE=2
1171  0 M>  GET DATA /TYPE=TXT /FILE='D:\DATA ANALYSIS\N Time Series Tests and
 Forecasting\Time Series in Excel\dataset.csv' /ENCODI
              NG='UTF8' /DELCASE=LINE /DELIMITERS=',' /QUALIFIER='"' /ARRANGE
MENT=DELIMITED /FIRSTCASE=2
1172  0   /VARIABLES=school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A
8 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 gua
            rdian A16 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A
8 famsup A8 paid A8 activities A8 nursery A8 higher A8
             internet A8 romantic A8 famrel F8.0 freetime F8.0 goout F8.0 Dalc
 F8.0 Walc F8.0 health F8.0 absences F8.0 G1 F8.0 G2 F
            8.0 G3 F8.0.
1172  0 M>   /VARIABLES=school A8 sex A8 age F8.0 address A8 famsize A8 Pstatu
s A8 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16
              guardian A16 traveltime F8.0 studytime F8.0 failures F8.0 schoo
lsup A8 famsup A8 paid A8 activities A8 nursery A8 hig
              her A8 internet A8 romantic A8 famrel F8.0 freetime F8.0 goout
F8.0 Dalc F8.0 Walc F8.0 health F8.0 absences F8.0 G1
              F8.0 G2 F8.0 G3 F8.0.
1173  0  DATASET NAME TimeSeriesinExcelData.
1173  0 M>  DATASET NAME TimeSeriesinExcelData.
1174  0  COMPUTE time_index=$CASENUM.
1174  0 M>  COMPUTE time_index=$CASENUM.
1175  0  EXECUTE.
1175  0 M>  EXECUTE.
1176  0  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1176  0 M>  * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
1177  0  COMPUTE excel_ma3=(G3+LAG(G3)+LAG(G3,2))/3.
1177  0 M>  COMPUTE excel_ma3=(G3+LAG(G3)+LAG(G3,2))/3.
1178  0  REGRESSION /STATISTICS=COEFF OUTS R ANOVA CI(95) /DEPENDENT G3 /METHO
D=ENTER time_index /SAVE PRED(excel_trend) RESID(excel
            _resid).
1178  0 M>  REGRESSION /STATISTICS=COEFF OUTS R ANOVA CI(95) /DEPENDENT G3 /ME
THOD=ENTER time_index /SAVE PRED(excel_trend) RESID(ex
              cel_resid).
```

Regression

Notes

Output Created		18-JUL-2026 15:54:15
Comments		
Input	Data	D:\DATA ANALYSIS\N Time Series Tests and Forecasting\Time Series in Excel\dataset.csv
	Active Dataset	TimeSeriesinExcelData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
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 /STATISTICS=COEFF OUTS R ANOVA CI(95) /DEPENDENT G3 /METHOD=ENTER time_index /SAVE PRED (excel_trend) RESID (excel_resid).
Resources	Processor Time	00:00:00.16
	Elapsed Time	00:00:00.15
	Memory Required	3888 bytes
	Additional Memory Required for Residual Plots	0 bytes
Variables Created or Modified	excel_trend	Unstandardized Predicted Value
	excel_resid	Unstandardized Residual

[TimeSeriesinExcelData]

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	time_index[b]	.	Enter

a. Dependent Variable: G3

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.177[a]	.031	.030	3.182

a. Predictors: (Constant), time_index

b. Dependent Variable: G3

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	211.509	1	211.509	20.887	.000[b]
	Residual	6551.757	647	10.126		
	Total	6763.267	648			

a. Dependent Variable: G3

b. Predictors: (Constant), time_index

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.896	.250		51.562	.000
	time_index	-.003	.001	-.177	-4.570	.000

Coefficients[a]

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	12.405	13.387
	time_index	-.004	-.002

a. Dependent Variable: G3

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	10.92	12.89	11.91	.571	649
Residual	-12.397	8.045	.000	3.180	649
Std. Predicted Value	-1.728	1.728	.000	1.000	649
Std. Residual	-3.896	2.528	.000	.999	649

a. Dependent Variable: G3

