# Educational Attainment and Religiosity: Exploring Variations by Religious Tradition

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This study examines the relationship between educational attainment and various dimensions of religiosity. On the basis of a network closure argument, we hypothesize that the relationship between education and religiosity varies by religious tradition. Analyzing data from the 1972–2006 General Social Survey, we found that educational attainment predicted increased attendance at religious services, decreased levels of prayer, increased inclination to view the Bible as a book of fables, and decreased inclination to view the Bible as the literal word of God. These relationships, however, significantly interacted with religious tradition. Increased education largely resulted in greater religiosity among evangelical Protestants, black Protestants, and Catholics but not among mainline Protestants and the nonaffiliated. Overall, this study shows that education does not uniformly decrease religiosity and highlights the importance of considering religious tradition in future research. Key words: education; attendance; prayer; beliefs; biblical literalism; denominations.

What is the effect of education on religious belief? The often-assumed answer is that increased education reduces religious beliefs and practices. The negative impact is attributed to increased knowledge of scientific precepts and increased exposure to a variety of cultures and religious traditions, both of which may cast doubt that any one religious tradition has a monopoly on truth. The evidence, however, does not clearly support this point of view and suggests that the impact of education on religiosity is more complex (Coreno

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2002; Lehrer 1999). In this paper, we extend previous literature by using the concept of network closure to explain how the observed relationship between education and religiosity varies by religious tradition.

## EDUCATION AND RELIGION

The enduring impact of educational attainment on religion is often assumed to be one of "erosion" (Johnson 1997). Previous research has emphasized two ways in which education can erode religious beliefs and practices. The first is the acquirement of new knowledge about science and other cultures. The second way education can influence religion is through increased exposure to secular viewpoints across the life course that result from educational attainment (Johnson 1997; Sherkat 1998). Through erosion, education is assumed to have a long-term secularizing effect upon religious beliefs and behaviors. According to this perspective, education shares a persistent negative relationship with religious beliefs. Moreover, scholars have linked education to decreased levels of the following: belief in the existence of God (Johnson 1997), religious commitment (Petersen 1994), belief in the Bible (Sherkat 1998), belief in divine involvement and control (Schieman 2010), as well as frequency of prayer (Baker 2008).

Alternatively, a host of studies found a positive association between educational attainment and religious attendance (Brown and Taylor 2007; Johnson 1997; Petersen 1994; Sherkat 1998). The common explanation for this consistent finding is that the well educated attend church more often because they witness increased social status and social capital. Moreover, the evidence indicates that this relationship extends across all major religious traditions in the United States (Sacerdote and Glaeser 2001). There is some evidence, however, to suggest that influence of education on religiosity varies by religious tradition. Furthermore, education is not always associated with lower religiosity. Peterson (1994) found that for evangelical Protestants those with the highest levels of education also reported the highest frequency of prayer; but for other traditions those with the lowest levels of education reported the highest frequency of prayer. Chatters et al. (1999) found that among black Protestants, those with higher education were more likely to read religious texts or materials. Albrecht and Heaton (1984) found that highly educated people reported higher levels of frequency of prayer, importance of religion, and tithing among Mormons.

## NETWORK CLOSURE, EDUCATION, AND RELIGIOSITY

In making sense in these patterns, we found the concept of network closure to be valuable in understanding the bidirectional correlation between education and religion as well as predicting the correlation for different

religious traditions. Network closure refers to the degree of connectedness in a network structure that facilitates the transmission of information and provides a means to develop trust and accountability (Blanchard 2007; Coleman 1988). Some religious traditions have high levels of network closure, others have low levels, and we would expect traditions with high network closure to demonstrate the most positive correlation between education and religion (i.e., increased education should associate with more of both private and public religious practices). Our argument is composed of three components. First, closednetwork communities shelter individuals from exposure to challenging beliefs, lifestyles, and worldviews. Second, closed-network communities will be protective over the erosion of beliefs associated with education. Finally, highly educated individuals will be especially valuable to religious communities characterized by high network closure. We elaborate on this three-part argument below.

#### Lack of Exposure to Alternative Beliefs

The highly educated within religious communities characterized by high network closure will likely have less exposure to other beliefs and worldviews. Moreover, members of high closure networks, by definition, have fewer social ties outside the network. The pull of these networks might be especially strong for highly educated members due to increased social status and sense of belonging. As a result, they would have fewer ties outside the community than we would otherwise expect, given their education.

Education has been associated with increased volunteerism, civic engagement, and leisure activities which expose the possessor to the structural and cultural pluralism of modern society (Perna 2005). These relationships between education and exposure to diverse ideas and beliefs may not exist among the highly educated living in closed-network communities. The ability to explore differing beliefs and lifestyles among educated individuals will be tempered by the social rewards and sanctions imposed by religious communities. Indeed, the erosion framework may fall short for this reason. It predicts that education will erode religious beliefs through increased exposure to secular vantage points throughout the life course. If a religious community is able to shelter adherents from other ideas, beliefs, and ways of life, it is removing one of the primary ways in which increased education leads to lower religiosity (i.e., erosion).

