**RUTGERS UNIVERSITY**

**Bloustein School of Planning and Public Policy**

**Applied Multivariate Methods**

**Fall 2020**

**Dawne Mouzon, Ph.D.**

**Problem Set #5:**

**BIVARIATE STATISTICS**

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**SUBMISSION INSTRUCTIONS: Please upload to Canvas by 11:59 pm next Thursday night.**

**BIVARIATE STATISTICS**

**(100 points total)**

***Please use the 2016 General Social Survey for all questions.***

**Please be sure to follow all instructions for creating recodes and constructing scales (including prep work). The requested output can be found after each question. Please copy and paste your code and output after each question/subquestion.**

**Your output must be copied/pasted. Do not use screenshots or pictures. Use the Courier New font, size 10 to make your output line up. Do not use bold font for output. Minimize the font if necessary.**

**Copy and paste your code from your do-file only (not the log); copy and paste your output from the results window.**

1. **(20 points) Create a “government responsibility” scale with the following items: jobsall**, **pricecon**, **hlthcare**, **aidold**, **aidindus**, **aidunemp**, **equalize**, **aidcol**, **aidhouse**, **and grnlaws (note: recode and reverse-scale as/if needed; new variables should be named govresp1-govresp10🡪 gov\_resp\_scale). Retain the extended missing values on the new variables and overall scale. Remember to follow the Principles of Good Scale Construction (see Lab 3 and Principles of Good Scale Construction Worksheet). Please submit the following output:**
   1. **Simple descriptives using sum (no “detail” option) of the overall scale and all 10 input items (govresp1-govresp10)**
   2. **Frequencies of overall scale and all recoded input items**
   3. **Inter-item reliability test, excluding the “casewise” option. Make any changes (e.g., dropping items and recalculating the scale), if needed. Submit output of inter-item reliability test(s).**
   4. **Use rmiss2 to limit the overall scale to those missing on no more than 2 items. Submit frequencies on the revised scale.**
   5. **Your code for the entire problem**

**tab1 jobsall pricecon hlthcare aidold aidindus aidunemp equalize aidcol aidhouse grnlaws, miss**

**gen govresp1= jobsall**

**gen govresp2= pricecon**

**gen govresp3= hlthcare**

**gen govresp4= aidold**

**gen govresp5= aidindus**

**gen govresp6= aidunemp**

**gen govresp7= equalize**

**gen govresp8= aidcol**

**gen govresp9= aidhouse**

**gen govresp10=grnlaws**

**label define resp\_rev 0 "defin should not be" 1 "prob should not be" 2 "probab should be" 3 "defin should be" .c "can't choose" .i "IAP" .n "NA"**

**recode govresp1-govresp10 (4= 0) (3=1) (2=2) (1=3)**

**numlabel resp\_rev, add**

**label values govresp1 govresp2 govresp3 govresp4 govresp5 govresp6 govresp7 govresp8 govresp9 govresp10 resp\_rev**

**label variable govresp1 "Providing Jobs for all"**

**label variable govresp2 "Keeping prices in check"**

**label variable govresp3 "Providing health care for sick"**

**label variable govresp4 "Providing for the elderly"**

**label variable govresp5 "Assisting Industrial Growth"**

**label variable govresp6 "Provide for unemployed"**

**label variable govresp7 "Reduce income differences"**

**label variable govresp8 "Assist low income college student"**

**label variable govresp9 "Provide housing for poor"**

**label variable govresp10 "Make industry less damaging"**

**tab1 govresp1 jobsall, miss**

**tab1 govresp2 pricecon, miss**

**tab1 govresp3 hlthcare, miss**

**tab1 govresp4 aidold, miss**

**tab1 govresp5 aidindus, miss**

**tab1 govresp6 aidunemp, miss**

**tab1 govresp7 equalize, miss**

**tab1 govresp8 aidcol, miss**

**tab1 govresp9 aidhouse, miss**

**tab1 govresp10 grnlaws, miss**

**egen gov\_resp\_scale = rowtotal(govresp1-govresp10), miss**

**label variable gov\_resp\_scale "10 Item Scale of Government's Responsibilities"**

**replace gov\_resp\_scale = .n if govresp1 == .n & govresp2 == .n & govresp3 == .n & govresp4 == .n & govresp5 == .n & govresp6== .n & govresp7 == .n & govresp8== .n & govresp9==.n & govresp10==.n**

**replace gov\_resp\_scale = .i if govresp1 == .i & govresp2 == .i & govresp3 == .i & govresp4 == .i & govresp5 == .i & govresp6== .i & govresp7 == .i & govresp8== .i & govresp9==.i & govresp10==.i**

**replace gov\_resp\_scale = .c if govresp1 == .c & govresp2 == .c & govresp3 == .c & govresp4 == .c & govresp5 == .c & govresp6== .c & govresp7 == .c & govresp8== .c & govresp9==.c & govresp10==.c**

**label define resp\_miss .n "NA" .c "can't choose" .i "IAP" .a "More than two missing variables"**

**label values gov\_resp\_scale resp\_miss**

**numlabel resp\_miss, add**

**tab gov\_resp\_scale, miss**

**sum gov\_resp\_scale, detail**

**sum gov\_resp\_scale govresp1-govresp10**

**alpha govresp1-govresp10, item**

**\*It is found that no variables need to be removed in order to increase cronbach's alpha\***

**mvpatterns govresp1-govresp10, sort**

**egen nmiss\_gov\_resp\_scale =rmiss2(govresp1-govresp10)**

**label variable nmiss\_gov\_resp\_scale "Count for number of different cases of missing variables in 10-input item scale"**

