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# Religious Participation and Educational Attainment: An Empirical Investigation

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## 1. Introduction

Religion plays a very important role in the lives of many Americans. Over two-thirds of Americans belong to a church or other religious organization, and this trend has risen substantially over time. Two-fifths of Americans attend church in a typical week, and 95% profess belief in "the existence of God or a universal spirit" (Iannaccone, 1998). In addition, charity giving to religious causes accounts for more than two-thirds of all reported individual charitable contributions. Religiosity is not confined to particular income groups, racial groups, or locations in the U.S.: religious adherence and participation is widespread among all demographic groups. Religion plays an especially important role in education. Wilson (1978, pp. 262–263) notes that

> "…Religious training is something that all but two percent of American parents feel they should give their children
>
> …Parents see the church as a place of character building for their children . . . Children are frequently the most important consideration in choosing a particular church ... Couples with growing children have the highest rate of church attendance."

In addition, sociologists and psychologists' research also shows that parents' religious participation has a profound impact on their children's moral behaviors. For example, Nock (1992, p. 333) summarizes:

> "... American parents believe it important that their children receive moral and ethical guidelines from their church. This is why church attendance is highest among parents with young children . . . children are much more responsive to the behavioral models than to instruction. They are much more likely to imitate what they see parents and others do than what they hear parents and others say . . ."

Given this important role of religion, few economists have studied the relationship between religious participation and education attainment. This is certainly not the case in other disciplines. Hundreds of articles in sociology, psychology, and medicine overwhelmingly document the positive impacts of religiosity on a wide variety of educational outcomes. Those few studies by economists have also found that religiosity, and in particular religious participation, is strongly associated with positive educational outcomes.

As pointed out by Glaeser (2002) in the context of religion and education, the most natural omitted factor is the degree of religious belief, i.e. the extent to which individuals believe that there are returns to religious activity. Measures of religious belief are strongly correlated with religious attendance and negatively associated with education. Less educated people are more likely to believe in miracles, heaven, devils, and the literal truth of the Bible. Furthermore, denominations are, to a significant extent, defined by their beliefs, and unsurprisingly sorting across denominations on the basis of religious beliefs is stronger than sorting across denominations on the basis of education. As such, religious belief is a natural omitted factor that is negatively correlated with education, positively correlated with attendance and very important for sorting across denominations. For the analysis of this study, I try to separate the measure of religious facts and religious belief.

In this paper, first I apply the cross-tab method to investigate the relationship between one's highest education attained and other various religious variables: whether a person's education level will affect his or her religious activities. Second, I use the regression model to test whether education, occupation, and other variables are associated with his or her church attendance. I rely on the General Social Survey[1] (GSS), a nationally representative survey that collects data on religious preference and religious participation. In this paper, I craft a simple statistical model of religious attendance, education and belief and then I estimate that model. I try to explore whether other factors also affect church attendance. In the literature, there is a negative relationship between education and church attendance; however, this relationship is proved to be statistically insignificant. This negative relationship may be the result of omitted factors (such as interests and social skills), which relate both to church going and school attendance. Both activities require sitting still, listening, being interested in abstract ideas and putting future gains ahead of current gratification. There is the connection between church attendances and a wide range of formal social activities that require similar skills and interests as church going.

My results are striking. I find that there is significant association between "one's highest degree" and "their feelings about the bible", "agree to allow anti-religionist to teach", and "how fundamentalist was one at age 16. Similarly, a significant relationship exists between "one's highest degree earned" and "how fundamentalist was one currently". Other variables that are significantly associated with "a person's highest degree earned" include the following variables: "feelings about the bible", "confidence in the existence of God", "The Pope is infallible on matters of faith or morals", "how often does one pray", "whether one should agree that there can by Bible prayer in public schools or not", "whether one agrees that sinners must be punished or not", "whether one has ever had a 'born again' experience", "how often does one take part in religious activities", etc[2]. Besides, I find that there is a significant effect between one's religion attendance and other control variables. Education has a significant negative effect on the religious attendance; however, the effect is insignificant. Other variables that have significant effects on a person's religious attendances are the following: the number of children a person have, whether the person is married or not, and the marital status of the person. As the number of children increases, the days of church attendance will increase; if a person is from the Catholic denomination, his or her

1 I use the most recent data available from GSS, which is from the year 2010.

2 In the result part, I do not report all the significant associations; I only report those ones I considered important according to the literature.

religious attendance will increase; if a person is married, his or her church attendance will decrease. In addition, I find that more prestigious occupation has a negative effect on one's religious attendance. These results are robust to a variety of specification checks.

The chapter proceeds as follows. In section two, I review the literature on religiosity and outcomes, and on religious activities and education motivation and achievements. In section three, I briefly state the theoretical model according to Simon Fan's paper "Religious Participation and Children's Education: A Social Capital Approach". In section four, I describe the data sources and empirical strategy for the analysis. Section five presents the main results, and assesses their robustness to alternative interpretations. Section six concludes.

## 2. Literature review

### 2.1 Religion and motivation

Religion is directly or indirectly related to academic success or failure. A look at the religious history of Catholics and Protestants in the American society shows that the religious background of those two groups is actually influenced by their religious and social upbringing (Veroff, Feld, & Gurin, 1962; Guiso, Sapienza, & Zingale, 2003). This stems from the parents' demands placed on children from an early age onwards to achieve academically and reach upward social mobility. For example, Protestants perform better academically than the Catholics (Veroff et al., 1962; Hanushek, 1996)). This is mainly attributed to the way mothers deal with their children's academic performance. In Protestant homes, mothers are inclined to use symbolic punishment as disciplinary action such as restricting privileges or reprimanding; whereas in Catholic home, the mothers use physical punishment such as spanking and reward also materialistically reward for good academic standing. This kind of physical reward and punishment is not conducive to academic motivation and strive in the long run, but is only a quick fix (Veroff et al., 1962). However, it also should be noted that academic performance varies in meaning from one religious group to another. Catholics, for example may have more internalized standards for academic performances than the Protestants, but this hypothesis needs more research to stand on more solid ground (Veroff et al., 1962).

