Jeff Davis

POLS 408

Problem Set 7

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**Introduction:**

The purpose of this analysis is to test a series of hypotheses using data from the 2016 American National Election Study (ANES). This paper tests the following three hypotheses: 1) members of ethnic and racial minority groups will have a more favorable view of the Black Lives Matter (BLM) movement than whites even when controlling for other competing explanations; 2) Democrats will have less favorable assessments of Donald Trump than Republicans; and 3) those under 50 years of are less likely to support legal abortion than those who are over 50. Each hypothesis includes a brief discussion on the findings of the test with corresponding tables and figures.

**Overview:**

* **Hypothesis 1**

*Ha1*: In comparing individuals, members of ethnic and racial minority groups will have a more favorable view of the Black Lives Matter (BLM) movement than whites even when controlling education, income, gender, region, and political ideology

* **Hypothesis 2 (tabular):**

In comparing individuals, those who are under 50 years of age are less likely to support legal abortion than are those who are over 50.

* **Hypothesis 3**

In comparing individuals, those who are Democrats will have less favorable assessments of Donald Trump than Republicans.

**Part I: Race and Attitudes towards BLM**

The table below shows the results of a regression analysis looking at the effect of race on attitudes towards the Black Lives Matter (BLM) movement. In this example, race is the independent variable and the dependent variable is a Black Lives Matter (BLM) feeling thermometer. The table shows the results of a chi2 test of the hypothesis that minorities will have more favorable views of BLM than whites. Based on the p-value and the t-score, the null hypothesis should be rejected, and the alternative hypothesis can be accepted.

On the left side of the table are five categories of minority racial groups. The corresponding scores under “coef.” are the differences from the average score for whites on the feeling thermometer. For example, blacks scored 38.26 points higher than whites, Asians scored 9.47 points higher than whites, etc. Some minority groups hold more favorable views than others. For example, Blacks had the most favorable views. They scored 22.09 points higher than the Native Americans, who rank second among racial groups in favorable attitudes towards BLM. Asians held the least favorable views. On average non-whites scored roughly 18.0 points higher than whites on the BLM feeling thermometer.

Table 1. Relationship between race and feelings towards Black Lives Matter

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Black Lives Matter Feeling Thermometer** | **Coef.** | **Std. Err.** | **t-score** | **P>t** | **[95% Conf.** | **Interval]** |
| Black | 38.26 | 1.73 | 22.09 | 0.000 | 34.87 | 41.66 |
| Asian | 9.47 | 2.91 | 3.25 | 0.001 | 3.760 | 15.18 |
| Native American | 16.17 | 6.26 | 2.58 | 0.010 | 3.885 | 28.45 |
| Hispanic | 15.98 | 1.68 | 9.51 | 0.000 | 12.68 | 19.27 |
| Other | 12.41 | 2.58 | 4.80 | 0.000 | 7.338 | 17.48 |
|  |  |  |  |  |  |  |
| \_cons | 42.22 | .587 | 71.91 | 0.000 | 41.06 | 43.37 |

*p-value=.000; R-squared= 0.1331*

***Controlling for other Variables***

There may be other variables that explain the differences found between whites and racial minorities in their views towards BLM. For example, education, income, gender, and region are plausibly related to opinions about BLM. By controlling for these variables, a regression analysis can show if part of the effect of race on attitudes BLM is explained by a person’s education level, income, gender, or by what region of the country they are from. We can tell if the effect of race has changed by looking at whether the difference between whites and nonwhites on the BLM feeling thermometer has changed.

The table below shows the results of the same relationship in table 1, but with the added variables education, income, gender, and region. By looking at the corresponding values for race, the added controls did not substantively reduce the difference between whites and racial minorities in their attitudes about BLM, and the direction of the effect remained positive. Racial minorities still held more favorable views than whites towards BLM. However, the corresponding p-value for Native Americans indicate that the results could be a product of random sampling error. For the remaining racial groups, the p-values are within the accepted threshold, and therefore the null hypothesis can be rejected for these groups.

Moving down the table shows the effects of education, income, gender, and region. For each one unit increase in education, there was a 1.06 increase on the BLM feeling thermometer. For income each one-unit increase there was decrease of .213 points on the feeling thermometer. The variable gender reveals that females hold more favorable views towards BLM than males by a difference of roughly 9.6 points on the feeling thermometer. The final variable “region” was divided into six categories: Mid-Atlantic, South, Mid-West, South West, West. The final sixth category--New England—is represented by the “cons” value. The negative scores indicate that respondents from these regions scored lower than those from New England. The p-values, however, were only within the accepted range for the South, the Midwest, and the Southwest, meaning that the results for these regions are unlikely to be the product of random sampling error, while the converse is true for the Mid-Atlantic and the West.

Table 2. Relationship between race and feelings towards Black Lives Matter, controlling for education, income, gender, and region

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Black Lives Matter Feeling Thermometer** | **Coef.** | **Std. Err.** | **t-score** | **P>t** | **[95% Conf.** | **Interval]** |
| ***Race*** |  |  |  |  |  |  |
| Black, non-Hispanic | 38.46 | 1.76 | 21.74 | 0.000 | 35.00 | 41.93 |
| Asian | 8.24 | 2.92 | 2.82 | 0.005 | 2.50 | 13.97 |
| Native American | 17.27 | 6.40 | 2.70 | 0.007 | 4.71 | 29.83 |
| Hispanic | 17.21 | 1.76 | 9.77 | 0.000 | 13.76 | 20.67 |
| Other | 13.34 | 2.61 | 5.10 | 0.000 | 8.21 | 18.47 |
|  |  |  |  |  |  |  |
| ***Education*** | 1.06 | .24 | 4.38 | 0.000 | .58 | 1.53 |
| ***Income*** | -.213 | .070 | -3.03 | 0.002 | -.35 | -.07 |
|  |  |  |  |  |  |  |
| ***Gender*** |  |  |  |  |  |  |
| Female | 9.61 | 1.01 | 9.48 | 0.000 | 7.62 | 11.60 |
|  |  |  |  |  |  |  |
| ***Region*** |  |  |  |  |  |  |
| Mid-Atlantic | -4.014 | 2.50 | -1.60 | 0.110 | -8.93 | .90 |
| South | -11.10 | 2.35 | -4.71 | 0.000 | -15.72 | -6.48 |
| Mid-West | -7.12 | 2.36 | -3.02 | 0.003 | -11.76 | -2.49 |
| South West | -11.72 | 2.57 | -4.55 | 0.000 | -16.78 | -6.66 |
| West | -1.15 | 2.42 | -0.47 | 0.635 | -5.91 | 3.61 |
|  |  |  |  |  |  |  |
| \_cons | 35.26 | 3.46 | 10.19 | 0.000 | 28.47 | 42.05 |

*p-value=.000; R-squared=0.1805*

A liberal feeling thermometer was added as a final variable in a third regression analysis. The results are seen in the table below. In the context of American politics, liberalism and the BLM movement share certain core ideological principles. When controlling for attitudes towards liberals, the difference between how whites and non-whites viewed the BLM movement did not substantively change. However, the starting score on the feeling thermometer for whites was reduced from 35.0 points (see table 2.) to 12.0 points (see table 3.) For racial minorities political ideology had a relatively small effect on attitudes towards BLM compared to whites.[[1]](#footnote-1)

While race was only slightly affected, adding the liberal feeling thermometer control reduced the magnitude of effect for education, income, gender, and region. The biggest reduction was found for region. This is probably because some regions in the US are consistently liberal or conservative. Overall these results show that race and ethnicity, specifically whether a person is white or a racial minority, is a strong predictor of attitudes towards BLM. Adding controls for education, income, gender, region, and political ideology had negligible effects on minority attitudes towards BLM.

Table 3. Relationship between race and feelings towards Black Lives Matter, controlling for education, income, gender, region, and liberal feeling thermometer.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Black Lives Matter Feeling Thermometer** | **Coef.** | **Std. Err.** | **t-score** | **P>t** | **[95% Conf.** | **Interval]** |
| ***Race*** |  |  |  |  |  |  |
| Black | 30.28 | 1.47 | 20.60 | 0.000 | 27.40 | 33.16 |
| Asian | 5.71 | 2.38 | 2.40 | 0.017 | 1.038 | 10.38 |
| Native American | 14.44 | 5.21 | 2.77 | 0.006 | 4.21 | 24.67 |
| Hispanic | 10.63 | 1.45 | 7.32 | 0.000 | 7.78 | 13.48 |
| Other | 10.85 | 2.14 | 5.05 | 0.000 | 6.63 | 15.06 |
|  |  |  |  |  |  |  |
| ***Education*** | .004 | .20 | 0.02 | 0.981 | -.38 | .39 |
| ***Income*** | -.16 | .05 | -2.85 | 0.004 | -.27 | -.05 |
|  |  |  |  |  |  |  |
| *Gender* |  |  |  |  |  |  |
| Female | 5.66 | .83 | 6.77 | 0.000 | 4.02 | 7.30 |
|  |  |  |  |  |  |  |
| ***Region*** |  |  |  |  |  |  |
| Mid-Atlantic | -1.65 | 2.053 | -0.81 | 0.419 | -5.68 | 2.36 |
| South | -4.92 | 1.93 | -2.55 | 0.011 | -8.71 | -1.13 |
| Mid-West | -2.96 | 1.93 | -1.53 | 0.125 | -6.76 | .82 |
| South West | -5.33 | 2.11 | -2.52 | 0.012 | -9.48 | -1.18 |
| West | .30 | 1.98 | 0.15 | 0.879 | -3.59 | 4.20 |
|  |  |  |  |  |  |  |
| ***Liberal Feeling***  ***Thermometer*** | .65 | .016 | 41.13 | 0.000 | .62 | .68 |
| \_cons | 12.07 | 2.89 | 4.18 | 0.000 | 6.40 | 17.74 |

**Part II. Review**

**2a. Comparing Age Groups and Views on Abortion**

***Methodology***

A Chi square test was used to determine if those who are under 50 years of age are less likely to support legal abortion than are those who are over 50. The purpose of this test is to determine the extent of the relationship between two categorical variables—under 50 (yes or no) and support views on abortion.

