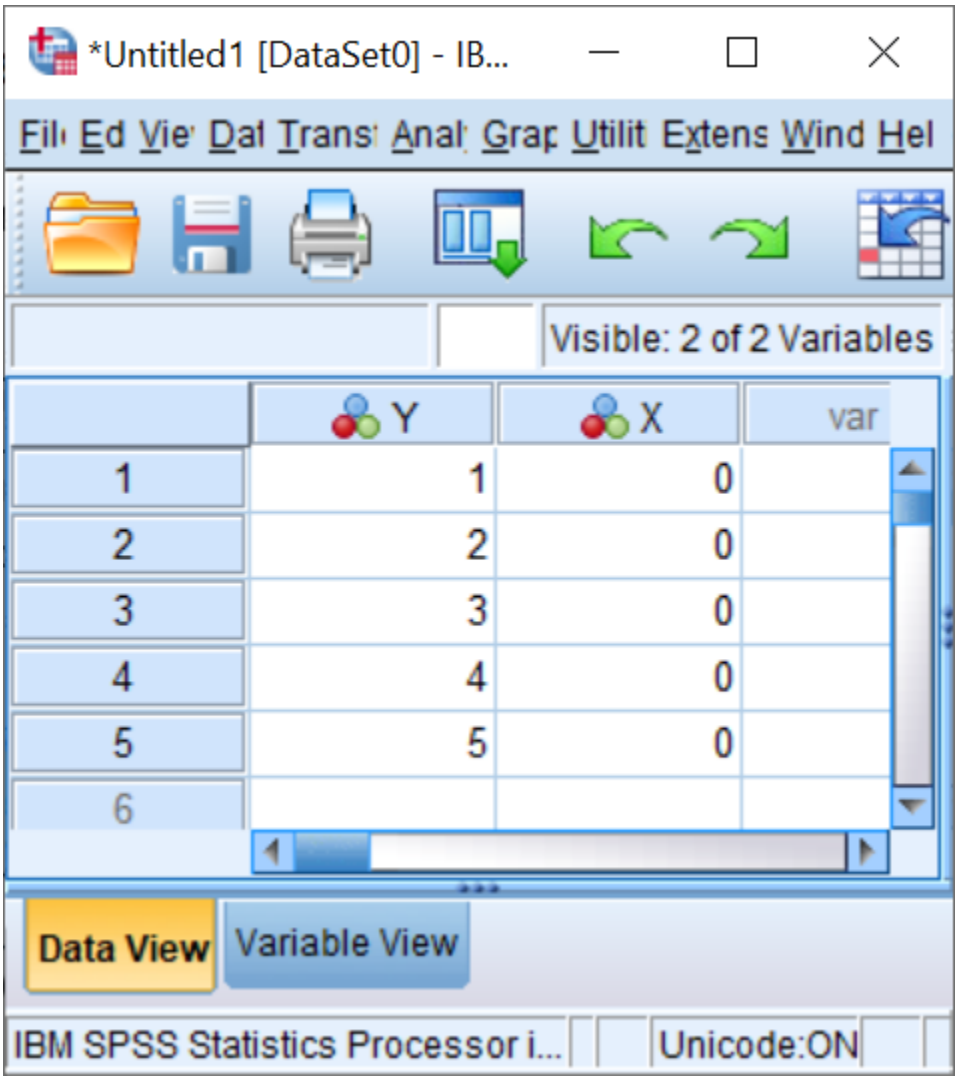
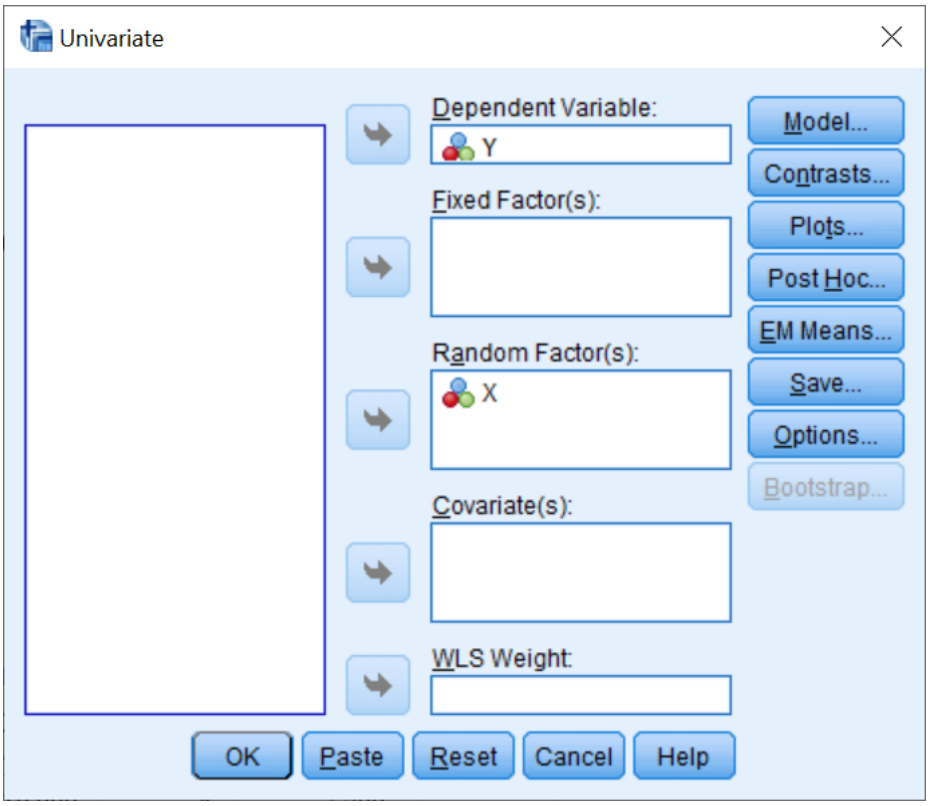
