

STATISTICS (SPSS FOR BEGINNERS)

Chapter 4

Statistics Chart

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- In addition to being presented in tabular form (table), statistical data can also be displayed in various graphical forms. In addition to being more visually appealing, graphic displays can provide more practical overall information. Examples of statistical data that can be more easily understood if they are in the form of chart are population composition, price movements and others.

- Making chart with SPSS can be done with three menus:
 - Chart builder menu
 - Graphboard template chooser submenu
 - Legacy dialogs menu

- * Basically all of the menus will produce the same output.

- Basically all statistical data can be displayed in all types of graphs, but there are several types of data that are more precise and informative if displayed in certain chart forms:
 - Time-based data (eg. yearly sales form 2015-2020) should be displayed in line charts;
 - Data that is not based on time (body height from group of people) can be displayed in the form of a line/scatter chart;
 - Data that requires special handling or related to certain statistical methods (normality test) can be displayed with histograms, error bars and others.

- Employee.sav dataset

Number	Gender	Fields_of_work	Status	Number_of_children	Education	Age	Period	Salary
156	Female	Marketing	Married	1	Bachelor	24	2	20500.00
157	Male	Marketing	Single	1	Vocational	27	5	26250.00
158	Female	Administration	Married	0	High School	25	1	17750.00
159	Male	Accounting	Married	3	High School	27	3	30750.00
160	Female	Production	Single	1	High School	28	4	31000.00
161	Female	Marketing	Single	1	Vocational	26	3	25750.00
162	Male	Marketing	Married	0	Bachelor	27	3	20750.00
163	Male	Accounting	Single	2	Vocational	28	5	26250.00
164	Male	Administration	Married	1	Vocational	29	4	21000.00
165	Female	Accounting	Single	1	High School	30	2	18000.00
166	Male	Administration	Single	0	Vocational	30	7	26750.00
167	Female	Production	Married	0	Bachelor	26	3	20750.00
168	Male	Accounting	Married	0	Vocational	27	4	21000.00
169	Female	Administration	Single	1	Vocational	29	5	31250.00
170	Female	Administration	Single	0	High School	27	3	25750.00
171	Female	Marketing	Married	0	Vocational	25	2	18000.00
172	Male	Accounting	Single	1	Vocational	24	1	30250.00
173	Male	Production	Married	2	Bachelor	26	1	25250.00
174	Female	Marketing	Single	0	High School	23	2	20500.00
175	Male	Accounting	Married	1	High School	27	3	30750.00
176	Male	Administration	Married	1	High School	29	5	21250.00
177	Male	Marketing	Single	1	High School	27	3	20750.00
178	Male	Administration	Single	0	Vocational	25	1	25250.00
179	Female	Administration	Married	2	Bachelor	24	1	30250.00
180	Male	Accounting	Married	3	Vocational	26	1	30250.00
181	Female	Marketing	Single	2	Vocational	23	1	30250.00
182	Male	Marketing	Single	1	High School	26	2	20500.00
183	Female	Marketing	Married	1	Vocational	27	4	26000.00
184	Female	Administration	Single	2	Bachelor	29	5	18750.00
185	Female	Accounting	Married	1	Vocational	27	3	25750.00
186	Female	Production	Single	3	Vocational	25	4	21000.00
187	Female	Accounting	Married	1	High School	24	1	20250.00
188	Female	Administration	Married	0	Vocational	26	2	20500.00
189	Male	Administration	Single	0	Vocational	23	1	30250.00
190	Male	Administration	Single	1	Vocational	27	2	25500.00
191	Female	Marketing	Married	1	Bachelor	29	3	18250.00
192	Male	Accounting	Single	2	Vocational	27	4	31000.00
193	Male	Production	Married	1	Vocational	29	3	20750.00
194	Female	Marketing	Single	0	High School	27	2	20500.00
195	Male	Administration	Single	0	Vocational	25	4	26000.00
196	Female	Administration	Married	1	Bachelor	24	2	18000.00
197	Male	Accounting	Single	1	Vocational	26	4	31000.00
198	Female	Production	Married	0	Vocational	23	1	25250.00
199	Male	Marketing	Married	2	High School	27	5	21250.00
200	Male	Accounting	Single	1	Vocational	29	6	31500.00
201	Male	Administration	Single	1	Vocational	27	5	21250.00
202	Male	Marketing	Married	4	Bachelor	25	2	20500.00
203	Male	Administration	Single	0	High School	24	1	25250.00
204	Male	Administration	Single	1	High School	26	3	30750.00
205	Male	Accounting	Married	2	High School	23	1	20250.00

- Making Charts with Chart Builder:

A. Simple Chart

How to:

1. Open employee.sav
2. Choose Graph menu

3. Choose Chart Builder
4. Choose type of chart that you want (tutorial: bar chart)
5. Drop and drag salary to Y-axis
6. Drop and drag status to X-axis
7. Click Element Properties
8. Follow the tutorial
9. Click OK

- Making Charts with Legacy Dialogs:
employee_2.sav dataset

	number	level	education	batch	employee_status	age	first_salary	current_salary
1	1	manager	bachelor	2015	married	48	15000	18000
2	2	supervisor	bachelor	2015	married	37	8000	11000
3	3	staff	vocational	2015	single	30	5000	7500
4	4	staff	bachelor	2015	married	28	5000	8000
5	5	assistant manager	vocational	2015	single	42	11000	14000
6	6	manager	bachelor	2016	married	51	15250	17500
7	7	staff	high school	2016	single	27	4000	7000
8	8	assistant manager	bachelor	2016	married	40	11500	13500
9	9	supervisor	bachelor	2016	married	35	8500	10500
10	10	staff	high school	2017	married	31	5500	6500
11	11	staff	vocational	2017	single	28	5500	6500
12	12	staff	high school	2017	married	29	4500	6500
13	13	staff	bachelor	2017	married	27	5500	6500
14	14	supervisor	bachelor	2017	single	29	8750	10000
15	15	manager	bachelor	2017	married	46	16000	17000
16	16	assistant manager	bachelor	2018	married	38	12000	13000
17	17	supervisor	high school	2018	single	30	8750	9500
18	18	staff	bachelor	2018	married	25	6000	9500
19	19	staff	bachelor	2018	single	24	5750	6000
20	20	supervisor	bachelor	2019	single	26	9000	9250

A. Basic Bar Chart

How to:

1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Bar
5. Choose Simple Bar
6. Put batch on the Category Axis box
7. Click % of cases
8. Click Titles
9. Follow the tutorial
10. Click Ok

B. Bar chart with variable legend

How to:

1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Bar
5. Choose Simple Bar
6. Put batch on the Category Axis box
7. Click % of cases
8. Click Titles
9. Follow the tutorial
10. Put level on "Define stack by"
11. Click Ok

C. Bar Chart with Variable Panel

How to:

1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Bar
5. Choose Stacked
6. Put batch on the Category Axis box
7. Put level on "define stack by:"
8. Click % of cases
9. Click Titles
10. Follow the tutorial
11. Put status on "panel by"
12. Click Ok

D. 3D bar chart

How to:

1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click 3D bar
5. Open bar represent
6. Choose mean of values
7. Put first_salary on the variables box
8. Put education on X Category Axis
9. Put status on Y Category Axis
10. Click Titles
11. Follow the tutorial
12. Click Ok

E. Simple Pie Chart

How to:

1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Pie
5. Choose summaries for group of cases

6. Put level on “Define slice by”
7. Click Sum of variables
8. Put first salary on the box
9. Click Titles
10. Follow the tutorial
11. Click Ok

F. Pie chart with panel

How to:





1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Pie
5. Choose summaries for group of cases
6. Put first salary on “Slice Represent”
7. Put level on “Define slice by”
8. Put education on “Panel by”
9. Click Titles
10. Follow the tutorial
11. Click Ok

G. Pie chart with separated variable

How to:

1. Open employee_2.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Pie
5. Choose summaries for group of cases
6. Put first salary and current salary on “Slice Represent”
7. Put education on “Panel by”
8. Click Titles
9. Follow the tutorial
10. Click Ok

*sales_data.sav dataset

	 code	 year	 month	 monthly_sales
1	1	2019	january	7950
2	2	2019	february	8391
3	3	2019	march	9131
4	4	2019	april	9473
5	5	2019	may	9147
6	6	2019	june	9746
7	7	2019	july	10410
8	8	2019	august	9174
9	9	2019	september	8746
10	10	2019	october	9713
11	11	2019	november	10147
12	12	2019	december	12472
13	13	2020	january	11847
14	14	2020	february	12983
15	15	2020	march	12874
16	16	2020	april	11742
17	17	2020	may	11183
18	18	2020	june	7155
19	19	2020	july	7535
20	20	2020	august	6813
21	21	2020	september	6838
22	22	2020	october	6984
23	23	2020	november	7358
24	24	2020	december	8173

H. Basic line chart

How to:

1. Open sales_data.sav
2. Open Graphs Menu
3. Choose Legacy Dialog

4. Click Line
5. Choose Simple
6. Choose Summaries for group of cases
7. Click define
8. Choose other statistic
9. Put monthly sales on the box
10. Put code on “category axis”
11. Click Titles
12. Follow the tutorial
13. Click Ok

I. Simple line chart

How to:

1. Open sales_data.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Line
5. Choose Simple
6. Choose Summaries for group of cases
7. Click define
8. Choose other statistic
9. Put monthly sales on the box
10. Put year on “category axis”
11. Click Titles
12. Follow the tutorial
13. Click Ok

J. Line panel

How to:

1. Open sales_data.sav
2. Open Graphs Menu
3. Choose Legacy Dialog
4. Click Line
5. Choose Simple
6. Choose Summaries for group of cases
7. Click define
8. Choose other statistic
9. Put monthly sales on the box
10. Put month on “category axis”
11. Put year on Rows
12. Click Titles
13. Follow the tutorial
14. Click Ok