## Buffering from Exposure to Alternative Beliefs

Network closure may shield an individual from the secularizing influence brought about by educational attainment. While the *lack of exposure to alternative beliefs* perspective suggested that the most educated are not exposed to alternative beliefs, this perspective suggests that when a person is exposed to alternative beliefs, this exposure does not influence their religious beliefs or worldview. Closed-network religious communities may provide frequent confirmation of central religious beliefs and behavior through social rewards and sanctions that nullify the secularizing influence of education. In religious communities with strong network closure, diverse beliefs and practices are discouraged if not prohibited (Iannaccone 1988).

The ability to explore differing beliefs and lifestyles, provided by education, may be tempered by the social rewards and sanctions imposed by religious communities. Moreover, network embeddedness implies being surrounded by likeminded others, who reinforce beliefs and values via formal and informal means, reward conformity, and sanction deviance. Persons who stray from normative religious beliefs and behaviors may experience subtle sanctions, such as loss of respect from friends and associates within the church, gossip, and even ostracism (Patee et al. 1994). In other words, the religious congregations with high levels of network closure may buffer the potentially secularizing influence of outside ideas, lifestyles, and world views. In contrast, in religious traditions that have low levels of network closure, education may have a secularizing influence over religious behavior and beliefs.

## Education as a Religious Resource

Highly educated members are important for any religious tradition, but perhaps especially so for high closure traditions. Education may give the possessor the tools necessary to develop a high level of religious cognitive ability. One of the central functions of a religious congregation is to explain religious beliefs as they relate to individual lives', which requires a high level of abstraction. In order for a congregation to be successful, they must have individuals that are capable of expanding upon religious doctrine. Educated individuals may be especially suited to promote and explain these beliefs. Indeed, bible and prayer groups often deal with how central religious tenets relate to the problems of daily life (Wuthnow 1994). The highly educated may have the tools to give spiritual guidance regarding the meaning of religious texts in both informal (e.g., potluck dinners) and formal (e.g., bible study) contexts. Furthermore, the highly educated are likely candidates to lead such bible and prayer groups and to facilitate knowledge pertaining to how religious principles relate to daily life. Moreover, Gaede (1977) using a sample of Mennonites found evidence that those with the highest education had the highest level of religious cognitive ability-which was measured as knowledge regarding the Bible. In sum, those with high levels of education may be highly valued in religious congregations because of the cognitive tools afforded by educational attainment.

Highly educated members typically earn more money than the less educated. Those with higher incomes and wealth may be more likely to have more available time to volunteer for church activities. Also, those with the highest income are the most valuable financially to a religious congregation. Tithing is typically done on a sliding scale such that everyone is supposed to donate 10 percent of their income; although the majority of people donate little or nothing. The vast proportion of tithing comes from a small proportion of churchgoers (Smith et al. 2008). These ultra-givers may be especially important for churches that face a

perennial battle to pay the bills and expand their church. Moreover, was it not for a small group of generous givers American Christianity would go financially bankrupt and most ministries would go under (Smith et al. 2008). Data from the 1998 GSS confirm that those with the highest household incomes give more to religious congregations than those with lower incomes (as a percentage of income and absolute dollars).

In addition, a successful religious congregation looks out for the well-being of its parishioners; therefore, individuals able to offer help and advice in different areas of life are in high demand. The educated are likely to fill highly valued roles that are useful to religious communities. For instance, doctors may offer fellow parishioners medical advice, lawyers legal advice, accountants accounting advice, etc. These types of connections may be especially important in the presence of high levels of network closure. People in closed network religious groups tend to be suspicious of people outside the church. Research suggests that individuals ask for assistance more frequently in groups when potential support providers are sure about each other's obligations (Cutrona et al. 1990). In addition, highly educated individuals may have more connections with professionals than others (McPherson et al. 2001). These connections may be invaluable to the daily functioning of a congregation. The contact with these professionals, such as lawyers, doctors, bankers, teachers, architects, and accountants, may facilitate the growth and smooth operation of the congregations in which they attend.

Here is where the importance of highly educated members matters for our argument: The distribution of well-educated people among religious traditions is not equal, and previous studies have found that religious groups with high levels of network closure tend to have fewer educated parishioners (Darnell and Sherkat 1997). As a result, these well-educated parishioners may be more valued in these groups than others with open network structures simply based on the principle of supply and demand. Highly educated people in traditions with high closure, because there are relatively fewer of them may be more appreciated and valued than those in other traditions. This can make their religious behavior more rewarding, and the tradition might go to greater lengths to nurture and keep them. Individuals who are valuable to the congregation will likely become more involved in the religious community and become more religious over time. In contrast, religious traditions with the lowest levels of network closure, with the most educated parishioners, may place less value on any one educated person.

