

You will be using SPSS to complete Projects 2, 3, and 4. But where to start? Have no fear. This brief tutorial is here to help you do everything you need to do to successfully complete **Project 2**.

*****Note*****

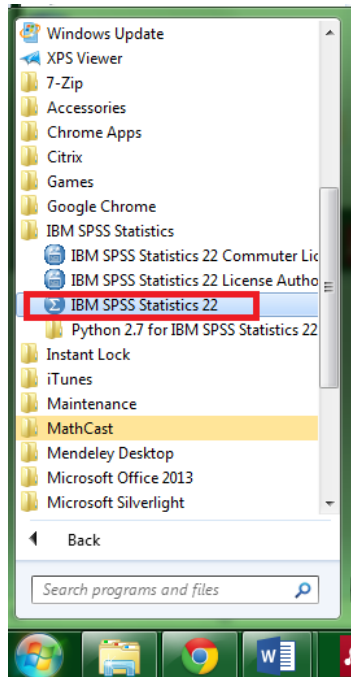
This guide was written using SPSS Version 22 for Windows. The basic instructions to complete the statistical tests *should* be the same. Opening files may vary between versions and operating systems. **Regardless, I suggest playing around with SPSS to learn it a bit on your own before attempting to complete Project 2.**

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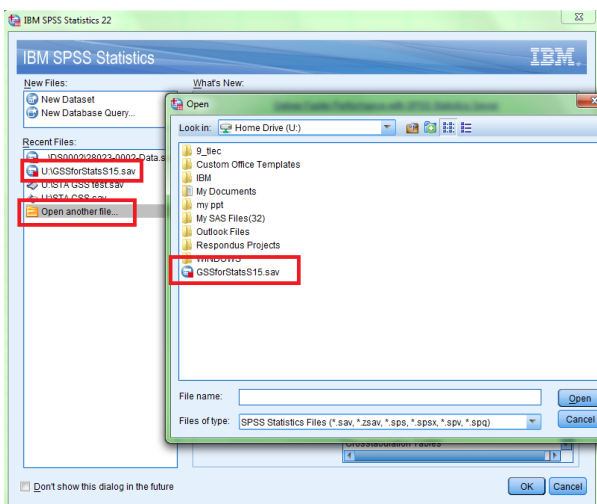
1. How to open data files in SPSS
2. *How to view Variables by 'Variable Name' rather than 'Variable Label'*
3. How to make frequency distributions
4. How to find measures of central tendency and variability
 - a. Mean, Standard Deviation, Variance, Range
 - b. Median and Mode
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 - b. Pie Chart
 - c. Line Graphs
 - d. Histograms

1. Opening Your Data

After SPSS is installed on your computer, open the program.



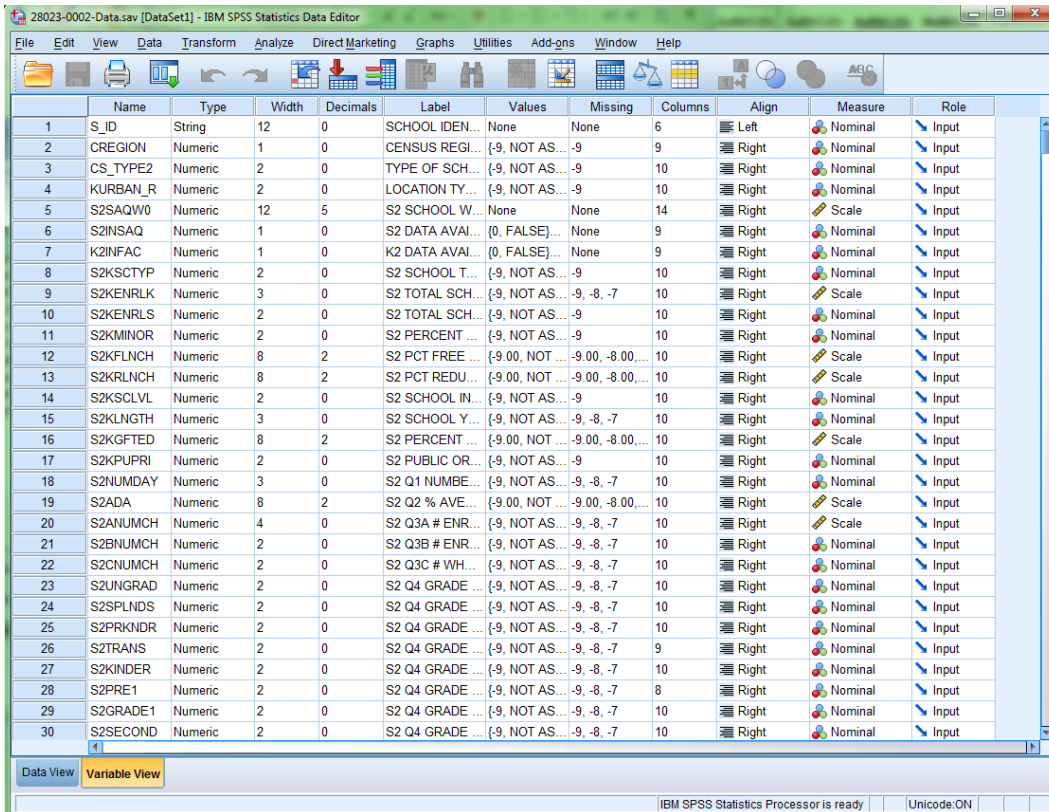
Next, open the examplename.sav file (this file is posted available on Canvas). SPSS should open a dialogue that shows your “Recent Files” and the option to “Open another file...”. If you have recently opened up the data set, you can just click on it and then say OK. If not, click “Open another file...”, find the file, and then click “Open”.



The data in this example is labeled GSSforStats.sav – however your data could have a different name!!!

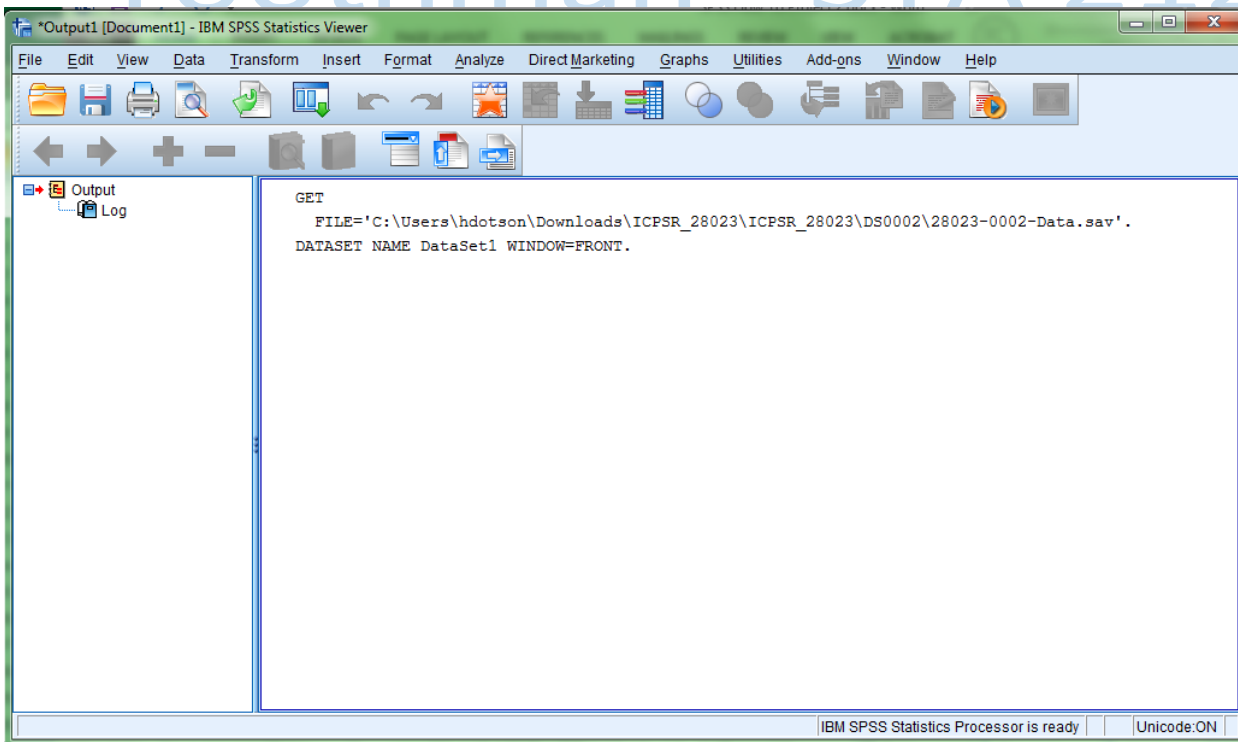
Once the file is open, you should be able to see all of your data. This is called the “Data Editor” view. I’ve included a screenshot for what this should look like, using a different data set.

