

Multiple Regression Analysis Report

Dataset C:\Users\Dr_Ia\Desktop\BrokenHillESRegressionData.NCSS
 Sale Price Column ES

Run Summary Report

Item	Value	Rows	Value
Sale Price Column	ES	Rows Processed	6
Number Ind. Variables	2	Rows Filtered Out	0
R ²	0.9817	Rows with X's Missing	0
Adj R ²	0.9695	Rows with Sale Price Missing	0
Coefficient of Variation	0.5840	Rows Used in Model Estimation	6
Mean Square Error	1639.456		
Square Root of MSE	40.4902		
Average Percent Error	51.658		
Completion Status	Normal Completion		

Descriptive Statistics

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
SCEO	6	311.6667	67.2478	192	362
Distance	6	1766.667	1872.61	100	5000
ES	6	69.33334	231.8315	-355	277

Correlation Matrix

	SCEO	Distance	ES
SCEO	1.0000	0.3153	0.8961
Distance	0.3153	1.0000	0.6837
ES	0.8961	0.6837	1.0000

Regression Coefficients T-Tests

Independent Variable	Regression Coefficient b(i)	Standard Error Sb(i)	T-Statistic to Test H0: $\beta(i)=0$	P-Value	Reject H0 at 5%?
Intercept	-840.0094	86.10371	-9.756	0.0023	Yes
SCEO	2.605093	0.2837434	9.181	0.0027	Yes
Distance	0.05514462	0.01018959	5.412	0.0124	Yes

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Regression Coefficients Confidence Intervals

Independent Variable	Regression Coefficient b(i)	Standard Error Sb(i)	Lower 95% Conf. Limit of $\beta(i)$	Upper 95% Conf. Limit of $\beta(i)$
Intercept	-840.0094	86.10371	-1114.03	-565.989
SCEO	2.605093	0.2837434	1.702095	3.508091
Distance	0.05514462	0.01018959	0.0227168	0.08757243

Note: The T-Value used to calculate these confidence limits was 3.182.

Estimated Model (Reading Form)

Estimated Market Value (ES) =
 $-840.009 + 2.605 * SCEO + 0.055 * Distance$

Estimated Model (Transformation Form)

Estimated Market Value (ES) =
 $-840.009420622545 + 2.60509284165932 * SCEO + 0.0551446141351276 * Distance$

This model can be copied and pasted as a transformation to the Column Info portion of the Data Window to give property value estimates.

Storage Report

Stored Item	Column Number	Column Name
Estimated Sale Price	7	Est_Sale_Price
Residuals (Actual - Estimated)	8	Residuals

This report lists the columns in the dataset into which the various items were stored.

Analysis of Variance

Source	DF	R ² Lost If Term(s) Removed	Sum of Squares	Mean Square	F-Ratio	P-Value
Intercept	1		28842.67	28842.67		
Model	2	0.9817	263811	131905.5	80.457	0.0025
Error	3	0.0183	4918.368	1639.456		
Total(Adjusted)	5		268729.3	53745.87		

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Analysis of Variance Detail

Source	DF	R ² Lost If Term(s) Removed	Sum of Squares	Mean Square	F-Ratio	P-Value
Intercept	1		28842.67	28842.67		
Model	2	0.9817	263811	131905.5	80.457	0.0025
SCEO	1	0.5143	138195.7	138195.7	84.294	0.0027
Distance	1	0.1787	48016.75	48016.75	29.288	0.0124
Error	3	0.0183	4918.368	1639.456		
Total(Adjusted)	5		268729.3	53745.87		

Normality Tests

Test Name	Test Statistic	P-Value	Reject Normality at 20%?
Shapiro Wilk	0.978	0.9424	No
Anderson Darling	0.229	0.8094	No
D'Agostino Skewness			
D'Agostino Kurtosis			
D'Agostino Omnibus			

Multicollinearity Report

Independent Variable	Variance Inflation Factor	R ² Versus Other I.V.'s
SCEO	1.1104	0.0994
Distance	1.1104	0.0994