**tab1 nmiss\_gov\_resp\_scale gov\_resp\_scale, miss**

**replace gov\_resp\_scale = .a if nmiss\_gov\_resp\_scale >2 & !missing(nmiss\_gov\_resp\_scale)**

**tab gov\_resp\_scale, miss**

**sum gov\_resp\_scale, detail**

. tab1 govresp1, miss

-> tabulation of govresp1

Providing Jobs for all | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 390 13.60 13.60

1. prob should not be | 479 16.71 30.31

2. probab should be | 333 11.61 41.93

3. defin should be | 162 5.65 47.58

.c. can't choose | 17 0.59 48.17

.i. IAP | 1,477 51.52 99.69

.n. NA | 9 0.31 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp2 , miss

-> tabulation of govresp2

Keeping prices in |

check | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 125 4.36 4.36

1. prob should not be | 247 8.62 12.98

2. probab should be | 544 18.97 31.95

3. defin should be | 440 15.35 47.30

.c. can't choose | 24 0.84 48.13

.i. IAP | 1,477 51.52 99.65

.n. NA | 10 0.35 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp3 , miss

-> tabulation of govresp3

Providing health care |

for sick | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 49 1.71 1.71

1. prob should not be | 146 5.09 6.80

2. probab should be | 493 17.20 24.00

3. defin should be | 679 23.68 47.68

.c. can't choose | 13 0.45 48.13

.i. IAP | 1,477 51.52 99.65

.n. NA | 10 0.35 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp4, miss

-> tabulation of govresp4

Providing for the |

elderly | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 32 1.12 1.12

1. prob should not be | 128 4.46 5.58

2. probab should be | 535 18.66 24.24

3. defin should be | 672 23.44 47.68

.c. can't choose | 12 0.42 48.10

.i. IAP | 1,477 51.52 99.62

.n. NA | 11 0.38 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp5 , miss

-> tabulation of govresp5

Assisting Industrial |

Growth | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 81 2.83 2.83

1. prob should not be | 283 9.87 12.70

2. probab should be | 611 21.31 34.01

3. defin should be | 371 12.94 46.95

.c. can't choose | 32 1.12 48.06

.i. IAP | 1,477 51.52 99.58

.n. NA | 12 0.42 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp6 , miss

-> tabulation of govresp6

Provide for unemployed | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 139 4.85 4.85

1. prob should not be | 442 15.42 20.27

2. probab should be | 541 18.87 39.13

3. defin should be | 217 7.57 46.70

.c. can't choose | 37 1.29 47.99

.i. IAP | 1,477 51.52 99.51

.n. NA | 14 0.49 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp7 , miss

-> tabulation of govresp7

Reduce income |

differences | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 252 8.79 8.79

1. prob should not be | 338 11.79 20.58

2. probab should be | 382 13.32 33.90

3. defin should be | 366 12.77 46.67

.c. can't choose | 38 1.33 47.99

.i. IAP | 1,477 51.52 99.51

.n. NA | 14 0.49 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp8, miss

-> tabulation of govresp8

Assist low income |

college student | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 42 1.46 1.46

1. prob should not be | 114 3.98 5.44

2. probab should be | 583 20.33 25.78

3. defin should be | 624 21.76 47.54

.c. can't choose | 15 0.52 48.06

.i. IAP | 1,477 51.52 99.58

.n. NA | 12 0.42 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp9 , miss

-> tabulation of govresp9

Provide housing for |

poor | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 66 2.30 2.30

1. prob should not be | 251 8.75 11.06

2. probab should be | 654 22.81 33.87

3. defin should be | 375 13.08 46.95

.c. can't choose | 31 1.08 48.03

.i. IAP | 1,477 51.52 99.55

.n. NA | 13 0.45 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab1 govresp10, miss

-> tabulation of govresp10

Make industry less |

damaging | Freq. Percent Cum.

-----------------------+-----------------------------------

0. defin should not be | 32 1.12 1.12

1. prob should not be | 98 3.42 4.53

2. probab should be | 535 18.66 23.19

3. defin should be | 688 24.00 47.19

.c. can't choose | 23 0.80 47.99

.i. IAP | 1,477 51.52 99.51

.n. NA | 14 0.49 100.00

-----------------------+-----------------------------------

Total | 2,867 100.00

. tab gov\_resp\_scale, miss

10 Item Scale of |

Government's |

Responsibilities | Freq. Percent Cum.