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	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	S_ID	String	12	0	SCHOOL IDEN...	None	None	6	Left	Nominal	Input
2	CREGION	Numeric	1	0	CENSUS REGI...	{-9, NOT AS...	-9	9	Right	Nominal	Input
3	CS_TYPE2	Numeric	2	0	TYPE OF SCH...	{-9, NOT AS...	-9	10	Right	Nominal	Input
4	KURBAN_R	Numeric	2	0	LOCATION TY...	{-9, NOT AS...	-9	10	Right	Nominal	Input
5	S2SAQW0	Numeric	12	5	S2 SCHOOL W...	None	None	14	Right	Scale	Input
6	S2INSAQ	Numeric	1	0	S2 DATA AVA...	{0, FALSE}...	None	9	Right	Nominal	Input
7	K2INFAC	Numeric	1	0	K2 DATA AVA...	{0, FALSE}...	None	9	Right	Nominal	Input
8	S2KSCTYP	Numeric	2	0	S2 SCHOOL T...	{-9, NOT AS...	-9	10	Right	Nominal	Input
9	S2KENRLK	Numeric	3	0	S2 TOTAL SCH...	{-9, NOT AS...	-9, -8, -7	10	Right	Scale	Input
10	S2KENRLS	Numeric	2	0	S2 TOTAL SCH...	{-9, NOT AS...	-9	10	Right	Nominal	Input
11	S2KMINOR	Numeric	2	0	S2 PERCENT ...	{-9, NOT AS...	-9	10	Right	Nominal	Input
12	S2KFLNCH	Numeric	8	2	S2 PCT FREE ...	{-9.00, NOT ...	-9.00, -8.00...	10	Right	Scale	Input
13	S2KRLNCH	Numeric	8	2	S2 PCT REDU...	{-9.00, NOT ...	-9.00, -8.00...	10	Right	Scale	Input
14	S2KSCLVL	Numeric	2	0	S2 SCHOOL IN...	{-9, NOT AS...	-9	10	Right	Nominal	Input
15	S2KLNTH	Numeric	3	0	S2 SCHOOL Y...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
16	S2KNGFTD	Numeric	8	2	S2 PERCENT ...	{-9.00, NOT ...	-9.00, -8.00...	10	Right	Scale	Input
17	S2KPUPRI	Numeric	2	0	S2 PUBLIC OR...	{-9, NOT AS...	-9	10	Right	Nominal	Input
18	S2NUMDAY	Numeric	3	0	S2 Q1 NUMBE...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
19	S2ADA	Numeric	8	2	S2 Q2 % AVE...	{-9.00, NOT ...	-9.00, -8.00...	10	Right	Scale	Input
20	S2ANUMCH	Numeric	4	0	S2 Q3A # ENR...	{-9, NOT AS...	-9, -8, -7	10	Right	Scale	Input
21	S2BNUMCH	Numeric	2	0	S2 Q3B # ENR...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
22	S2CNUMCH	Numeric	2	0	S2 Q3C # WH...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
23	S2UNGRAD	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
24	S2SPLNDS	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
25	S2PRKNDR	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
26	S2TRANS	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	9	Right	Nominal	Input
27	S2KINDER	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
28	S2PRE1	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	8	Right	Nominal	Input
29	S2GRADE1	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input
30	S2SECOND	Numeric	2	0	S2 Q4 GRADE ...	{-9, NOT AS...	-9, -8, -7	10	Right	Nominal	Input

SPSS will also open up another window, called the “Output Viewer.” When you run your analyses, they will appear here.

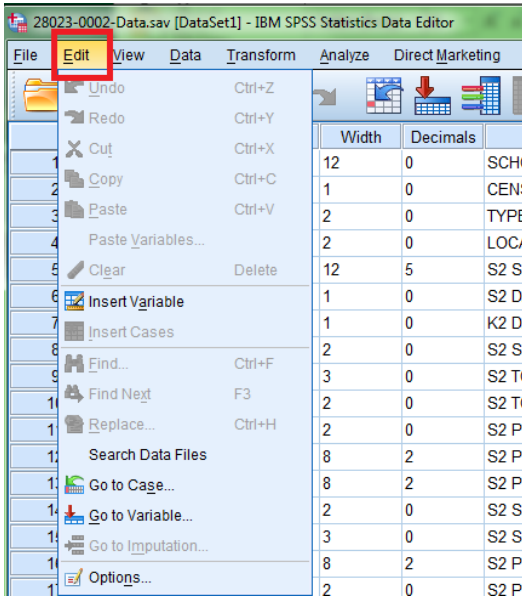


*Output1 [Document1] - IBM SPSS Statistics Viewer	
Output	GET
Log	FILE='C:\Users\hdotson\Downloads\ICPSR_28023\ICPSR_28023\DS0002\28023-0002-Data.sav'.
	DATASET NAME DataSet1 WINDOW=FRONT.

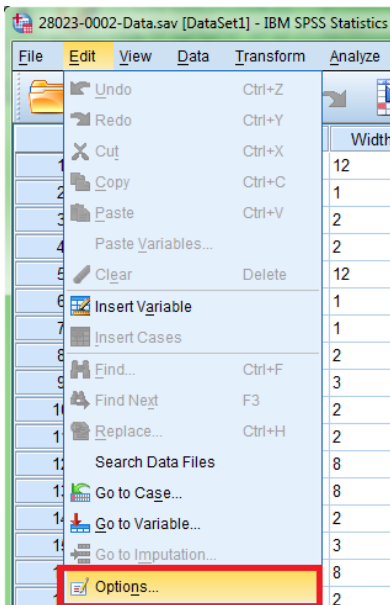
2. How to view Variables by 'Variable Name' rather than 'Variable Label'

To make your life easier, I strongly recommend setting up SPSS to show you **Variable Names** rather than **Variable Labels**. When conducting your analyses, it will be much easier to find your variables this way.

To do this, first click on "Edit" under the Data Editor viewer.

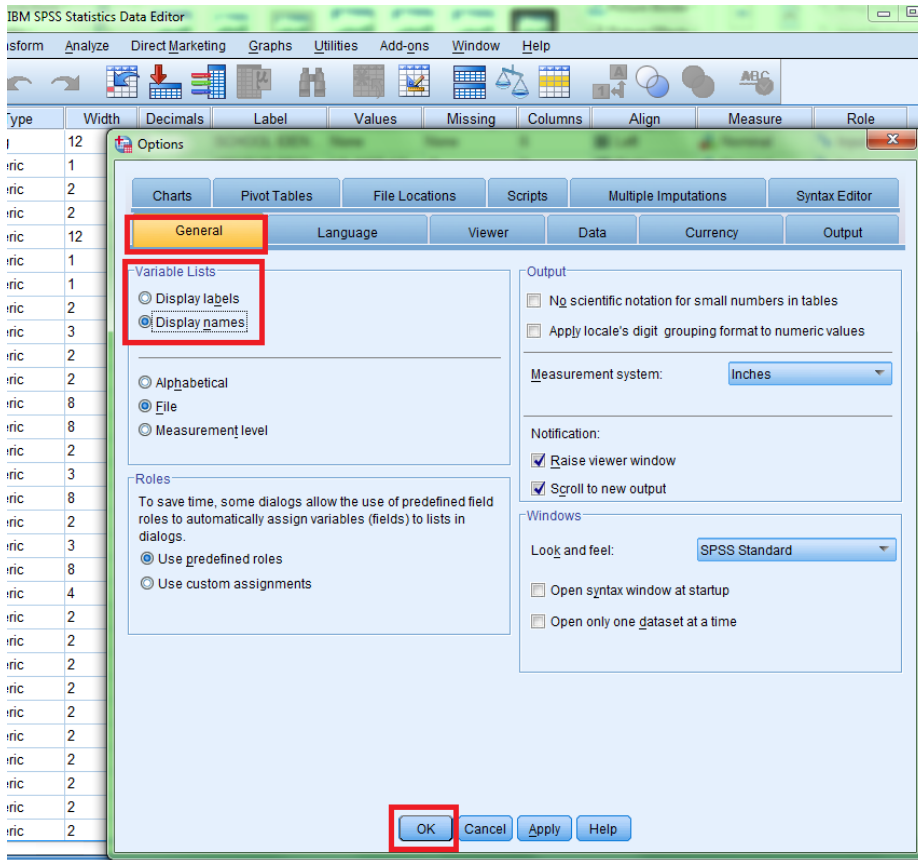


Next, click "Options".



