### **Exploring Real Data**

### 1. The General Social Survey (GSS) data:

### a. Background:

GSS is conducted by the National Opinion Research Centre (NORC), a Social Science Research Centre at University of Chicago, since 1972.

### b. Purpose:

Monitor social change within the U.S. and compare U.S. with other countries. (The Canadian version of the GSS is available through Statistics Canada).

### c. Topics:

Sociological and attitudinal surveys regarding education, employment, political opinion, and crime and violence.

### d. Data:

Open access from University of Berkley: <u>http://sda.berkeley.edu/</u>

### e. Data Analysis:

Survey Documentation and Analysis (SDA) 4.0 (Newest version) Archive: http://sda.berkeley.edu/archive.htm

- i. Free web-based data analysis http://sda.berkeley.edu/sdaweb/analysis/?dataset=gss14
- ii. Export data into a CSV file and then import the data into a preferred statistical software for data analysis: PSPP (Free Statistical Software)

### 2. PSPP: <u>https://www.gnu.org/software/pspp/</u>

Download PSPP (e.g., PC or Mac OS): https://www.gnu.org/software/pspp/get.html

### Part 1. Exploring the General Social Survey (GSS) data with SDA

In 2014 a survey on attitudes towards science and technology asked participants to indicate their opinion regarding the statement: "Science and technology are making our lives, healthier, easier, and more comfortable" as "strongly agree", "agree", "disagree", or "strongly disagree".

### **Objective: Univariate Data Analysis**

### Type of Data: An Ordinal Categorical Data Levels: "strongly agree", "agree", "disagree", or "strongly disagree"

### **Steps:**

- 1. Visit: http://sda.berkeley.edu/sdaweb/analysis/?dataset=gss14
- Scroll down the variable tree, and click on the folder:
   2014 TOPICAL MODULE: Science, Knowledge About and Attitudes Towards.
- Select the sub-folder, the item on this survey: BETTRLFE - SCIENCE MAKES OUR LIVES BETTER Note: BETTRLFE is the variable name.
- 4. Click view: Information regarding this variable, **BETTRLFE**.

SDA 4.0	A 4.0 Selected Study: GSS 1972-2014 Cumulative Datafile					
Analysis Create Variables Download Custom Subse	t Search <u>Sta</u>	ndard Codebook	Codebook by Year	of Interview		
Variable Selection	Tables   Mars			Berneiten		Linturalization
	Tables Mea	ins Correi. matri	comp. correi.	Regression	Logit/Probit	List values
	SDA Frequenci	es/Crosstabulation I	Program			
Copy to: Row Col Ctrl Filter	Help: General /	Recoding Variables	-			
Mode: Append Replace	Row:			(Requir	ed)	
	Column:					
E 2012 TOPICAL MODULE: Jewish Identity      E 2012 TOPICAL MODULE: Generosity	Control:					
CONTRACTOR CONTRACTOR      CONTRACTOR						
E 2012 TOPICAL MODULE: Science	Selection Filter	r <u>(s):</u>				
E 2012 TOPICAL MODULE: Miscellaneous	Weight:	COMPWT - Con	posite weight: WTSSAL	L * OVERSAMP * I	FORMWT	
CONTRACT CONTRAC			ipoono noigina ni oosi az			
2012 TOPICAL MODULE: SKINTONE 2012 ISSP MODULE: GENDER	<ul> <li>Output Opt</li> </ul>	ions				
2014 TOPICAL MODULE: The Quality of Working Life						
▶ 🖬 2014 TOPICAL MODULE: Employee Compensation	<ul> <li>Chart Option</li> </ul>	ns				
E 2014 TOPICAL MODULE: Altruism	Decimal On	tions				
🔻 🗁 2014 TOPICAL MODULE: Science, Knowledge About ar	<ul> <li>Decimar Op</li> </ul>	10115				
BETTRLFE - SCIENCE MAKES OUR LIVES BETTE						
E 2014 TOPICAL MODULE: Shared Capitalism     E 2014 TOPICA	Run the Table	Clear Fields				
2014 TOPICAL MODULE: National Identity III						