# RELIGIOUS NETWORK CLOSURE AMONG PROMINENT RELIGIOUS AFFILIATIONS

## **Evangelical Protestants**

If in fact network closure alters the relationship between education and religion, it becomes important to identify closure levels for specific religious

traditions. Historically, evangelical Protestants have sought more distance from the broader culture, emphasizing missionary activity, individual conversion, and adherence to religious doctrine (Steensland et al. 2000). Although some claim that evangelical Protestants are now engaging with the secular public sphere more than other religious groups, a wealth of evidence suggests the opposite. Evangelical's tend to limit their social networks to coreligionists (Pescosolido and Georgianna 1989; Smith and Faris 2005), tend to live in areas highly segregated from blacks and Hispanics (Blanchard 2007), discourage secular engagement (Iannaccone 1994), and distrust nonevangelicals (Welch et al. 2007). For example, evangelical Protestants devote the vast majority of their volunteering efforts toward the functioning and maintenance of their own churches (Wilson and Janoski 1995). Although Evangelicals may be less likely to acquire a college education than mainline Protestants, a large proportion still do pursue higher education. While disparities in educational attainment remain relatively stable, evangelical Protestants have kept pace with mainline Protestants in educational attainment since the postwar rapid increase in access to higher education (Massengill 2008).<sup>1</sup> Also, the meaning of education may have changed over time as to make higher education more appealing to evangelical Protestants. In 1960, 80 percent of college freshman indicated "developing a meaningful philosophy of life" as an important goal in life; by 1996 this percentage dropped to 42 percent (Astin 1998). Moreover, many contemporary college students are there to pursue an applicable degree and not to wrestle with issues of morality or meaning (Uecker et al. 2007). Indeed, education may be encouraged to the extent that religious beliefs and community remain the focal point in life (Regnerus and Smith 1998). On the basis of this previous work, we would expect that among the major Christian religious traditions, evangelical Protestants should have the highest levels of network closure. As a result, they should have the most positive (or least negative) relationship between education and religiosity.

#### **Black Protestants**

Black Protestant denominations have a distinct history and group identity. The black church has served as a central institution in the lives of African Americans from the pre-Civil War era until the present (Lincoln and Maniy 1990; Roof and McKinney 1987). Black Protestants, more than any other group, remain at the intersection between the worldly and the sacred (Roof and McKinney 1987). Issues regarding social justice, love, suffering, and hope in creating an equitable peaceful world have created especially strong group ties among black Protestants. They have maintained strong bonds to church

<sup>&</sup>lt;sup>1</sup>In fact, the vast majority of the population heterogeneity in education is within denominations (Sacerdote and Glaeser 2001). In other words, people of all levels of educational attainment can generally be found in all major religious denominations.

and community despite societal trends of religious individualism (Roof and McKinney 1987). Like evangelical Protestants, black Protestants maintain a religious identity unique from the broader culture. Historically, the black church viewed scripture based upon their own experiences including slavery and later overt and structural discrimination. These scriptural interpretations led to the development of songs, prayers, sermons, behavioral rituals, and values that differed from other Protestant traditions (Calhoun-Brown 1999). Moreover, the black church has been referred to as a semi-involuntary institution because social rewards and sanctions make involvement among blacks in the South nearly compulsory (Ellison and Sherkat 1995). Although the black church consists of strong closely intertwined networks, they are likely less closed off than that of evangelical Protestants. While consisting of many inclusive elements, the black church consistently engages in social justice issues that transcend the bounds of the church. Among black Protestants, we expect that those with higher education will report higher religiosity but less so than among evangelical Protestants.

#### Catholics

The Catholic Church has a more structured and hierarchical organization than other religious groups. Many American Catholics base their Catholic identity on their faith and not upon the Catholic institution (Hoge 2002), therefore potentially limiting the influence of the Catholic hierarchy. Since the Second Vatican council ended in 1965, Catholicism has been continually moving into the mainstream of American religious life. They resemble mainline Protestants in many regards but maintain higher levels of religious attendance and are more likely to consider themselves "strong" members (Roof and McKinney 1987). Affiliation as a Catholic may convey more than religious beliefs but also a broader ethnic identity fortified by a dense set of social networks. Indeed, Catholics are the least likely major religious tradition to convert to another religion (Sherkat and Wilson 1995). On the basis of this, we expect the associations between education and frequency of attendance, frequency of prayer, and belief in the Bible to be positive but less pronounced in magnitude than that of evangelical Protestants.

## Mainline Protestants

Mainline Protestants are a historical product of American Protestantism encountering modernity. Mainline Protestantism sought to accommodate modernity by redefining religious truths to more closely coalesce with science and to accommodate the needs arising from urbanization and industrialization. They tend to resemble the values held by middle-class Americans (Roof and McKinney 1987). Mainline Protestants emphasize an accommodating stance toward modern life, are supporters of social and economic justice, and are relatively pluralistic in their tolerance of differences in beliefs (Steensland et al. 2000). Mainline Protestants are very diverse in their beliefs and demographics and have diverse social networks. Because of these networks, education should be negatively associated with religiosity.