Estimated Property Values and Confidence Limits

Row	Actual ES	Estimated ES	Standard Error of Estimated	95% Lower Limit	95% Upper Limit
1	-355	-334.3171	54.68441	-508.3474	-160.2869
2	-19	-67.38056	45.53072	-212.2796	77.5185
3	114	158.1788	47.41363	7.287465	309.0701
4	169	158.1788	47.41363	7.287465	309.0701
5	277	268.468	46.49103	120.5128	416.4232
6	230	232.8721	55.08313	57.57296	408.1712

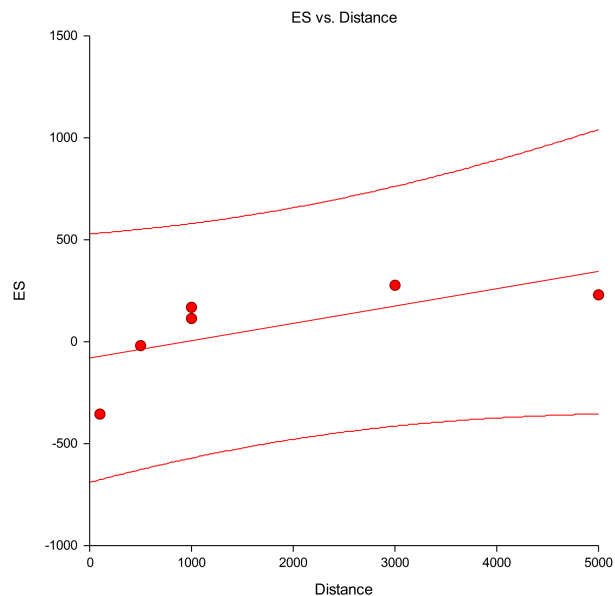
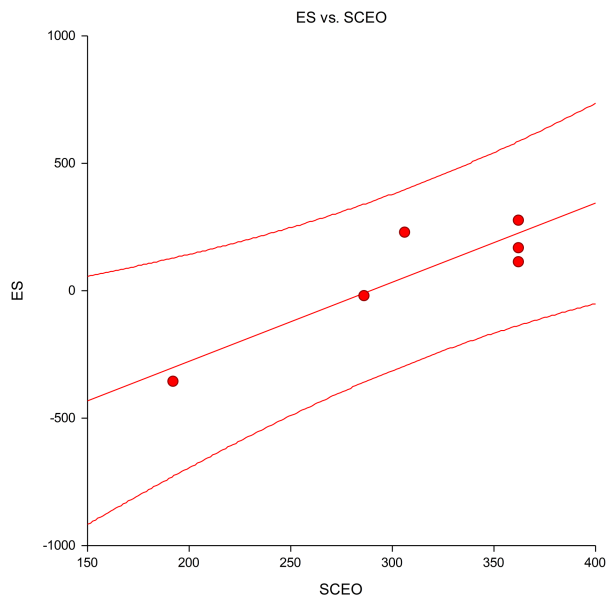
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Residuals (Actual - Estimated) and Percent Error Report

Row	Actual ES	Estimated ES	Residual	Absolute Percent Error
1	-355	-334.3171	-20.68287	5.83
2	-19	-67.38056	48.38056	254.63
3	114	158.1788	-44.1788	38.75
4	169	158.1788	10.8212	6.40
5	277	268.468	8.531969	3.08
6	230	232.8721	-2.87206	1.25