```
1179  0  DESCRIPTIVES VARIABLES=excel_ma3 excel_trend excel_resid /STATISTICS=
MEAN STDDEV MIN MAX.
1179  0 M>  DESCRIPTIVES VARIABLES=excel_ma3 excel_trend excel_resid /STATISTI
CS=MEAN STDDEV MIN MAX.
```

Descriptives

Notes

Output Created		18-JUL-2026 15:54:15
Comments		
Input	Data	D:\DATA ANALYSIS\N Time Series Tests and Forecasting\Time Series in Excel\dataset.csv
	Active Dataset	TimeSeriesinExcelData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	All non-missing data are used.
Syntax		DESCRIPTIVES VARIABLES=excel_ma3 excel_trend excel_resid /STATISTICS=MEAN STDDEV MIN MAX.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.08

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
excel_ma3	647	3.33	17.67	11.9093	2.22102
Unstandardized Predicted Value	649	10.91874	12.89327	11.9060092	.57131734
Unstandardized Residual	649	-12.39659	8.04469	.0000000	3.17973839
Valid N (listwise)	647				

```
1180  0  * END METHOD-SPECIFIC SPSS WORKFLOW.
1180  0 M>  * END METHOD-SPECIFIC SPSS WORKFLOW.
1181  0  SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Forecasting\Ti
me Series in Excel\SPSS_Output\sav\time-series-in-exce
           l_spss_ready_data.sav' /COMPRESSED.
```

```
1181  0 M>  SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Forecasting
\Time Series in Excel\SPSS_Output\sav\time-series-in-e
              xcel_spss_ready_data.sav' /COMPRESSED.
1182  0  ECHO 'Time Series in Excel'.
1182  0 M>  ECHO 'Time Series in Excel'.
Time Series in Excel
1183  0  ECHO 'Method type: software_workflow'.
1183  0 M>  ECHO 'Method type: software_workflow'.
Method type: software_workflow
1184  0  ECHO 'Design: Excel-reproducible linear trend plus three-point traili
ng average for ordered G3.'.
1184  0 M>  ECHO 'Design: Excel-reproducible linear trend plus three-point tra
iling average for ordered G3.'.
Design: Excel-reproducible linear trend plus three-point trailing average for
ordered G3.
1185  0  ECHO 'Formula: TREND uses OLS; moving mean_t=AVERAGE(y_(t-2):y_t)'.
1185  0 M>  ECHO 'Formula: TREND uses OLS; moving mean_t=AVERAGE(y_(t-2):y_t)'
.
Formula: TREND uses OLS; moving mean_t=AVERAGE(y_(t-2):y_t)
1186  0  ECHO 'Series order: source-row order'.
1186  0 M>  ECHO 'Series order: source-row order'.
Series order: source-row order
1187  0  ECHO 'rows = 649'.
1187  0 M>  ECHO 'rows = 649'.
rows = 649
1188  0  ECHO 'trend_intercept = 12.896321976830471'.
1188  0 M>  ECHO 'trend_intercept = 12.896321976830471'.
trend_intercept = 12.896321976830471
1189  0  ECHO 'trend_slope = -0.0030471160979635326'.
1189  0 M>  ECHO 'trend_slope = -0.0030471160979635326'.
trend_slope = -0.0030471160979635326
1190  0  ECHO 'trend_r_squared = 0.031273271237824196'.
1190  0 M>  ECHO 'trend_r_squared = 0.031273271237824196'.
trend_r_squared = 0.031273271237824196
1191  0  ECHO 'last_ma3 = 10.0'.
1191  0 M>  ECHO 'last_ma3 = 10.0'.
last_ma3 = 10.0
1192  0  ECHO 'forecast_next_linear = 10.915696513154176'.
1192  0 M>  ECHO 'forecast_next_linear = 10.915696513154176'.
```

```
forecast_next_linear = 10.915696513154176
1193  0  ECHO 'Cross-check status: pass'.
1193  0 M>  ECHO 'Cross-check status: pass'.
Cross-check status: pass
1194  0  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Forecas
ting\Time Series in Excel\SPSS_Output\spv\time-series-
            in-excel_spss_output.spv'.
1194  0 M>  OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\N Time Series Tests and Fore
casting\Time Series in Excel\SPSS_Output\spv\time-seri
               es-in-excel_spss_output.spv'.
1195  0  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING /PDF DOCUMENTFILE='D:\DATA ANALYSIS\N Time S
            eries Tests and Forecasting\Time Series in Excel\SPSS_Output\pdf\t
ime-series-in-excel_spss_output.pdf'.
1195  0 M>  OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING /PDF DOCUMENTFILE='D:\DATA ANALYSIS\N Tim
               e Series Tests and Forecasting\Time Series in Excel\SPSS_Output
\pdf\time-series-in-excel_spss_output.pdf'.
```