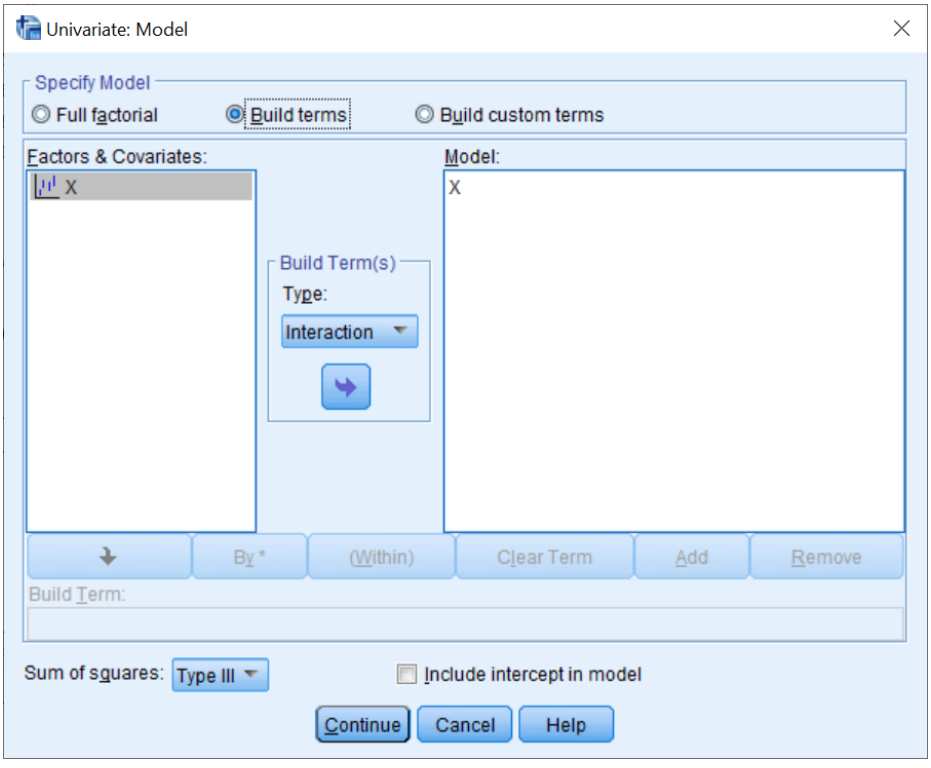