## Nonaffiliated

According to GSS data, the percentage of religiously nonaffiliated individuals in the United States has more than tripled from 5.1 percent in 1972 to 16.8 percent in 2008, although a large proportion of these individuals still hold religious beliefs. The network closure argument suggests those with lower levels of education will have higher levels of belief than others. The educated will be exposed to a greater variety of ideas and world views than the less educated (Perna 2005). The educated will possess resources that others do not, such as higher levels of sense of control, the ability to navigate complex situations, and exposure to critical thinking, scientific thought, and self-directedness (Kerckhoff et al. 2001; Mirowsky and Ross 2003). The less educated will posses fewer secular resources, making religious ones especially important. For example, people of lower SES may rely more on religious-based resources to achieve a sense of security (Granqvist and Hagekull 2001). Individuals that rely on religious resources will tend to be more religious than those that do not. Overall, the nonaffiliated have no network closure, so the less educated should report higher levels of religiosity than their well-educated counterparts.

# DATA AND METHODS

We tested these hypotheses with data from the General Social Survey (GSS). The GSS surveys a nationally representative cross-section of adults in the United States every two or three years. Suitable for the purposes of this paper, the GSS contains measures of religiosity, educational attainment, religious groupings, and demographic factors. Depending on the dependent variable of interest, we analyzed data collected from 1972–2006 or 1983–2006.

# **Dependent Variables**

We consider three dimensions of religiosity: religious attendance, frequency of prayer, and attitudes toward the Bible. The measure of religious attendance comes from a question in the 1972–2006 GSS that asked how often respondents attended religious services. Responses were rated on an ordinal-level scale ranging from 0 (never) to 8 (several times a week). Frequency of prayer was measured in all waves of the GSS between 1983 and 2006 except for 1986 and 1991. It asked respondents how often they prayed, and respondents responded on an ordinal-level scale ranging from 1 (several times a day) to 6 (never). For clarity of presentation, we reverse-coded this variable, so that high scores reflected more frequent prayer. Attitudes toward the Bible were measured with a question asked in all waves of the GSS between 1984 and 2006 except for 1986. Response categories included: 1 (the Bible is the actual word of God and is to be taken literally, word for word); 2 (the Bible is the inspired word of God but not everything in it should be taken literally, word for word); 3 (the Bible is an ancient book of fables, legends, history, and moral precepts recorded

by men). Those answering "other" and "do not know" were omitted from the analysis. We acknowledge that those that view the Bible as the inspired word are not necessarily less religious than those that believe the Bible is the actual word of God. We do, however, contend that those that identify as believing in the Bible as the actual word of God or God-inspired text are more religious than those that view the Bible as a "book of fables".

#### **Independent Variables and Controls**

Educational attainment was measured as the highest degree obtained by respondents, ranging from 1 (less than high school) to 5 (graduate degree).<sup>2</sup> It was measured in each wave of the GSS. The highest degree possessed by an individual is a better indicator than other measures, such as years of schooling. This has an important influence on social and economic life chances (Mirowsky and Ross 2003). For example, if two respondents have completed 17 years of schooling and one has received a bachelor's degree and the other has not, the first is more likely to witness positive social and economic changes in life chances that the second will not. Indeed, the use of years of schooling has led to a misclassification of completed schooling into degrees, as well as the inability to identify specific degrees such as graduate and professional degrees (U.S. Census Bureau, 1992).

We measured religious affiliation using a classification scheme developed by Steensland et al. (2000). It placed each GSS respondent into one of five religious groups: mainline Protestant, evangelical Protestant, black Protestant, Catholic, and nonaffiliated. In our multivariate analyses, we used "mainline Protestant" as the omitted category. We also created interaction terms by multiplying educational attainment by each of the religious group dummy variables to create five interaction variables (ranging in score from 0 to 5).

Previous research suggests that various social and demographic factors may significantly influence religiosity (Cavendish et al. 1998; Sherkat 1998; Gunnoe and Moore 2002). This literature suggests that women are more religious than men, blacks more than whites, Southerners more than others, and married people more than singles. Accordingly, we included dummy variables

<sup>&</sup>lt;sup>2</sup>We measured education as a continuous variable with each category referring to specific levels of education. We broke every educational category into a dummy variable and created appropriate interaction terms. We then re-ran all models using these discrete indicators of educational attainment. Overall, we concluded that employing education as a continuous variable is still the best option, but it was not a cut-and-dry decision. While the same patterns emerged, there was some evidence that having a bachelor's degree was the most important aspect in relation to religiosity. Although this pattern was far from clear. In some cases, the impact of education increased incrementally, in others it changed disproportionately for the bachelor's degree category. Overall, we reached the same substantive conclusion as in the text and decided to keep education as a continuous variable. While we could have presented our data in either form and had the same conclusion, we decided to take the more parsimonious route and use education as a continuous variable (i.e., there were a large number of interaction terms when education was treated as categorical).

for these characteristics. The racial category "other" indicates those that do not identify as either white or black. We also added control variables for age and age-squared, to test for nonlinear effects, as well as number of children. We controlled for possible period effects by including dummy variables measuring five-year periods in which each respondent was surveyed.<sup>3</sup>

