Brendan Kirwin
Statistical Methodology
December 19, 2012

Knowing Your Neighbor's God:
Religious Affiliation and Interfaith Knowledge

Project Overview

The issue of religion in America has always been complex, especially because so many ethnicities and belief systems exist within our borders. As America's ethnic diversity and religious pluralism increases, a better understanding of different religious affiliations' interfaith knowledge should be more deeply explored.

For this reason, I have decided to investigate how the knowledge of Eastern and Western religions differs between religious groups.

RQ_1: How does religious affiliation affect an individual's understanding of Eastern and Western religions?

Hypotheses

H_1: There are differences in knowledge of Eastern religion between groups of different faiths.
H_0: There are no differences in knowledge of Eastern religion between groups of different faiths.

H_2: There are differences in knowledge of Western religion between groups of different faiths.
H_0: There are no differences in knowledge of Western religion between groups of different faiths.

H_3: Individuals of Eastern religions have a better knowledge of Eastern religions than individuals of Western religions.
H_0: Individuals of Western religions have a better knowledge of Eastern religions than individuals of Eastern religions.

H_4: Individuals of Eastern religions have a better knowledge of Western religions than individuals of Western religions.

H_0: Individuals of Western religions have a better knowledge of Western religions than individuals of Eastern religions.

Data Set

To determine whether these hypotheses can be supported or not, I performed secondary analysis using the *2010 U.S. Religious Knowledge Survey: What Americans Know about Religion*, conducted by the Pew Forum on Religion and Public Life. The data was a random survey-based national sample of 3,412 adults living in the continental United States, 18 years of age or older. The survey took place from May 19-June 4, 2010, and involved 2,393 respondents interviewed on a landline telephone, 1,019 interviewed on a cell phone, and 444 who had no landline telephone. Interviews were conducted in English and Spanish.

Conceptual Definitions

For my research I have defined my concepts in the following ways:

Individual: an American 18 years or older who has identified him or herself as ascribing to a specific religion (this conceptual definition does not include non-believers or those unaffiliated with religion)

Eastern religion: an organized form of belief systems and cultural systems that originate from the Eastern world – India, China, Japan, and Southeast Asia

Western religion: an organized form of belief systems and cultural systems that originate from Western culture

Eastern Religion knowledge: an understanding of specific Eastern religions as it relates to the beliefs, doctrines, rituals, customs, and important figures

Western Religion knowledge: an understanding of specific Western religions as it relates to the beliefs, doctrines, rituals, customs, and important figures

Operational Definitions

Individual: Distinguished on the data set based on the respondent's answering the question (qn20) "What is your current religion, if any...?" with one of the following: Protestant, Roman Catholic, Orthodox, Jewish, Muslim, Hindu, Buddhist

Eastern religion: Distinguished on the data set based on an answer to qn20 of either 'Hindu' or 'Buddhist' which were coded as 7 on the variable religions

Western religion: Distinguished on the data set by an answer to qn20 of Protestant, coded as 1; Roman Catholic, coded as 2; Mormon, coded as 3; Orthodox, coded as 4; Jewish, coded as 5; and Muslim, coded as 6, on the variable religions

Eastern Religion knowledge: Distinguished on the data set based on an index of 5 variables: nirvana, hindugods, dalailama, and india. Responses for each variable were recoded as 0 for any answer that was not correct, and 1 for the correct answer, creating a 4-point scale.

Western Religion knowledge: Distinguished on the data set based on an index of 5 variables: koran, communion, jsmith, and indonesia. Responses for each variable were recoded as 0 for any answer that was not correct, and 1 for the correct answer, creating a 4-point scale.

Descriptive Statistics

While a comparison between the 8 individual religions included in the survey would prove most useful for better understanding individuals' knowledge of Eastern and Western religions, I was forced to combine the Hindus and Buddhist cases into an Eastern Religion category that still only equaled 24 cases. Furthermore, introducing the weight variable actually decreased the number of cases for Eastern Religions to 23. Because of this, I decided to remove the weight from my analysis.

Additionally, the sample of religions was significantly skewed toward Western religions – the largest groups being Protestant (1540) and Roman Catholic (826), with the other religions having less than 100 cases each. Such a skewed sample of the population, with some variables having very few cases, may be problematic, as the findings resulting from such tests may occur by chance, and may not represent the true nature of the population. However, it is important to note that the Pew survey was designed to be representative of the true distribution of the population of the United States. Because Buddhists make up 0.7% and Hindus make up 0.4%[1] of Americans, having only 23 of 2,533 total samples (equaling 0.9%) is appropriate for the design of the Pew study.

All the variables making up my Western Religion Knowledge index and Eastern Religion Knowledge index, had more than sufficient numbers of cases for both correct and incorrect answers.

Data Analysis

To begin my data analysis, I recoded the variables to be combined into the Western Religion Knowledge index so that any answer other than the correct one was coded to 0, and the correct answer was coded to 1. I ran a scale reliability test on each of the recoded variables, which

---

[1] The Pew Forum on Religion and Public Life - Statistics on Religion in America Report http://religions.pewforum.org/reports

yielded a Cronbach's Alpha of .510, which is acceptable for social statistics. However, in order to be sure that I could not create a stronger index, I re-ran the test to include Cronbach alpha scores if any of the variables were deleted. If I were to remove the communion question, I would have an scale reliability of .556. While this is a better reliability, I chose to include the variable as I felt it was an appropriate question for determining knowledge of Western religions.