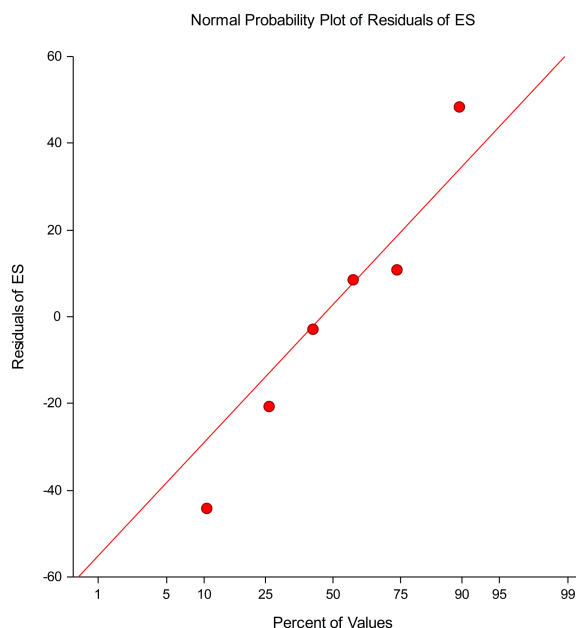
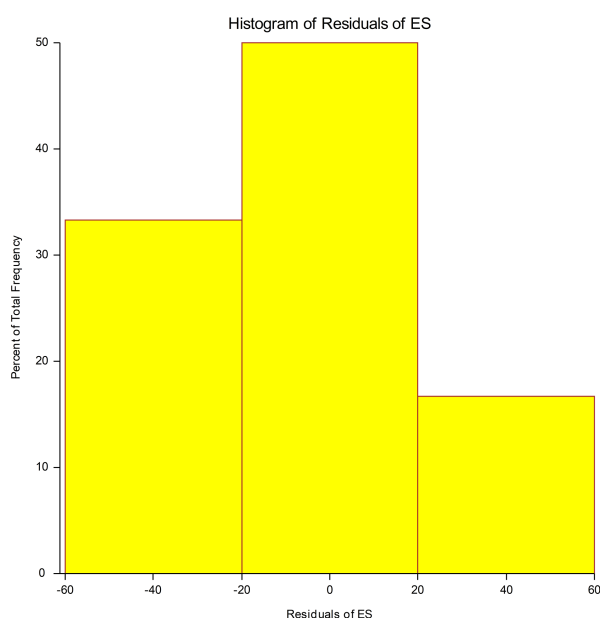
Sales Price vs X Plots



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Distributional Plots of Residuals



Procedure Input Settings

Autosaved Template File

C:\Users\Dr_Ia\Documents\NCSS 2022\Procedure Templates\Autosave\Multiple Regression for Appraisal -
 Autosaved 2022_9_14-15_8_59.t373

Columns, Model Tab

-- Columns -----
 Sale Price: ES
 Numeric X's: SCEO, Distance
 Categorical X's: <Empty>

Reports Tab

-- Select Reports -----
 .. Summaries
 Run Summary Checked
 Descriptive Statistics Checked
 Correlations Checked
 .. Regression Coefficients
 Coefficient T-Tests Checked
 Coefficient C.I.'s Checked
 Estimated Model (Reading Form) Checked
 Estimated Model (Transformation Form) Checked

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Procedure Input Settings (Continued)

Reports Tab (Continued)

.. ANOVA	
ANOVA Summary	Checked
ANOVA Detail	Checked
.. Assumptions	
Normality Tests	Checked
Multicollinearity	Checked
.. Row-by-Row Lists	
Show:	All Rows
Estimated Property Values and Confidence Limits	Checked
Residuals (Actual - Estimated) and Percent Error	Checked
-- Alphas and Confidence Levels -----	
Tests Alpha:	0.050
Assumptions Alpha:	0.20
Confidence Level:	95

Report Options Tab

-- Labels -----	
Stagger label and output if label length is ≥	40
-- Decimal Places -----	
Precision:	Single
Reg Coefficients:	All
Std Error of b's:	All
Test Statistics:	3
Probabilities:	4
Percentages:	2
Means:	All
Std Deviations:	All
R ² , Correlations, Standardized Coef's:	4
Mean Squares, Sum of Squares:	All
Y's, Residuals, etc.:	All
Std Error of Y:	All
Coefficients for Reading Form Model:	3

Plots Tab

-- Select Plots -----	
.. Sale Price Scatter Plots	
Sale Price vs X	Checked
.. Distribution of Residuals	
Histogram of Residuals	Checked
Probability Plot of Residuals	Checked

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Procedure Input Settings (Continued)**Storage Tab**

-- Select Items to Store with the Dataset -----	
Estimated Sale Price	Checked
Residuals (Actual - Estimated)	Checked
Estimated Sale Price Lower Confidence Limit	Unchecked
Estimated Sale Price Upper Confidence Limit	Unchecked
.. Storage Options	
Storage Location:	In empty column(s) after the last column with data
Skip one or more columns before item storage	Unchecked
Rename the storage column(s) using the item name(s)	Checked
Add a Note about each stored item in the Column Info table	Checked
Overlay storage data when the Group By System is active	Unchecked