# **Statistical Models**

Our analyses comprise four separate dependent variables: religious attendance, frequency of prayer, viewing the Bible as a book of fables, and viewing the Bible as the literal word of God. We used ordinary least squares regression models for the first two analyses<sup>4</sup>, and multinomial logistic regression for the second two. (For the Biblical view outcomes, we use "the Bible is God-inspired" as the omitted, reference category.) Multinomial logistic regression is appropriate when the dependent variable is categorical with three or more categories. The "Bible is God-inspired" category was chosen as the reference category because it contained the highest number of cases among all three categories. In the analyses, "inspired" was compared with "literal" and "inspired" to "fables." The results of this multinomial regression are presented in two separate tables (inspired versus fables; and inspired versus literal), but the equations displayed in these tables were estimated simultaneously. With each outcome, we present four separate models. The first model includes only one independent variable, educational attainment. This zero-order effect of educational attainment upon religiosity serves as a baseline estimate with which to interpret the remaining models. The second model adds various control variables; the third model adds religious affiliation; and the fourth model adds education-by-affiliation interaction terms. These interaction terms serve as a test of our hypotheses regarding the relationship between education and religiosity among mainline Protestants, evangelical Protestants, black Protestants, and Catholics. We use listwise deletion of missing data in all of our analyses. The sample size was 44,750 for the analyses of religious attendance, 19,481 for frequency of prayer, and 19,326 for biblical views.

# RESULTS

The mean values for attendance and prayer, and modal values for belief in the Bible that correspond to respondents to attending religious services almost

<sup>&</sup>lt;sup>3</sup>In additional analyses, we controlled for several interactions with religious traditions including: age, period, region, and marital status. The relationship between the religions tradition by highest degree interaction term and religiosity presented in the text did not change with the inclusion of these interaction variables.

<sup>&</sup>lt;sup>4</sup>As sensitivity analyses, we re-estimated these analyses using ordinal regression, which resulted in the same pattern of findings.

one time per month, praying once or more per week, and viewing the Bible as God inspired. Evangelicals and Catholics represented the largest religious groups (27 and 28 percent) followed by mainline Protestants (24 percent), the nonaffiliated (11 percent), and black Protestants (10 percent). The average respondent had roughly two children and was 46 years of age. More than half of the sample were female, 54 percent were married at the time of interview, and 37 percent lived in the Southern region of the United States.

Table 1 presents regression models predicting religious attendance. Model 1 shows that the zero-order effect of highest degree on religious attendance is significant and positive with an unstandardized regression coefficient of 0.113. Model 2 adds control variables which increase the magnitude of the educational effect to 0.278. The inclusion of these variables explains nearly 8 percent more variance in attendance than education alone. This increase in magnitude is likely due to the additional covariates being related to both education and religious attendance. Moreover, these variables may be instrumental in how much education the respondent acquired earlier in life. For instance, people with a large number of children likely started a family early in life and did not have the time or money to pursue higher education. Also, individuals with many children attend religious services more regularly than those with fewer children. The negative correlation between education and number of children provides support for this idea ( $\rho = -.19$ ). Five of the six period-effect dummy variables are statistically significant (with 1972-1975 being the reference category). They are negative which indicates that fewer respondents attended religious services after 1975. (Analyses not shown but available upon request.)

Model 3 adds dummy variables measuring religious affiliation (with mainline Protestants as the reference category). All four affiliation variables are significantly different from mainline Protestants. Evangelical Protestants, black Protestants, and Catholics had higher levels of attendance while the nonaffiliated had lower levels. The overall model fit increased substantially from Model 2 to Model 3, with an increase in *R*-squared from 0.087 to 0.232.

Model 4 adds interaction terms created by multiplying highest degree earned by each of the religious affiliation variables. The interaction effect of education by evangelical Protestant is positive and significant, indicating that educational attainment had a greater, more positive effect on religious attendance among Evangelicals than mainline Protestants. The interaction effect for the nonaffiliated respondents is negative and statistically significant.

Table 2 presents analyses of our second outcome measure: frequency of prayer. As shown in Model 1, the zero-order effect of educational attainment on prayer frequency is significant and negative, meaning that, on average, more educated respondents prayed less often. In Model 2, the effect loses significance with the addition of these control variables. With 1981–1985 as the reference

	Model 1	Model 2	Model 3	Model 4
Degree	0.113***	0.278***	0.349***	0.353***
	(0.011)	(0.012)	(0.011)	(0.018)
Children		0.094***	0.057***	0.057***
		(0.008)	(0.007)	(0.007)
Age		0.006	-0.007	0.001
		(0.004)	(0.004)	(0.004)
Age-Squared		0.000***	0.000***	0.000***
~ .		(0.000)	(0.000)	(0.000)
White		-0.695***	-0.690***	-0.650***
		(0.036)	(0.049)	(0.049)
Other		-0.434***	-0.498***	-0.445***
		(0.070)	(0.069)	(0.069)
Male		-0.752***	-0.583***	-0.587***
		(0.025)	(0.022)	(0.022)
Married		0.559***	0.391***	0.387***
		(0.026)	(0.024)	(0.024)
South		0.509***	0.269***	0.273***
		(0.025)	(0.024)	(0.024)
Evangelical		(0.023)	1.057***	0.659***
Drungeneur			(0.031)	(0.069)
Black Protestant			0.516***	0.539***
Diaek Tiotestain			(0.061)	(0.102)
Catholic			0 786***	0.845***
Catholic			(0.031)	(0.069)
Nonoffiliated			_ 2 508***	
Nonannateu			(0.041)	(0.002)
Dograa V overgeligel			(0.041)	0.105***
Degree × evangencar				$(0.19)^{11}$
Derman y blask				(0.026)
Degree × black				(0.011)
P rotestant $D$ $(1, 1)$				(0.042)
Degree × Catholic				-0.023
D ((1: 1				(0.020)
Degree $\times$ nonaffiliated				-0.294***
0	2 (00****	2 1 0 2 4 4 4	2 1 4 4 4 4 4	(0.033)
Constant	3.688***	3.183***	3.144***	3.056**
	(0.028)	(0.098)	(0.100)	(0.107)
Model fit ( <i>R</i> -Squared)	0.001	0.081	0.220	0.225
Sample Size	44,750	44,750	44,750	44,750