More recent studies also look at the relationship between religion and education for immigrants and non-immigrants, Hispanics versus African Americans, and Asian versus white Americans rather than Catholics versus Protestants. Studies try to analyze whether those immigrants' succeed or fail in the rooted environment of religion, or in a certain social structure. The researches show that Asians, specifically Chinese and Korean, have higher academic achievement rates than white Americans. Whether those Asians come from a prestigious background (daughters and sons of engineers, physicians, or scientists) or non-prestigious background (daughters and sons of low-skilled laborers, uneducated or poor), they are repeatedly the valedictorians of their high schools or the winners of decathlons, etc. (Zhou & Kim, 2006). They also enroll in the most prestigious universities in the United States of America such as University of California-Berkeley, Los Angeles, and Irvine (Zhou & Kim, 2006, Evan & Schwab, 1995).

Some research may attribute this high academic achievement to the fact that these immigrant groups are deeply rooted in their religious Confucian background. However,

Confucian may not be the only construct that leads to the success of this ethnic group though it places a big value on academic achievement and education. Other studies attribute the success of Asian ethnic groups to the structural construct that favors students from urban middle-class backgrounds (Zhou & Kim, 2006).

Moreover in thinking of the conditions that generate motivations, considerable research proves that the requirement that parents have of their children, the values that the parents stress, and the attitude that the parents want to apply all could enhance and improve the children's motivations. In addition, it is shown that the religious background that families have could inhabit a strong achievement motivation for the individual members (Corten & Dronkers, 2006). The religious practices are not only the main generator for individual achievement motivations but also for the generator for group motivations as well. The achievement behavior of religious groups has attracted many theorists and thinkers to analyze the relationship between the religion and the achievements. For example the comparative high achievements of the Jews in most countries and the comparative low achievements of the Catholic is the best example to show that different values of religion could create a difference in motivation. Some theorist such as Weber conducted a comprehensive study about how the behaviors of Protestantism keep up with the behaviors required for a competitive society and how the behavior of Catholic falls behind. At the beginning of the study he compared the education requirements for Catholic and the education requirements for the Protestant, and he found that the requirements were basically the same for both groups. Weber moved on to compare the religious values to see whether the different attitudes towards religion affect life styles. Weber found that the different religious values could have a great impact on the life styles of people and on their academic achievements.

Many other researches (Deary, Strand, Smith, & Fernandes, 2007) attempt to show that religion has a great impact on academic achievement by comparing and explaining the achievement differences of various religious groups. They found similar results: Protestant college graduate are more likely to go to a science field than Catholic college graduates. Taking into consideration that the science study requires more work and more motivations, Protestant college graduates entered more competitive job fields. On the other hand, a huge number of Catholic graduates have been found in less competitive jobs. Smith (2007) points out that there are more Jews in the professional and managerial occupation than Italians. This difference is attributed to the religious backgrounds that differentiate one group from another.

Similarly, a national survey was taken to measure the achievement motivations of people coming from different religious denominations (Godfrey & Morris, 2008). The three main religious groups in the survey are: Catholic, Protestant, and Jewish. The survey shows that the overall achievement of the Jewish is higher among all the religious groups. The Catholic and the Protestant achievements are almost equal but earlier independence was found in the Protestant children. The results of the survey show that different religious values explain the difference in motivation.

Besides studying religion, motivation, economists also study the relationships among religion and other social factors (the age, place of residence, income, and family size (Jackson, Fox, & Crockett, 1970). The results show that there is a positive relation between income and achievements. The achievement motivation for those with low income is higher

than those with high income. Catholicism presents a greater motivation at lower income level while Protestant shows less motivation. Theorists also find a positive combination exist between family size and motivation for achievement. The larger the family size, the more motivated the individual is, probably due to financial pressure. Also, the Catholic tends to emphasize more on material rewards than the Protestant.

Jackson and Crockett study (1970) comes up with conclusions to strengthen the Hypothesis that other non-educational achievement motivation is related to religion. For the Catholic men, the lower the income, the more motivated he or she is. The opposite is true for the Protestant: the higher the income lever, the more motivated he or she would be. The different relation of income and motivation exist because the Catholic and Protestant children are raised in different way. The research found that Protestants have more generalized abstract strivings than the Catholic through examining theoretically and empirically different kinds of child-rearing attitudes of Protestant and Catholic home. Protestant mother are more likely to select an alternative way to encourage the children to strive for abstract goals instead of material goals. Protestant children are more responsible, and more able to deal with obstacles in their lives. They concluded that the way the children are treated or raised has a great impact on achievements. More importantly, the research reach the conclusion that the incentive and vehicles for achievement taught to young children have important bearing not only on achievement motivation among different religions but also on the quality of individual motivations within one religion group.

### 2.2 Religion, academic achievements, and other social factors

In addition to achievement motivation, religion also has direct bearing on other educational results. Several studies have shown that the religious students are braver and perform better academically (Mooney 2010, Jeynes, 2005, Jeynes, 2007). The studies generally find a positive impact of the religion on student success. The religious participation and personal religiosity help to lower the rates of substance abuse, limit activities that adversely influence college careers. Students who participate in religious activities have made the choice to cut other types of social ties. For example, a student who is going to mosque every Friday or who is going to the church every Sunday is less likely to be found in a bar. Also, this kind of students is more likely to complete his duties on time. Researches (Mayer& Sharp, 1962) show that being a part of a religious group promotes conformity such as going to classes or completing assignments. Alcohol and substance abuse are one of the most important factors in destroying a person's education or career (Rakitic, 2003). As we know some religion prohibits alcohol consumption such as Islam and other religions such as Christianity insist that only a little bit of alcohol would be enough. The common thing about both of the religions is that they agree alcohol has a bad effect on students and students who chose to join religious groups are less likely to be addicted to alcohol and drugs. Besides substance abuse, depression, loneliness and anxiety are more often observed for people who are away from religion and from God. People who are depressed often prefer to skip classes, to return home and start to use alcohol. Religious groups or religious activities provide a social support outside the family to combat loneliness. Students feel more comfortable because they have access to the needed support. Religious students are also found to devote time and energy to a variety of pro-social causes (Wilson, 1978; Lundberg & Startz, 1998; McCleary & Barro, 2006). They help connect colleges with the surrounding community and

provide volunteers and partnerships with groups (Sikkink & Hernandez, 2003). The research also finds that the majority of volunteers are religious students (Vander, Hermans, Aarnoutse, 2008).

Research done recently shows that the individual religiosity increases educational attainment. Veroff (1962) explains that this positive relation between religion and academic attainment is because religion helps create a disciplined life and generates ethics. For people with a disadvantaged background, religious groups teach these people to be more disciplined, have more positive attitudes, and encourage better behaviors. Because of religious beliefs and practices, believers become more able to deal with troubles and stressful situations that might negatively affect their academic or career achievements than non-believers who may feel stressful and totally lost. Another way through which religion influences education is by creating a family like atmosphere for those who have single parents. For example some theorist (Ewing, 2000; Fan, 2003; Galor & Zeira, 1993; Galor & Tsiddon, 1996) found that religion has a great influence on the educational achievement of the poor. People in urban areas are more religious because the churches play the role like parents by providing youth with authority figures, disciplines and the ways they should act. The church's role is to help people to be more active in the society and keep them on the right way. Family life is proved to be very important for education achievements and religion is one of the factors that have a positive impact on family life. Religious families are more capable to establish healthy family relationships and have more social control.

The national longitude data conducts a survey on racial groups in the United State including whites, African Americans, Asians and Latinos to know if religious students have higher academic achievements than their peers. The results show that Jews have higher GPA comparing to the Catholics and the Protestants. According to the survey, Jewish people have the highest rate of religious attendance while Hispanics have higher rates of attendance than African Americans. The survey tests the hypotheses that the effect of religiosity on grades varies according to the race, class, and immigration but none of the tests show that the relationship between religion and education differs among groups. According to the NLSF data, after controlling for all the social factors of race, income, and gender, religiosity has a significant influence on the achievements and satisfaction of students in the colleges and universities of the United States. Students who attend religious services once per week in the last year of their high school are able to obtain higher grades than no regular attendees. Religious students study more, go to party less often and dedicate more spare time for religious activities. Also, people who party more are less focused during their study, in contrast, religious students not only are able to spend more time on study, but the quality of the time spent is better: they are more concentrated, have a higher self-esteem, and have a better sense of purpose. Sometimes religious activities have a positive effect and students do a better job on exams not only because they studied well but also because they have more confidence in their intellectual ability.

Others studies are more concerned about the influence of religion on the student's social life at colleges or in universities, such as students get involved in different types of activities like sororities and fraternities. By influencing social activities, religiosity could indirectly influence students' educational achievement, satisfaction at college, and other outcomes such as interactions with professors. Research also tests the influence of religion on dealing with the effect of negative experiences such as the death of relatives or the parental divorce.

In short, religiosity has a great influence on educational achievements. Loury(2004), Regnerus(2003), and Jeynes (2003) argue that attending churches or other religious services provides students with the right guidance that then will improve their academic achievements. The religiosity increases the level of satisfaction and the grades of students attending colleges and universities.

Religion has a big influence not only on education achievement but also on personal achievements. Some research (Hazan & Berdugo, 2002; Landes, 2000; Lipford & Tollison, 2003) shows that there is a relationship between religious preference and worldly success. The survey asks the question about what is your religion, whether it is Protestant, Jewish, or Catholic. In case the answer is Protestant, another question was raised as what domination you belong to. After analyzing people from different religions, Jews show the highest level of the success while the Catholics has the lowest level of success. The reason partly is explained as that Jewish people have the highest level of religious activities. The people who are more religious tend to have more appreciation for the time, less parties and more concentration. Through religious activities, the Jewish people will also be able to meet new people and build up more social networks.

In conclusion, religion has a big influence on motivation, education achievements, and on all other aspects of social life. Individuals who have a religious background are able to success in school, colleges and universities, and later on at work. When people are more religious, they are more likely to focus on what they need because they have a clear status of mind and are more confident. The researches all show that religion is a factor contributing to all kinds of success. Our analysis contributes to the literature by analyzing the relationship between a person's highest education and religions activities. We expand the literature by not emphasizing on different religious groups but instead focusing on various religious activities and perceptions such as "how fundamental one considers himself or herself to be", "how often he or she prays", "how often he or she attend religious activities", etc. Also the paper expands the literature by applying a simple statistical model to analyze whether factors such as a person's education, occupation, marital status, and number of children, affect his or her religious activities.

## 3. Theoretical background

The study of religious activity and education is mainly empirical. However, the empirical analysis is based on a sound theoretical background of economic literature of religion. This part states about the theoretical research related with the paper. Fan (2008) argues that people's religious participation is determined by the concern for their children's human capital accumulation as well as their religious beliefs. This part of the paper introduces the economics theoretical research of religion. As pointed out in Fan's paper, in recent decades, some important contributions have been made in modeling religion and religious behaviors. Azzi and Ehrenberg (1975) analyze a model of church attendance and contributions in which individuals allocate their time and money among religious and secular commodities to maximize lifetime and afterlife utility. Iannaccone (1990, 1998) applies Stigler and Becker's (1977) idea of "consumption capital" to explain rational habit formation in religious activities. In this framework, current religious participation increases an individual's stock of "religious human capital" and thereby increases the individual's utility from future participation. Iannaccone (1992) presents a model that accounts for the continuing success of

groups with strict requirements. In particular, the model shows that efficient religions with perfectly rational members may benefit from stigma, self-sacrifice and bizarre behavioral restrictions because deviant norms mitigate the free-rider problems faced by religious groups. Bisin and Verdier (2000) extend the study of religion into an intergenerational framework. Assuming that parents get more utility if the children adopt their religion, Bisin and Verdier (2000) present an economic analysis of the intergenerational transmission of religious traits through family socialization and marital segregation. Barros and Garoupa (2002) introduce spatial location models into the economics of religion. Dehejia et al. (2005) show that involvement with religious organizations insures an individual's stream of consumption and of happiness.

This study is also related to the human capital models based on social interactions. In analysing the relationship between religion and social factors, there are several important theoretical papers. For example, Borjas (1992) and Lundberg and Startz (1998) analyze models in which an individual's human capital is determined by the average level of human capital of the ethnic group to which she belongs as well as her own parental human capital. Benabou (1993) suggests that the neighborhoods with a high level of average parental human capital facilitate one's human capital formation. He shows that neighborhoods are formed endogenously, higher income people live in the communities whose rent and average level of human capital are both higher. Epple and Romano (1998) and Brock and Durlauf (2001b) posit that a student's academic achievement is determined by both her own ability/effort and mean ability/effort of her classmates. Epple and Romano (1998) show that in equilibrium, parents who have high income and high-ability children pay high tuition to send their children to private schools in which there is better peer-group externality than public schools. In summary, the existing theoretical literature implies that education is related with religious activities; besides, religious activities are related with other social factors. The following part of the empirical research aims to detect the relationship of education and religious activities, as well as the relationship between religious activities and other social factors.

## 4. Methodology

This part of the research describes the data used for analysis and the methodology applied for estimation of the results.

### 4.1 Data

We draw data from the General Social Survey (GSS) of the USA in our empirical analysis. The General Social Survey is conducted by the National Opinion Research Center of the University of Chicago. The dataset is collected through a detailed personal interview survey of U.S. The GSS contains social and demographic characteristics of families. Most importantly, GSS is a rich dataset that contains rich information about people's religious activities of the sample. The religious variables include "how often the person attend religious services", "how many times a person prays every day", "allow anti-religionist to teach", etc. Besides, the GSS data also includes information about people's education achievement such as one's the highest degree. The GSS is not a panel data, which means that it does not follow the same objectives every year. The data from the year 2010, which is the most recent available dataset used for the analysis of this paper.

| Variable Name | Mean | Std. Error | Median | Variance |
|---|---|---|---|---|
| Marital Status | 2.41 | 0.036 | 2 | 2.557 |
| Age | 47.97 | 0.391 | 47 | 312.5 |
| Family Income | 30813.3 | 690.787 | 23310 | 0.0008 |
| Highest Year of Education | 14.64 | 0,588 | 11.33 | 0.00008 |
| Highest Year Mother Completed | 11.55 | 0.088 | 12 | 13.8 |
| Highest Year Spouse Completed | 13.73 | 0.102 | 14 | 0.0008 |

Table 1. Descriptive Table of Important Variables

Table 1 is the descriptive statistics about people's marital status, age, family income, and education. People on average have married for twice, the standard error and variance are quite low. The average family income is 30,813 and the median income is 23,310, the standard error for family income is big while the variance is small. The highest year of education for an individual is 14.64 years; the standard error and variance are both small. The highest year of education for their mother is a little lower: 11.55 years, the median is about 12 years; the standard error and variance are both very small. The highest year of education for the spouse is 13.73 years, the standard error and variance are both small. This means that there is no big differences between the education of the parents and their children, neither there is a big difference between the education of the spouse and the respondent.

### 4.2 Empirical estimation

#### 4.2.1 The cross tab analysis of religious and educational variables

In this research, two research questions are addressed. The first research question is: "Whether a person's education is related with his or her religious activities." The analysis of the first question could be expressed in the following table:

| Education Variable: One's Highest Degree | | | | | | |
|---|---|---|---|---|---|---|
| Important Religious Variables | | | | | | |
| Religious Facts | | | Religious Opinions | | | |
| How often Pray? | How Often Take Part in Religious Activities? | The Religion One Is Raised | How Fundamental Is He or She? | Religious Preference | Whether One Considers Him or Her Religious? | Strength of Affiliation |

Table 2. The Structure Tree of Analysis

Table 2 demonstrate the logic of our analysis: we analyse the correlation between one's highest degree and his or her religious activities. The religious activities are divided into two categories: the first category is the fact concerning one's religious belief such as how often one prays, takes part in religious activities, and in which religion is one raised. The second category is one's opinions considering how religious one person is. The questions include how fundamental one considers him or her to be, the strength of affiliation, etc. The corresponding results of the analysis will be shown in the result part.

Aanalyse this issue, crosstab analysis is applied. Crosstab method is usually applied to when the independent variables are categorical variables. The data is divided into several cells and the significance of association among different cells is estimated. To use the crosstab method, it is very crucial that there are no empty cells. Technically, there will be empty cells only if the variables are continuous. Since we don't have continuous variables in our model, we are not worried about this problem. We did the crosstabs with the response variable by each of the categorical predictor variables, and those tables looked good with cell size, as a result, the analysis is valid. The results of this part of the analysis are shown in Table 3 to Table 11. The meanings of the crosstab results and regression results are explained in detail to satisfy the needs of those who are less methodologically inclined (sociologists included) and those who are generally less familiar with the jargons of sociology (non-sociology readers)

### 4.2.2 Regression analysis of religious, educational, occupational, and other variables

The second part of the analysis applies regression analysis to analyze the relationship between religion and other social economics variables. First, I estimate the effect of education and other variables on the number of church attendances of individual i in year t: R is a variable indicating the number of days of attending religious activities. The constant term is denoted by $\alpha_1$. E is a categorical variable indicating the level of one's education. M is a variable indication the marital status of the person: whether he or she is married or not. N is a variable indicating number of children in the family; X is a vector of independent variables including age, family income, religion denomination, whether the person is divorced or not, ethnicity, whether the person feels happy or not, whether the person feels life is exciting or not, race, the type of household, whether the person is Hispanic or not, the marital status of the person, and the gender of the person. Since the independent variable of religious activity attendance is a continuous variable, the paper applies ordinary least square regression to estimate the model.

$$R_{it} = \alpha_1 + \delta_1 E_{it} + \delta_2 M_{it} + \delta_3 N_{it} + \sum_{1}^{11} \delta_m X_{im} + \varepsilon_{it}^1 \quad (1)$$

Second, I estimate the effect of occupation and other variables on people's religion activities. The estimation equation is as the following:

$$R_{it} = \alpha_2 + \lambda_1 O_{it} + \lambda_2 M_{it} + \lambda_3 N_{it} + \sum_{1}^{11} \lambda_m X_{im} + \varepsilon_{it}^2 \quad (2)$$

R is again the variable indicating religious attendances. The constant term is denoted as $\alpha_2$. O is a categorical variable representing a person's occupation. M is a variable indication whether the person is married or not. N is a variable representing the number of children in the family, X is a vector of control variables that include age, the family income, religious denomination, whether the person is divorced or not, ethnicity, whether the person is happy or not, whether the person feels life or not, race, the type of the household, whether the person is Hispanic or not, the marital status of the children, and gender. The independent variables from equation one and equation two are similar.

## 5. Results

Followed by the empirical estimation, the results are described as two parts: the first part concerns about the association between one's highest degree achieved and his or her religious practices and beliefs. The second part of the results is about the association between other factors (age, education, family background, etc.) and one's religious practices.

### 5.1 The association between one's highest degree achieved and his or her religious practices and beliefs

There is no significant association between a person's highest degree earned and "how often the person attends religious services". However, there is significant association between one's highest degree and their feelings about the bible. Besides, there is significant association between a person's highest degree and "allow anti-religionist to teach". There is also a significant association between one's highest degree earned and "how fundamentalist was one at age 16. Similarly, a significant relationship exists between one's highest degree earned and "how fundamentalist was one currently". Other variables that are significantly associated with "a person's highest degree earned" include the following variables: "feelings about the bible", "confidence in the existence of God", "Pope is infallible on matters of faith or morals", "how often does one pray", "whether one should agree that there can by Bible prayer in public schools or not", "whether one agrees that sinners must be punished or not", "whether one has ever had a 'born again' experience", "how often does one take part in religious activities", "whether religious experience changed one's life", "whether there is a turning point in life for religion", "one's religious preference", "religion in which one is raised", "strength of affiliation", "try to carry one's beliefs into other dealings", "whether there is any turning point when less committed to religion", "whether one considers himself or herself a religious person", "whether one tried to convince others to accept Jesus", "whether one thinks that he or she believes too much in science, not enough about faith", "how fundamentalist is spouse currently", "whether one considers herself or himself a spiritual person". Tables 3 to Table 11 describe some of the most important associations between one's highest degree achieved and his or her religious practice in detail. We classify the tables 3 to 11 as one's belief such as in which denomination is he or she raised and people's opinion of religious activities such as how fundamental the person considers himself to be.

#### 5.1.1 Facts concerning one's religious belief

Table 3-6 describes some of the facts concerning the association between one's highest degree and his religious practices.

Table 3 shows the relationship between a person's highest degree and how often he or she prays. From the table, we can see that for people with less than high school education, most of them pray once a day (31.2%); for people with high school and junior college education, the majority pray several times a day; for people with bachelor and graduate degrees, the majority of them pray once a day. The largest percentage of people who never pray comes out of graduate degree holders (21.2%). The Pearson Chi-Square is 35.128 and the significance lever is 0.019, this means that a person's highest degree is significantly associated with how often a person prays.

| Highest Degree | Several Times a Day | Once a Day | Several Times a Week | Once a Week | Less Than Once a Week | Never |
|---|---|---|---|---|---|---|
| Less than High School | 85<br>28.2% | 96<br>31.2% | 32<br>10.6% | 21<br>7% | 35<br>11.6% | 32<br>10.6% |
| High School | 301<br>30.4% | 286<br>28.9% | 112<br>11.3% | 59<br>6% | 113<br>11.4% | 120<br>12.1% |
| Junior College | 49<br>34% | 48<br>33.3% | 19<br>13.2% | 10<br>6.9% | 8<br>5.6% | 10<br>6.9% |
| Bachelor | 97<br>26.2% | 101<br>27.3% | 53<br>14.3% | 21<br>5.7% | 42<br>11.4% | 56<br>15.1% |
| Graduate | 55<br>25.3% | 592<br>29.3% | 240<br>11.9% | 7<br>3.2% | 24<br>11.1% | 46<br>21.2% |
| Statistics | Total Observations<br>2023 | | Pearson Chi-Square<br>35.128 | | Significance Level<br>0.019 | |

Table 3. A Person's Highest Degree and How Often Does One Pray

| Highest Degree | Never | Less Than Once a Year | Once or Twice a Year | Several Times a Year | Once a Month | 2-3 Times a Month | Nearly Every Week | Every Week | Several Times a Week | Once a Day |
|---|---|---|---|---|---|---|---|---|---|---|
| Less than High School | 148<br>49.2% | 27<br>9% | 29<br>9.6% | 31<br>10.3% | 16<br>5.3% | 25<br>8.3% | 6<br>2% | 19<br>6.3% | 0<br>0% | 0<br>0% |
| High School | 442<br>44.4% | 92<br>9.2% | 152<br>15.3% | 106<br>10.6% | 56<br>5.6% | 59<br>5.9% | 19<br>1.9% | 62<br>6.2% | 7<br>0.7% | 1<br>0.1% |
| Junior College | 50<br>34.7% | 7<br>4.9% | 21<br>14.6% | 20<br>13.9% | 7<br>4.9% | 13<br>9% | 4<br>2.8% | 18<br>12.5% | 4<br>2.8% | 0<br>0% |
| Bachelor | 139<br>37.4% | 25<br>6.7% | 54<br>14.5% | 54<br>14.5% | 26<br>7% | 27<br>7.3% | 15<br>4% | 22<br>5.9% | 8<br>2.2% | 2<br>0.5% |
| Graduate | 85<br>39% | 13<br>6% | 36<br>16.5% | 27<br>12.4% | 15<br>6.9% | 16<br>7.3% | 6<br>2.8% | 16<br>7.3% | 2<br>0.9% | 2<br>0.9% |
| Statistics | Total Observations<br>2031 | | | | Pearson Chi-Square<br>63.96 | | | Significance Level<br>0.003 | | |

Table 4. A Person's Highest Degree and How Often Does One Take Part in Religious Activities

Table 4 shows the association between a person's highest degrees and how often does he or she take part in religious activities. The majority of the people in all the degree categories never take part in religious activities. Only very few people in the sample attend religious activities several times a week or once a day. The largest category for people to attend religious activities several times a week or several times a week is people with junior college degrees. The biggest category for people to attend religious activities nearly every week is

people with junior college and graduate degrees. The biggest category for people to attend religious activities 2-3 times a month is people with less than high school degrees. The largest group of people who attend religious activities once a month and several times a year is the bachelor group. The biggest group of people who attend religious activities less than once a year is the group with high school education. In conclusion, the most of the people in the sample never attend any religious activities. There is no clear trend between the people's highest degree and their attending of religious activities. Actually, the largest group of people who are attending religious activities every week and once or twice a year is the graduate group. There are 2031 observations in this sample test. The Pearson Chi-Square is 63.96, and the significance level is 0.003,which means that people's highest degree are significantly associated with attending of religious activities.

| Highest Degree | Protestant | Catholic | Jewish | None |
|---|---|---|---|---|
| Less than High School | 130<br>43.2% | 116<br>38.5% | 4<br>1.3% | 34<br>11.3% |
| High School | 547<br>54.8% | 300<br>30.1% | 7<br>0.7% | 71<br>7.1% |
| Junior College | 75<br>51.7% | 52<br>35.9% | 0<br>9% | 11<br>7.6% |
| Bachelor | 204<br>54.7% | 118<br>31.6% | 14<br>3.8% | 13<br>3.5% |
| Graduate | 110<br>50.9% | 61<br>28.2% | 8<br>3.7% | 150<br>7.4% |
| Statistics | Total Observations<br>2033 | Pearson Chi-Square<br>93.79 | Significance Level<br>0.000 | |

Table 5. A Person's Highest Degree and the Religion in Which He or She is raised

Table 5 describes the correlation between a person's highest degree and the religion in which he or she is raised. From the table, we can see that the majority of the people are raised as Protestant (around 50%), the second largest category is Catholic. As people receive higher degrees, the number of Catholics decreases. 9% of Jews are Junior College, which is the largest category among all the five categories. The largest category with no religious belief is people with less than high school degree. The number of total observations is 2033, the Pearson Chi-Square is 93.79, and the result is very significant which means that a person's highest degree is significantly related with the religion in which he or she is raised.

Table 6 asks the respondents whether religious experience changed his or her life or not. This table could also be considered as some facts about religion. 38.5% of people with less than high school degree said religious experience have changed their life while 61.5% of high school with less than high school degree answered no. The largest percentage of people who agree that religious experience has changed their life is Junior College; the largest percentage of people who said that religious experience has not changed their lives is the people with less than high school degree.

From the results, the people who said religious experience has changed their lives are "high school", "Junior College", and "Bachelor": the people in the middle categories, the people who agree that religious experience has not changed their lives are people with "less than high school" degree and people with "graduate" degree: people with the lowest and the highest degree.

| Person's Highest Degree | Have Religious Experience Changed Life (Yes) | Have Religious Experience Changed Life (No) |
|---|---|---|
| Less than High School | 116<br>38.5% | 185<br>61.5% |
| High School | 409<br>41.1% | 586<br>58.9% |
| Junior College | 77<br>55% | 63<br>45% |
| Bachelor | 149<br>40.2% | 222<br>59.8% |
| Graduate | 85<br>39.2% | 132<br>60.8% |

Table 6. Whether Religious Experience Has Changed One's Life or Not

### 5.1.2 Opinions concerning his or her religious belief

Table 7-11 describes the association between one's highest degree and people's opinions about his or her religious beliefs. In comparison with Table 3, this part of the results concerns about people's belief of his or her religious practices instead of the facts of his or her religious practices.

| Person's Highest Degree | Fundamentalist | Moderate | Liberal |
|---|---|---|---|
| Less than High school | 89<br>30.4% | 146<br>49.8% | 58<br>19.8% |
| High School | 340<br>35.1% | 437<br>45.1% | 193<br>19.9% |
| Junior College | 46<br>32.6% | 65<br>46.1% | 30<br>21.3% |
| Bachelor | 78<br>21.9% | 166<br>46.6% | 112<br>31.5% |
| Graduate | 40<br>19.8% | 90<br>44.6% | 72<br>35.6% |
| Statistics | Total Observations:<br>2006 | Pearson Chi-Square<br>53.752 | Significant Level<br>0.000 |

Table 7. A Person's Highest Degree and How Fundamentalist Was the Person at Age 16.

From Table 7 we could observe that about half of the people with less than a high school degree are moderate fundamentalist when they are age 16. The percentage change of fundamentalists does not change much among people with different highest degrees. The

ranges are from 49.8% for people with less than high school degree to 44.6% for people with graduate degree. The percentage of fundamentalist decreases a lot when people obtain higher degrees: from 30.4% for people with less than high school degree to 19.8% for people with graduate degree. On the contrary, the percentages of liberal increases greatly as people have higher degrees: from 19.8% for people with less than high school degree to 35.6% for people with graduate degree. The total number of observations is two thousand and six; the Person Chi-square is 53, while the P-value is 0.000, which means that the results are highly significant: there is significant difference between people's highest degree of education and whether they are fundamentalist, moderate, or liberal. From Table 7, we conclude that one's younger belief about religion affects his education level. In comparison with Table 7, the following Table 8 describes the relationship between the highest degrees one earned and how fundamentalist the person is currently.

| Person's Highest Degree | Fundamentalist | Moderate | Liberal |
|---|---|---|---|
| Less than High school | 105<br>35.8% | 129<br>44% | 59<br>20.1% |
| High School | 291<br>30.4% | 380<br>39.7% | 285<br>29.8% |
| Junior College | 45<br>32.8% | 60<br>43.8% | 32<br>23.4% |
| Bachelor | 54<br>15.5% | 143<br>41.1% | 151<br>43.4% |
| Graduate | 26<br>12.7% | 83<br>40.5% | 96<br>46.8% |
| Statistics | Total Observations:<br>1939 | Pearson Chi-Square<br>93.98 | Significance Level<br>0.000 |

Table 8. A Person's Highest Degree and How Fundamentalist Is the Person Currently

Table 8 shows the relationship between a person's highest academic degrees and how fundamentalist is the person currently. From this table, we found similar results as in Table 7: those who have a lower degree tend to be fundamentalist while those people who have a higher degree tend to be liberal. So Table 7 and Table 8 together prove that people who have lower degree is more likely to be fundamentalist when they were young and also when they grow up. On the other hand, people with higher degrees are more likely to be liberal when they were young and also when they grow up.

Table 9 describes a person's highest degree and his or her religious preference. Two biggest religious categories are protestant and catholic. The results show that around 45%-50% of people in the sample are protestant, around 20%-30% of the people are Catholic, 1%-5% of the people in the sample are Jewish, and another 15%-25% of the people in the sample do not believe in anything. As people obtain higher academic degree, the number of protestant remains the same; as people obtain higher academic degree, the number of Catholic decreases. As for Jewish people, the percentage of graduate is highest. Also, as people achieve higher degrees, the percentage of non-believers also increases. There are 2031 observations, the Pearson Chi-Square is 63.96, and the results are statistically significant,

which means that people's highest degree achieved and their religious preferences are highly associated.

| Highest Degree | Protestant | Catholic | Jewish | None |
|---|---|---|---|---|
| Less than High School | 139<br>46% | 91<br>30.1% | 4<br>1.3% | 45<br>14.9% |
| High School | 493<br>49.4% | 227<br>22.7% | 8<br>0.8% | 179<br>17.9% |
| Junior College | 74<br>51.7% | 37<br>25.9% | 0<br>0% | 20<br>14% |
| Bachelor | 171<br>46% | 85<br>22.8% | 15<br>4% | 69<br>18.5% |
| Graduate | 96<br>44.4% | 42<br>19.45% | 10<br>4.6% | 50<br>23.1% |
| Statistics | Total Observations<br>2031 | Pearson Chi-Square<br>63.96 | Significance Level<br>0.003 | |

Table 9. A Person's Highest Degree and One's Religious Preference

| Highest Degree | Strong | Not Very Strong | Somewhat Strong | No Religion |
|---|---|---|---|---|
| Less than High School | 109<br>38% | 110<br>38.3% | 23<br>8% | 45<br>15.7% |
| High School | 322<br>33.4% | 394<br>40.9% | 69<br>7.2% | 179<br>18.6% |
| Junior College | 61<br>43.9% | 48<br>34.5% | 10<br>7.2% | 20<br>14.4% |
| Bachelor | 138<br>39.5% | 127<br>36.4% | 15<br>4.3% | 69<br>19.8% |
| Graduate | 77<br>37.4% | 68<br>33% | 11<br>5.3% | 50<br>24.3% |
| Statistics | Total Observations<br>1945 | Pearson Chi-Square<br>20.868 | Significance Level<br>0.05 | |

Table 10. A Person's Highest Degree and the Strength of Affiliation

Table 10 shows the association between a person's highest degree and the strength of affiliation. For people with "strong strength of affiliation", the highest percentage is junior college (43.9%); for people with "not very strong affiliation", the highest percentage is high school; for people with "somewhat strong affiliation", the highest percentage is high school and junior college; for people with "no religion affiliation", the highest percentage is people with graduate degrees. As people achieve higher degrees, more and more people tend to have no religion. There is no trend in the categories of "strong", "not very strong", "somewhat strong". The total observations is 1945, and the Pearson Chi-Square is 20.868, the

result is significant at 0.05 level, which means that a person's highest degree is significantly associated with his or her strength of affiliation.

| Highest Degree | Very Religious | Moderate Religious | Slightly Religious | Not Religious |
|---|---|---|---|---|
| Less than High School | 56<br>18.7% | 144<br>48% | 66<br>22% | 34<br>11.3% |
| High School | 165<br>16.5% | 418<br>41.9% | 247<br>24.7% | 168<br>16.8% |
| Junior College | 27<br>18.8% | 57<br>39.6% | 34<br>23.6% | 26<br>18.1% |
| Bachelor | 58<br>15.6% | 154<br>41.5% | 72<br>19.4% | 87<br>23.5% |
| Graduate | 37<br>17.1% | 69<br>31.8% | 51<br>23.5% | 60<br>27.6% |
| Statistics | Total Observations<br>2030 | Pearson Chi-Square<br>37.58 | Significance Level<br>0.000 | |

Table 11. A Person's Highest Degree and Whether He or She Considers Himself or Herself a Religious Person

Table 11 shows a person's highest degree and whether he or she considers himself or herself a religious person. We could see that the number of people who are "Moderate Religious" declines as people gain higher degrees. The number of people who are "Not Religious" increases as people obtain higher degrees. There are no clear trends for people who are "very religious" and people who are "slightly religious". The largest percent of people who are very religious are people with "Junior College" degree. The largest percent of people who are not slightly religious are people with high school degree. There are 2030 observations for this test, the Pearson Chi-Square is 37.5, and the p-value is 0.000, which is statistically significant. This means that a person's highest degree is significantly associated with whether he or she considers himself or herself a religious person.

### 5.2 Religious activities and demographic variables

The part of the results shows the association between how often one attends religious activities and his or her education and other demographic variables.

Table 12 shows the control variables have significant effect on one's religion attendance and other control variable. From the table, we can see that education has a negative effect on the religious attendance (-0.027), however, the effect is insignificant with a P-value of 0.738. Other variables that have significant effects on a person's religious attendances are the following: the number of children a person have, the denomination to which the person belongs, and their marital status. As the number of children increases, the days of religious attendance will increase; if a person is from the Catholic denomination, his or her religious attendance will increase; if a person is married, his or her church attendance will decrease by 2.144, which is a large effect.

| Attend | Coefficient | Standard Error | t | P>\|t\| |
|---|---|---|---|---|
| Education | -0.027 | 0.079 | -0.33 | 0.738 |
| Age | 0.018 | 0.019 | 0.95 | 0.344 |
| No. of Child | 0.399 | 0.152 | 2.63 | 0.009 |
| Income | -0.000 | 0.000 | -1.70 | 0.092 |
| Denomination | 0.020 | 0.009 | 2.09 | 0.039 |
| Divorce | 0.136 | 0.490 | 0.28 | 0.782 |
| Ethnic | -0.004 | 0.011 | -0.37 | 0.709 |
| Happy | -0.604 | 0.339 | -1.78 | 0.077 |
| Life | -0.513 | 0.367 | -1.40 | 0.164 |
| Race | 0.669 | 0.391 | 1.71 | 0.090 |
| Household Type | -0.025 | 0.047 | -0.53 | 0.596 |
| Hispanic | 0.326 | 0.229 | 1.42 | 0.156 |
| Marital | -2.144 | 0.970 | -2.21 | 0.029 |
| Sex | 0.792 | 0.442 | 1.79 | 0.076 |
| F=0.0004 R-square=0.2405 Adj R-squared=0.1597 MSE=2.4528 | | | | |

Table 12. A Person's Religion Attendance, Education, and Other Variables.

