

## SPSS24 HELP SHEET: Regression

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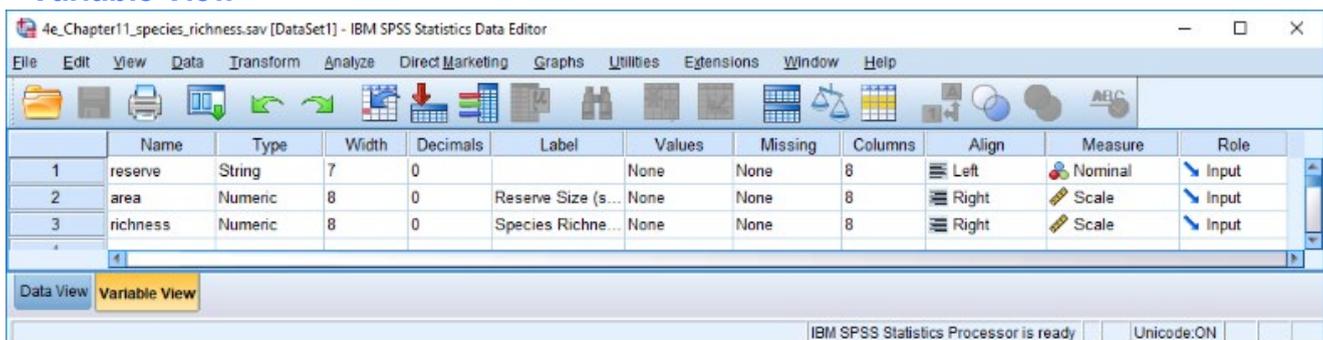
1. How to enter data to do a regression.
2. How to do a regression.

### 1. How to enter data to do a Regression.

For general advice on data entry see the “How to enter data into SPSS” help sheet.

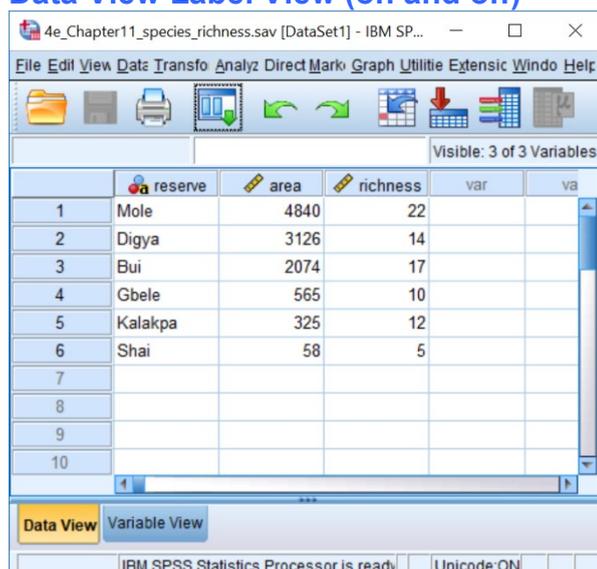
Data used in correlations are related: Data from the dependent variable go in one column and data for the independent variable in another column: Related data points must be in the same case (i.e., row). In this example, the dependent variable is *richness* and the independent variable is *area*. *Richness* (variable label = Species Richness) is measured as the number of mammalian species and is a scale level of measurement. *Area* (variable label = reserve size) is measured as square kilometres which is scale level. *Reserve* indicates the identity of the Game Reserve in Ghana where the data were collected and is not involved directly in the analysis.

### Variable View



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	reserve	String	7	0		None	None	8	Left	Nominal	Input
2	area	Numeric	8	0	Reserve Size (s...	None	None	8	Right	Scale	Input
3	richness	Numeric	8	0	Species Richne...	None	None	8	Right	Scale	Input

### Data View Label View (on and off)



	reserve	area	richness	var	va
1	Mole	4840	22		
2	Digya	3126	14		
3	Bui	2074	17		
4	Gbele	565	10		
5	Kalakpa	325	12		
6	Shai	58	5		
7					
8					
9					
10					

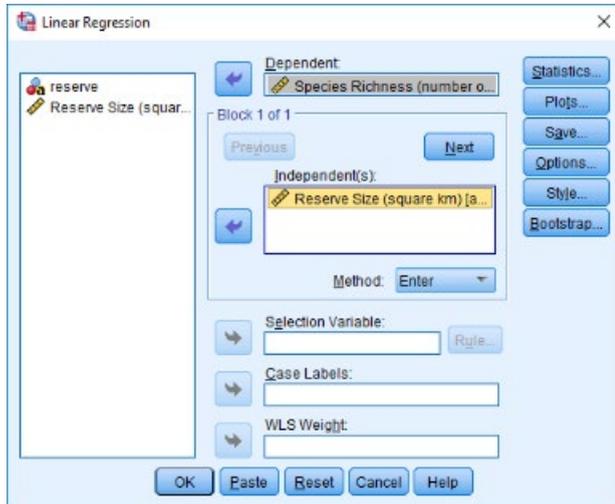
## 2. How to do a Regression.

To get SPSS to conduct a regression:

Open your data file.

Select: Analyze – Regression – Linear...

This will bring up the **Linear Regression** window:



Select the dependent variable and send it to the **Dependent List** box (in this example *Species Richness*). Select the independent variable, and send it to the **Independent(s)** box (in this example *Reserve Size*). Click **OK**.

The key elements of the output are:

**Coefficient of determination ( $R^2$ )**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.884 <sup>a</sup>	.782	.727	3.057

a. Predictors: (Constant), Reserve Size (square km)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133.949	1	133.949	14.332	.019 <sup>b</sup>
	Residual	37.384	4	9.346		
	Total	171.333	5			

a. Dependent Variable: Species Richness (number of large mammal species)  
b. Predictors: (Constant), Reserve Size (square km)

**Intercept (c)**

**Slope (b)**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.310	1.822		4.562	.010
	Reserve Size (square km)	.003	.001	.884	3.786	.019

a. Dependent Variable: Species Richness (number of large mammal species)

In summary the key information from the test is

$$y = 0.003x + 8.310; F_{1,4} = 14.332, P = 0.019, R^2 = 0.782$$