-----------------+-----------------------------------

0 | 3 0.10 0.10

1 | 2 0.07 0.17

2 | 5 0.17 0.35

3 | 6 0.21 0.56

4 | 7 0.24 0.80

5 | 2 0.07 0.87

6 | 9 0.31 1.19

7 | 7 0.24 1.43

8 | 14 0.49 1.92

9 | 22 0.77 2.69

10 | 27 0.94 3.63

11 | 32 1.12 4.74

12 | 37 1.29 6.03

13 | 39 1.36 7.39

14 | 59 2.06 9.45

15 | 77 2.69 12.14

16 | 69 2.41 14.54

17 | 79 2.76 17.30

18 | 88 3.07 20.37

19 | 86 3.00 23.37

20 | 87 3.03 26.40

21 | 92 3.21 29.61

22 | 84 2.93 32.54

23 | 74 2.58 35.12

24 | 78 2.72 37.84

25 | 69 2.41 40.25

26 | 56 1.95 42.20

27 | 52 1.81 44.02

28 | 47 1.64 45.66

29 | 35 1.22 46.88

30 | 34 1.19 48.06

.c. can't choose | 3 0.10 48.17

.i. IAP | 1,477 51.52 99.69

.n. NA | 9 0.31 100.00

-----------------+-----------------------------------

Total | 2,867 100.00

. sum gov\_resp\_scale, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 3 0

5% 9 0

10% 12 0 Obs 1,378

25% 15 1 Sum of Wgt. 1,378

50% 20 Mean 19.39768

Largest Std. Dev. 5.928041

75% 24 30

90% 27 30 Variance 35.14166

95% 29 30 Skewness -.4186639

99% 30 30 Kurtosis 2.9397

. sum gov\_resp\_scale govresp1-govresp10

Variable | Obs Mean Std. Dev. Min Max

-------------+---------------------------------------------------------

gov\_resp\_s~e | 1,378 19.39768 5.928041 0 30

govresp1 | 1,364 1.195748 .983628 0 3

govresp2 | 1,356 1.957965 .9350115 0 3

govresp3 | 1,367 2.318215 .8038052 0 3

govresp4 | 1,367 2.351134 .7456343 0 3

-------------+---------------------------------------------------------

govresp5 | 1,346 1.945022 .8509481 0 3

govresp6 | 1,339 1.624347 .8757001 0 3

govresp7 | 1,338 1.644245 1.074161 0 3

govresp8 | 1,363 2.312546 .7532872 0 3

govresp9 | 1,346 1.994056 .8134339 0 3

-------------+---------------------------------------------------------

govresp10 | 1,353 2.388766 .7244204 0 3

. alpha govresp1-govresp10, item

Test scale = mean(unstandardized items)

average

item-test item-rest interitem

Item | Obs Sign correlation correlation covariance alpha

-------------+-----------------------------------------------------------------

govresp1 | 1364 + 0.6600 0.5447 .2896345 0.8587

govresp2 | 1356 + 0.6473 0.5369 .2945763 0.8592

govresp3 | 1367 + 0.7333 0.6555 .2902062 0.8490

govresp4 | 1367 + 0.7325 0.6618 .295202 0.8498

govresp5 | 1346 + 0.6362 0.5342 .300708 0.8588

govresp6 | 1339 + 0.7009 0.6098 .289909 0.8526

govresp7 | 1338 + 0.7184 0.6083 .2752195 0.8540

govresp8 | 1363 + 0.6786 0.5979 .3008593 0.8541

govresp9 | 1346 + 0.7186 0.6390 .2915849 0.8506

govresp10 | 1353 + 0.5749 0.4808 .315218 0.8624

-------------+-----------------------------------------------------------------

Test scale | .2943072 0.8676

-------------------------------------------------------------------------------

. tab gov\_resp\_scale, miss

10 Item Scale of Government's |

Responsibilities | Freq. Percent Cum.

------------------------------------+-----------------------------------

0 | 3 0.10 0.10

1 | 2 0.07 0.17

2 | 4 0.14 0.31

3 | 4 0.14 0.45

4 | 6 0.21 0.66

5 | 1 0.03 0.70

6 | 6 0.21 0.91

7 | 6 0.21 1.12

8 | 14 0.49 1.60

9 | 21 0.73 2.34

10 | 27 0.94 3.28

11 | 31 1.08 4.36

12 | 33 1.15 5.51

13 | 39 1.36 6.87

14 | 57 1.99 8.86

15 | 76 2.65 11.51

16 | 69 2.41 13.92

17 | 78 2.72 16.64

18 | 87 3.03 19.67

19 | 85 2.96 22.64

20 | 87 3.03 25.67

21 | 90 3.14 28.81

22 | 84 2.93 31.74

23 | 74 2.58 34.32

24 | 78 2.72 37.04

25 | 69 2.41 39.45

26 | 56 1.95 41.40

27 | 52 1.81 43.22

28 | 47 1.64 44.86

29 | 35 1.22 46.08

30 | 34 1.19 47.26

.a. More than two missing variables | 1,512 52.74 100.00

------------------------------------+-----------------------------------

Total | 2,867 100.00

. sum gov\_resp\_scale, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 4 0

5% 10 0

10% 12 0 Obs 1,355

25% 16 1 Sum of Wgt. 1,355

50% 20 Mean 19.54317

Largest Std. Dev. 5.822093

75% 24 30

90% 27 30 Variance 33.89677

95% 29 30 Skewness -.3987368

99% 30 30 Kurtosis 2.936521

1. **(80 pts total) Choose the appropriate bivariate test to assess the relationships below. Remember, garbage in, garbage out. For each test, please submit your code and output from the test, as well as a standard write-up. In the write-ups, report the full *p*-value and round point estimates to two decimal places.**
   1. (15 pts) Institutional confidence scale (**inst\_conf\_scale**) and sex (**sex**)

**tab1 inst\_conf\_scale sex, miss**

**sum inst\_conf\_scale if sex ==1, detail**

**sum inst\_conf\_scale if sex ==2, detail**

**ttest inst\_conf\_scale, by(sex)**

. tab1 inst\_conf\_scale sex, miss

-> tabulation of inst\_conf\_scale

7 item |

Confidence |

in Inst |

Scale | Freq. Percent Cum.