5. Quick overview, frequency distribution, of the variable, **BETTRLFE**.

BETTRLFE SCIENCE MAKES OUR LIVES BETTER							
		Dese	cription of the Var	iable			
IDm going to read to you some statements like those you might find in a newspaper or magazine article. For each statement, please tell me if you strongly agree, agree, disagree, or strongly disagree. C. Science and technology are making our lives, healthier, easier, and more comfortable.							
Percent	Ν	Value	Label				
18.5	225	1	Strongly agree				
63.4	772	2	Agree				
16.5	201	3	Disagree				
1.6	19	4	Strongly disagree				
	58,360	0	IAP				
	20	8	Don't know				
	2	9	No answer				
100.0	59,599		Total				
I	Properties	5					
Data type	:	numerio	2				
Missing-c	lata code	<b>s:</b> 0,8,9					
Mean:		2.01					
Std Dev:		.64					
Record/c	olumn:	1/4772					

Selected Study: General Social Survey Cumulative Datafile 1972-2014

#### Create Variables Download Custom Subset Standard Codebook Codebook by Year of Interview Analysis Search Help: General / Recoding Variables Variable Selection BETTRLFE (Required) Row: Selected: View Column: Copy to: Row Col Ctrl Filter Control: Mode: Append 💿 Replace Selection Filter(s): No Weight Weight: ▶ 🗃 2014 TOPICAL MODULE: The Quality of Working Life E 2014 TOPICAL MODULE: Employee Compensation Output Options a 2014 TOPICAL MODULE: Science, Knowledge About an Cell contents: BETTRIFE - SCIENCE MAKES OUR LIVES BETTE E 2014 TOPICAL MODULE, Snared Capitalism Percentaging: Column Row Total E 2014 TOPICAL MODULE: National Identity III E 2014 TOPICAL MODULE: Citizenship Sample design: Ocomplex SRS E 2014 TOPICAL MODULE: WORK AND RELATIONSHIP E 2014 TOPICAL MODULE: HIGH RISK BEHAVIORS Confidence intervals - Level: 95 percent V I 1985-1990 ISSP MODULE - PRESS FREEDOM VS GO Standard error of each percent Image: 1986 ISSP MODULE: SOCIAL SUPPORT AND NETWORK Design effect (deft) for each percent Z-statistics I387 ISSP MODULE: SOCIAL INEQUALITY I 1988 ISSP MODULE: WOMEN AND WORK Unweighted N 🛛 Weighted N ISSP MODULE: WORK ORIENTATION Other options: Igen 1991 ISSP MODULE: RELIGION Summary statistics ( Question text) 🗹 Color coding ISSP MODULE: ENVIRONMENT PERSONAL IMPACT OF PUBLIC CONCERNS Suppress table Include missing-data values RECENT PROBLEMS FOR RESPONDENT JEV ADAMANOTO ATIVE MADIADI FO Title: Science Makes Our Lives Better Copy to: Row Col Ctrl Filter Output Options Mode: Append Replace Chart Options Type of chart Bar Chart $\sim$ 0 ISSP MODULE: ENVIRONMENT 0 SCIENCE (New) General Chart Options 0 NIOSH (NEC) 2 TOPICAL MODULE: Jewish Identity Show percents 2 TOPICAL MODULE: Generosity Palette: 💿 Color 🔵 Grayscale 2 TOPICAL MODULE: Workplace Violence 2 TOPICAL MODULE: Science Size - width: 600 ∨ height: 400 ∨ 2 TOPICAL MODULE: Miscellaneous 2 TOPICAL MODULE: Experiment Bar Chart Options 2 TOPICAL MODULE: SKINTONE 2 ISSP MODULE: GENDER Orientation: Orientation: 4 TOPICAL MODULE: The Quality of Working Life 4 TOPICAL MODULE: Employee Compensation Visual Effects: 2-D 3-D 4 TOPICAL MODULE: Altruism 4 TOPICAL MODULE: Science, Knowledge About and Attitudes BETTRLFE - SCIENCE MAKES OUR LIVES BETTER Decimal Options 4 TOPICAL MODULE: Shared Capitalism 4 TOPICAL MODULE: National Identity III 4 TOPICAL MODULE: Citizenship Run the Table Clear Fields 4 TOPICAL MODULE: WORK AND RELATIONSHIPS

### 6. Making some changes to SDA options and then running the table:

7. After we run the table, for valid cases (n = 1217), this is (part of) the SDA output:





- We can prompt students with questions such as:
  - What was the most response to this GSS statement? Answer: Agree
- We can develop students' numeracy skills:
  - Leave the total count (e.g., 1217) and the percentages for each category (e.g., 18.5%, 63.4%, 16.5%, 1.6%).
  - Hide the frequencies (e.g., 225, 772, 201, 19) in the frequency distribution.
  - Ask students, "how many participants agreed to this GSS question?"

