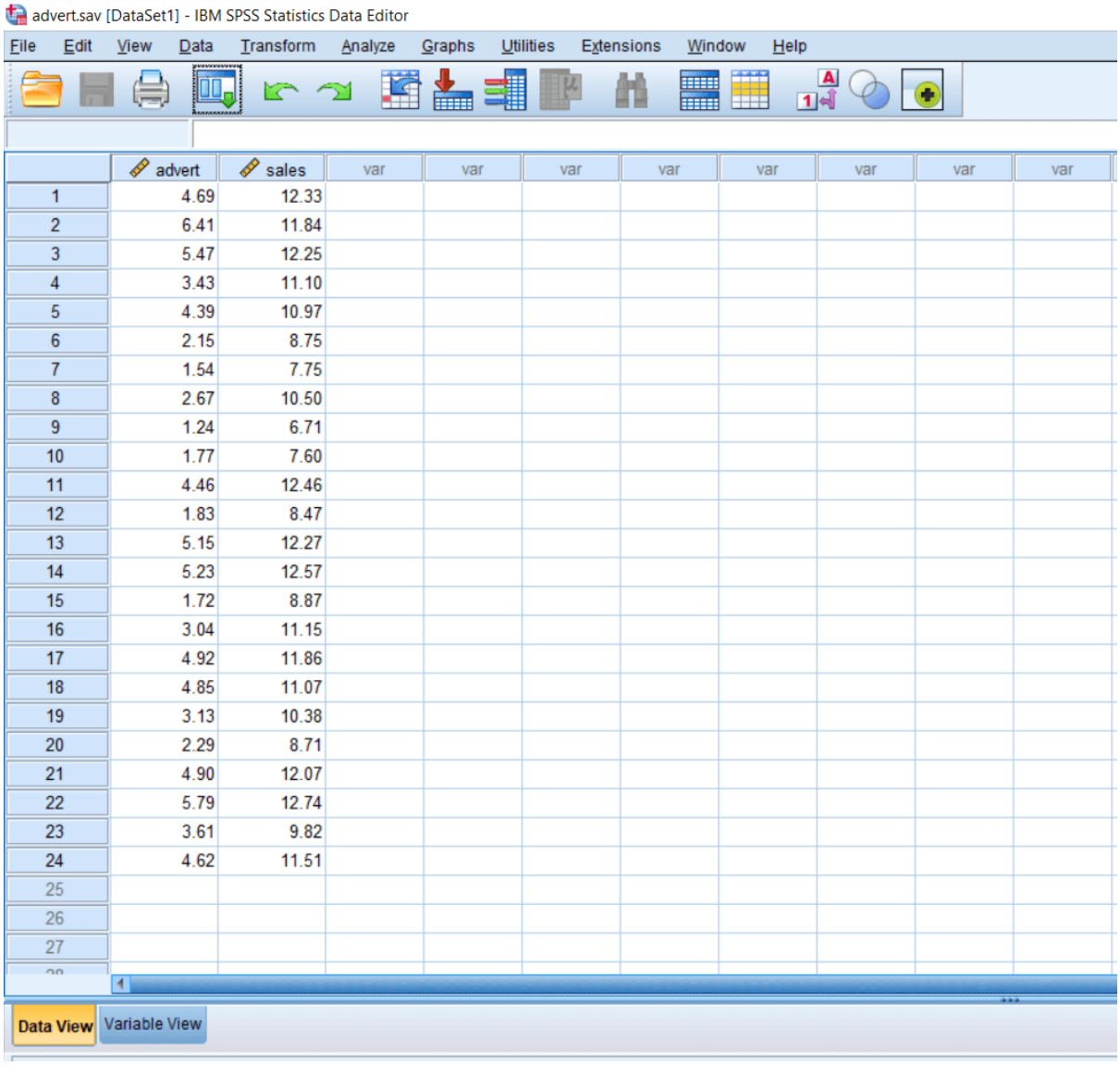
Regression in SPSS

- In this section, we will learn **Linear Regression. Linear regression** is used to study the **cause** and **effect relationship** between the **variable**. Now there are many types of regression. When we do a **cause** and **effect analysis**, we begin with **linear regression**.
- Linear regression refers to an analysis used to establish the cause and effect between two variables. We presumed that they are linearly related.
- Linear regression means that if we increase the **independent variable** or input variable by **one unit** or **sum** unit, there will be a fixed amount of increase in the **dependent variable**. So if we want to quantify for every unit increase in the **independent variable,** what would be the increase or decrease in the dependent variable. In this case, we have a linear regression kind of arrangement.

When to use Linear Regression

- Linear regression is used when we want to study the effect of one independent variable on one dependent variable. If we have many independent variables, it will be the case of multiple regressions.
- In linear regression, we see the influence of only one independent variable on one dependent variable. That is the important point to keep in mind.
- **For example,** the following data set is about the effect of advertisement on sales. Suppose the company spends money on the advertisement and they want to find out at the same time whether spending money on the advertisement leads to an increase in sales. Because only then spend on an advertisement will be justified. We can formulate that yes, advertisement is related to sales. Of course, when we spend money, we will find that there will be some increase in sales but whether that increase is significant, is it worthwhile to spend money on advertisement. For that, we can calculate a linear regression, which will tell us whether there is a significant influence of advertisement on sales. We can also see the correlation, but the correlation is not going to tell us about the cause and effect relationship. It's only going to tell that these two variables are related.


advert.sav [DataSet1] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Graphs Utilities Extensions Window Help
advert sales var var var var var var var var
1 4.69 12.33
2 6.41 11.84
3 5.47 12.25
4 3.43 11.10
5 4.39 10.97
6 2.15 8.75
7 1.54 7.75
8 2.67 10.50
9 1.24 6.71
10 1.77 7.60
11 4.46 12.46
12 1.83 8.47
13 5.15 12.27
14 5.23 12.57
15 1.72 8.87
16 3.04 11.15
17 4.92 11.86
18 4.85 11.07
19 3.13 10.38
20 2.29 8.71
21 4.90 12.07
22 5.79 12.74
23 3.61 9.82
24 4.62 11.51
25
26
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Data View
Variable View