------------+-----------------------------------

0 | 9 0.31 0.31

1 | 4 0.14 0.45

2 | 11 0.38 0.84

3 | 20 0.70 1.53

4 | 25 0.87 2.41

5 | 52 1.81 4.22

6 | 67 2.34 6.56

7 | 94 3.28 9.84

8 | 105 3.66 13.50

9 | 135 4.71 18.21

10 | 175 6.10 24.31

11 | 183 6.38 30.69

12 | 214 7.46 38.16

13 | 182 6.35 44.51

14 | 163 5.69 50.19

15 | 116 4.05 54.24

16 | 107 3.73 57.97

17 | 90 3.14 61.11

18 | 62 2.16 63.27

19 | 36 1.26 64.53

20 | 40 1.40 65.92

21 | 17 0.59 66.52

22 | 17 0.59 67.11

23 | 14 0.49 67.60

24 | 4 0.14 67.74

25 | 5 0.17 67.91

26 | 8 0.28 68.19

.i. IAP | 911 31.78 99.97

.n. NA | 1 0.03 100.00

------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of sex

respondents |

sex | Freq. Percent Cum.

------------+-----------------------------------

1. male | 1,276 44.51 44.51

2. female | 1,591 55.49 100.00

------------+-----------------------------------

Total | 2,867 100.00

. sum inst\_conf\_scale if sex ==1, detail

7 item Confidence in Inst Scale

-------------------------------------------------------------

Percentiles Smallest

1% 3 0

5% 5 0

10% 7 0 Obs 876

25% 9 1 Sum of Wgt. 876

50% 12 Mean 12.02169

Largest Std. Dev. 4.30821

75% 15 26

90% 17 26 Variance 18.56067

95% 19 26 Skewness .2892442

99% 24 26 Kurtosis 3.408526

. sum inst\_conf\_scale if sex ==2, detail

7 item Confidence in Inst Scale

-------------------------------------------------------------

Percentiles Smallest

1% 2 0

5% 5 0

10% 6 0 Obs 1,079

25% 9 0 Sum of Wgt. 1,079

50% 12 Mean 12.11585

Largest Std. Dev. 4.422967

75% 15 25

90% 18 26 Variance 19.56263

95% 20 26 Skewness .1387542

99% 23 26 Kurtosis 3.179094

. ttest inst\_conf\_scale, by(sex)

Two-sample t test with equal variances

------------------------------------------------------------------------------

Group | Obs Mean Std. Err. Std. Dev. [95% Conf. Interval]

---------+--------------------------------------------------------------------

1. male | 876 12.02169 .1455609 4.30821 11.736 12.30738

2. femal | 1,079 12.11585 .1346489 4.422967 11.85164 12.38005

---------+--------------------------------------------------------------------

combined | 1,955 12.07366 .0988583 4.371057 11.87978 12.26754

---------+--------------------------------------------------------------------

diff | -.0941585 .1988306 -.484101 .295784

------------------------------------------------------------------------------

diff = mean(1. male) - mean(2. femal) t = -0.4736

Ho: diff = 0 degrees of freedom = 1953

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.3179 Pr(|T| > |t|) = 0.6359 Pr(T > t) = 0.6821

An independent sample t-test was conducted to determine if there were variation due to gender in confidence on institutions (13-Item scale ranging from 0/low - 26/highest).

The t-test was not significant as the P value (0.6359) was greater than the alpha value of 0.5. Which is why we fail to reject the null hypothesis and conclude that there is no significant gender difference between men and women, in confidence on institution’s score (12.02 vs 12.12, respectively).

* 1. (20 pts) Government responsibility scale (**gov\_resp\_scale**) and political party affiliation (**partyid\_rev**). **Please provide your code for creating partyid\_rev, as well as frequencies and consistency checks.** 
     1. You’ll need to create this variable based on **partyid**. The categories on **partyid\_rev** should be 1=Democrat, 2=Independent, 3=Republican, 4=Other; .n=NA.
     2. Any “near” designation should be coded as the first party listed. For example, “Independent, near Democrat” should be coded as “Independent”.

**tab partyid, miss**

**recode partyid (0 1 = 1) (2 3 4 = 2) (5 6 =3) (7= 4) (.n = .n), gen(partyid\_rev)**

**label variable partyid\_rev "political party affiliation"**

**label define paty 1 "Democrat" 2 "Independent" 3 "Republican" 4 "Other" .n "NA."**

**label values partyid\_rev paty**

**numlabel paty, add**

**tab partyid\_rev, miss**

**tab partyid\_rev partyid, miss**

**tab1 partyid\_rev partyid, miss**

**tab1 partyid\_rev gov\_resp\_scale, miss**

**\*Doing Anova test\***

**tab1 gov\_resp\_scale partyid\_rev, miss**

**sum gov\_resp\_scale if partyid\_rev == 1, detail**

**sum gov\_resp\_scale if partyid\_rev == 2, detail**

**sum gov\_resp\_scale if partyid\_rev == 3, detail**

**sum gov\_resp\_scale if partyid\_rev == 4, detail**

**oneway gov\_resp\_scale partyid\_rev, tab scheffe**

. tab partyid\_rev, miss

political |

party |

affiliation | Freq. Percent Cum.

---------------+-----------------------------------

1. Democrat | 959 33.45 33.45

2. Independent | 1,170 40.81 74.26

3. Republican | 634 22.11 96.37

4. Other | 72 2.51 98.88

.n. NA. | 32 1.12 100.00

---------------+-----------------------------------

Total | 2,867 100.00

. tab partyid\_rev partyid, miss

political |

party | political party affiliation

affiliation | 0. strong 1. not st 2. ind,ne 3. indepe 4. ind,ne 5. not st 6. strong | Total

---------------+-----------------------------------------------------------------------------+----------

1. Democrat | 463 496 0 0 0 0 0 | 959

2. Independent | 0 0 405 473 292 0 0 | 1,170

3. Republican | 0 0 0 0 0 364 270 | 634

4. Other | 0 0 0 0 0 0 0 | 72

.n. NA. | 0 0 0 0 0 0 0 | 32

---------------+-----------------------------------------------------------------------------+----------

Total | 463 496 405 473 292 364 270 | 2,867

political | political party

party | affiliation

affiliation | 7. other .n. NA | Total

---------------+----------------------+----------

1. Democrat | 0 0 | 959

2. Independent | 0 0 | 1,170

3. Republican | 0 0 | 634

4. Other | 72 0 | 72

.n. NA. | 0 32 | 32

---------------+----------------------+----------

Total | 72 32 | 2,867

. tab1 partyid\_rev partyid, miss

-> tabulation of partyid\_rev

political |

party |

affiliation | Freq. Percent Cum.

---------------+-----------------------------------

1. Democrat | 959 33.45 33.45

2. Independent | 1,170 40.81 74.26

3. Republican | 634 22.11 96.37

4. Other | 72 2.51 98.88

.n. NA. | 32 1.12 100.00

---------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of partyid

political party |

affiliation | Freq. Percent Cum.

----------------------+-----------------------------------

0. strong democrat | 463 16.15 16.15

1. not str democrat | 496 17.30 33.45

2. ind,near dem | 405 14.13 47.58

3. independent | 473 16.50 64.07

4. ind,near rep | 292 10.18 74.26

5. not str republican | 364 12.70 86.96

6. strong republican | 270 9.42 96.37

7. other party | 72 2.51 98.88

.n. NA | 32 1.12 100.00

----------------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of gov\_resp\_scale

10 Item Scale of Government's |

Responsibilities | Freq. Percent Cum.

------------------------------------+-----------------------------------

0 | 3 0.10 0.10

1 | 2 0.07 0.17

2 | 4 0.14 0.31

3 | 4 0.14 0.45

4 | 6 0.21 0.66

5 | 1 0.03 0.70

6 | 6 0.21 0.91

7 | 6 0.21 1.12

8 | 14 0.49 1.60

9 | 21 0.73 2.34

10 | 27 0.94 3.28

11 | 31 1.08 4.36

12 | 33 1.15 5.51

13 | 39 1.36 6.87

14 | 57 1.99 8.86

15 | 76 2.65 11.51

16 | 69 2.41 13.92

17 | 78 2.72 16.64

18 | 87 3.03 19.67

19 | 85 2.96 22.64

20 | 87 3.03 25.67

21 | 90 3.14 28.81

22 | 84 2.93 31.74

23 | 74 2.58 34.32

24 | 78 2.72 37.04

25 | 69 2.41 39.45

26 | 56 1.95 41.40

27 | 52 1.81 43.22

28 | 47 1.64 44.86

29 | 35 1.22 46.08

30 | 34 1.19 47.26

.a. More than two missing variables | 1,512 52.74 100.00

------------------------------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of partyid\_rev

political |

party |

affiliation | Freq. Percent Cum.

---------------+-----------------------------------

1. Democrat | 959 33.45 33.45

2. Independent | 1,170 40.81 74.26

3. Republican | 634 22.11 96.37

4. Other | 72 2.51 98.88

.n. NA. | 32 1.12 100.00

---------------+-----------------------------------

Total | 2,867 100.00

. sum gov\_resp\_scale if partyid\_rev == 1, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 10 0

5% 14 4

10% 16 8 Obs 442

25% 18 9 Sum of Wgt. 442

50% 22 Mean 21.61765

Largest Std. Dev. 4.789535

75% 25 30

90% 28 30 Variance 22.93964

95% 29 30 Skewness -.4206422

99% 30 30 Kurtosis 3.460282

. sum gov\_resp\_scale if partyid\_rev == 2, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 6 2

5% 10 3

10% 13 4 Obs 555

25% 16 4 Sum of Wgt. 555

50% 20 Mean 20.03964

Largest Std. Dev. 5.555614

75% 24 30

90% 27 30 Variance 30.86485

95% 29 30 Skewness -.3326021

99% 30 30 Kurtosis 2.683831

. sum gov\_resp\_scale if partyid\_rev == 3, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 1 0

5% 6 0

10% 9 1 Obs 317

25% 12 1 Sum of Wgt. 317

50% 16 Mean 15.85174

Largest Std. Dev. 5.789567

75% 20 30

90% 23 30 Variance 33.51909

95% 26 30 Skewness -.0658977

99% 30 30 Kurtosis 2.993985

. sum gov\_resp\_scale if partyid\_rev == 4, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 2 2

5% 4 4

10% 7 7 Obs 27

25% 14 8 Sum of Wgt. 27

50% 19 Mean 18

Largest Std. Dev. 7.03289

75% 22 26

90% 28 28 Variance 49.46154

95% 28 28 Skewness -.5009448

99% 30 30 Kurtosis 2.917176

. oneway gov\_resp\_scale partyid\_rev, tab scheffe

political | Summary of 10 Item Scale of

party | Government's Responsibilities

affiliation | Mean Std. Dev. Freq.

------------+------------------------------------

1. Democr | 21.617647 4.7895347 442

2. Indepe | 20.03964 5.5556144 555

3. Republ | 15.851735 5.7895671 317

4. Other | 18 7.0328898 27

------------+------------------------------------

Total | 19.52871 5.8281448 1,341

Analysis of Variance

Source SS df MS F Prob > F

------------------------------------------------------------------------

Between groups 6422.60284 3 2140.86761 73.22 0.0000

Within groups 39093.5418 1337 29.2397471

------------------------------------------------------------------------

Total 45516.1447 1340 33.9672721

Bartlett's test for equal variances: chi2(3) = 20.1198 Prob>chi2 = 0.000

Comparison of 10 Item Scale of Government's Responsibilities

by political party affiliation

(Scheffe)

Row Mean-|

Col Mean | 1. Democ 2. Indep 3. Repub

---------+---------------------------------

2. Indep | -1.57801

| 0.000

|

3. Repub | -5.76591 -4.1879

| 0.000 0.000

|

4. Other | -3.61765 -2.03964 2.14826

| 0.010 0.301 0.270

A one-way ANOVA test was conducted to determine if there were mean differences in opinion’s regarding government’s responsibilities (10-item scale ranging from 0/lowest – 30/Highest) based on political affiliations.

The overall ANOVA was significant (p< 0.001), indicating that there is at least one significant difference between the means of two groups.

The Scheffe post hoc test found four significant mean differences between groups: The Democratic Group scored 1.58 points higher than Independent group (p<0.001), 5.77 points higher than Republicans (p<0.001), and 3.62 points higher than ‘other’ party folks (p =0.01), indicating more support for government responsibilities than the rest of the group people.

Moreover, there was a significant difference between Independent group and Republicans, with Independent scoring 4.19 points more (p <0.001) showing more support for government responsibilities than Republicans.

* 1. (15 pts) Government responsibility scale (**gov\_resp\_scale**) and sex (**sex**)

**tab1 sex gov\_resp\_scale, miss**

**sum gov\_resp\_scale if sex==1, detail**

**sum gov\_resp\_scale if sex==2, detail**

**ttest gov\_resp\_scale, by(sex)**

tab1 sex gov\_resp\_scale, miss

-> tabulation of sex

respondents |

sex | Freq. Percent Cum.

------------+-----------------------------------

1. male | 1,276 44.51 44.51

2. female | 1,591 55.49 100.00

------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of gov\_resp\_scale

10 Item Scale of Government's |

Responsibilities | Freq. Percent Cum.

------------------------------------+-----------------------------------

0 | 3 0.10 0.10

1 | 2 0.07 0.17

2 | 4 0.14 0.31

3 | 4 0.14 0.45

4 | 6 0.21 0.66

5 | 1 0.03 0.70

6 | 6 0.21 0.91

7 | 6 0.21 1.12

8 | 14 0.49 1.60

9 | 21 0.73 2.34

10 | 27 0.94 3.28

11 | 31 1.08 4.36

12 | 33 1.15 5.51

13 | 39 1.36 6.87

14 | 57 1.99 8.86

15 | 76 2.65 11.51

16 | 69 2.41 13.92

17 | 78 2.72 16.64

18 | 87 3.03 19.67

19 | 85 2.96 22.64

20 | 87 3.03 25.67

21 | 90 3.14 28.81

22 | 84 2.93 31.74

23 | 74 2.58 34.32

24 | 78 2.72 37.04

25 | 69 2.41 39.45

26 | 56 1.95 41.40

27 | 52 1.81 43.22

28 | 47 1.64 44.86

29 | 35 1.22 46.08

30 | 34 1.19 47.26

.a. More than two missing variables | 1,512 52.74 100.00

------------------------------------+-----------------------------------

Total | 2,867 100.00

. sum gov\_resp\_scale if sex==1, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 3 0

5% 9 0

10% 11 2 Obs 561

25% 15 2 Sum of Wgt. 561

50% 19 Mean 18.85027

Largest Std. Dev. 5.976356

75% 23 30

90% 26 30 Variance 35.71683

95% 28 30 Skewness -.3509324

99% 30 30 Kurtosis 2.844013

. sum gov\_resp\_scale if sex==2, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 4 0

5% 10 1

10% 13 1 Obs 794

25% 16 2 Sum of Wgt. 794

50% 20 Mean 20.03275

Largest Std. Dev. 5.663443

75% 24 30

90% 27 30 Variance 32.07459

95% 29 30 Skewness -.4187468

99% 30 30 Kurtosis 3.000124

. ttest gov\_resp\_scale, by(sex)

Two-sample t test with equal variances

------------------------------------------------------------------------------

Group | Obs Mean Std. Err. Std. Dev. [95% Conf. Interval]

---------+--------------------------------------------------------------------

1. male | 561 18.85027 .2523219 5.976356 18.35465 19.34588

2. femal | 794 20.03275 .2009881 5.663443 19.63821 20.42728

---------+--------------------------------------------------------------------

combined | 1,355 19.54317 .1581647 5.822093 19.2329 19.85345

---------+--------------------------------------------------------------------

diff | -1.182478 .3196185 -1.80948 -.5554767

------------------------------------------------------------------------------

diff = mean(1. male) - mean(2. femal) t = -3.6997

Ho: diff = 0 degrees of freedom = 1353

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.0001 Pr(|T| > |t|) = 0.0002 Pr(T > t) = 0.9999

An independent sample t-test was conducted to determine if there were differences by sex with regards to how responsible the government should be (10-item scale from 0 (least) to 30 (most)) The t test was significant, indicating that women expressed significantly more support regarding government’s responsibilities than men (20.03 vs 18.85, respectively; p = 0.0002).

* 1. (15 pts) Depressive symptoms (**cesd\_scale**) and race/ethnicity (**race\_eth**)

**tab1 cesd\_scale raceeth, miss**

**sum cesd\_scale if raceeth==1, detail**

**sum cesd\_scale if raceeth==2, detail**

**sum cesd\_scale if raceeth==3, detail**

**sum cesd\_scale if raceeth==4, detail**

**oneway cesd\_scale raceeth, tab scheffe**

. tab1 cesd\_scale race\_eth, miss

-> tabulation of cesd\_scale

4-item scale of |

depressive |

symptoms | Freq. Percent Cum.

-----------------+-----------------------------------

0 | 151 5.27 5.27

1 | 250 8.72 13.99

2 | 168 5.86 19.85

3 | 146 5.09 24.94

4 | 79 2.76 27.69

5 | 70 2.44 30.14

6 | 36 1.26 31.39

7 | 21 0.73 32.12

8 | 15 0.52 32.65

9 | 13 0.45 33.10

10 | 6 0.21 33.31

11 | 3 0.10 33.41

12 | 3 0.10 33.52

.a | 1,906 66.48 100.00

-----------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of race\_eth

recode of race variable | Freq. Percent Cum.

------------------------+-----------------------------------

1. NH White | 1,893 66.03 66.03

2. NH Black | 468 16.32 82.35

3. Hispanic | 369 12.87 95.22

4. Other | 135 4.71 99.93

.u. unknown Hisp origin | 2 0.07 100.00

------------------------+-----------------------------------

Total | 2,867 100.00

. sum cesd\_scale if race\_eth==1, detail

4-item scale of depressive symptoms

-------------------------------------------------------------

Percentiles Smallest

1% 0 0

5% 0 0

10% 0 0 Obs 634

25% 1 0 Sum of Wgt. 634

50% 2 Mean 2.430599

Largest Std. Dev. 2.204206

75% 3 10

90% 5 11 Variance 4.858525

95% 7 12 Skewness 1.281677

99% 9 12 Kurtosis 4.748228

. sum cesd\_scale if race\_eth==2, detail

4-item scale of depressive symptoms

-------------------------------------------------------------

Percentiles Smallest

1% 0 0

5% 0 0

10% 0 0 Obs 157

25% 1 0 Sum of Wgt. 157

50% 2 Mean 2.789809

Largest Std. Dev. 2.284372

75% 4 9

90% 6 9 Variance 5.218357

95% 8 10 Skewness 1.094995

99% 10 10 Kurtosis 3.885194

. sum cesd\_scale if race\_eth==3, detail

4-item scale of depressive symptoms

-------------------------------------------------------------

Percentiles Smallest

1% 0 0

5% 0 0

10% 0 0 Obs 122

25% 1 0 Sum of Wgt. 122

50% 2 Mean 2.581967

Largest Std. Dev. 2.551422

75% 4 10

90% 6 11 Variance 6.509755

95% 8 11 Skewness 1.521766

99% 11 12 Kurtosis 5.35795

. sum cesd\_scale if race\_eth==4, detail

4-item scale of depressive symptoms

-------------------------------------------------------------

Percentiles Smallest

1% 0 0

5% 0 0

10% 1 0 Obs 48

25% 1 0 Sum of Wgt. 48

50% 2 Mean 2.604167

Largest Std. Dev. 2.060155

75% 4 6

90% 6 6 Variance 4.244238

95% 6 7 Skewness 1.325101

99% 10 10 Kurtosis 5.003003

. oneway cesd\_scale race\_eth, tab scheffe

recode of | Summary of 4-item scale of

race | depressive symptoms

variable | Mean Std. Dev. Freq.

------------+------------------------------------

1. NH Whi | 2.4305994 2.2042062 634

2. NH Bla | 2.7898089 2.2843723 157

3. Hispan | 2.5819672 2.5514221 122

4. Other | 2.6041667 2.0601547 48

------------+------------------------------------

Total | 2.5171696 2.257849 961

Analysis of Variance

Source SS df MS F Prob > F

------------------------------------------------------------------------

Between groups 17.2971403 3 5.76571344 1.13 0.3353

Within groups 4876.66956 957 5.09578847

------------------------------------------------------------------------

Total 4893.9667 960 5.09788198

Bartlett's test for equal variances: chi2(3) = 5.4140 Prob>chi2 = 0.144

Comparison of 4-item scale of depressive symptoms by recode of race variable

(Scheffe)

Row Mean-|

Col Mean | 1. NH Wh 2. NH Bl 3. Hispa

---------+---------------------------------

2. NH Bl | .35921

| 0.364

|

3. Hispa | .151368 -.207842

| 0.928 0.901

|

4. Other | .173567 -.185642 .022199

| 0.967 0.969 1.000

A one-way ANOVA was conducted to determine if there were mean differences in depressive symptoms (4-item scale from 0 (least) to 12 (most)) with respect to people of different race. The overall ANOVA test was not significant (p = 0.3353), indicating no significant mean difference between any two groups.

* 1. (15 pts) Black-White only (**race\_eth**) differences in government responsibility scale **(gov\_resp\_scale**). NOTE: Be sure to limit this test to only those two racial groups (see Lab 5).

**tab1 gov\_resp\_scale race\_eth, miss**

**sum gov\_resp\_scale if race\_eth == 1, detail**

**sum gov\_resp\_scale if race\_eth == 2, detail**

**ttest gov\_resp\_scale if race\_eth ==1 |race\_eth ==2, by(race\_eth)**

. tab1 gov\_resp\_scale race\_eth, miss

-> tabulation of gov\_resp\_scale

10 Item Scale of Government's |

Responsibilities | Freq. Percent Cum.

------------------------------------+-----------------------------------

0 | 3 0.10 0.10

1 | 2 0.07 0.17

2 | 4 0.14 0.31

3 | 4 0.14 0.45

4 | 6 0.21 0.66

5 | 1 0.03 0.70

6 | 6 0.21 0.91

7 | 6 0.21 1.12

8 | 14 0.49 1.60

9 | 21 0.73 2.34

10 | 27 0.94 3.28

11 | 31 1.08 4.36

12 | 33 1.15 5.51

13 | 39 1.36 6.87

14 | 57 1.99 8.86

15 | 76 2.65 11.51

16 | 69 2.41 13.92

17 | 78 2.72 16.64

18 | 87 3.03 19.67

19 | 85 2.96 22.64

20 | 87 3.03 25.67

21 | 90 3.14 28.81

22 | 84 2.93 31.74

23 | 74 2.58 34.32

24 | 78 2.72 37.04

25 | 69 2.41 39.45

26 | 56 1.95 41.40

27 | 52 1.81 43.22

28 | 47 1.64 44.86

29 | 35 1.22 46.08

30 | 34 1.19 47.26

.a. More than two missing variables | 1,512 52.74 100.00

------------------------------------+-----------------------------------

Total | 2,867 100.00

-> tabulation of race\_eth

recode of race variable | Freq. Percent Cum.

------------------------+-----------------------------------

1. NH White | 1,893 66.03 66.03

2. NH Black | 468 16.32 82.35

3. Hispanic | 369 12.87 95.22

4. Other | 135 4.71 99.93

.u. unknown Hisp origin | 2 0.07 100.00

------------------------+-----------------------------------

Total | 2,867 100.00

. sum gov\_resp\_scale if race\_eth == 1, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 4 0

5% 9 1

10% 11 1 Obs 904

25% 15 2 Sum of Wgt. 904

50% 18 Mean 18.25

Largest Std. Dev. 5.641907

75% 22 30

90% 26 30 Variance 31.83112

95% 27 30 Skewness -.2566766

99% 29 30 Kurtosis 2.829503

. sum gov\_resp\_scale if race\_eth == 2, detail

10 Item Scale of Government's Responsibilities

-------------------------------------------------------------

Percentiles Smallest

1% 4 0

5% 15 3

10% 16 4 Obs 216

25% 20 13 Sum of Wgt. 216

50% 24 Mean 23.06019

Largest Std. Dev. 5.018208

75% 27 30

90% 29 30 Variance 25.18241

95% 30 30 Skewness -1.081895

99% 30 30 Kurtosis 5.502081

. ttest gov\_resp\_scale if race\_eth ==1 |race\_eth ==2, by(race\_eth)

Two-sample t test with equal variances

------------------------------------------------------------------------------

Group | Obs Mean Std. Err. Std. Dev. [95% Conf. Interval]

---------+--------------------------------------------------------------------

1. NH Wh | 904 18.25 .187647 5.641907 17.88172 18.61828

2. NH Bl | 216 23.06019 .3414458 5.018208 22.38718 23.7332

---------+--------------------------------------------------------------------

combined | 1,120 19.17768 .1745662 5.842102 18.83516 19.52019

---------+--------------------------------------------------------------------

diff | -4.810185 .4186214 -5.631557 -3.988813

------------------------------------------------------------------------------

diff = mean(1. NH Wh) - mean(2. NH Bl) t = -11.4905

Ho: diff = 0 degrees of freedom = 1118

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 1.0000

An independent sample t-test was conducted to determine if there were differences between white and black people with regards to how responsible the government should be (10-item scale from 0 (least) to 30 (most)) The t test was significant, indicating that Non Hispanic Blacks feel that governments should be more responsible than Non Hispanic Whites with a statistical significance of p <0.001 (23.06 vs 18.25, respectively).