Take the percentage in the "agree" category and multiply by the total count:

63.4% (or 0.634) x 1217  $\cong$  772

8. Treat an ordinal categorical variable as a quantitative variable:

## **Objective:** Obtain summary statistics such as the Mean, Median, Mode, and Standard Deviation.

Science	Make	es Our	Lives Better					
SDA 4.0	): Tab	les						
General	Socia	al Surv	ey Cumulative	Datafile 1972-2	2014			
Aug 20,	2016	(Sat 0	1:36 PM PDT)					
				Variables				
Role	Nar	me		Label		Range	MD	Dataset
Row E	BETT	RLFE	SCIENCE MA	KES OUR LIVE	ES BETTER	1-4	0,8,9	1
Frequency Distribution								
Cells contain: - <b>Column percent</b> -N of cases			Distribution					
		1: Strongly agree		<b>18.5</b> 225				
	2: Agree		ree	<b>63.4</b> 772				
BETTRLFE 3: 4:		3: Dis	agree	<b>16.5</b> 201				
		4: Strongly disagree		<b>1.6</b> 19				
		COL	TOTAL	<b>100.0</b> 1,217				

- We can prompt students with questions such as:
  - What is the mean response to this GSS statement?
  - What is the median response to this GSS statement?
  - What is the mode response to this GSS statement?
  - What is the shape of the distribution to this GSS statement?
  - Find the mean in two different ways (some rounding are involved):

1. Mean = 
$$\frac{sum(level x frequncy of that level)}{total count} = \frac{1(225)+2(772)+3(201)+4(19)}{1217} = \frac{2448}{1217} = 2.01$$

2. (Weighted) Mean = sum (level x proportion for each level) = (0.185 x 1) + (2 x 0.634) + (3 x 0.165) + (4 x 0.016) = 2.03 • Find the median, 50<sup>th</sup> percentile:

Add percentages until we reach 50%. In this example:

18.5% (less than 50%; so add the next %) + 63.40% > 50% (median is here).

Median is 2 (refers to "agree" category).

• Mean is very close to the median (slightly bigger):

(Mean = 2.01)  $\cong$  (Median = 2) ∴ We have an approximately symmetrical distribution.

• Mode refers to the most frequent category. In this example, it is level 2 (refers to "agree" category).

Mean, Median, and Mode are about the same.

 $\therefore$  We have an approximately, bell-shaped symmetrical distribution.

Below is what SDA provides as summary statistics:

	Su	nmary Statis	stics	5	
Mean =	2.01	Std Dev =	.64	Coef var =	.32
Median =	2.00	Variance =	.41	Min =	1.00
Mode =	2.00	Skewness =	.34	Max =	4.00
Sum =	2,448.00	Kurtosis =	.50	Range =	3.00

9. SDA provides information regarding how the data were collected:

Sample design: stratified cluster sample

Stratum variable = SAMPLERC Cluster variable = RSAMPCODE Consider, adding a layer to the data analysis. In this example, we will add the variable sex of respondents into the data analysis.

**Objective: Bivariate Data Analysis** (Association between Two Categorical Variables) Variables and their Type:

- Opinion About Science Make Life Better: An Ordinal Categorical Variable Levels: "strongly agree", "agree", "disagree", or "strongly disagree"
  Sex of respondents:
- A Nominal Categorical Levels: "Male", or "Female"
- 10. Select "SEX" as the "Row" Variable; And, "BETTRLFE" as the "Column" variable. Follow the screen shots below to makes the changes to SDA and then click on "Run the Table".