I then recoded all the relevant variables to be combined in the Eastern Religion Knowledge index so that any answer other than the correct one was coded to 0, and the correct answer was coded to 1. I ran a scale reliability test on each of the recoded variables, which yielded a Cronbach's Alpha of .617. This value is well within an acceptable alpha. Additionally, as these questions were the only 4 that were directly relevant to Eastern religion, I had no alternatives to work with.

Once I created my Eastern Religion Knowledge index and my Western Religion Knowledge index, I began the process of comparing the mean scores for each religious group. I did this by running two One-Way ANOVA tests, one with Eastern Religion Knowledge as my dependent and one with Western Religion Knowledge as my dependent. For both tests, my factor was religions, the variable I had constructed with disaggregated Western religions and the combined Eastern religions.

At first look at my descriptives, there did seem to be support for H_3, as the group with the highest mean score for Eastern Religion Knowledge was Eastern Religions (3.29) and the lowest was Protestant (1.65), Roman Catholic (1.80), and Mormon (1.96). The Muslim group (2.95) was the closest to Eastern Religions.

With a significance of .029 for the Levene's Statistic, we do not assume equal variances. Because of this, I used Tamhane's T2 as a Post-Hoc test, where variances and group sizes are clearly unequal.

The SS_B (284.89) was much smaller than the SS_W (4171.22), and could represent a lack of differences between sample group in different populations. This could mean that some of the differences in means occurred by chance. However, the mean square showed the opposite, where the MS_B (47.48) is relatively large compared to the MS_W (1.61). The reason for this discrepancy is that the MS takes into account differences in subsample sizes, as well as the degrees of freedom. Furthermore, because the F Ratio (29.483) is rather large, and p = .000, this shows that the overall model is statistically significant. With a large value of F, the differences between groups are large and real. At this point we can support H_1 that there is difference in knowledge of Eastern Religion between groups of different religions.

Upon running the Tamhane's T2 Post-Hoc test, we can see that Eastern Religions have higher mean difference than all other religions. However, the mean difference is only significant at the 0.05 level for the Protestant, Roman Catholic, and Mormon groups.

Running the One-Way ANOVA test for Western Religion Knowledge, my descriptives yielded some very interesting results. While H_4 cannot be supported fully, it is supported in certain circumstances. For instance Eastern Religions knowledge of Western Religions (2.12) is better than the Protestant (1.73), Roman Catholic (1.86), and Orthodox (1.81) samples. However, it is lower than the Jewish (2.43), Mormon (2.35), and Muslim (2.22) samples.

With a significance of .001 for the Levene's Statistic, we do not assume equal variances. Because of this, I used Tamhane's T2 for the same reasons as above.

Similar to the ANOVA test for Eastern Religion Knowledge, the SS_B (150.31) is much smaller than the SS_W (3939.33), and could represent a lack of differences between sample group in different populations. However, like Eastern Religion Knowledge, the mean square showed the opposite, where the MS_B (25.05) is relatively large compared to the MS_W (1.52). The F Ratio (16.471) was rather large, and p = .000, showing that the overall model is statistically significant. With a large value of F, the differences between groups are large and real. At this point we can support H_2 that there is a difference in knowledge of Western Religion between groups of different religions.

Running the Tamhane's T2 Post-Hoc test yielded much different findings for Western Religion Knowledge than from the previous test of Eastern Religion Knowledge. None of the mean differences between Eastern Religions and other religious groups were statistically significant, and therefore I must reject H_4 , that Eastern Religions have a better knowledge of Western religion.

Since my findings could not support H_4 , I decided to see if a different index would have better results. I created a new index, which included the variables bible and tencomandments. This brought my Cronbach's Alpha to .643, a much more reliable value than my previous .556. I then ran the One-Way ANOVA using this new index, Wester Religion Knowledge - Alternate, as my dependent variable. The results were only slightly better, with the mean difference between Eastern Religions and Mormons being the only value that was statistically significant. However, I still had to reject H_4.

Conclusion

One key limitation of my analysis, as discussed above, includes the highly skewed frequencies for the different religious groups surveyed. Such a design made sense for creating a representative survey, but it is clear that more respondents of Eastern religion are needed to have enough cases for a more valid study. Additionally, the development of more holistic indices of Eastern religion knowledge and Western religion knowledge could be achieved by having more questions that are directly related to the general knowledge needed for understanding a specific religion. Problems may arise in my indices where certain questions may be more culturally relevant, than relevant to a specific religion. For instance, my india and indonesia questions are more related to geographic knowledge than knowledge of Eastern or Western

religions themselves. Furthermore, questions that involve whether the respondent has spent time with people of other faiths may prove more relevant to a person's interfaith understanding than simple knowledge of facts. While my analysis functions as a useful pilot study for the issue of interfaith religious knowledge, it is clear that the area should be more deeply explored with an expanded survey and continued statistical research.