

# Calculating Advanced Statistics:Part I

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**C O N N E X I O N S**

**Rice University, Houston, Texas**



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# Chapter 1

## Introductory Chapter<sup>1</sup>



NOTE: This chapter is published by NCPEA Press<sup>2</sup> and is presented as an NCPEA/Connexions publication "print on demand book." Each chapter has been peer-reviewed, accepted, and endorsed by the National Council of Professors of Educational Administration (NCPEA) as a significant contribution to the scholarship and practice of education administration.

### About the Authors

**John R. Slate** is a Professor at Sam Houston State University where he teaches Basic and Advanced Statistics courses, as well as professional writing, to doctoral students in Educational Leadership and Counseling. His research interests lie in the use of educational databases, both state and national, to reform school practices. To date, he has chaired and/or served over 100 doctoral student dissertation committees. Recently, Dr. Slate created a website (Writing and Statistical Help<sup>3</sup>) to assist students and faculty with both statistical assistance and in editing/writing their dissertations/theses and manuscripts.

**Ana Rojas-LeBouef** is a Literacy Specialist at the Reading Center at Sam Houston State University where she teaches developmental reading courses. Dr. LeBoeuf recently completed her doctoral degree in Reading, where she conducted a 16-year analysis of Texas statewide data regarding the achievement gap. Her research interests lie in examining the inequities in achievement among ethnic groups. Dr. Rojas-LeBouef also assists students and faculty in their writing and statistical needs on the Writing and Statistical Help website.

As we stated in our first book, *Calculating Basic Statistical Procedures in SPSS: A Self-Help and Practical Guide to Preparing Theses, Dissertations, and Manuscripts*, we have observed student after student who experienced difficulty with using the Statistical Package for the Social Sciences (SPSS) and with interpreting the voluminous output generated by SPSS. These difficulties were present for basic statistical procedures and even more noticeable for more advanced statistical analyses. The problems students experienced in conducting these procedures, along with statistics anxiety they experienced, led the two of us to develop very specific

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<sup>1</sup>This content is available online at <<http://cnx.org/content/m40743/1.1/>>.

<sup>2</sup><http://www.ncpeapublications.org/books.html>

<sup>3</sup><http://cnx.org/content/m40743/latest/www.writingandstatisticalhelp>

and very detailed steps for students to follow. Even with the use of these steps, we still had students who managed to experience difficulty in being able to use SPSS successfully. As a result, we generated screenshots for every major point-and-click step. This combination of steps and screenshots has met with excellent student satisfaction and, most importantly for us as instructors, has enhanced their ability to be successful in using SPSS.

We have written this textbook to be a complement to the basic statistics text mentioned above. We believe that using our detailed steps and screenshots will assist readers in conducting the more complicated analyses discussed in this text. Graduate students, especially doctoral students, who take an advanced statistics course in which SPSS is used will find these steps and screenshots to be very practical and very easy to follow. Finally, faculty members who engage in scholarly activities but are years removed from their own statistics courses will find this textbook to be helpful. We hope that you find our materials helpful to you in your use of SPSS and in your interpretation of SPSS output.

John R. Slate, Professor, Sam Houston State University

Ana Rojas-LeBouef, Assistant Professor, Sam Houston State University



## Chapter 2

# Selecting a Single Group for Statistical Analysis<sup>1</sup>



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### About the Editors

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<sup>2</sup><http://www.ncpeapublications.org/books.html>

<sup>3</sup><http://cnx.org/content/m40632/latest/www.writingandstatisticalhelp>

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In this chapter, we will provide you with the steps and screenshots to select out a single group for analysis. In this circumstance, your data set consists of data from multiple groups. Your interest, however, is in obtaining statistics on only one specific group. Using SPSS for all students will only provide you with statistical information for all of the individuals, aggregated across all of the groups. It will not give you statistical information on a specific group. If you follow the steps and screenshots we provide, you can have SPSS generate statistics for the group of students in which you are interested.