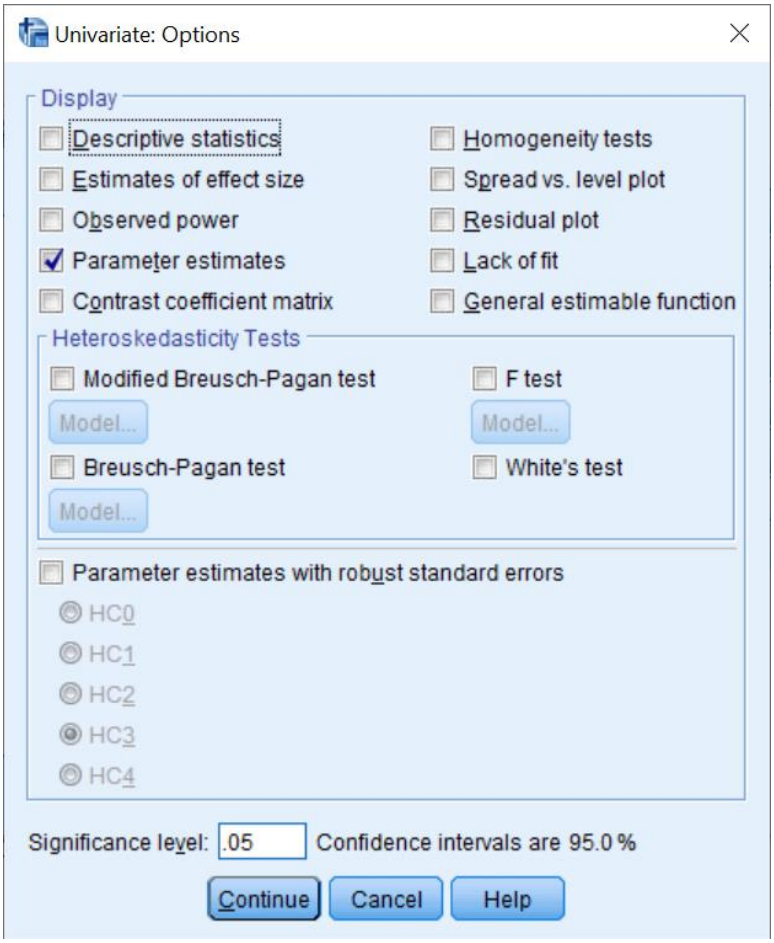
# Univariate Regression

