

How can I test a group of variables in SPSS regression?

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SPSS regression analysis allows researchers to test the relationship between a dependent variable and multiple independent variables. To test a group of variables in SPSS regression, the researcher must first define the dependent variable and select the independent variables they wish to include in the analysis. They can then run the regression analysis, which will provide statistical measures such as the regression coefficient, p-value, and R-squared to assess the strength and significance of the relationship between the variables. The researcher can also use diagnostic tools, such as multicollinearity tests, to ensure that the independent variables are not highly correlated. Overall, SPSS regression provides a comprehensive and efficient way to test a group of variables and understand their impact on the dependent variable.

How can I test a group of variables in SPSS regression? | SPSS FAQ

**Suppose that you want to run a regression model and to test the statistical significance of a group of variables. For example, let's say that you want to predict students' writing score from their reading, math and science scores. The data set with these variables in it can be downloaded by following this link:
hsb2.sav**

.

**The SPSS syntax for this would be:
regression**

/dependent = write

/method = enter read math science.

Model	Variables Entered	Variables Removed	Method
1	science score, reading score, math score(a)	.	Enter
a All requested variables entered.			
b Dependent Variable: writing score			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.684(a)	.467	.459	6.97111
a Predictors: (Constant), science score, reading score, math score				

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	8353.990	3	2784.663	57.302	.000(a)
	Residual	9524.885	196	48.596		
	Total	17878.875	199			
a Predictors: (Constant), science score, reading score, math score						
b Dependent Variable: writing score						

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.		
	B	Std. Error	Beta			
1	(Constant)	13.192	3.069		4.299	.000
	reading score	.236	.069	.255	3.410	.001
	math score	.319	.076	.316	4.222	.000
	science score	.202	.069	.211	2.918	.004

a Dependent Variable: writing score						
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Now let's suppose that you wanted to test the combined effect of math and science on writing. The SPSS syntax for doing that is below. Note that the variables listed in the method = test() subcommand are not listed on the method = enter subcommand. In other words, the independent variables are listed only once. Also note that, unlike other SPSS subcommands, you can have multiple method = subcommands within the regression command.

**regression
 /dependent = write
 /method = enter read
 /method = test(math science).**

Model	Variables Entered	Variables Removed	Method
1	reading score(a)	.	Enter
2	science score, math score	.	Test
a All requested variables entered.			
b Dependent Variable: writing score			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.597(a)	.356	.353	7.62487
2	.684(b)	.467	.459	6.97111
a Predictors: (Constant), reading score				
b Predictors: (Constant), reading score, science score, math score				

Model	Sum of Squares	df	Mean Square	F	Sig.	R Square Change			
1	Regression	6367.421	1	6367.421	109.521	.000(a)			
	Residual	11511.454	198	58.139					
	Total	17878.875	199						
2	Subset Tests		math score, science score	1986.569	2	993.284	20.439	.000(b)	.111
	Regression	8353.990	3	2784.663	57.302	.000(c)			
	Residual	9524.885	196	48.596					
	Total	17878.875	199						
a Predictors: (Constant), reading score									
b Tested against the full model.									
c Predictors in the Full Model: (Constant), reading score, science score, math score.									
d Dependent Variable: writing score									

	Unstandardized Coefficients	Standardized Coefficients	t	Sig.		
Model	B	Std. Error	Beta			
1	(Constant)	23.959	2.806		8.539	.000
	reading score	.552	.053	.597	10.465	.000
2	(Constant)	13.192	3.069		4.299	.000
	reading score	.236	.069	.255	3.410	.001
	math score	.319	.076	.316	4.222	.000
	science score	.202	.069	.211	2.918	.004
a Dependent Variable: writing score						

	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics	
Model	Tolerance					
1	math score	.396(a)	5.583	.000	.370	.561
	science score	.322(a)	4.609	.000	.312	.603
a Predictors in the Model: (Constant), reading score						
b Dependent Variable: writing score						

If you wanted to test all three variables together, the syntax would be:

regression

/dependent = write

/method = test(read math science).

Model	Variables Entered	Variables Removed	Method
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1	science score, reading score, math score	.	Test
a Dependent Variable: writing score			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.684(a)	.467	.459	6.97111
a Predictors: (Constant), science score, reading score, math score				

Model	Sum of Squares	df	Mean Square	F	Sig.	R Square Change		
1	Subset Tests	reading score, math score, science score	8353.990	3	2784.663	57.302	.000(a)	.467
Regression	8353.990	3	2784.663	57.302	.000(b)			
Residual	9524.885	196	48.596					
Total	17878.875	199						
a Tested against the full model.								
b Predictors in the Full Model: (Constant), science score, reading score, math score.								
c Dependent Variable: writing score								

	Unstandardized Coefficients	Standardized Coefficients	t	Sig.		
Model	B	Std. Error	Beta			
1	(Constant)	13.192	3.069	4.299	.000	
reading score	.236	.069	.255	3.410	.001	

math score	.319	.076	.316	4.222	.000	
science score	.202	.069	.211	2.918	.004	
a Dependent Variable: writing score						

You will notice that the output from the first example with the three independent variables on the method = enter subcommand and the output from this example with the three independent variables on the method = test() subcommand are virtually identical. The only difference between them is the line in the ANOVA table that gives the test of the subset, which in this case is all of the variables. The point of this example is that you can put all of the independent variables in the regression on the method = test() subcommand and not use a method = enter subcommand if you like.