SDA 4.0	Selected Study: GSS 1972-2014 Cumulative Datafile
Analysis Create Variables Download Custom Subset	Search Standard Codebook Codebook by Year of Interview
Variable Selection	Help: General / Recoding Variables
Selected: SEX	Row: (Required)
Copy to: Row Col Ctrl Filter	Column: BETTRLFE
Mode: Append Replace	Control:
	Weight: No Weight
CASE IDENTIFICATION AND YEAR     CASE IDENTIFICATION AND YEAR     CASE IDENTIFICATION AND YEAR     CASE IDENTIFICATION AND YEAR	✓ Output Options
Age, Gender, Race, and Ethnicity	Cell contents:
DISEX RESPONDENTSSEX	Percentaging: Columer Row Total
RACECEN1 - WHAT IS RS RACE 1ST MENTION     RACECEN2 - WHAT IS RS RACE 2ND MENTION     RACECEN2 - WHAT IS RS RACE 2ND MENTION	Sample design: Complex SRS
HISPANIC - HISPANIC SPECIFIED     BACEHISP - Bace with Hispanic (2000 and later)	Confidence intervals - Level: 95 percent ✓ Standard error of each percent
ETHNIC - COUNTRY OF FAMILY ORIGIN     ETH1 - 1ST MENTIONED COUNTRY OF ORIGIN	Design effect (deft) for each percent Z-statistics
ETH2 - 2ND MENTIONED COUNTRY OF ORIGIN ETH3 - 3RD MENTIONED COUNTRY OF ORIGIN	Unweighted N Weighted N
<ul> <li>ETHNUM - TYPE OF RESPONSE ABOUT ETHNI</li> <li>SPETHNIC - COUNTRY OF SPOUSES FAMILY (</li> </ul>	Summary statistics Question text Color coding
SPETH1 - 1ST MENTIONED COUNTRY OF SPO SPETH2 - 2ND MENTIONED COUNTRY OF SPC	Suppress table Include missing-data values
<u>د</u>	Inte: Distibution of Gender by Opinion About Science Make Life Better ×
Mode: Append Replace	* Chart Options
	Type of chart Bar Chart
RESPONDENT BACKGROUND VARIABLES     C Ang Garder Page and Ethnicity	General Chart Options
Age, Center, race, and Eminiting     Age A GE OF RESPONDENT     Sex RESPONDENT	Palette: Color Gravscale
RACE - RACE OF RESPONDENT     RACECEN1 - WHAT IS RS RACE 1ST MENTION	Size - width: 600 ✓ height: 400 ✓
RACECEN2 - WHAT IS RS RACE 2ND MENTION     RACECEN3 - WHAT IS RS RACE 3RD MENTION	Bar Chart Options
<ul> <li>HISPANIC - HISPANIC SPECIFIED</li> <li>RACEHISP - Race with Hispanic (2000 and later)</li> </ul>	Orientation:  Vertical Horizontal
ETHNIC - COUNTRY OF FAMILY ORIGIN     ETH1 - 1ST MENTIONED COUNTRY OF ORIGIN	Visual Effects: <sup>1</sup> 2-D 3-D
ETH2 - 2ND MENTIONED COUNTRY OF ORIGIN     ETH3 - 3RD MENTIONED COUNTRY OF ORIGIN     ETHINA TYPE OF DESCRIPTIONED COUNTRY OF ORIGIN	
SPETHNUM - TYPE OF RESPONSE ABOUT ETHNI SPETHNIC - COUNTRY OF SPOUSES FAMILY ( SPETH 1 ST MENTIONED COUNTRY OF SPO	> Decimal Options
SPETH2 - 2ND MENTIONED COUNTRY OF SPO	Run the Table Clear Fields

### 11. The contingency table for the distribution of:

"Opinion About Science Makes our Lives Better by Sex of Respondents".

Distibution of Gender by Opinion About Science Make Life Better										
SDA 4.0: Tables										
Gener	ral So	cial Surv	ey Cumula	ative Data	afile 1972-2	2014				
Aug 2	1, 20	16 (Sun 0	3:35 PM I	PDT)						
Variables										
Rol	e	Name			Label			Range	MD	Dataset
Row	S	EX	RESP	ONDENT	'S SEX			1-2	0	1
Colur	mn E	BETTRLF	E SCIEN	CE MAK	ES OUR L	IVES BET	TER	1-4	0,8,9	1
Frequency Distribution										
Colle	contr	nin:			BETTRLF	E				
-Row -N of	conta / perc case:	s S	1 Strongly agree	2 Agree	3 Disagree	4 Strongly disagree	RO TOT	W AL		
	1: M	ALE	<b>22.1</b> 120	<b>61.0</b> 331	<b>15.1</b> 82	<b>1.8</b> 10	<b>10</b>	<b>0.0</b> 543		
SEX 2: FEMALE			<b>15.6</b> 105	<b>65.4</b> 441	<b>17.7</b> 119	<b>1.3</b> 9	<b>100.0</b> 674			
COL TOTAL         18.5 225         63.4 772         16.5 201         1.6 19         100.0 1,217										
Color coding: <-2.0 <-1.0 <0.0 >0.0 >1.0 >2.0 Z										
N in each cell: Smaller than expected Larger than expected										