SPSS will bring up a new dialogue window. From here, click on the "General" tab at the top, then look for the "Variable Lists" box. Click on "Display names". Then "OK".

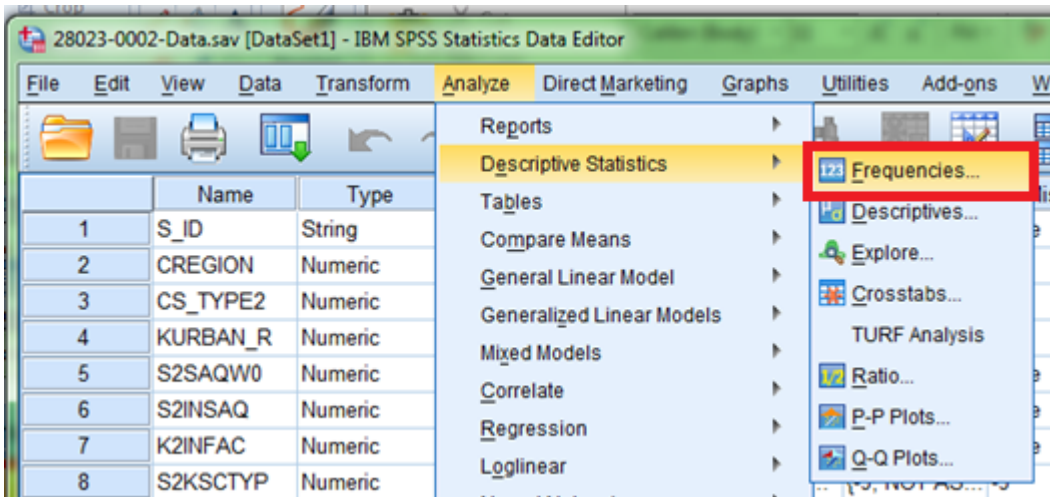
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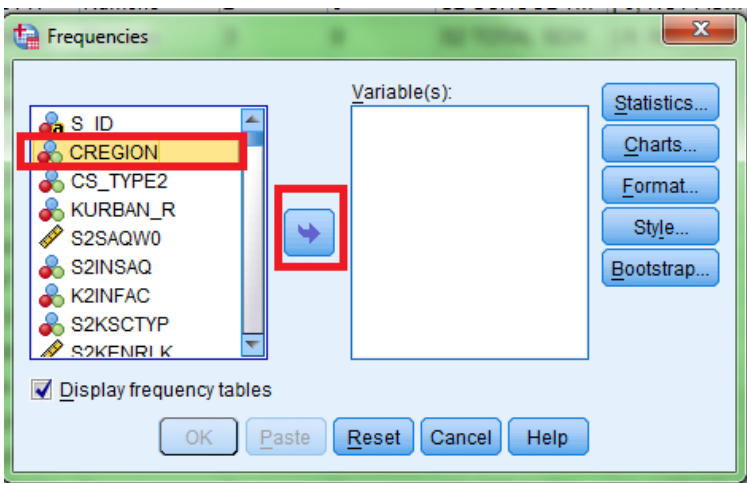
Toothman - STA 2122

3. How to make frequency distributions

To run a frequency distribution, click on “Analyze”, then “Descriptive Statistics”, and then “Frequencies...”.

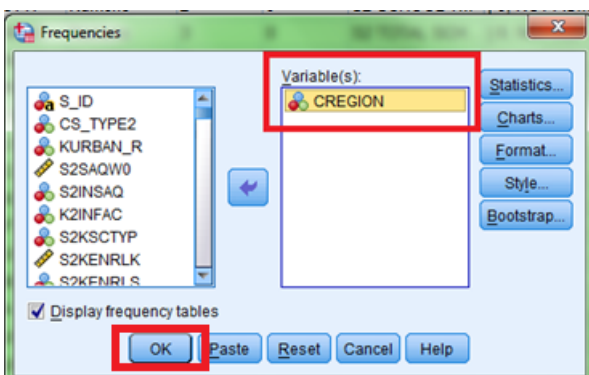


Next, find the variable you want to analyze. It will show the ‘variable name’ in your list. For this example, I will analyze the variable CREGION. Click on the variable name you would like to analyze (it will highlight the variable), and then click on the → arrow.



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Notice what happens after you click the → arrow:



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Then click “OK” to run the frequency distribution.

Helpful tip: you can run more than one frequency distribution if you would like, just select more variables. For simplicity, and until you are comfortable, I recommend doing one at a time.

The frequency distribution will appear in the Output Viewer window.

FILE='C:\Users\hdotson\Downloads\ICPSR_28023\ICPSR_28023\DS000'
DATASET NAME DataSet1 WINDOW=FRONT.
SET DIGITGROUPING=No TLook=None TABLERENDER=light SUMMARY=None R
LERANCE=1 TFit=Both CELLSBREAK=10000.
FREQUENCIES VARIABLES=CREGION
/ORDER=ANALYSIS.

FREQUENCIES VARIABLES=CREGION
/ORDER=ANALYSIS.

➔ **Frequencies**

Statistics

CENSUS REGION IN SAMPLE F

N	Valid	866
	Missing	0

CENSUS REGION IN SAMPLE FRAME

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid NORTHEAST	154	17.8	17.8	17.8
MIDWEST	228	26.3	26.3	44.1
SOUTH	286	33.0	33.0	77.1
WEST	198	22.9	22.9	100.0
Total	866	100.0	100.0	

IBM SPSS Statistics Processor is ready | Unicode:ON

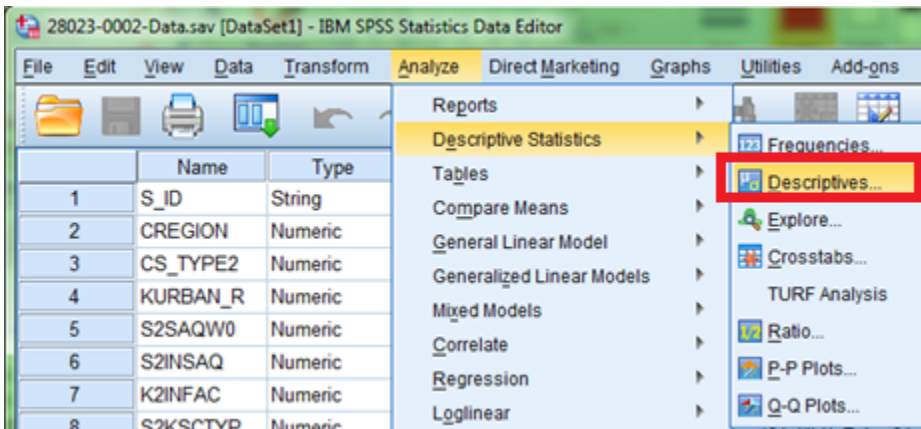
Look at all that has been presented. We can see that N=866. We can also see how many cases were in the Northeast, Midwest, South, and West. We can also see the percent of cases and the cumulative percent. “Valid Percent” should be the same as “Percent” in your data set, since I have manually removed all missing cases (that’s also why ‘Missing’ will equal zero in the GSS data set I have given you – *in real life, we have to figure out what to do with missing cases, but that is beyond the scope of this course*).