TABLE 1OLS Regression of Religious Attendance on Educational Attainment andReligious Affiliation

*Note*: Standard errors are in parentheses. A series of five-year period effect dummy variables were included in the analyses in order to control for potential trend effects. We excluded these from the table for the sake of space, but all analyses are available upon request.

 $p^{*} < .05; *p^{*} < .01; **p^{*} < .001$  (two-tailed test).

period, respondents overall frequency of prayer decreased from 1986 to 1995, but from 1996 to 2006, there is no statistical difference from the reference period. Model 3 incorporates measures of religious affiliation into the equation. Evangelical Protestants, black Protestants, and Catholics reported praying more frequently than mainline Protestants. The nonaffiliated respondents prayed less often. Model 4 finds significant positive interaction effects for evangelical and black Protestants and a negative interaction effect for the nonaffiliated. While the interaction term is positive for Catholics, they do not differ statistically from mainline Protestants. This finding reveals that Evangelical and black Protestant respondents with higher levels of education report praying more often than their less-educated counterparts. Model 1 in contrast shows education to share a negative bivariate relationship with frequency of prayer. These findings highlight the importance of considering religious tradition. For instance, the size and direction of the education coefficient varies across religious tradition. There is no one relationship between education and religiosity but several for each subpopulation (i.e., religious traditions). In other words, analyses of religious tradition more accurately specify the relationship between education and religiosity.

Tables 3 and 4 present multinomial logistic regression equations predicting a third outcome: respondents' beliefs about the Bible. Because this belief variable consists of three categories, we employed multinomial logistic regression which simultaneously estimates a series of binary logit models (two in this case). In Table 3 the outcome is coded to predict the likelihood of believing that the Bible is a book of fables compared with the likelihood of believing the Bible to be the inspired word of God. Model 1 shows that respondents with higher educational attainment are more likely to view the Bible as a book of fables. In separate analyses (not shown but available upon request), only one of the period variables is statistically significant (compared with the 1981-1985 reference period), suggesting little overall change in beliefs about the Bible. Model 3 indicates that evangelical Protestants are significantly less likely than mainline Protestants to view the Bible as a book of fables. Black Protestants and nonaffiliated respondents are significantly more likely to believe the Bible to be fables than the inspired word of God. Model 4 shows that the interaction terms are all statistically significant compared with the mainline Protestant reference group. The negative interaction effects for Evangelicals, black Protestants, and Catholics indicate that increased education decreases the likelihood of viewing the Bible as fables rather than the inspired word of God. The reverse is true for the nonaffiliated.

Table 4 presents the results of multinomial logistic regression predicting the likelihood of believing that the Bible is the literal word of God compared with the likelihood of believing the Bible to be inspired by God. Again the equations presented in Table 3 were estimated simultaneously with those presented in Table 4. Model 1 shows that higher levels of education decrease the

	Model 1	Model 2	Model 3	Model 4
Degree	-0.103*** (0.009)	-0.013 (0.009)	0.021 (0.008)	-0.008 (0.016)
Children		0.048***	0.031***	0.031***
Age		(0.006) 0.022***	(0.006) 0.019***	(0.006) 0.020***
		(0.003)	(0.003)	(0.003)
Age-Squared		0.000**	0.000***	0.000
		(0.000)	(0.000)	(0.000)
White		-0.637***	-0.621***	-0.595***
		(0.029)	(0.04)	(0.040)
Other		-0.443***	0.414***	-0.373***
		(0.049)	(0.054)	(0.054)
Male		-0.774***	-0.688***	-0.687***
		(0.02)	(0.018)	(0.018)
Married		0.153***	0.069***	0.068***
		(0.021)	(0.020)	(0.020)
South		0.340***	0.190***	0.195***
		(0.020)	(0.020)	(0.02)
Evangelical			0.491***	0.144*
			(0.027)	(0.062)
Black Protestant			0.193***	0.002
0.1.1			(0.051)	(0.089)
Catholic			0.188***	0.088
			(0.027)	(0.062)
Nonaffiliated			-1.267***	-0.808***
<b>.</b>			(0.034)	(0.078)
Degree $\times$ evangelical				0.156***
				(0.024)
Degree $\times$ black				0.102**
Protestant				(0.036)
Degree $\times$ Catholic				0.041
				(0.022)
Degree $\times$ nonaffiliated				-0.174***
0				(0.027)
Constant	4.536**	4.031***	4.048***	4.063***
	(0.024)	(0.080)	(0.083)	(0.0830)
Model fit ( <i>R</i> -Squared)	0.008	0.153	0.255	0.261
Sample Size	19,481	19,481	19,481	19,481

TABLE 2OLS Regression of Frequency of Prayer on Educational Attainment andReligious Affiliation

Note: Standard errors are in parentheses.

<sup>a</sup>A series of five-year period effect dummy variables were included in the analyses in order to control for potential trend effects.

p < .05; p < .01; p < .001 (two-tailed test).

	Model 1	Model 2	Model 3	Model 4
Degree	0.094***	0.075***	0.079***	0.083*
-	(0.017)	(0.017)	(0.018)	(0.035)
Children		-0.091***	-0.055**	-0.052**
		(0.015)	(0.016)	(0.016)
Age		0.017*	0.024**	0.021**
-		(0.007)	(0.008)	(0.008)
Age-Squared		0.000*	0.000*	0.000
0		(0.000)	(0.000)	(0.000)
White		-0.062	0.193	0.125
		(0.070)	(0.098)	(0.099)
Other		0.075	0.305*	0.196
		(0.106)	(0.129)	(0.130)
Male		0.479**	0.343***	0.350***
		(0.040)	(0.042)	(0.043)
Married		-0.318***	0.182***	-0.182***
		(0.043)	(0.046)	(0.046)
South		0.253***	-0.074	-0.077
		(0.044)	(0.048)	(0.048)
Evangelical		. ,	-0.564***	0.129
Drangenear			(0.082)	(0.196)
Black Protestant			0.563***	1.122
			(0.133)	(0.284) ***
Catholic			0.040	0.383*
			(0.061)	(0.146)
Nonaffiliated			2.052***	1.401***
			(0.065)	(0.155)
Degree $\times$ evangelical			()	-0.297***
8				(0.076)
Degree × black				-0.293**
Protestant				(0.101)
Degree × Catholic				-0.134*
Degree X Gautone				(0.049)
Degree $\times$ nonaffiliated				0.239***
				(0.052)
Constant	-1.450***	-1.374**	1.920**	0.961**
	(0.051)	(0.313)	(0.387)	(0.821)
-2 Log-likelihood	35,530	33,970	30.570	30,390
Sample size	19,326	19,326	19,326	19,326
*	*	,	*	<i>*</i>

TABLE 3Multinomial Logistic Regression of Bible as Book of Fables on EducationalAttainment and Religious Affiliation

Notes: Standard errors are in parentheses. God-inspired bible serves as the reference category. The parameter estimates were estimated simultaneously for Tables 3 and 4 using multinomial logistic regression.

<sup>a</sup>A series of five-year period effect dummy variables were included in the analyses in order to control for potential trend effects.

\*p < .05, \*\*p < .01, \*\*\*p < .001 (two-tailed test).

likelihood of believing the Bible is the literal word of God. Model 2 finds the same effect, even with the control variables. The period variables indicate that there has been no meaningful change in levels of literalism over the past two decades. Model 3 adds religious affiliation variables, and, relative to mainline Protestants, Evangelicals are the most likely to view the Bible as literal rather than inspired by God, followed by Black Protestants, Catholics, mainline Protestants, and the nonaffiliated. Model 4 reveals that the probability of believing the Bible to be the literal word of God is higher for Evangelicals, black Protestants, and Catholics than mainline Protestants at equivalent levels of education. In other words, increases in education have less of a secularizing effect on these groups than they do among mainline Protestants. For the nonaffiliated, the most educated are especially unlikely to view the Bible as the literal word of God compared with mainline Protestants. How the relationship between education and belief in the Bible varies between religious traditions other than mainline Protestants may not be readily apparent in the tables and therefore deserves further attention.

Figure 1 illustrates the magnitude of the interaction effects on belief in the Bible as a book of fables via predicted probabilities for a hypothetical person with the following characteristics: female, white, married, not from the South, has an average number of children, and is of average age. Figure 1 reveals three patterns that deserve mention. First, belief in the Bible as a book of fables increases with education among mainline Protestants, Catholics, and the nonaffiliated (their levels of believing in fables are too high to include in Figure 1). The nonaffiliated have the sharpest gradient in the probability of belief. Unaffiliated individuals with less than a high school degree have a probability of .26, while the unaffiliated with a graduate degree have a probability of .70. Second, the probability of belief in the Bible as a book of fables is relatively constant (and low) across levels of education for evangelical Protestants. Third, among black Protestants, increases in education are associated with a decreased probability that the Bible will be viewed as a book of fables relative to the belief in that the Bible is the inspired word of God.