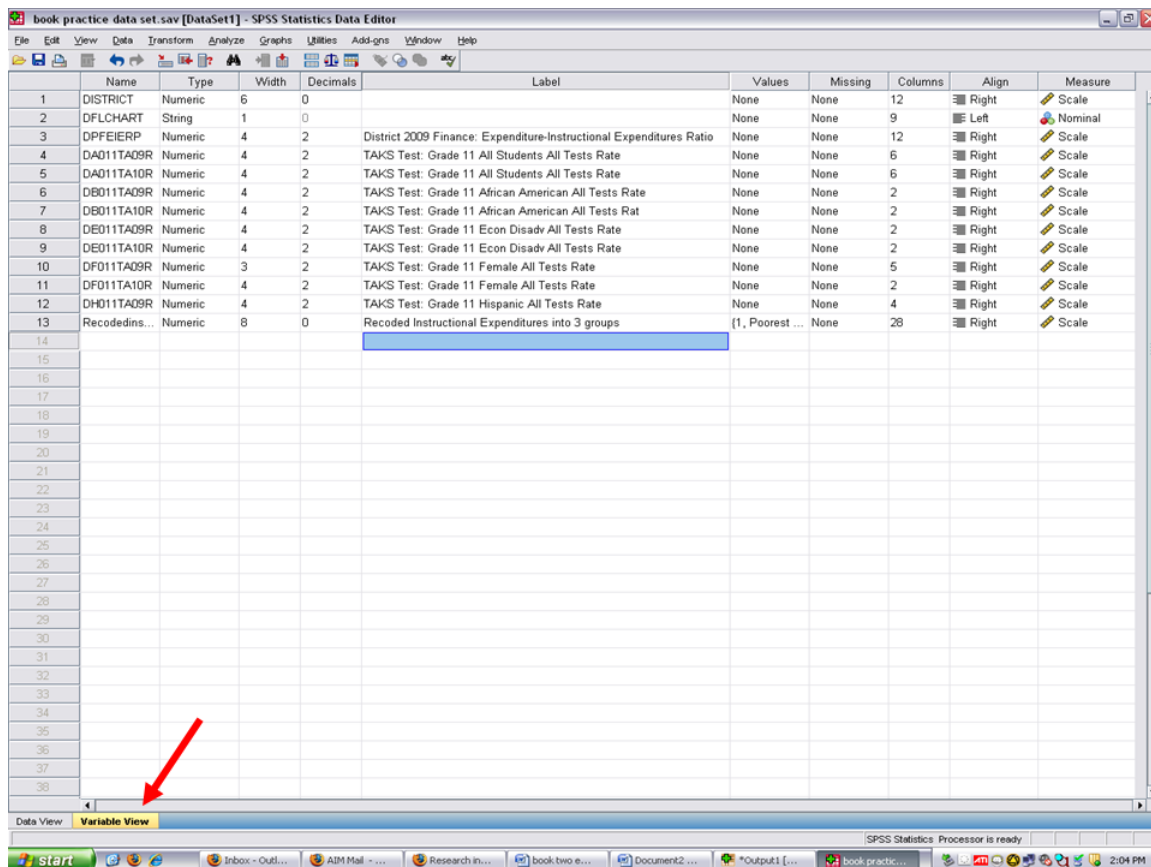
## 2.1

This step presupposes that you have already opened up SPSS and your data file. Click on **Variable View** in the data window.

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<sup>4</sup><http://www.ncpeapublications.org>