4. How to find measures of central tendency and variability

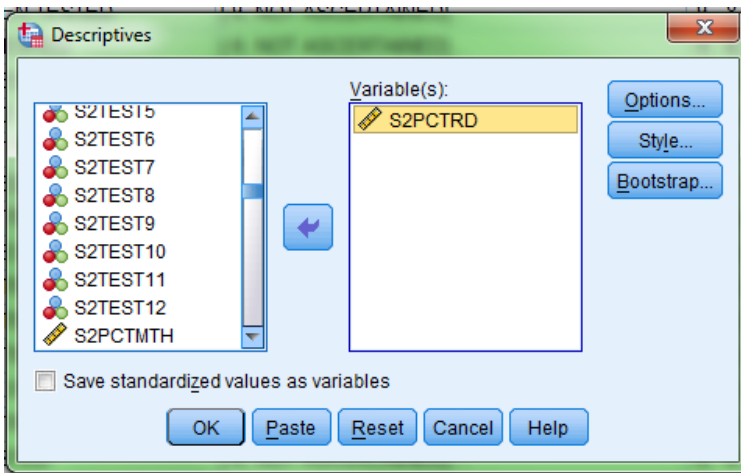
SPSS will also run all of the measures of central tendency and variation you need. However, that does not mean that a particular test is the 'right' one. *It is your job to make sure you use the correct measure of central tendency and measure of variation, depending on the type of variable you have. SPSS will typically run things because you tell it to, even if it is not a statistically sound test.*

4a. Mean, Standard Deviation, Variance, Range

To have SPSS tell you the mean value of a variable, go to the Data Editor view. Then, click on "Analyze", "Descriptive Statistics", then "Descriptives..."

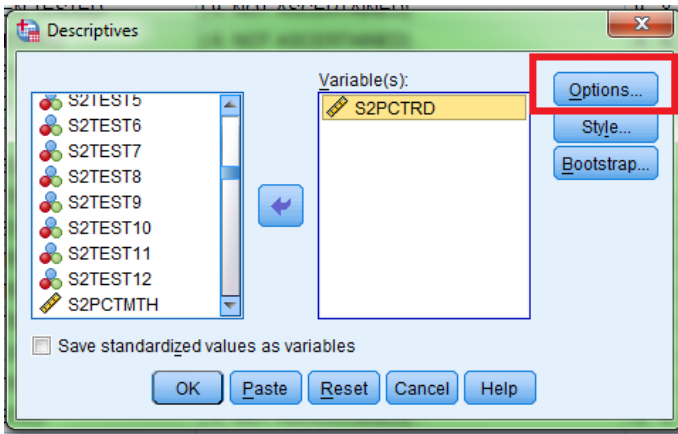


Then, SPSS will bring up the "Descriptives" dialogue. Find the variable you want to analyze, then click the → arrow to bring it to the 'Variables' column. In this case, I will be finding the mean of then S2PCTRD variable.

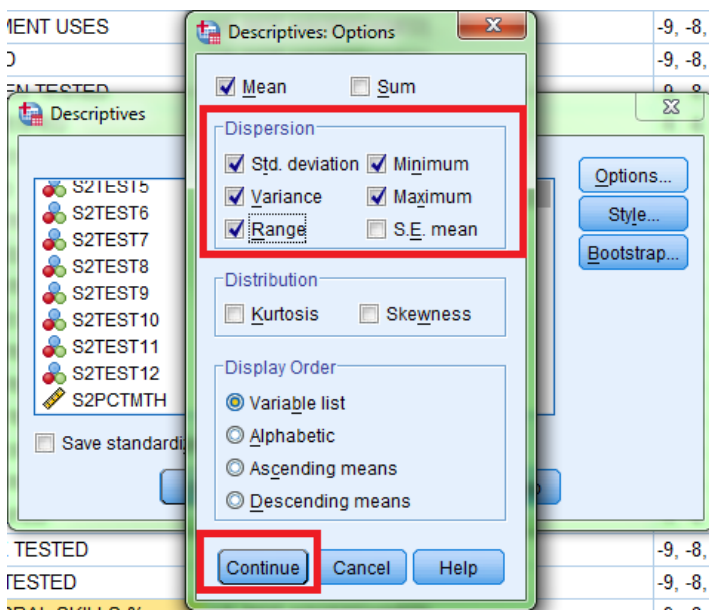


Before analyzing the data, click on "Options." This will allow you to also find out the standard deviation, variance, and range.

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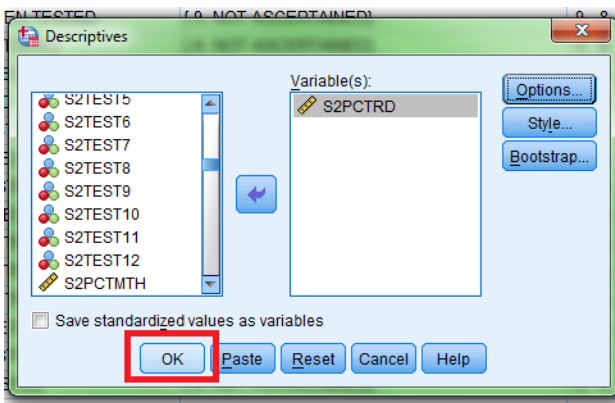


SPSS will bring up a new dialogue. Make sure to check the boxes of everything you would like to know. Once you are finished, click “Continue”.



- STA 2122

SPSS will bring up the “Descriptives” dialogue from a moment ago. Click “OK” to finish.



The output will appear in the Output Viewer. Notice that we see the N (560), range = 100, minimum (*which is the smallest score*) = 0, maximum (*which is the greatest score*) = 100, the mean = 64.01, the standard deviation (labeled as *Std. Deviation*) = 23.476, and the variance = 551.111.

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The screenshot shows the IBM SPSS Statistics Viewer window. The Output pane on the left lists the following items: Output, Log, Log, Frequencies, Title, Notes, Statistics, CREGION, Log, Descriptives, Title, Notes, and Descriptive Statistics. The main area displays a table of valid cases and a Descriptives table.

Valid	NORTHEAST	154	17.8	17.8	17.8
MIDWEST	228	26.3	26.3	44.1	
SOUTH	286	33.0	33.0	77.1	
WEST	198	22.9	22.9	100.0	
Total	866	100.0	100.0		

DESCRIPTIVES VARIABLES=S2PCTRD
/STATISTICS=MEAN STDDEV VARIANCE RANGE MIN MAX.

→ **Descriptives**

Descriptive Statistics							
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
S2 Q38A READING OR VERBAL SKILLS %	560	100	0	100	64.01	23.476	551.111
Valid N (listwise)	560						

IBM SPSS Statistics Processor is ready | Unicode:ON

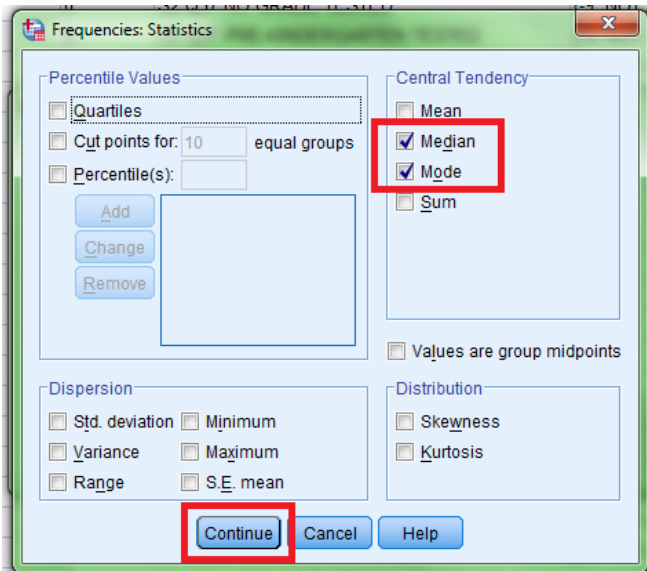
4b. Median and Mode

To find the median and the mode, we have to use “Frequencies” just like we had to do to find the frequency distribution. I am going to use the S2PCTRD variable here. Then, click on “Statistics...”.

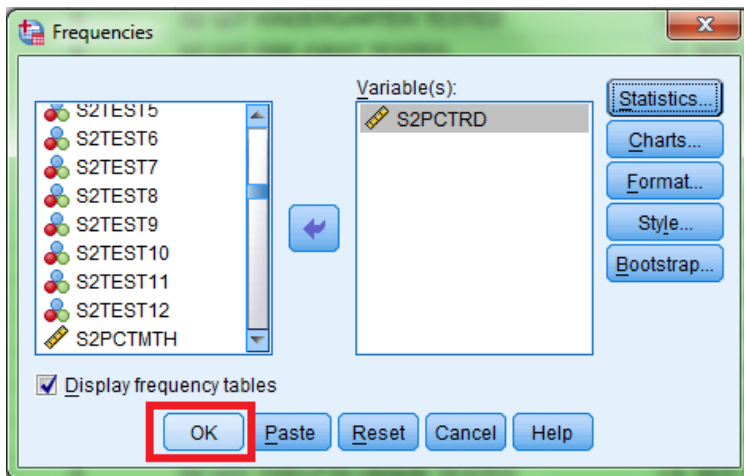
The screenshot shows the SPSS Frequencies dialog box. The Variable(s) list contains S2PCTRD. The Statistics button is highlighted with a red box. The Display frequency tables checkbox is checked. The OK, Paste, Reset, Cancel, and Help buttons are at the bottom.

