“What is the method used in Multiple Regression analysis?

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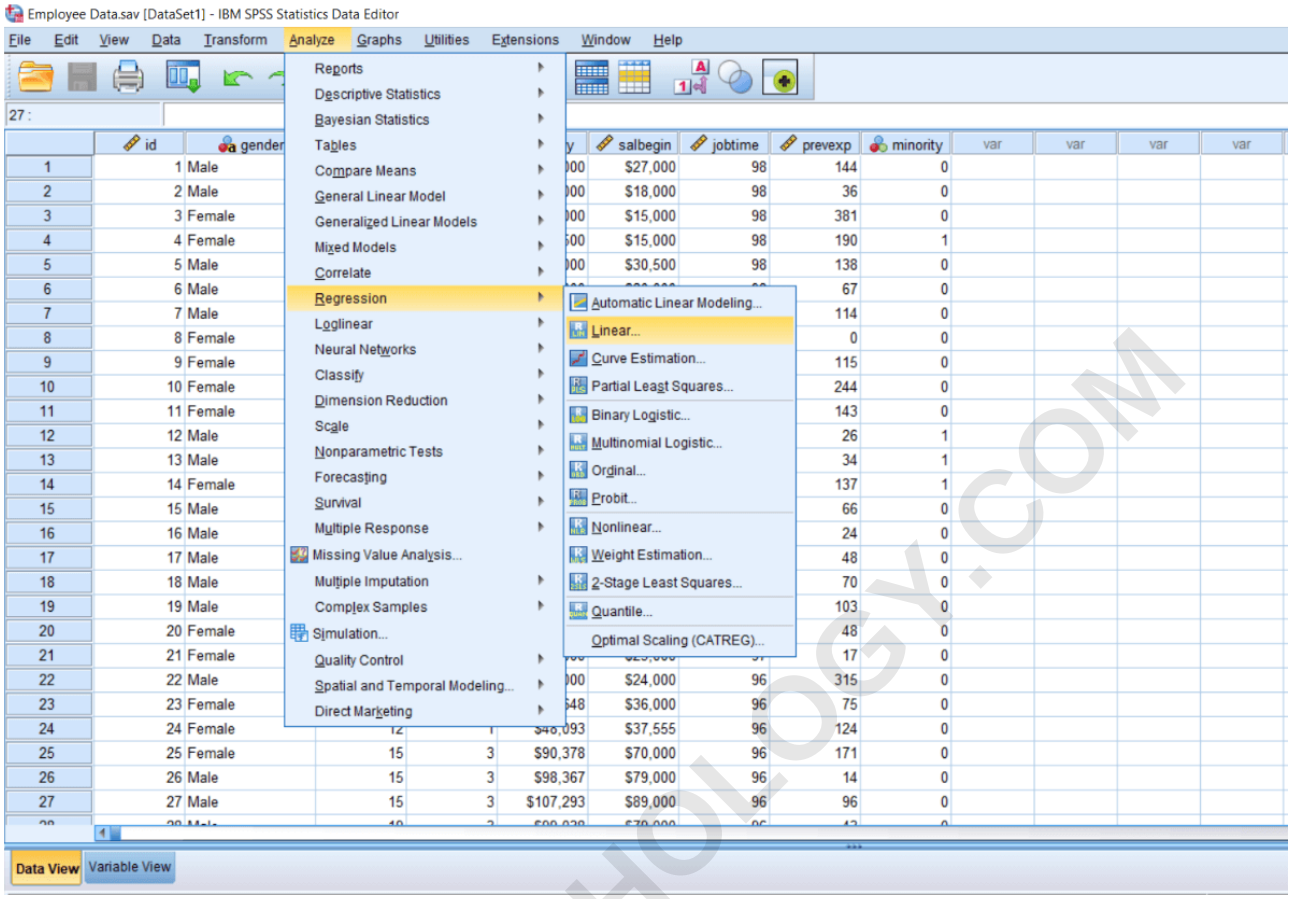
June 24, 2024