| Attend | Coefficient | Standard Error | t | P>\|t\| |
|---|---|---|---|---|
| Occupation | -0.022 | 0.022 | -1.00 | 0.320 |
| Age | 0.016 | 0.020 | 0.80 | 0.428 |
| No. of Child | 0.455 | 0.154 | 2.96 | 0.004 |
| Income | -0.000 | 0.000 | -2.11 | 0.037 |
| Denomination | 0.018 | 0.010 | 1.82 | 0.070 |
| Divorce | 0.265 | 0.494 | 0.54 | 0.592 |
| Ethnic | -0.001 | 0.108 | -0.11 | 0.913 |
| Happy | -0.652 | 0.343 | -1.90 | 0.060 |
| Life | -0.533 | 0.372 | -1.43 | 0.154 |
| Race | 0.701 | 0.396 | 1.77 | 0.079 |
| Household Type | -0.035 | 0.047 | -0.74 | 0.461 |
| Hispanic | 0.344 | 0.224 | 1.53 | 0.128 |
| Marital | -1.974 | 0.970 | -2.03 | 0.044 |
| Sex | 0.577 | 0.455 | 1.27 | 0.206 |
| F=2.84 R-square=0.2581 Adj R-squared=0.1674 MSE=2.4416 | | | | |

Table 13. A Person's Religious Attendance, Occupation, and Other Variables

Table 13 shows the variables that have a significant effect on one's religious attendance. However, this time we replaced education variable with occupation variable to see whether one's occupation would have a significant effect on his or her religious attendance. In this estimation, I find that a more prestigious occupation has a negative effect on one's religious attendance, but this effect is not significant with a p-value of 0.320. There are only two other

variables that have a significant effect on one's school attendance. The two variables are the following: the number of children in the family, and the marital status of the person. The denomination is weakly significant at p-value of 0.05. If there are more children in the family, the person's church attendance increases significantly (0.455 with a p-value of 0.004); if the person get married, his or her church attendance decreases by 1.974, with a p-value of 0.044, this result is statistically significant.

## 6. Conclusion

Religion remains an important aspect of life in the U.S. Yet very little is known about the impact religious participation has on economic outcomes. I have attempted to remedy this shortcoming by studying the relationship between education and religious variables and study the relationship between social factors and religion using the GSS data.

Within the U.S., education decreases religious attendance at an individual level. This does not seem unusual to us because religious attendance is a major form of social interaction and education raises every other measurable form of social connection. We do not fully understand why education has this impact on social connection, but it seems to be the best explanation of the negative connection between education and religion. At the same time, there is a strong negative connection between attendance and education across religious groups within the U.S. and elsewhere. This can be explained by the fact that education is negatively connected religious belief and there is strong sorting across denominations on the basis of beliefs. We think that the negative correlation between beliefs and education occurs because education teaches a secular belief system, which conflicts with religious ideology.

This research attempts to achieve two purposes by linking religion and education. First, the study analyzes the one-to-one relationship between education and several religious activities and obtained significant results between education and some of the religious variables.

Second, it applied the human capital models based on social factors by analyzing a framework in which social factors, such as education, occupation, income, marital status, etc. affect children's education, a la Coleman. Based on sociologists' research as well as the existing economic literature, I analyzed the effects of income, marital status, education, and other social factors on people's religious activities.

In other words, religion has a value of investment as well as a value of consumption. It suggests that there is a close relationship between an individual's education attainment and the level of her religious participation. Further, this study reaches the conclusion that education is significantly related with various religious factors proving that human capital and religious activities are strongly associated. This result helps to explain why seemingly unproductive religions can be everlasting. Sometimes, it is observed that the higher one's education attainment, the fewer religious activities he or she would attend, less fundamentalist he or she will be, and more liberal he or she will be. However, for Jewish people, it has somehow a reverse trend, the educated the Jew, he or she will be more active religiously. Also, as the degree rises, the number of nonbelievers will also increase.

In addition, conform with the finding of the first part, the regression analysis in the second part also shows that education has a significant negative effect on religious attendance,

nevertheless, this effect is insignificant. Three other variables are significantly associated with religion: As the number of children increases, the days of religious attendance will increase; this result complies with former researches (Fan, 2008) explained by the fact that parents would like to take their children to attend church activities as a form of education and human capital investment. If a person is Catholic, his or her religious attendance will significantly increase. If a person gets married, his or her church attendance will significantly decrease. This may be explained by the theory that time is a constraint, the family life and church activities are substitutes, as a person get married, he or she has to spend more time on family and thus has less spare time to attend religious activities. The third variable that has a significant effect on one's religious attendance is the person's occupation. I find that more prestigious occupation is negatively related with one's religious attendance, but this effect is not significant. This result could be explained by our first finding that education is negatively related with the attending of religious activities. The more education one receives, the more prestigious one's job would be, as a result, the less religious activities he or she will attend.

In future research, the empirical analysis could be extended in several ways. For example, for simplicity, besides using the cross-tab methods, and the ordinary least square regression, the ordinal regression analysis could be applied to check the robustness of the results. Based on further theoretical development, other variables could affect church activities; as a result, we could include other variables such as the parents' religious belief, the region of the country, the density of the churches, etc. into the model. Secondly, there might be two way interactions between attending church and education, it might be useful to conduct a test of endoegeneity between the two variables: if there is the endogeneity issue, an instrument may be applied to solve for the problem. Thirdly, I only used church attendance as the independent variable in the regression model: besides church attendances, there are many religious variables such as number of days one prays, how strong one considers him to be a fundamentalist, or how strong one believes in God. It would be interesting to compare the results from using church attendance and other religious variables. If the independent variables are categorical variables, again, the ordinal regression could be applied for the analysis.

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**Sociological Landscape - Theories, Realities and Trends**
Edited by Dr. Dennis Erasga

ISBN 978-953-51-0460-5
Hard cover, 428 pages
**Publisher** InTech
**Published online** 28, March, 2012
**Published in print edition** March, 2012

More than the usual academic textbook, the present volume presents sociology as terrain that one can virtually traverse and experience. Each version of the sociological imagination captured by the chapter essays takes the readers to the realm of the taken-for-granted (such as zoological collections, food, education, entrepreneurship, religious participation, etc.) and the extraordinary (the likes of organizational fraud, climate change, labour relations, multiple modernities, etc.) - altogether presumed to be problematic and yet possible. Using the sociological perspective as the frame of reference, the readers are invited to interrogate the realities and trends which their social worlds relentlessly create for them, allowing them in return, to discover their unique locations in their cultures' social map.

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Shishu Zhang (2012). Religious Participation and Educational Attainment: An Empirical Investigation, Sociological Landscape - Theories, Realities and Trends, Dr. Dennis Erasga (Ed.), ISBN: 978-953-51-0460-5, InTech, Available from: http://www.intechopen.com/books/sociological-landscape-theories-realities-and-trends/religious-participation-and-educational-attainment-an-empirical-investigation

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