SPSS will bring up a new dialogue window. Look at all the options! If you want to know the Median and Mode, click on those boxes. You can also use this dialogue to find out quartiles, percentiles, standard deviation, variance, range, minimum, maximum, and the mean. Once you’re done, click “Continue”.

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Then, click "OK"



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The median and mode will appear in the Output Viewer, in the "Statistics" box. The median is 69 and the mode is 80.

SPSS How-to Instructions -- Toothman

IBM SPSS Statistics Viewer

File Edit View Data Transform Insert Format Analyze Direct Marketing Graphs Utilities Add-ons Window Help

Output

- Log
- Log
- Frequencies
 - Title
 - Notes
 - Statistics
 - CREGION
- Log
- Descriptives
 - Title
 - Notes
 - Descriptive Statistics
- Log
- Frequencies
 - Log
 - Frequencies
 - Title
 - Notes
 - Active Dataset
 - Statistics
 - S2PCTRD

Dataset: [DataSet1] C:\Users\hdotson\Downloads\ICPSR_28023\ICPSR_28023\DS0002\28023-0002-Data.sav

Statistics

S2 Q38A READING OR VERBAL

N	Valid	560
	Missing	206
Median		69.00
Mode		80

S2 Q38A READING OR VERBAL SKILLS %

	Frequency	Percent	Valid Percent	Cumulative Percent
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4c. Interquartile Range

To find the interquartile range, we go back to the Data Editor window, click on “Analyze”, then “Descriptive Statistics”, and finally, “Explore...”.

SPSS Statistics Data Editor

m Analyze Direct Marketing Graphs Utilities Add-ons W

Reports

Descriptive Statistics

Tables

Compare Means

General Linear Model

Generalized Linear Models

Mixed Models

Correlate

Regression

Loglinear

Neural Networks

Frequencies...

Descriptives...

Explore...

Crosstabs...

TURF Analysis

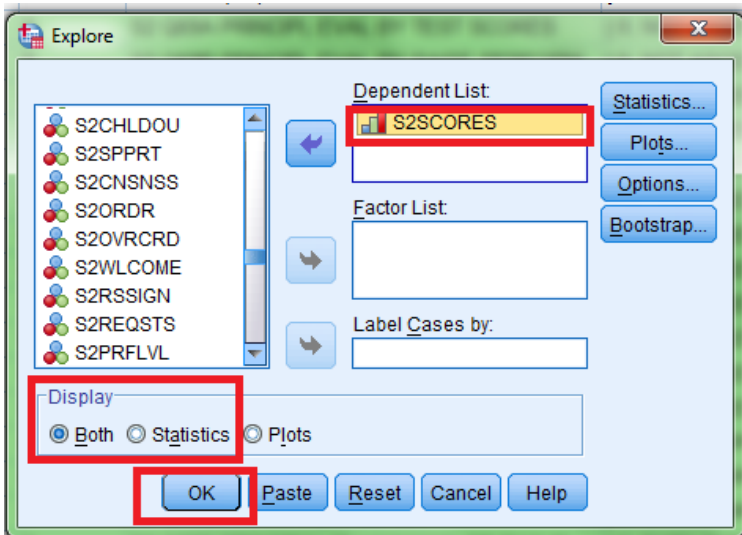
Ratio...

P-P Plots...

Q-Q Plots...

Select the variable you want to use here. I will be using the variable S2SCORES (this variable has 3 categories). Then, make sure under “Display” you have either “Both” or “Statistics” selected. Next, click OK.

SPSS How-to Instructions -- Toothman



Go back to the Output viewer. In a list of statistics, the interquartile range will be reported. In this case, the IQR is 1.

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→ **Explore**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
S2 Q69A PRINCIPL EVAL BY TEST SCORES	818	94.5%	48	5.5%	866	100.0%

Descriptives

		Statistic	Std. Error
S2 Q69A PRINCIPL EVAL BY TEST SCORES	Mean	2.02	.025
	95% Confidence Interval for Mean	Lower Bound 1.97	
		Upper Bound 2.07	
	5% Trimmed Mean	2.02	
	Median	2.00	
	Variance	.502	
	Std. Deviation	.708	
	Minimum	1	
	Maximum	3	
	Range	2	
	Interquartile Range	1	
	Skewness	-.024	.085
	Kurtosis	-1.002	.171

S2SCORES

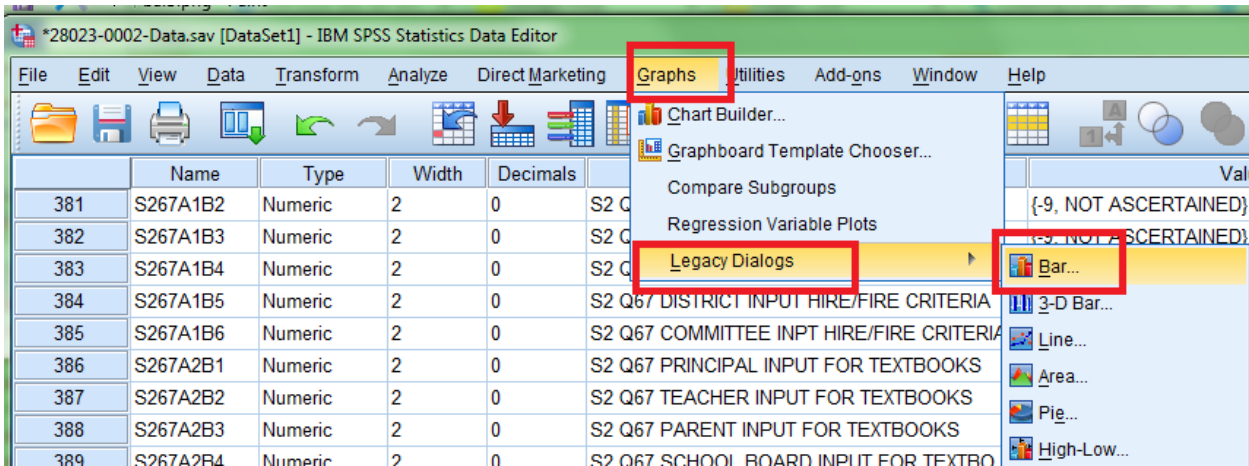
IBM SPSS Statistics Processor is ready Unicode:ON

5. Data Visualizations

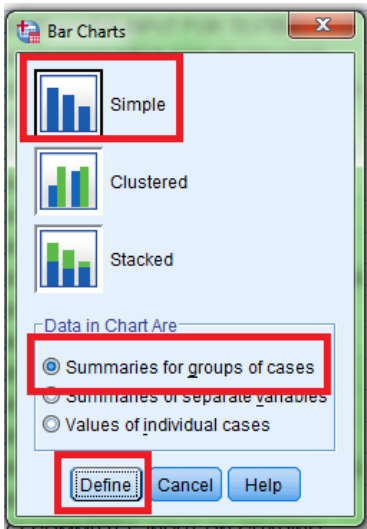
SPSS will also create professional graphics for you, using your own data. The first steps to create graphs in SPSS are the same, regardless of whether you are trying to create a bar chart, pie chart, or a histogram.

5a. Bar Chart

First, return to the Data Editor, click on “Graphs”, then “Legacy Dialogs”, and then “Bar...”.