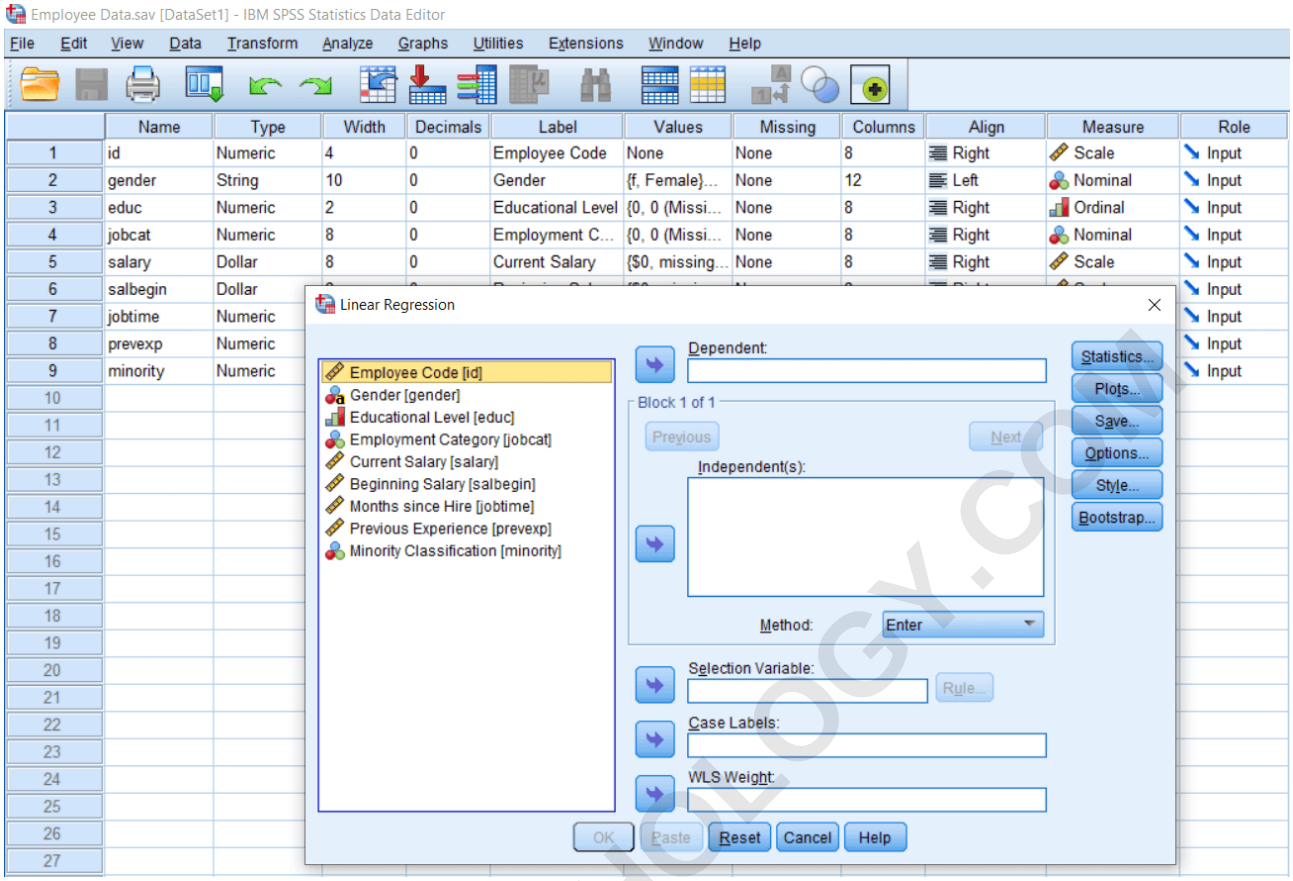
Multiple Regression analysis is a statistical method used to identify and quantify the relationship between a dependent variable and multiple independent variables. It involves analyzing the impact of two or more independent variables on a single dependent variable, by examining the strength and direction of their linear relationship through a regression equation. This method helps to determine the extent to which each independent variable affects the dependent variable, while controlling for the effects of other variables. It is often used in social sciences, business, and economics to make predictions and inform decision-making.

Enter method of Multiple Regression

In this section, we will learn about the method of Regression. If we want to perform a Multiple Regression analysis, we will go to our Analyze menu, and then find out the Regression. In regression, we locate the Linear regression as follows:

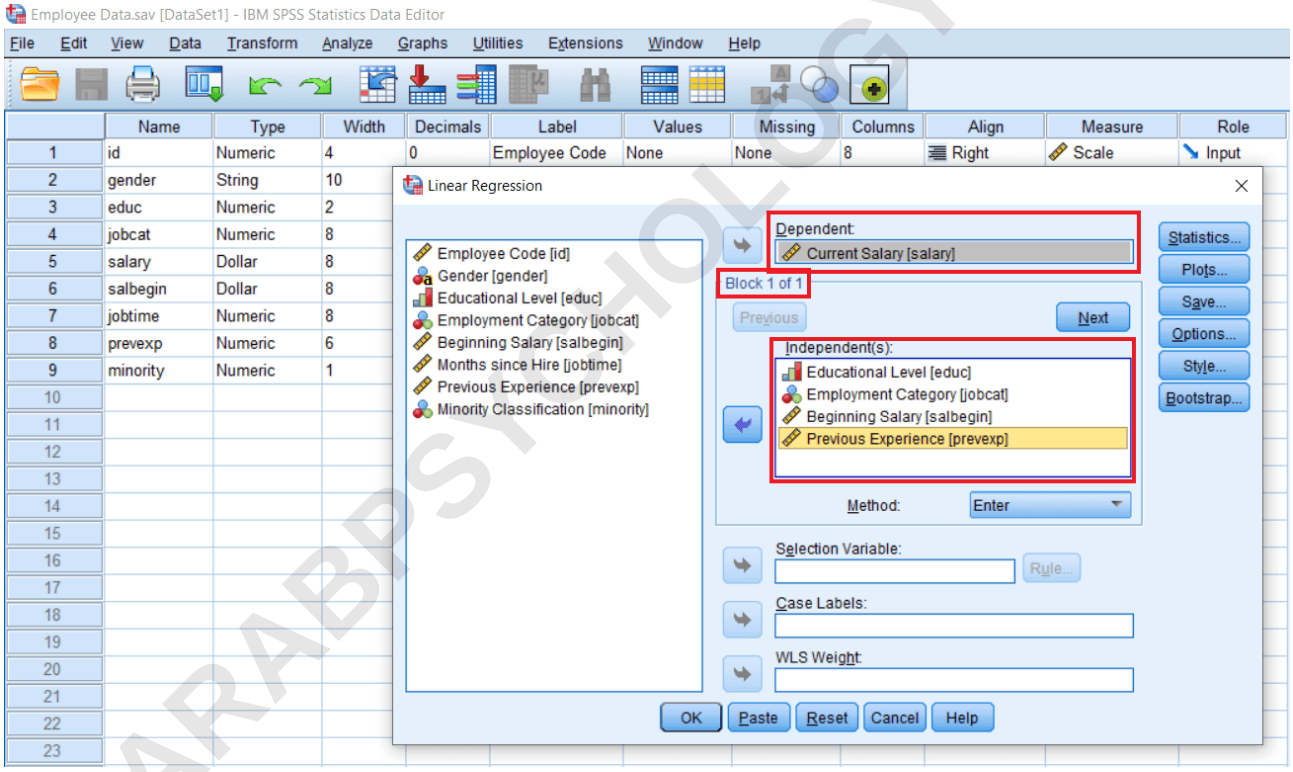


After clicking on Linear Regression, we will see a dialog box like this:



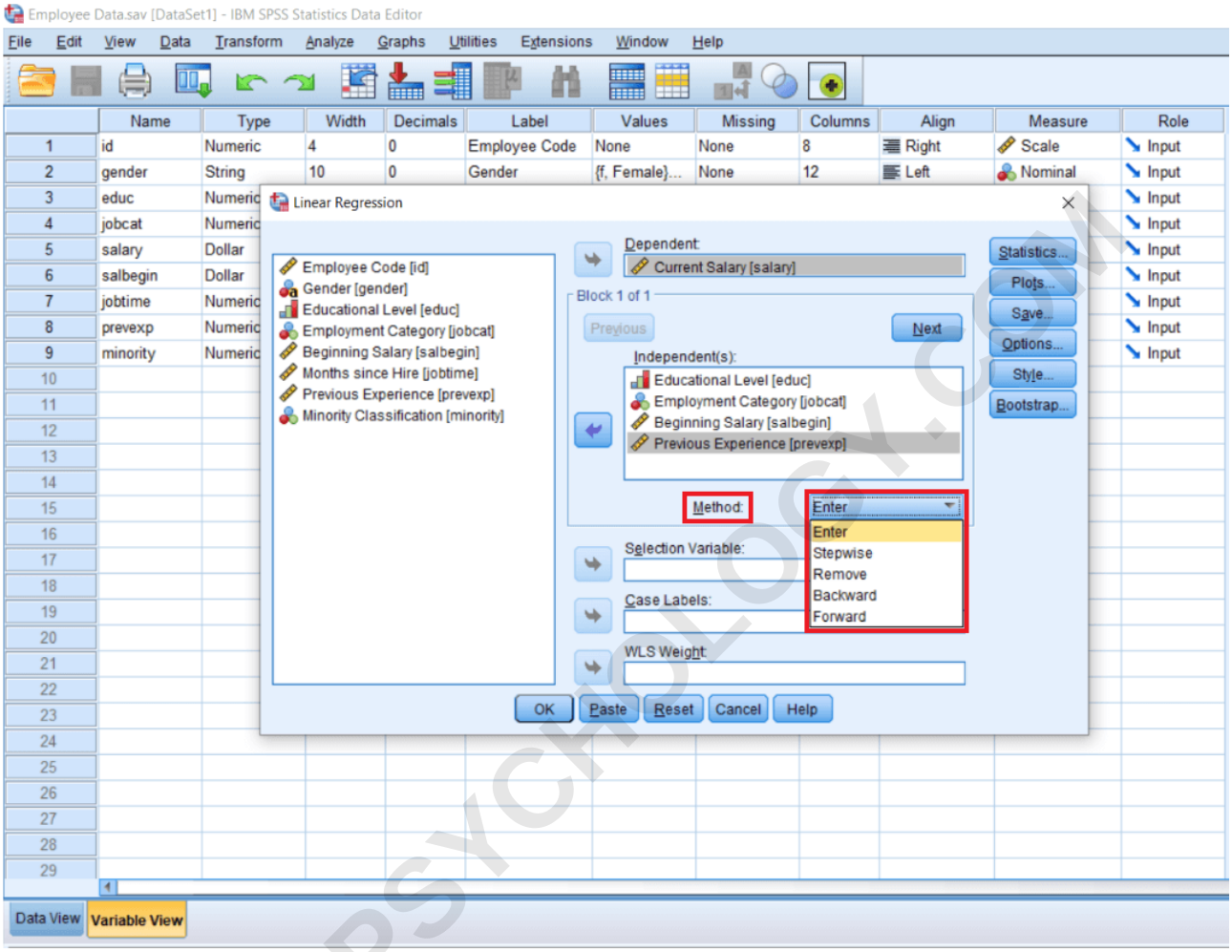
This is the same dialog box that we used earlier. We can see a Dependent variable and Independent variable box and a Block. It means in the case of multiple regression, we can take only one dependent variable, and we are supposed to take it as a metric variable. We can also take a non-metric variable as a dependent variable. For example, the employment category can be taken as a dependent variable, but in that case, we are specifying our model wrongly. So, we are not supposed to take any non-metric dependent variable. Suppose we are building our model in which we predict the Current

Salary of employees based on the education level of the employees, their employment category, and their beginning salary. We can also take previous experience. So we will put Current Salary as the Dependent variable and education, employment category, beginning salary and previous experience as the Independent variable.