We can develop students' statistical literacy (read and interpret the table):

• Marginal Distributions:

- E.g., percentage of male respondents:  $543/1217 \times 100 = 44.61\%$ 

### • Conditional Distributions:

- Percentage of male participants who agreed:  $331/543 \times 100 = 60.96\%$ ;
- Percentage of **female** participants who agreed:  $441/674 \ge 100 = \frac{65.43\%}{100}$
- Compare the percentages for males and females who agreed: Female participants were more likely to agree than the males.
- Joint Distributions:
  - E.g., percentage of the participants who were male and agreed to the GSS statement:  $331/1217 \times 100 = 27.20\%$

12. The nested bar chart for the distribution of:

"Opinion About Science Makes our Lives Better by Sex of Respondents".



We can ask students to describe any obvious pattern they see in the graph.

Graph interpretation:

Both male and female participants mostly agreed to the GSS statement, "Science and technology make our lives better". More of the female respondents agreed to the GSS statement than the males.

### **Export Data into a CSV file**

- 1. In SDA, from the tool bar menu, go to "Download Custom Subset".
- 2. In the "File Options" tab, select "CSV file from the "Type of data file to create".

SDA 4.0	Selected Study: GSS 1972-2014 Cumulative Datafile
Analysis Create Variables Download Custom Subset	Search Standard Codebook Codebook by Year of Interview
Variable Selection Selected: View	File Options Select Cases Select Variables Create Files
	Custom Subset: Select the FILE to Construct
	Complete the options on each tab. After you have chosen the files, cases and variables you want to include in your subset, you can create the files and download them on the last tab.
	Type of data file to create:         Text file with no extra blanks         Text file with a blank between variables         CSV file (Comma Separated Values with header record)         Codebook:         Codebook for subset data (ASCII)         Data definitions for:
<ul> <li>▶</li></ul>	SAS SPSS STATA DDI (XML) SDA (DDL)

3. In "Select Variables" tab, under "Specify individual variables names", type in the box the names of the two variables: SEX, BETTRLFE.

Analysis Create Variables Download Custom Subset	Search Standard Codebook Codebook by Year of Interview
Variable Selection	Eile Onfigns Select Cases Select Variables Create Eiles
Selected: View	File Options Select Cases Select Valiables Create Files
	Select VARIABLES to include in subset:
	You can specify up to 1000 variables to include in the subset. (Note: the CASEID variable is always automatically included in the subset as the first variable.) Specify individual variable names:
	One way that variables can be selected for inclusion in the subset is by entering their names in the text box below. These variables can be original variables set up with the dataset or variables created by RECODE or COMPUTE.
CONTROVERSIAL SOCIAL ISSUES     MILITARY ISSUES     MILITARY ISSUES     COLIGATIONS AND RESPONSIBILITIES     DELIGATIONS AND RESPONSIBILITIES     1985 TOPICAL MODULE: SOCIO-POLITICAL PARTICI     1987 TOPICAL MODULE: SOCIO-POLITICAL PARTICI     1998 TOPICAL MODULE: SOCIO-POLITICAL PARTICI     1990 MODULE: INTER-GROUP RELATIONS     1991 TOPICAL MODULE: WORK ORGANIZATIONS     1991 SSP MODULE: CULTURE     1993 ISSP MODULE: CULTURE	Select variables from groups: To select more than a few variables, you will probably want to use the variable selection tree. Note that the tree only displays original variables. If you want to include variables created by RECODE or COMPUTE, specify them individually in the text box and they will be combined together with the variables selected from the tree in your subset. Click on the Display Variable Selection Tree button below to begin selecting variables from the tree. Display Variable Selection Tree Remove/Clear Variable Selection Tree

- 4. In "Create Files" tab, click on the icon "Create Files".
- 5. Next, click on the icon "Data files' and save the data in your "My Document" folder.
- 6. Click on the icon "Codebook". Note the numeric references for the levels of the variables in the data file:

SEX: "1 = Male", "2 = Female" BETTRLFE: "1 = Strongly Agree", "2 = Agree", "3 = Disagree", "4 = Strongly Disagree"

The above levels for each variable are the only levels we want to include into our data analysis. We will omit the missing values coded as, e.g., 8, 9, from our data analysis (later on in PSPP).