***Findings***

Based on the values of the Chi square statistic and *p-*Value, a Chi square test of significance shows that there is strong support for rejecting the null hypothesis that there is *no* meaningful difference in attitudes on abortion between people under and over 50. However, the difference is contrary to the alternative hypothesis. The results show that people under 50 are *more* likely to support legal abortion than are those who are over 50, but not by a significant difference. In light of these findings, we reject the null hypothesis but accept the finding that people under 50 hold more favorable views than legal abortion than those over 50.

Table 4. Crosstab of Views on Abortion and Age

|  |  |  |  |
| --- | --- | --- | --- |
| Views on Abortion | Under 50 | Over 50 | Total |
| Should never be permitted | 13.76% | 12.16% | 12.93% |
|  | (277) | (267) | (544) |
|  |  |  |  |
| Only in case of rape, incest | 25.43% | 27.52% | 26.52 % |
|  | (512) | (604) | (1,116) |
|  |  |  |  |
| For reasons other than rape | 13.41% | 15.76% | 14.64% |
|  | (270) | (346) | (616) |
|  |  |  |  |
| Is a matter of personal choice | 47.39% | 44.56% | 45.91% |
|  | (954) | (978) | (1,932) |
|  |  |  |  |
| Total | 100.00% | 100.00% | 100.00% |
|  | (2,013) | (2,195) | (4,208) |

*chi2 = 9.5891; p-value = 0.022*

Figure 1. Opinions on Abortion for those under and over aged 50

A picture containing screenshot

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*Data from American National Election Study, 2016*

**2b. Comparing Political Affiliation and Views on Donald Trump**

***Methodology***

A difference of means test was used to test the hypothesis that Democrats have less favorable assessments of Donald Trump than Republicans. The purpose of this test is to determine the extent of the relationship between our categorical variable (political affiliation) and (interval level variable) score on a Donald Trump thermometer.

***Findings***

Based on the test’s p-value, confidence intervals, and t-statistic, we reject the null hypothesis and accept the alternative hypothesis that these sample differences reflect the true mean scores for Democrats and Republicans in the unobserved population and thus are not a product of random sampling error.[[2]](#footnote-2) The difference is both statistically and substantively significant. The mean score on the Donald Trump feeling thermometer for Democrats and Republicans was roughly 52.0 and 60.0 respectively, leaving a 53.0 difference between the two groups. A reported p-value of .000 suggests that a random sample would produce a sample mean of 13.0 and 67.0 for Democrats and Republicans respectively, less than .1% of the time by chance. There is a 95% degree of confidence that a random sample will produce mean scores between roughly 12.0 - 14.0 points for Democrats and 64.0 – 67.0 points for Republicans. The fact that these intervals do not overlap provides additional support of a true difference in scores.[[3]](#footnote-3),[[4]](#footnote-4) Finally, the value of the *t*-statistic—valued at -53.52 supports a rejection of the null hypothesis.

Table 5. Difference of Means Test Comparing Democrats and Republican Views of Donald Trump

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Group | Obs | Mean | Std. Err. | Std. Dev. | [95% Conf. | Interval] |
| Democrat | 1,435 | 13.00 | .602 | 22.81 | 11.82 | 14.18 |
| Republican | 1,225 | 65.60 | .796 | 27.86 | 64.04 | 67.16 |
|  |  |  |  |  |  |  |
| Combined | 2,660 | 37.22 | .706 | 36.41 | 35.84 | 38.61 |
| Difference between groups |  | -52.60 | .982 |  | -54.53 | -50.67 |

*P-value = 0.0000; t = -53.52*

Figure 2. Mean of Donald Trump Feeling Thermometer, Republicans and Democrats

*A screenshot of a cell phone

Description automatically generated*

*Data from American National Election Study, 2016*

1. Nonwhites who held unfavorable views towards liberals had little effect on their view of BLM, while a white person who held unfavorable views towards liberals was considerably less likely to hold favorable views towards B [↑](#footnote-ref-1)
2. Ibid, 120 [↑](#footnote-ref-2)
3. Ibid, 121 [↑](#footnote-ref-3)
4. Additionally, there is a 95% confidence that the difference between the mean scores among Democrats and Republicans in a random sample will roughly fall between -54.53 and -50.67. That this bound does not include zero provides additional support to reject the null hypothesis. [↑](#footnote-ref-4)