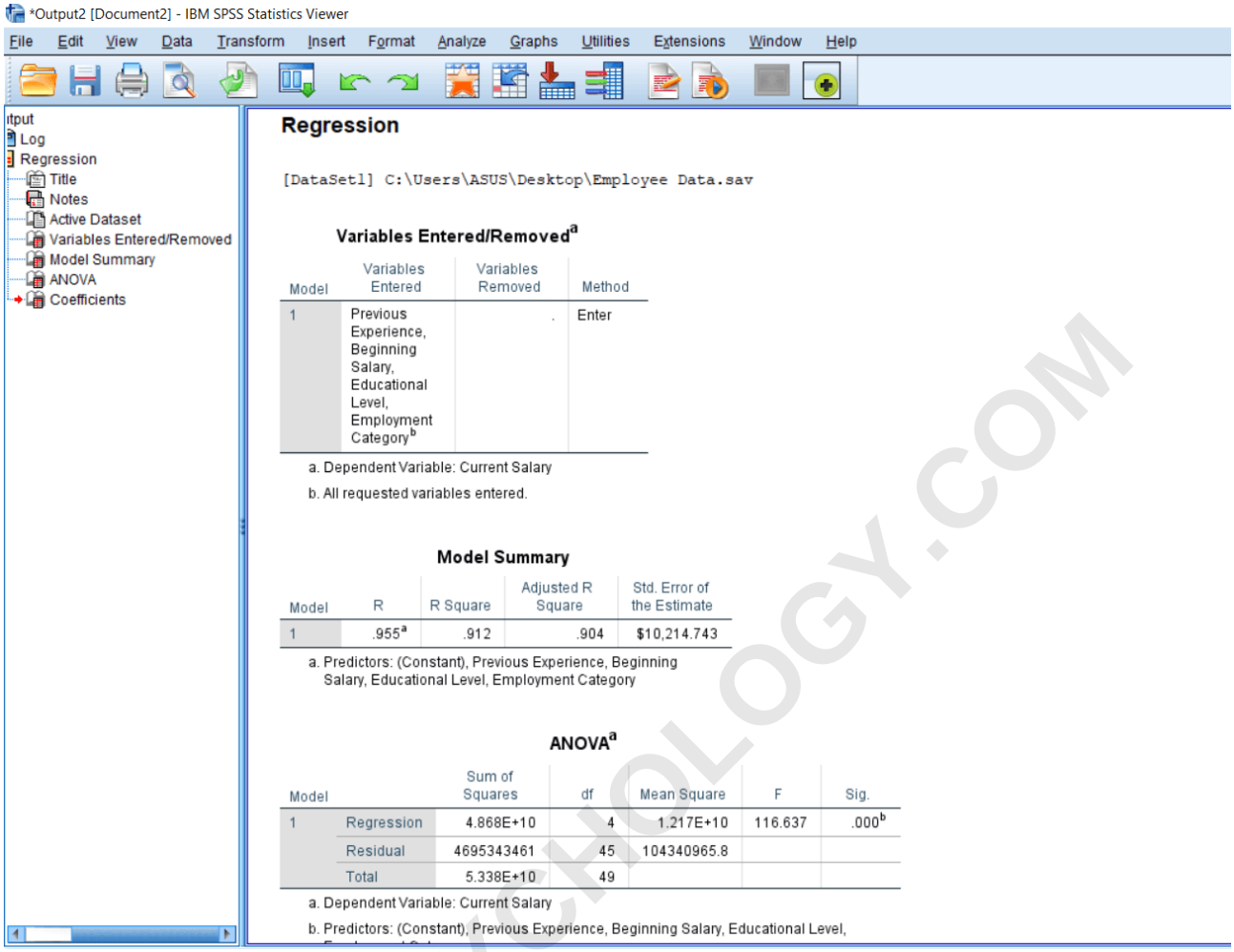
Now once we specify our model, we have to select the method for doing regression analysis. If we click on the method, we will see five methods listed, which are enter method, stepwise method, remove method, backward

and forward method.



We are going to understand all these methods one by one. By default, the method that is selected for doing regression analysis is the enter method. Now enter method is very popular and the recommended method for multiple regression analysis because it's a kind of forced entry method. It means if we are building our model in which we have selected four independent variables and one dependent variable, and if we choose

the enter method, it means all the independent variables will be given equal importance in our model. The model is not making any presumption that one of these variables is more important as compared to other variables that typically happen in the case of theory building. Regression is a great tool for building theories in which we have to predict certain variables based on certain other variables. So if we are building a theory in which we have to select an appropriate regression method, I recommended you to go for the Enter method. So, if we select the enter method and keep all the options at their default and press Ok, we will get the following output:


*Output2 [Document2] - IBM SPSS Statistics Viewer

File Edit View Data Transform Insert Format Analyze Graphs Utilities Extensions Window Help

itput
Log
Regression
Title
Notes
Active Dataset
Variables Entered/Removed
Model Summary
ANOVA
Coefficients

Regression

[DataSet1] C:\Users\ASUS\Desktop\Employee Data.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Previous Experience, Beginning Salary, Educational Level, Employment Category[b]	.	Enter

a. Dependent Variable: Current Salary

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.955[a]	.912	.904	$10,214.743

a. Predictors: (Constant), Previous Experience, Beginning Salary, Educational Level, Employment Category

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.868E+10	4	1.217E+10	116.637	.000[b]
	Residual	4695343461	45	104340965.8		
	Total	5.338E+10	49			

a. Dependent Variable: Current Salary

b. Predictors: (Constant), Previous Experience, Beginning Salary, Educational Level,

The first table is the Variable Entered or Removed in the model. In the Variables Entered box, we have all our independent variables. Our dependent variable is the current salary. While in the Variable Removed box, we cannot see any other variable. So, Enter method is typically used in case of theory testing, and all the variables are given equal importance. We are not making any presumptions about the relative importance of the variable. Later on, relative importance will be

decided on the basis of their beta weights, which are located in the Coefficients table as follows: