USING SPSS FOR RESEARCH AND DATA ANALYSIS

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Abstract: There is no question that business, education, and all fields of science have come to rely heavily on the computer. This dependence has become so great that it is no longer possible to understand social and health science research without substantial knowledge of statistics and without at least some rudimentary understanding of statistical software. The number and types of statistical software packages that are available continue to grow each year. In this paper we have chosen to work with SPSS, or the Statistical Package for the Social Sciences. SPSS was chosen because of its popularity within both academic and business circles, making it the most widely used package of its type. SPSS is also a versatile package that allows many different types of analyses. transformations, and forms of output - in short, it will more than adequately serve our purposes. The SPSS software package is continually being updated and improved, and so with each major revision comes a new version of that package. In this paper, we will describe and use the most recent version of SPSS, called SPSS for Windows, in order to use this text for data analysis, your must have access to the SPSS for Windows software package.
The capability of SPSS is truly astounding. The package enables you to obtain statistics ranging from simple descriptive numbers to complex analyses of multivariate matrices. You can plot the data in histograms, scatterplots, and other ways. You can combine files, split files, and sort files. You can modify existing variables and create new ones. In short, you can do just about anything you'd ever want with a set of data using this software package. A number of specific SPSS procedures are relevant to the kinds of statistical analyses covered in an introductory level statistics or research methods course typically found in the social and health sciences, natural sciences, or business. Yet, we will touch on just a fraction of the many things that SPSS can do. Our aim is to help то become familiar with SPSS, and we hope that this introduction will both reinforce our understanding of statistics and lead us to see what a powerful tool SPSS is, how it can actually help you better understand your data, how it can enable you to test hypotheses that were once too difficult to consider, and how it can save our incredible amounts of time as well as reduce the likelihood of making errors in data analyses. We show how to create a data file and generate an output file. We also discuss how to name and save the different types of files created in the three main SPSS windows. This paper will present a software presentation from a survey on socio-economic and environmental research.
Keywords: SPSS, statistics, social sciences, natural sciences, business

1. INTRODUCTION

The SPSS software package is continually being updated and improved, and so with each major revision comes a new version of that package. In this paper, we will describe and use the most recent version of SPSS, called SPSS for Windows, in order to use this text for data analysis, your must have access to the SPSS for Windows software package. . We show how to create a data file and generate an output file. We also discuss how to name and save the different types of files created in the three main SPSS windows. This paper will present a software presentation from a survey on socio-economic and environmental research.

2. ANALYSIS AND INTERPRETATION OF THE QUESTIONARE AND DATA OBTAINED

For this paper, empirical radiation was performed by conducting a survey questionnaire. Questionnaire consists of 21 questions with offered answers. The application of the questionnaire should give us data on the awareness and awareness among the population, as well as with the employees themselves. On some questions from this survey questionnaire will be performed the calculation of the Xi-square test and the coefficient of contingency (C), and finally concluding observations based on the processed data.(Ms. Xiaoping Zhu, Dr. Ognjen Kuljaca, 2005) The obtained answers and results of the survey are presented in tabular and graphic in the text that follows. Anonymous examined 320 respondents, of which 80% are inhabited near a landfill of waste or a source of hazardous waste, 20% are employed at a landfill or producers or sources of hazardous waste. The research covered several target groups, divided into several categories: Age, Gender, Degree of Education, Employment status.Respondents are randomly selected, that is, people who are directly or indirectly affected by the impacts of hazardous waste. The research covered three categories of ages. The question in the Questionnaire are in the field of society, economy and ecology,

especially in the field of hazardous waste management. (L. Paura and L. Berziņa, 2012)(I. Radusa and L. Berzina, , 2012)(Hervé, 2011)(Fellows, 2012)

The general demographic structure of the participants in the survey is shown in Table 1.

Table 1. Summed up statements of respondentsfor forth categories ($N_1 – N_4$)

Question	Given answer	Respondents	%	N_1 Seniority	N_2 Gender	N_3 Working status	N_4 Education
				1, 2, 3	**m/f**	**1, 2**	**1, 2, 3**
	Yes			22/21/30	38/35	24/49	12/45/16
	No			49/51/16	48/68	5/111	31/82/3
	Partly			29/38/64	74/57	11/120	17/93/21
1.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			65/46/67	94/84	30/148	38/124/16
	No			6/29/11	24/22	2/44	12/31/3
	Partly			29/35/32	42/54	8/88	10/65/21
2.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			18/18/15	29/22	24/27	8/20/23
	No			60/59/65	87/97	4/180	38/139/7
	Partly			22/33/30	**44/41**	12/73	14/61/10
3.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			3/8/8	11/8	11/8	2/6/11
	No			91/94/87	131/141	21/251	50/206/16
	Partly			6/8/15	18/11	8/21	8/8/13
4.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			41/57/74	98/74	22/150	21/124/27
	No			31/20/28	24/35	2/57	26/31/2
	Partly			28/33/28	38/51	16/73	13/65/11
5.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			41/58/79	97/81	17/161	21/128/29
	No			24/14/4	16/26	5/37	26/14/2
	Partly			35/38/27	46/53	18/82	13/78/9
6.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			39/56/68	85/78	18/145	24/118/21
	No			29/16/17	36/26	4/58	17/44/1
	Partly			32/38/25	39/56	18/77	19/58/18
7.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			39/56/68	99/96	18/177	24/138/33
	No			29/16/17	17/13	4/26	15/11/4
	Partly			32/38/25	44/51	18/77	21/71/3
8. .	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			41/67/66	85/89	16/158	23/130/21

	No			23/12/15	27/23	2/48	15/16/19
	Partly			36/31/29	48/48	22/74	22/74/0
9.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			11/14/26	22/29	19/32	7/35/9
	No			68/76/66	114/96	9/201	44/150/16
	Partly			21/20/18	24/35	12/47	9/35/15
10.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			11/15/31	28/29	21/36	11/33/13
	No			65/77/48	100/90	5/185	40/145/5
	Partly			24/18/31	32/41	14/59	9/42/22
11,	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			20/41/45	51/55	28/78	22/68/16
	No			42/40/6	34/54	0/88	11/75/2
	Partly			38/29/59	75/51	12/114	27/77/22
12.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			39/58/58	74/81	26/129	30/102/23
	No			20/24/10	32/22	5/49	9/43/2
	Partly			41/28/42	54/57	9/102	21/75/15
13.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			45/59/77	92/89	27/154	36/124/21
	No			7/11/12	24/6	2/28	13/11/6
	Partly			48/40/21	44/65	11/98	11/85/13
14.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			33/28/34	44/51	12/83	18/59/18
	No			42/53/43	64/74	19/119	28/94/16
	Partly			25/29/33	52/35	9/78	14/67/6
15.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			26/28/40	51/43	8/86	16/66/12
	No			41/50/56	71/76	18/129	25/100/22
	Partly			33/32/14	38/41	14/65	19/54/6
16.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			25/42/45	61/51	11/101	24/71/17
	No			37/50/55	75/67	15/127	19/101/22
	Partly			38/18/10	24/48	14/52	17/48/1
17.	**Total**	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
	Yes			31/52/36	58/61	12/107	19/85/15
	No			38/47/26	63/48	12/99	22/74/15

18.	Partly			31/11/48	39/51	16/74	19/61/10
	Total	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
19.	Yes			28/58/38	63/61	17/107	27/84/13
	No			28/31/37	52/44	8/88	12/76/8
	Partly			44/21/55	45/55	15/85	21/60/19
	Total	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
20.	Yes			43/55/49	74/73	21/126	27/88/32
	No	320	100	28/31/5	35/29	4/60	9/51/4
	Partly			29/24/56	51/58	15/94	24/81/4
	Total	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**
21.	Yes			51/62/52	84/81	27/138	33/112/20
	No			12/10/11	21/12	5/28	6/18/9
	Partly			37/38/47	55/67	8/114	21/90/11
	Total	**320**	**100**	**100/110/110**	**160/160**	**40/280**	**60/220/40**

Table 2. Demographic characteristic of the respondents

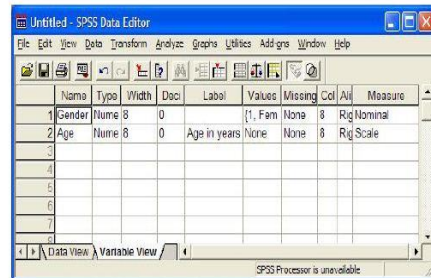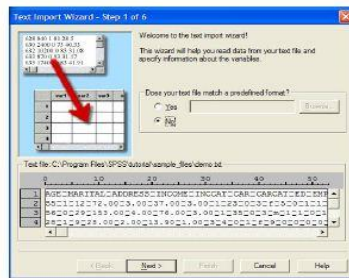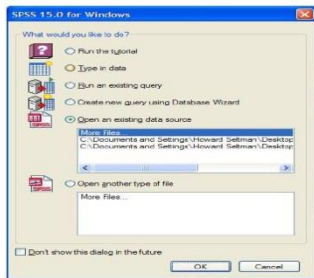| Demographic characteristics	Answers	Occurrence	Percentages
Age (N_1)	> 30	100	31.25
	30 - 45	110	34.375
	< 45	110	34.375
Gender (N_2)	Male	160	50
	Female	160	50
Degree of education (N_4)	Secondary school	60	18.75
	High	220	68.75
	Mr, PhD	40	12.5
Work place (N_3)	Manager	40	12.5
	Operator	280	87.5

Figure 1. Step by Step SPSS Windows presentation

Table 3.Inter-Item Correlation Matrix

	category	category 2	category 3	category 4	category 5	category 6	category 7	category 8	category 9	Category10
category1	1.000	.315	-.844	-.907	.997	-.967	.933	.792	.886	-.987
category2	.315	1.000	.244	.115	.381	-.064	.635	.829	.720	-.159
category3	-.844	.244	1.000	.991	-.803	.952	-.594	-.340	-.498	.919
category4	-.907	.115	.991	1.000	-.874	.984	-.695	-.460	-.607	.963
category5	.997	.381	-.803	-.874	1.000	-.947	.956	.833	.916	-.973
category6	-.967	-.064	.952	.984	-.947	1.000	-.811	-.611	-.739	.995
category7	.933	.635	-.594	-.695	.956	-.811	1.000	.958	.993	-.864
category8	.792	.829	-.340	-.460	.833	-.611	.958	1.000	.985	-.684
category9	.886	.720	-.498	-.607	.916	-.739	.993	.985	1.000	-.800
category10	-.987	-.159	.919	.963	-.973	.995	-.864	-.684	-.800	1.000

Table 4. Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Q1	3	73.00	131.00	320.00	106.6667	30.10537
Q2	3	46.00	178.00	320.00	106.6667	66.64333
Q3	3	51.00	184.00	320.00	106.6667	69.09655
Q4	3	19.00	272.00	320.00	106.6667	143.27014
Q5	3	59.00	172.00	320.00	106.6667	58.53489
Q6	3	42.00	178.00	320.00	106.6667	68.24466
Q7	3	62.00	163.00	320.00	106.6667	51.50081
Q8	3	30.00	195.00	320.00	106.6667	83.11638
Q9	3	50.00	174.00	320.00	106.6667	62.68439
Q10	3	51.00	210.00	320.00	106.6667	89.57864
Q11	3	57.00	190.00	320.00	106.6667	72.61083
Q12	3	88.00	126.00	320.00	106.6667	19.00877
Q13	3	54.00	155.00	320.00	106.6667	50.63925
Q14	3	30.00	181.00	320.00	106.6667	75.52704
Q15	3	87.00	138.00	320.00	106.6667	27.42870
Q16	3	79.00	147.00	320.00	106.6667	35.72581
Q17	3	66.00	142.00	320.00	106.6667	38.27967
Q18	3	90.00	119.00	320.00	106.6667	14.97776
Q19	3	96.00	124.00	320.00	106.6667	15.14376
Q20	3	64.00	147.00	320.00	106.6667	41.54917
Q21	3	33.00	165.00	320.00	106.6667	67.32261

3. CONCLUSION

The SPSS package enables us to obtain statistics ranging from simple descriptive numbers to complex analyses of multivariate matrices. . On some questions from this survey questionnaire will be performed the calculation of the Xi-square test and the coefficient of contingency (C), and finally concluding observations based on the processed data. The obtained answers and results of the survey are presented in tabular and graphic in the text that follows is. Our aim is to help то become familiar with SPSS, and we hope that this introduction will both reinforce our understanding of statistics and lead us to see what a powerful tool SPSS is, how it can actually help you better understand your data, how it can enable you to test hypotheses that were once too difficult to consider, and how it can save our incredible amounts of time as well as reduce the likelihood of making errors in data analyses. In this paper we have chosen to work with SPSS, or the Statistical Package for the Social Sciences. SPSS was chosen because of its popularity within both academic and business circles, making it the most widely used package of its type.

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