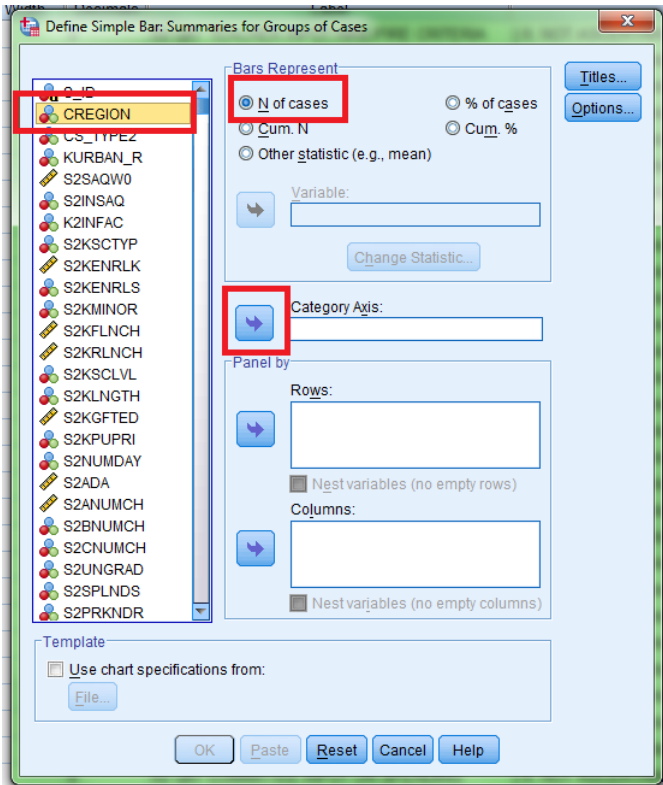


SPSS will bring up the following window. For our purposes, “Simple” is fine. Tell SPSS that you want the data in chart to be “Summaries for groups of cases” and then click “Define”.

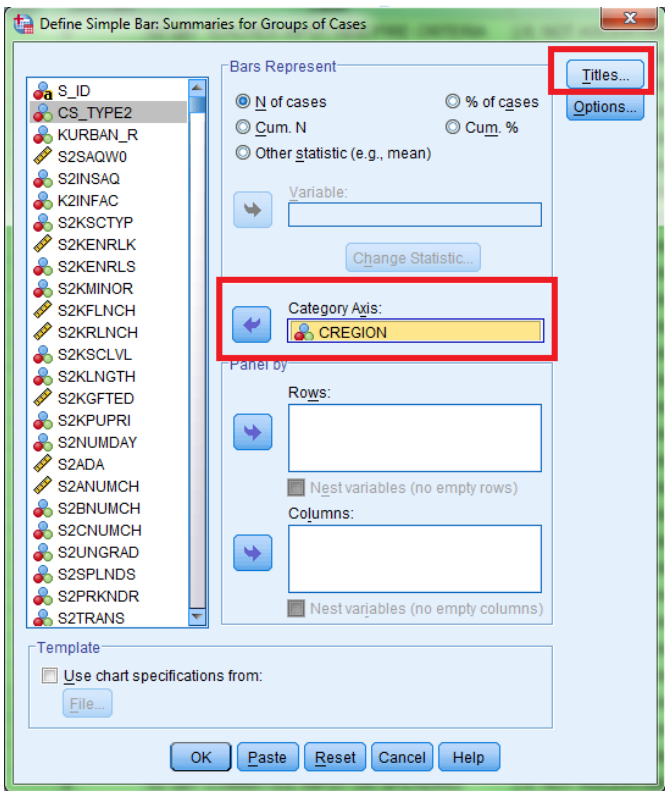


Next, find the variable that you want to use to create a bar chart. I will use CREGION. Click on the → arrow for “Category Axis”, after selecting your variable. Make sure you also have “N of Cases” selected for “Bars Represent.”

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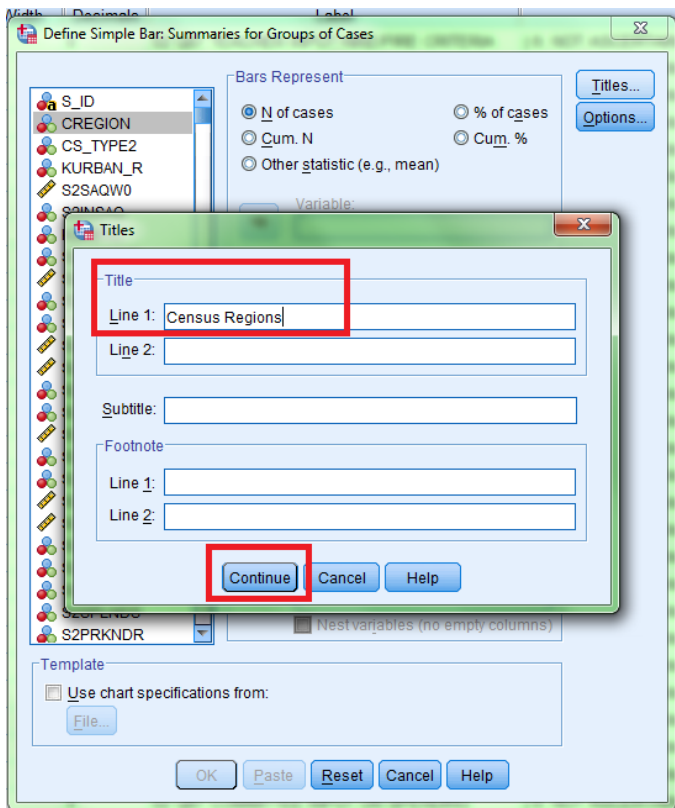


Next, we need to create Titles for our bar chart. Click on "Titles".

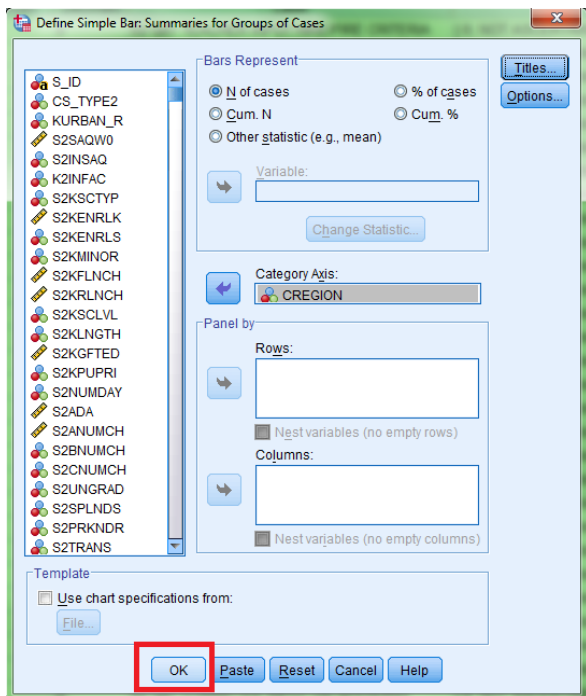


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SPSS will bring up the following dialogue. Since I am creating a bar chart for census regions, I'm going to name the chart "Census Regions". Click "Continue" when you are finished.

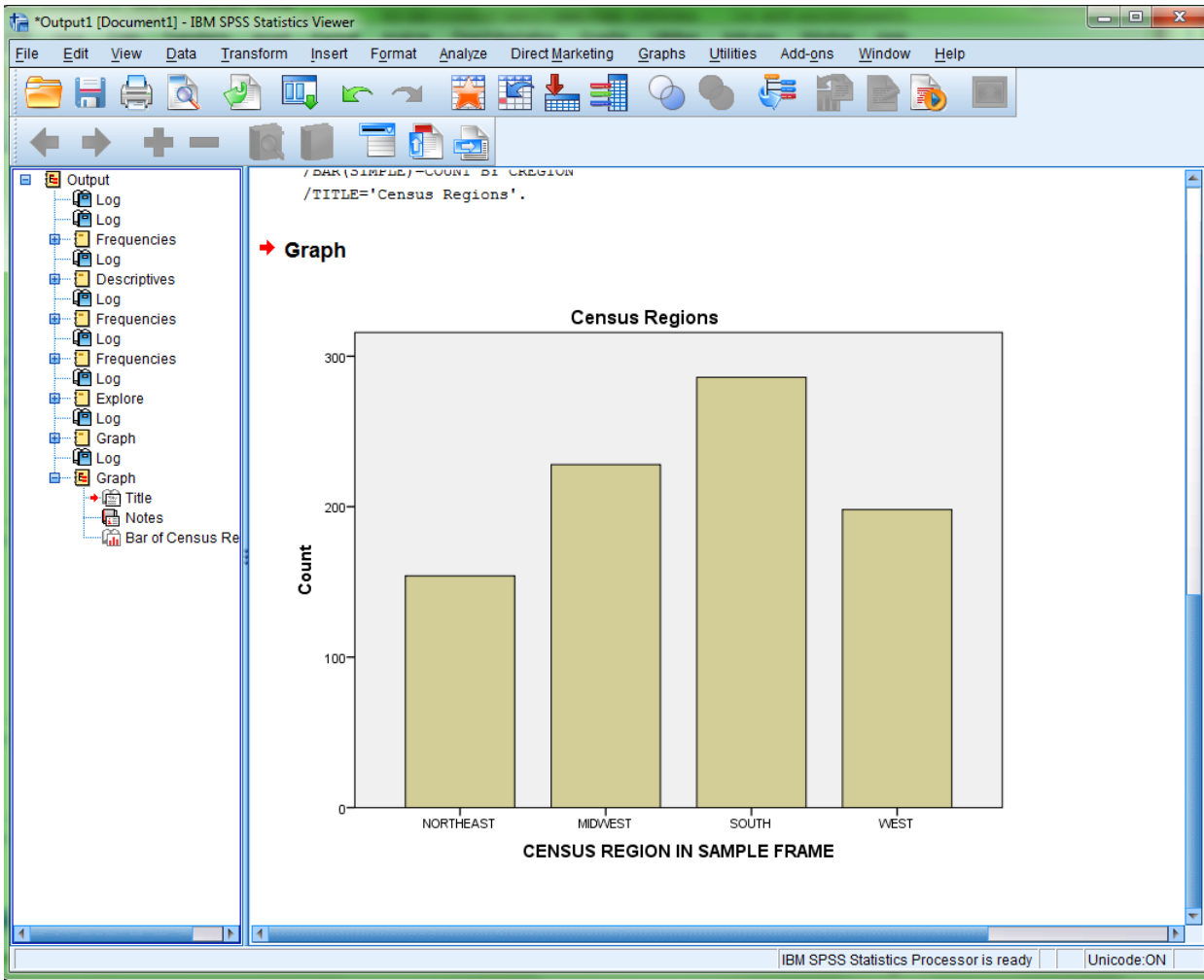


This will return you back to the Simple Bar dialogue. Click "OK" to create your bar chart.



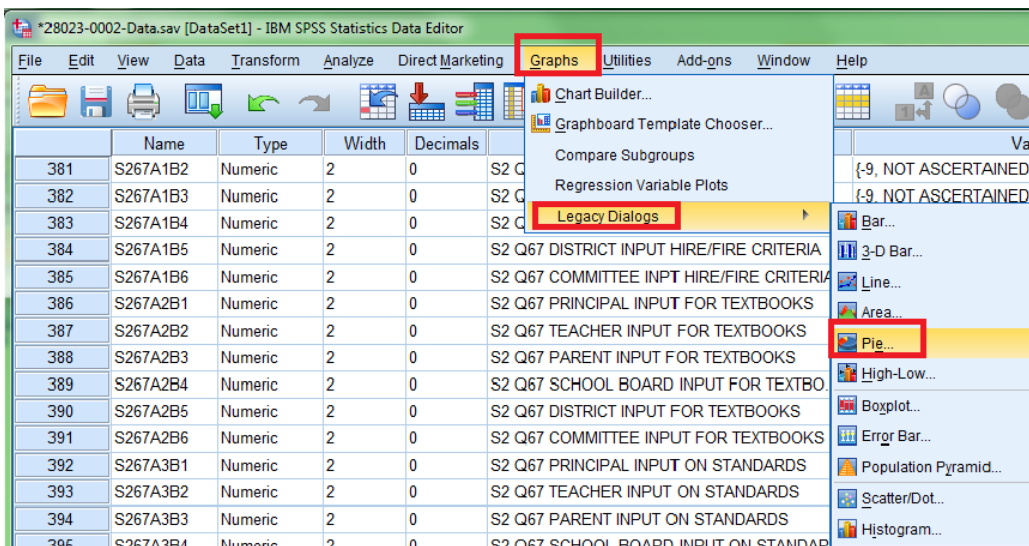
SPSS will display your bar chart in the Output viewer.

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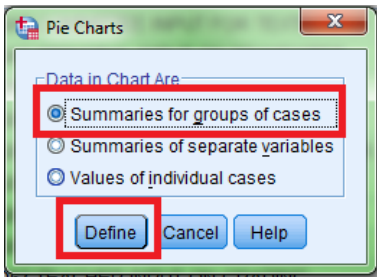
5b. Pie Charts

To create a pie chart, first click on “Graphs”, then “Legacy Dialogs” and finally, “Pie...”.

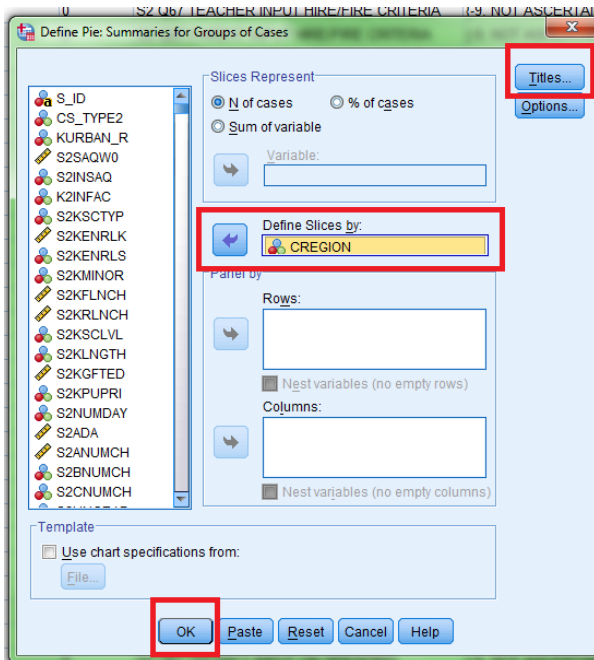


SPSS How-to Instructions -- Toothman

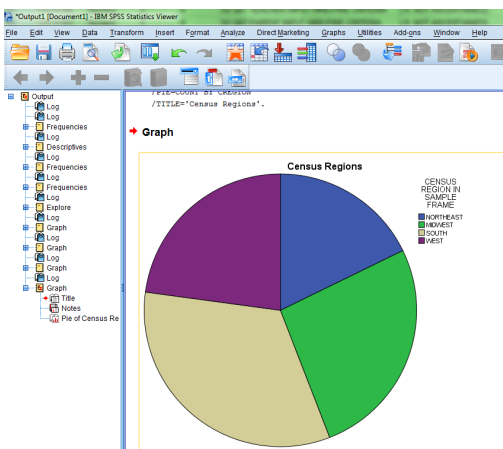
SPSS will bring up the following dialogue. Select “Summaries for groups of cases” and then “Define”.



For the most part, the steps are identical to creating a bar chart. Select the variable you want to create a pie chart for, then click the → arrow below “Define Slices by:”. Create a title (as you did with a bar chart) and then click “OK”.

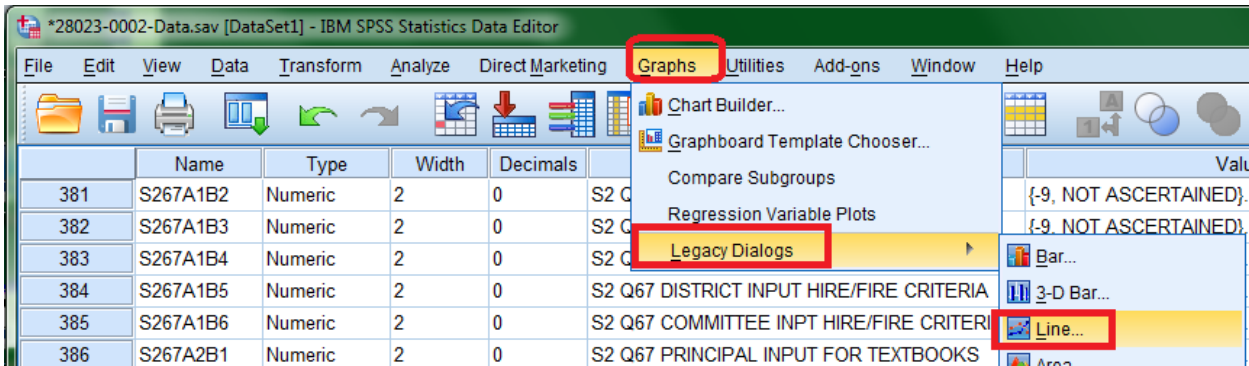


Your pie chart will appear in the Output Viewer.

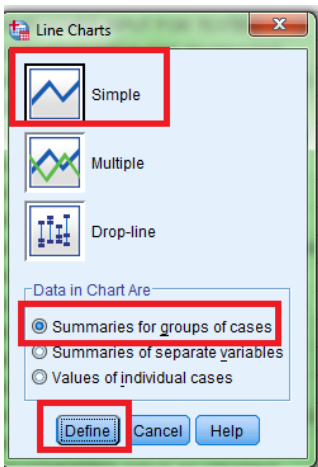


5c. Line Graphs

To create a line graph, first click “Graphs”, then “Legacy Dialogs” and finally “Line...”.