SDA 4.0			Selected Study: GSS 1972-2014 Cumulative Datafile
Analysis	Create Variables	Download Custom Subset	Search Standard Codebook Codebook by Year of Interview
Variable §	election		File Options Select Cases Select Variables Create Files
Selected:		View	Check Subset Specification and Create Files
			The subset options you have specified are listed below. Please check that they are correct before continuing. If the specifications are NOT correct, back up to the appropriate tab and correct your entries. If the specifications are correct, just press the "Create Files" button below. (Please be patient if the original data file is large.) File(s) to create:
CASE     RESE	DENTIFICATION AND	YEAR ID VARIABLES	Data file: CSV file (Comma Separated Values with header record)     Codebook
<ul> <li>&gt; PER\$     <li>&gt; ATTI     <li>&gt; ATTI     </li> </li></li></ul>	SONAL AND FAMILY INF FUDINAL MEASURES - I	ORMATION NATIONAL PROBLEMS	Filter(s) to select cases: [None specified]
<ul> <li>PERS</li> <li>SOC</li> </ul>	SONAL CONCERNS ETAL CONCERNS		Show List of All Variables Selected for Subset
<ul> <li>WOR</li> <li>CON</li> <li>MILIT</li> <li>OBLI</li> <li>1985</li> </ul>	KPLACE AND ECONOM TROVERSIAL SOCIAL IS ARY ISSUES GATIONS AND RESPON TOPICAL MODULE: SO	IIC CONCERNS SSUES ISIBILITIES CIAL NETWORKS	Create Files 3 variables for 59599 cases in subset.
<ul> <li>Image: 1987</li> <li>Image: 1988</li> </ul>	TOPICAL MODULE: SO TOPICAL MODULE: RE	CIO-POLITICAL PARTICI	Data subsetting is now complete. Click on the button(s) below to view and/or download the file(s) to your computer.
<ul> <li>im 1990</li> <li>im 1991</li> <li>im 1993</li> </ul>	MODULE: INTER-GROU TOPICAL MODULE: WC ISSP MODULE: CULTU	JP RELATIONS ORK ORGANIZATIONS RE	Lota file     Lodebook     A zip arcmive containing ALL of the subset files has also been created. You can download it, instead of the individual files, below:
<ul> <li>i 1994</li> <li>i 1994</li> <li>i 1994</li> <li>i FAMI</li> </ul>	FAMILY MOBILITY MOE MULTICULTURALISM N LY - FINANCES - DONA	OULE NODULE	↓ Zip archive - ALL files

### Part 2. Import Data in PSPP

- ✤ Open PSPP.
- 1. Select Files to Import:
  - In menu bar, go to File > Import Data > My Document
    - Select the saved data file
    - Click Next (Bottom of the page)
- 2. Select the Lines to Import:
  - Click Next
- 3. Select the First Line:
  - Select Line "1"
  - Check off the box: Line Above Selected Line Contains Variable Names
  - Click Next
- 4. Choose Separators:
  - Click Next
- 5. Adjust Variable Formats:
  - Click Apply.
- ✤ Go to Variable View (Bottom of the page).
  - For variable SEX, make value labels:
    - Value: 1, Value Label: Male; Click on Add
    - Value: 2, Value Label: Female; Click on Add
    - Click Ok.
  - For variable BETTRLFE, make value labels:
    - Value: 1, Value Label: Strongly Agree; Click on Add
    - o Value: 2, Value Label: Agree; Click on Add
    - Value: 3, Value Label: Disagree; Click on Add
    - Value: 4, Value Label: Strongly Disagree; Click on Add
    - Click Ok.

- ✤ In menu bar, go to File > New > Syntax
  - Copy the syntax below and paste into the syntax editor:

SELECT IF (SEX = 1 OR SEX = 2). EXECUTE. SELECT IF (BETTRLFE = 1 OR BETTRLFE = 2 OR BETTRLFE = 3 OR BETTRLFE = 4). EXECUTE.