When introducing my students to regression analysis, I tell them that they have been conducting regression analysis ever since they learned to calculate an average. I go on to explain that when there is variation in only one variable (Y), the regression is univariate and solution is the mean of the scores. Here I demonstrate that with SPSS.




Univariate
Dependent Variable:
Y
Fixed Factor(s):
Random Factor(s):
X
Covariate(s):
WLS Weight:
Model...
Contrasts...
Plots...
Post Hoc...
EM Means...
Save...
Options...
Bootstrap...
OK
Paste
Reset
Cancel
Help


Univariate: Model
Specify Model
Full factorial
Build terms
Build custom terms
Factors & Covariates:
X
Model:
X
Build Term(s)
Type:
Interaction
By *
(Within)
Clear Term
Add
Remove
Build Term:
Sum of squares:
Type III
Include intercept in model
Continue
Cancel
Help




**Tests of Between-Subjects Effects**

Dependent Variable: Y

| Source | | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| X | Hypothesis | 45.000 | 1 | 45.000 | 18.000 | .013 |
| | Error | 10.000 | 4 | 2.500[a] | | |

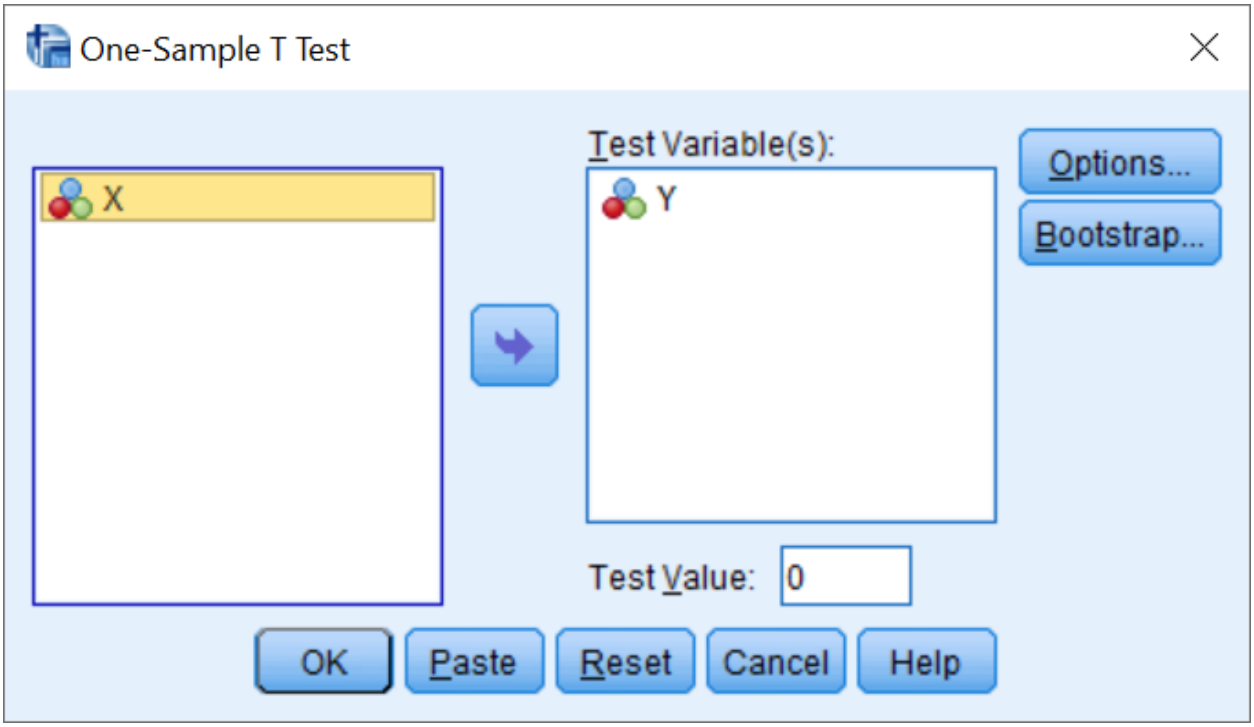
a. MS(Error)

**Parameter Estimates**

Dependent Variable: Y

| Parameter | B | Std. Error | t | Sig. | 95% Confidence Interval Lower Bound | 95% Confidence Interval Upper Bound |
|---|---|---|---|---|---|---|
| [X=0] | 3.000 | .707 | 4.243 | .013 | 1.037 | 4.963 |

Our least squares estimate of the mean is 3. The *t* and the *p* are testing the null that the mean is zero. The confidence interval is for the value of mu.




**One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Y | 5 | 3.00 | 1.581 | .707 |

**One-Sample Test**

Test Value = 0

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Y | 4.243 | 4 | .013 | 3.000 | 1.04 | 4.96 |

If there were variance in X, then we would have a bivariate regression. If there were multiple X variables, then we would have a multiple regression.

Back to Wuensch's Stat Help Page