<sup>5</sup><http://ncpeapublications.org/about-elr.html>

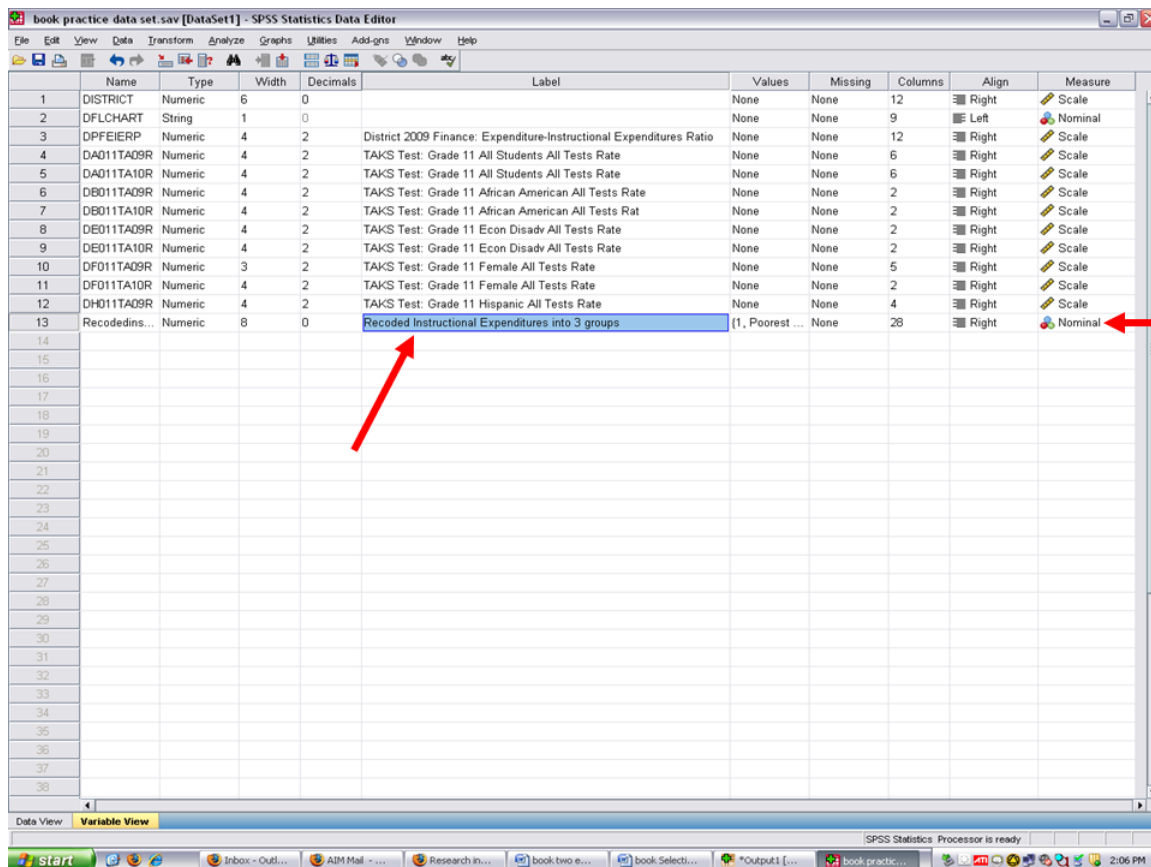


	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	DISTRICT	Numeric	6	0		None	None	12	Right	Scale
2	DFLCHART	String	1	0		None	None	9	Left	Nominal
3	DPFEIERP	Numeric	4	2	District 2009 Finance: Expenditure-Instructional Expenditures Ratio	None	None	12	Right	Scale
4	DA011TA09R	Numeric	4	2	TAKS Test: Grade 11 All Students All Tests Rate	None	None	6	Right	Scale
5	DA011TA10R	Numeric	4	2	TAKS Test: Grade 11 All Students All Tests Rate	None	None	6	Right	Scale
6	DB011TA09R	Numeric	4	2	TAKS Test: Grade 11 African American All Tests Rate	None	None	2	Right	Scale
7	DB011TA10R	Numeric	4	2	TAKS Test: Grade 11 African American All Tests Rate	None	None	2	Right	Scale
8	DE011TA09R	Numeric	4	2	TAKS Test: Grade 11 Econ Disadv All Tests Rate	None	None	2	Right	Scale
9	DE011TA10R	Numeric	4	2	TAKS Test: Grade 11 Econ Disadv All Tests Rate	None	None	2	Right	Scale
10	DF011TA09R	Numeric	3	2	TAKS Test: Grade 11 Female All Tests Rate	None	None	5	Right	Scale
11	DF011TA10R	Numeric	4	2	TAKS Test: Grade 11 Female All Tests Rate	None	None	2	Right	Scale
12	DH011TA09R	Numeric	4	2	TAKS Test: Grade 11 Hispanic All Tests Rate	None	None	4	Right	Scale
13	Recodedins...	Numeric	8	0	Recoded Instructional Expenditures into 3 groups	{1, Poorest ...	None	28	Right	Scale
14										
15										
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38										

Identify your grouping variable. It should be a nominal measure (see the far right column). In the example below, Recoded Instructional Expenditures into 3 groups, is our grouping variable.

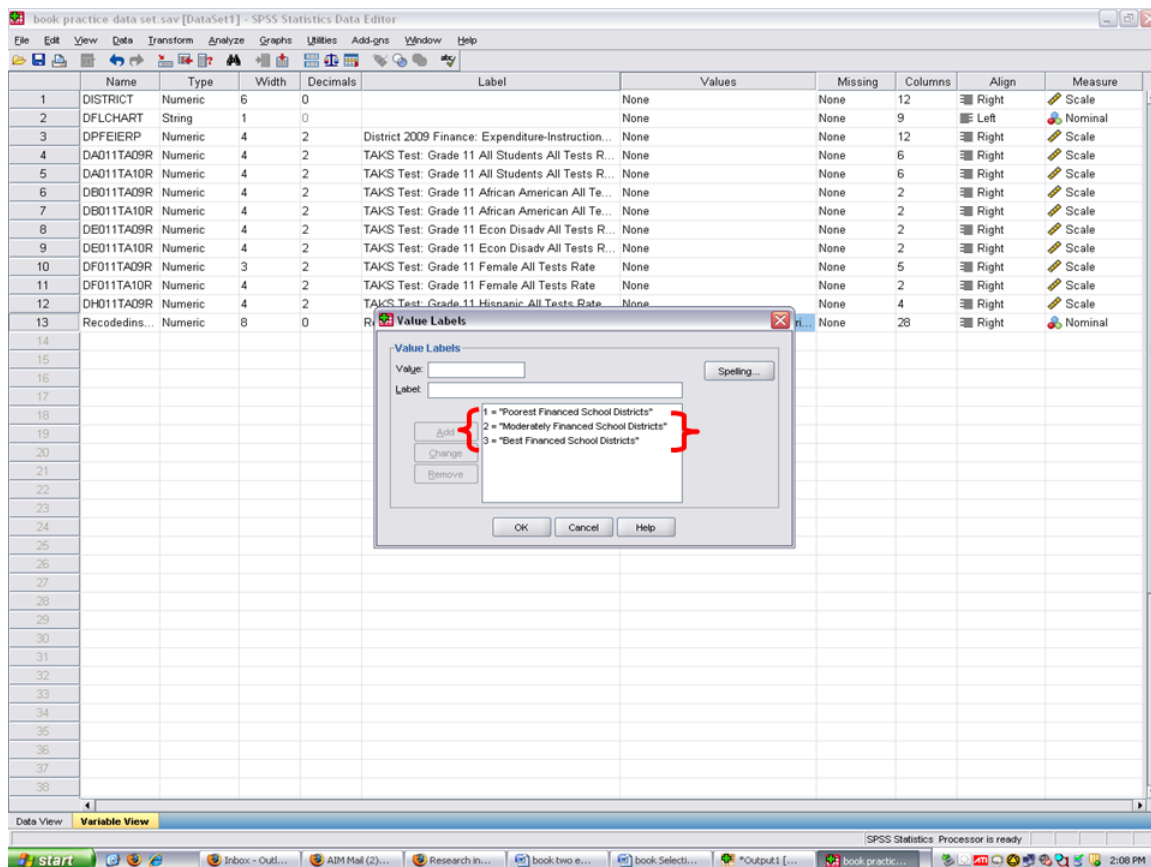
Click on the Values cell for this grouping variable. Three dots will appear. These three dots indicate that a screen is hidden underneath this cell.

<sup>6</sup><http://cnx.org/content/m40632/latest/1.1.png/image>



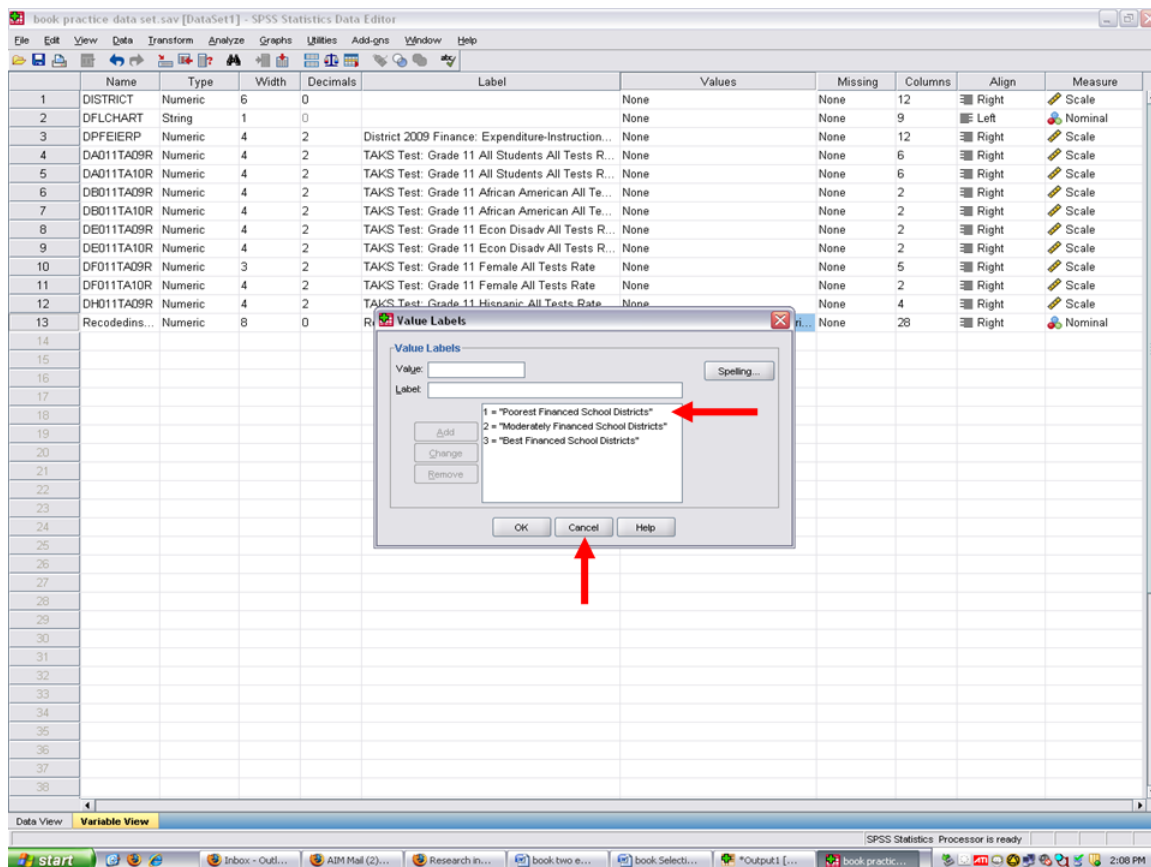
Clicking on the three dots will reveal the hidden screen. After clicking on the three dots, this screen appears and shows us the names of the three groups.

<sup>7</sup><http://cnx.org/content/m40632/latest/1.3.png/image>



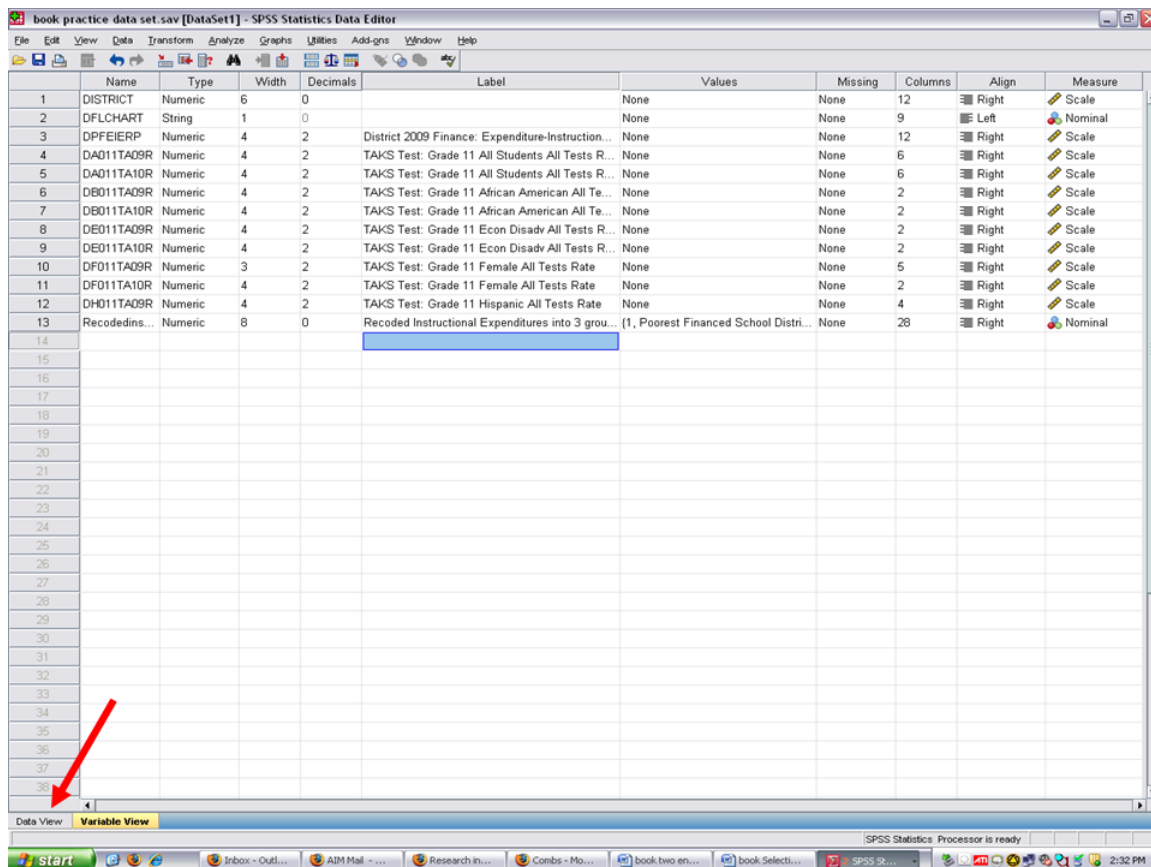
For purposes of this chapter, we will have statistics calculated for group 1 which is the Poorest Financed School Districts. Now that we know that this group is numbered as group 1, we will cancel out of this screen.

<sup>8</sup><http://cnx.org/content/m40632/latest/1.4.png/image>



Click on the data view screen.

<sup>9</sup><http://cnx.org/content/m40632/latest/1.5.png/image>



book practice data set.sav [DataSet1] - SPSS Statistics Data Editor

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	DISTRICT	Numeric	6	0		None	None	12	Right	Scale
2	DFLCHART	String	1	0		None	None	9	Left	Nominal
3	DPFEIERP	Numeric	4	2	District 2009 Finance: Expenditure-Instruction...	None	None	12	Right	Scale
4	DA011TA09R	Numeric	4	2	TAKS Test: Grade 11 All Students All Tests R...	None	None	6	Right	Scale
5	DA011TA10R	Numeric	4	2	TAKS Test: Grade 11 All Students All Tests R...	None	None	6	Right	Scale
6	DB011TA09R	Numeric	4	2	TAKS Test: Grade 11 African American All Te...	None	None	2	Right	Scale
7	DB011TA10R	Numeric	4	2	TAKS Test: Grade 11 African American All Te...	None	None	2	Right	Scale
8	DE011TA09R	Numeric	4	2	TAKS Test: Grade 11 Econ Disadv All Tests R...	None	None	2	Right	Scale
9	DE011TA10R	Numeric	4	2	TAKS Test: Grade 11 Econ Disadv All Tests R...	None	None	2	Right	Scale
10	DF011TA09R	Numeric	3	2	TAKS Test: Grade 11 Female All Tests Rate	None	None	5	Right	Scale
11	DF011TA10R	Numeric	4	2	TAKS Test: Grade 11 Female All Tests Rate	None	None	2	Right	Scale
12	DH011TA09R	Numeric	4	2	TAKS Test: Grade 11 Hispanic All Tests Rate	None	None	4	Right	Scale
13	Recodedins...	Numeric	8	0	Recoded Instructional Expenditures into 3 grou...	(1, Poorest Financed School Distri...	None	28	Right	Nominal
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Data View Variable View