- In the syntax menu bar, click on RUN > ALL.
- ✤ In menu bar, go to Bar Chart.
  - In the Bar Chart box that appears:
    - Variable: BETTRLFE
    - Variable Axis: SEX
    - Variable Cluster: BETTRLFE
    - Click OK.

✤ PSPP output:



SEX

In menu bar, go to Analyze > Descriptive Statistics > Crosstabs

- In the Crosstabs box that appears:
  - Rows: Select variable "SEX"
  - Columns: Select variable "BETTRLFE"
  - Click OK.

### ✤ PSPP output:

CROSSTABS

CROSSTABS

CROSSTABS /TABLES= SEX BY BETTRLFE /FORMAT=AVALUE TABLES PIVOT /STATISTICS=CHISQ /CELLS=COUNT ROW COLUMN TOTAL.

Summary.

		Cases						
	∨alid		Missing		Total			
	N	Percent	N.	Percent	N	Percent		
SEX * BETTRLFE	1217	100.0%	0	0.0%	1217	100.0%		

SEX \* BETTRLFE [count, row %, column %, total %].

	BETTRLFE						
SEX	Strongly Agree	Agree	Disagree	Strongly Disagree	Total		
Male	120.00	331.00	82.00	10.00	543.00		
	22.10%	60.96%	15.10%	1.84%	100.00%		
	53.33%	42.88%	40.80%	52.63%	44.62%		
	9.86%	27.20%	6.74%	.82%	44.62%		
Female	105.00	441.00	119.00	9.00	674.00		
	15.58%	65.43%	17.66%	1.34%	100.00%		
	46.67%	57.12%	59.20%	47.37%	55.38%		
	8.63%	36.24%	9.78%	.74%	55.38%		
Total	225.00	772.00	201.00	19.00	1217.00		
	18.49%	63.43%	16.52%	1.56%	100.00%		
	100.00%	100.00%	100.00%	100.00%	100.00%		
	18.49%	63.43%	16.52%	1.56%	100.00%		

### Chi-square tests.

Statistic	Value	df	Asymp. Sig. (2-tailed)
Pearson Chi-Square	9.55	3	.023
Likelihood Ratio	9.50	3	.023
Linear-by-Linear Association	4.74	1	.030
N of Valid Cases	1217		

- Options to save (Export) PSPP outputs:
  - In the output window, go to File > Export > "Give a name to your output"
  - At the bottom of the box that appears, from the drop down menu, select the format that you want to save your PSPP output: e.g., HTML(\*.html)
  - Click "Save"

Here is the PSPP output in html format:

	BETTRLFE				
SEX	Strongly Agree	Agree	Disagree	Strongly Disagree	Total
Male	120.00	331.00	82.00	10.00	543.00
	22.10%	60.96%	15.10%	1.84%	100.00%
	53.33%	42.88%	40.80%	52.63%	44.62%
	9.86%	27.20%	6.74%	.82%	44.62%
Female	105.00	441.00	119.00	9.00	674.00
	15.58%	65.43%	17.66%	1.34%	100.00%
	46.67%	57.12%	59.20%	47.37%	55.38%
	8.63%	36.24%	9.78%	.74%	55.38%
Total	225.00	772.00	201.00	19.00	1217.00
	18.49%	63.43%	16.52%	1.56%	100.00%
	100.00%	100.00%	100.00%	100.00%	100.00%
	18.49%	63.43%	16.52%	1.56%	100.00%

SEX \* BETTRLFE [count, row %, column %, total %].

✤ PSPP Codes:

ELECT IF (SEX = 1 OR SEX = 2). EXECUTE.

SELECT IF (BETTRLFE = 1 OR BETTRLFE = 2 OR BETTRLFE = 3 OR BETTRLFE = 4). EXECUTE.

GRAPH /BAR = COUNT BY SEX BY BETTRLFE.

CROSSTABS

/TABLES= SEX BY BETTRLFE /FORMAT=AVALUE TABLES PIVOT /STATISTICS=CHISQ /CELLS=COUNT ROW COLUMN TOTAL.

## ~ The End ~

# **Thanks for your participation**

**Asal Aslemand**