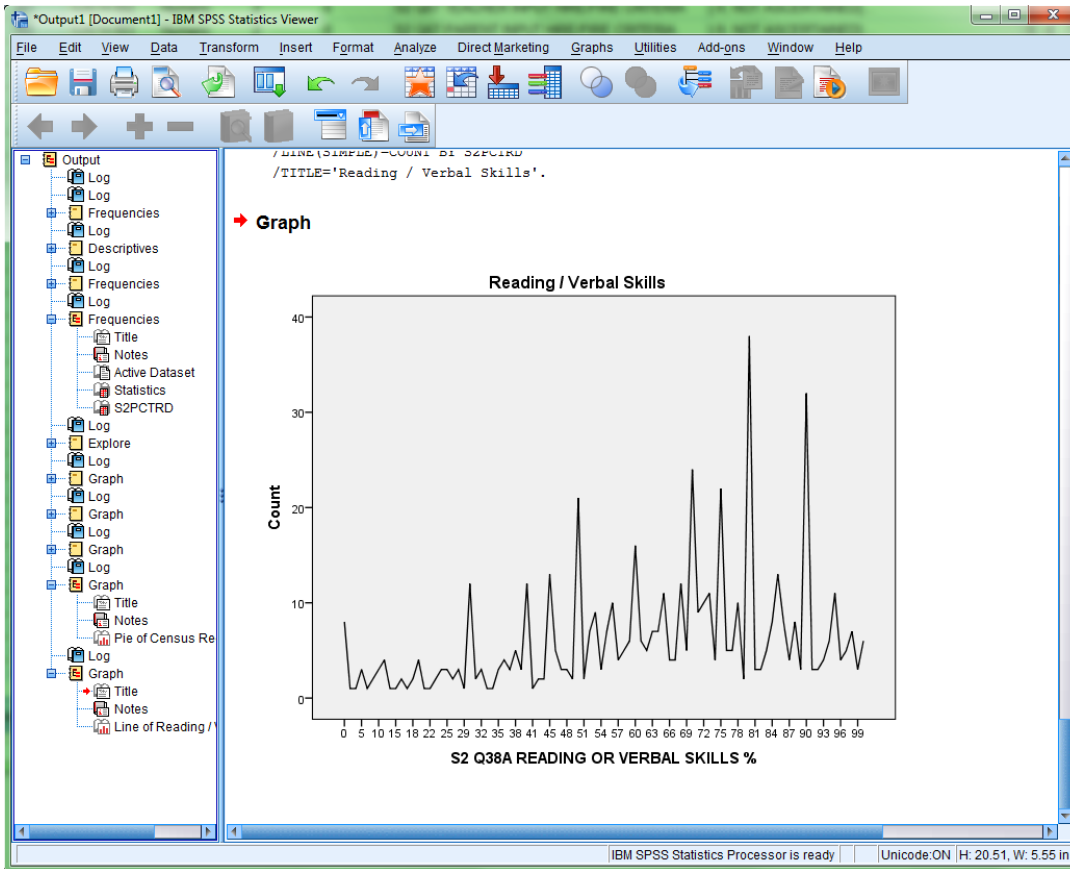
SPSS will bring up the following dialogue. For our purposes, a “simple” line graph is sufficient. Make sure “summaries for groups of cases” is selected.



SPSS will bring up a familiar dialogue. For this, select the variable you want to create a line graph for, then click the → arrow next to “Category Axis.” In this example, I am going to use the S2PCTRD variable from earlier. Make sure you create a “Title”, and then when you are finished, click OK.

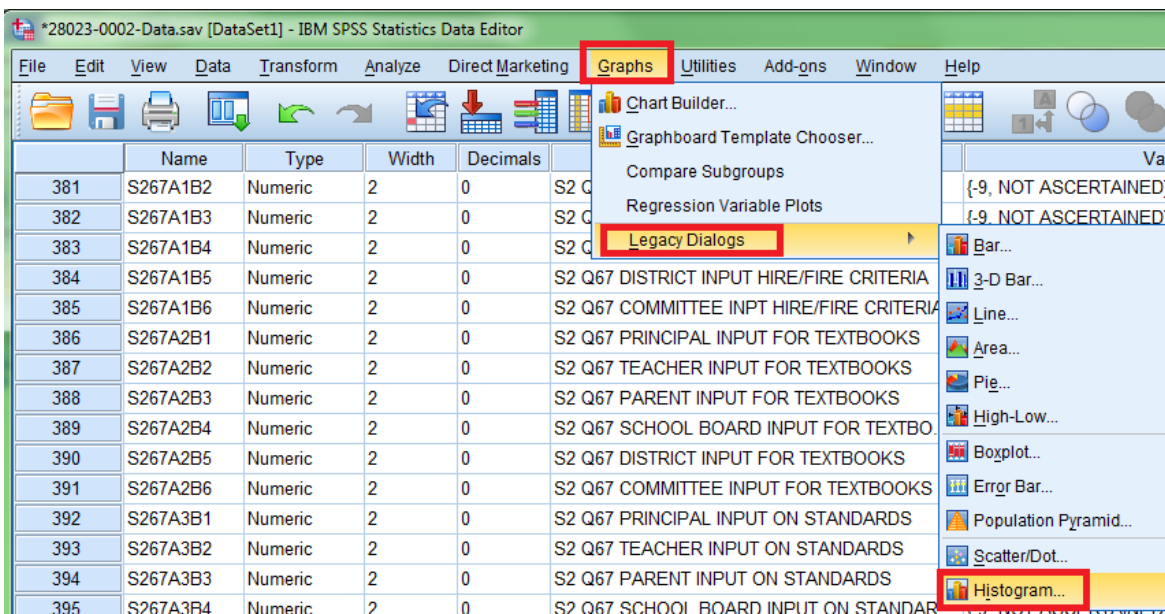
SPSS will create your line graph and it will appear in the Output Viewer.

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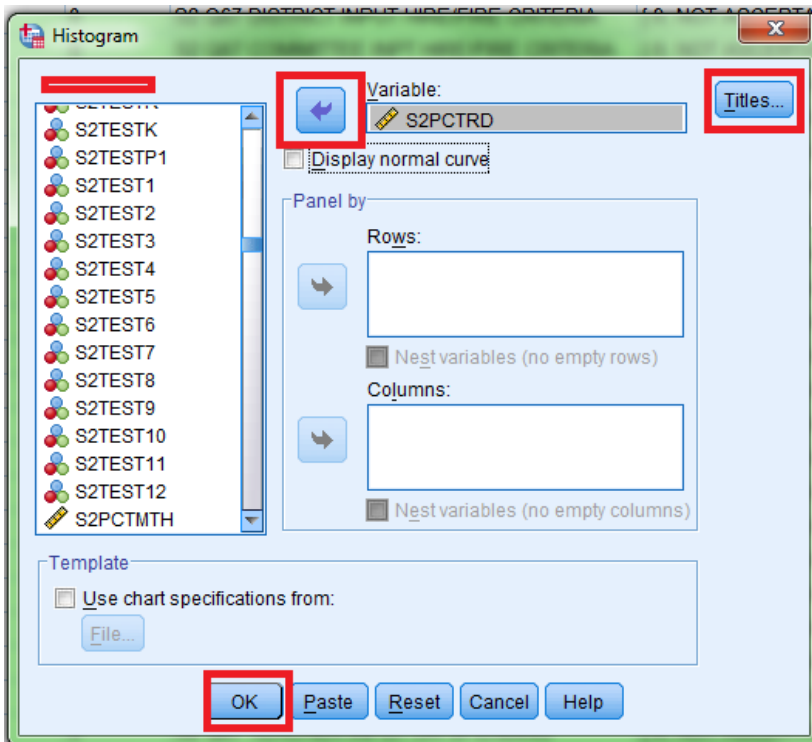
5d. Histograms

To create a histogram, from the Data Editor window, click on "Graphs", then "Legacy Dialogs" and finally "Histogram...".



SPSS How-to Instructions -- Toothman

SPSS will bring up the following dialogue. Select the variable you want to use to create your histogram, and click the arrow next to "Variable". Click "Title" to create a title for your histogram. When you are finished, click OK.



SPSS will create your histogram in the Output Viewer window.