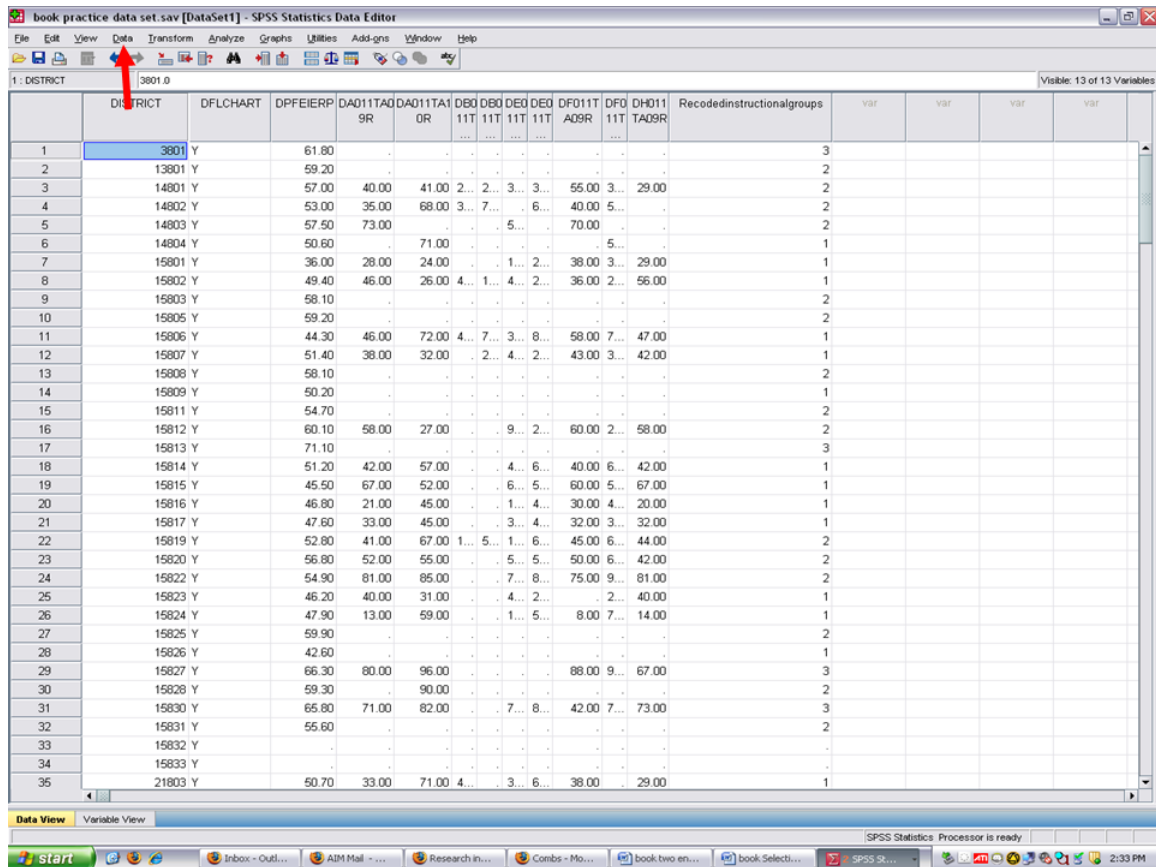
SPSS Statistics Processor is ready

10

We are now at the data screen. To select out a specific group on which to have statistics calculated, click on Data.

✓ Data

<sup>10</sup><http://cnx.org/content/m40632/latest/1.6.png/image>



book practice data set.sav [DataSet1] - SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

1: DISTRICT 3801.0 Visible: 13 of 13 Variables

	DISTRICT	DFLCHART	DPFEIERP	DA011TA09R	DA011TA0R	D0011TA09R	D0011TA0R	D0011TA09R	D0011TA0R	D0011TA09R	D0011TA0R	Recodedinstructionalgroups	V01	V02	V03	V04
1	3801	Y	61.80	-	-	-	-	-	-	-	-	3				
2	13801	Y	59.20	-	-	-	-	-	-	-	-	2				
3	14801	Y	57.00	40.00	41.00	2...	3...	3...	55.00	3...	29.00	2				
4	14802	Y	53.00	35.00	68.00	3...	7...	6...	40.00	5...	-	2				
5	14803	Y	57.50	73.00	-	-	5...	-	70.00	-	-	2				
6	14804	Y	50.60	-	71.00	-	-	-	5...	-	-	1				
7	15801	Y	36.00	28.00	24.00	-	1...	2...	38.00	3...	29.00	1				
8	15802	Y	49.40	46.00	26.00	4...	1...	4...	36.00	2...	56.00	1				
9	15803	Y	58.10	-	-	-	-	-	-	-	-	2				
10	15805	Y	59.20	-	-	-	-	-	-	-	-	2				
11	15806	Y	44.30	46.00	72.00	4...	7...	3...	58.00	7...	47.00	1				
12	15807	Y	51.40	38.00	32.00	-	2...	4...	43.00	3...	42.00	1				
13	15808	Y	58.10	-	-	-	-	-	-	-	-	2				
14	15809	Y	50.20	-	-	-	-	-	-	-	-	1				
15	15811	Y	54.70	-	-	-	-	-	-	-	-	2				
16	15812	Y	60.10	58.00	27.00	-	9...	2...	60.00	2...	58.00	2				
17	15813	Y	71.10	-	-	-	-	-	-	-	-	3				
18	15814	Y	51.20	42.00	57.00	-	4...	6...	40.00	6...	42.00	1				
19	15815	Y	45.50	67.00	52.00	-	6...	5...	60.00	5...	67.00	1				
20	15816	Y	46.80	21.00	45.00	-	1...	4...	30.00	4...	20.00	1				
21	15817	Y	47.60	33.00	45.00	-	3...	4...	32.00	3...	32.00	1				
22	15819	Y	52.80	41.00	67.00	1...	5...	1...	45.00	6...	44.00	2				
23	15820	Y	56.80	52.00	55.00	-	5...	5...	50.00	6...	42.00	2				
24	15822	Y	54.90	81.00	85.00	-	7...	8...	75.00	9...	81.00	2				
25	15823	Y	46.20	40.00	31.00	-	4...	2...	-	2...	40.00	1				
26	15824	Y	47.90	13.00	59.00	-	1...	5...	8.00	7...	14.00	1				
27	15825	Y	59.90	-	-	-	-	-	-	-	-	2				
28	15826	Y	42.60	-	-	-	-	-	-	-	-	1				
29	15827	Y	66.30	80.00	96.00	-	-	-	88.00	9...	67.00	3				
30	15828	Y	59.30	-	90.00	-	-	-	-	-	-	2				
31	15830	Y	65.80	71.00	82.00	-	7...	8...	42.00	7...	73.00	3				
32	15831	Y	55.60	-	-	-	-	-	-	-	-	2				
33	15832	Y	-	-	-	-	-	-	-	-	-	-				
34	15833	Y	-	-	-	-	-	-	-	-	-	-				
35	21803	Y	50.70	33.00	71.00	4...	3...	6...	38.00	-	29.00	1				

Data View Variable View

SPSS Statistics Processor is ready

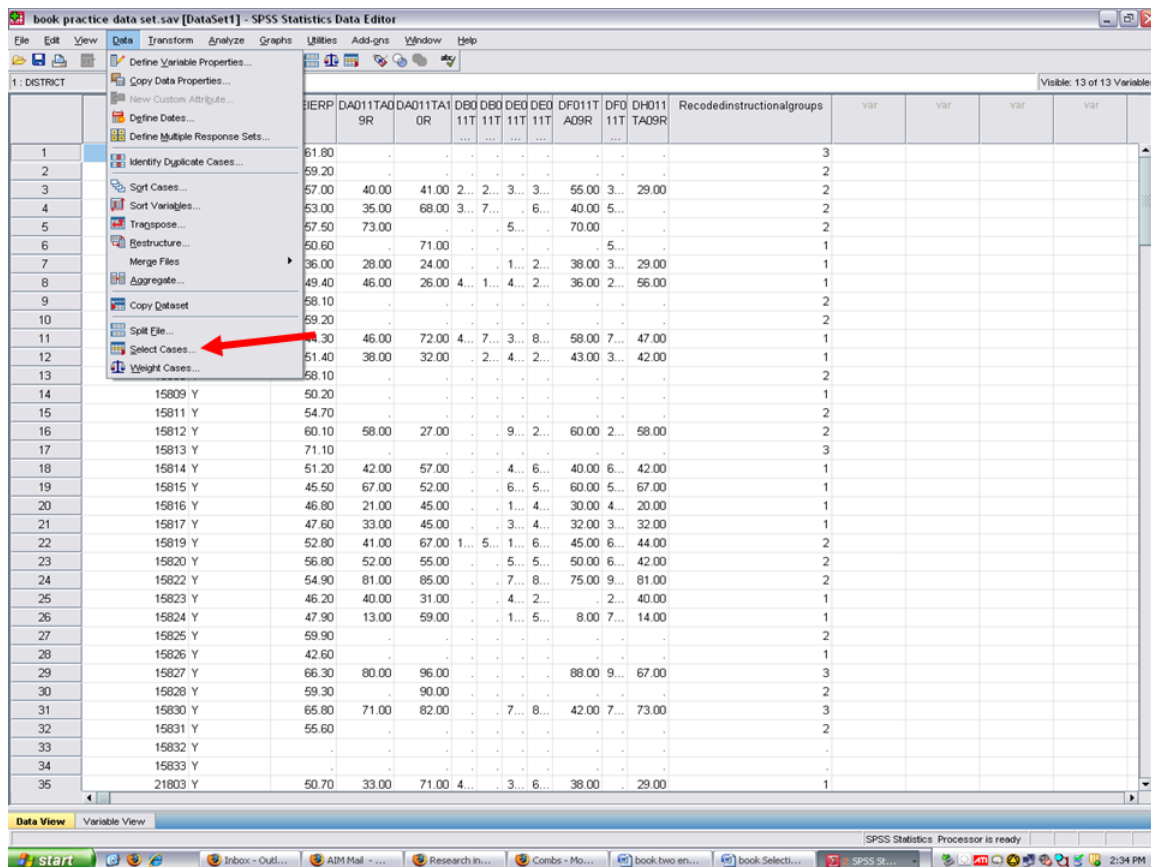
start | Inbox - Out... | AIM Mail - ... | Research in... | Combs - Mo... | book two en... | book Selecti... | SPSS St... | 2:33 PM

11

### ✓ Select Cases

<sup>11</sup><http://cnx.org/content/m40632/latest/1.7.png/image>





You will note that All Cases is checked. You should click on the ☒ If Condition is satisfied

<sup>12</sup><http://cnx.org/content/m40632/latest/1.9.png/image>

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