Figure 2 displays the predicted probabilities in belief in the literal Bible by educational attainment and religious tradition for the baseline person listed above. There are three important trends that deserve mention regarding belief in the literal Bible. First, Evangelicals and black Protestants have a higher probability of believing in the literal Bible at all levels of education than mainline Protestants, Catholics, and the nonaffiliated. Second, for all religious traditions, higher educational attainment is associated with a lower probability of believing in the literal Bible. Finally, the slope appears to be somewhat less steep for Evangelicals and black Protestants compared to mainline Protestants. Indeed, even at the highest levels of education, there are much larger proportions of biblical literalists among Evangelicals and black Protestants.

	Model 1	Model 2	Model 3	Model 4
Degree	$-0.539^{***}$	$-0.472^{**}$	0.449**	$-0.574^{***}$
Children	(0.010)	0.039**	0.036**	0.037**
Age		(0.010) -0.002 (0.006)	(0.011) -0.007* (0.006)	(0.011) -0.006 (0.006)
Age-Squared		0.000	0.000*	0.000*
White		(0.000) 0.909*** (0.046)	(0.000) 0.750*** (0.069)	(0.000) -0.732** (0.069)
Other		-0.437***	-0.015	-0.011
Male		(0.078) -0.290*** (0.033)	(0.094) -0.283*** (0.034)	(0.095) -0.283** (0.034)
Married		0.126***	0.082***	0.080*
South		(0.035) 0.638*** (0.033)	(0.036) 0.368*** (0.035)	(0.036) 0.372** (0.035)
Evangelical		(0.033)	1.140***	0.602**
Black Protestant			(0.046) 0.722*** (0.087)	(0.111) 0.172 (0.161)
Catholic			-0.233***	-0.171
Nonaffiliated			(0.050) -0.312*** (0.082)	(0.123) -0.067 (0.210)
Degree $\times$ evangelical			(0.002)	0.243**
Degree × black Protestant Degree × Catholic				(0.043) 0.268** (0.064) -0.036 (0.053)
Degree $\times$ nonaffiliated				-0.193*
Constant	0.871*** (0.039)	-0.119** (0.238)	1.080** (0.344)	(0.103) -0.424** (0.765)
—2 Log-likelihood Sample size	35,530 19,326	33,970 19,326	30,570 19,326	30,390 19,326

TABLE 4Multinomial Logistic Regression of Bible as Literal Word of God onEducational Attainment and Religious Affiliation

Notes: Standard errors are in parentheses. God-inspired bible serves as the reference category. The parameter estimates were estimated simultaneously for Tables 3 and 4 using multinomial logistic regression.

<sup>a</sup>A series of five-year period effect dummy variables were included in the analyses in order to control for potential trend effects.

\*p < .05, \*\*p < .01, \*\*\*p < .001 (two-tailed test).



FIGURE 1. The Influence of Education and Religious Tradition on Belief the Bible is a Book of Fables Relative to the Inspired Word

## DISCUSSION

This article examines the relationship between educational attainment and religiosity for people in different religious traditions. Overall, prior to the inclusion of interaction terms, we found that increased education was positively associated with church attendance and belief in the Bible as a book of fables, but negatively associated with frequency of prayer and believing the Bible to be the literal word of God. With each of these outcomes, however, the impact of education varied by religious tradition. These interaction effects showed that the relationship between education and religiosity can be positive or negative depending upon the religious tradition and dimension of religiosity under question.

On the basis of the network closure perspective, we hypothesized that education would have a positive effect on the religiosity of evangelical Protestants, black Protestants, and Catholics (when compared with mainline Protestants), and our analyses of data from the GSS generally supported these hypotheses. Higher educational attainment corresponded to more frequent church attendance for the whole sample, but especially for evangelical Protestants. Higher education corresponded to more frequent prayer for evangelicals and black Protestants, but less frequent prayer for the nonaffiliated group. For mainline Protestants and the nonaffiliated, education predicted greater belief in the Bible as a book of fables rather than inspired by God. Increases in education



FIGURE 2. The Influence of Education and Religious Tradition on Biblical Literalism

for Evangelicals, black Protestants, and Catholics increased the likelihood of viewing the Bible as inspired by God, compared with the literal word of God. While the relationship between biblical literalism and education was overall negative, this pattern may not be indicative of loss of religious belief. For individuals affiliated with Evangelicalism, black Protestantism, and Catholicism, increased education increased the likelihood of belief in the God-inspired Bible. In short, increased education for mainline Protestants and the nonaffiliated may have created a loss of belief, but for Evangelicals, black Protestants, and Catholics it may have altered the nature of belief.

Overall, the main contribution of this study is the knowledge that education does not uniformly decrease religiosity. Once religious tradition is taken into account, a different picture emerges. For example, the relationship between education and frequency of prayer can be positive (i.e., Evangelicals and black Protestants), negative (i.e., the nonaffiliated), or nonrelated (i.e., Catholics and mainline Protestants). The underlying relationships between education and religiosity depend upon religious tradition as a moderating factor. For these reasons, future work on education and religion should not neglect the role of religious tradition.

This study has several limitations that deserve mention. We cannot identify which respondents pursued education by attending religious schools, but we argue that there are at least two reasons why this would not confound our analyses. First, most opportunities for higher education are secular in nature and the few religious schools that do exist tend to be expensive. Moreover, the Christian College Guide on the web (http://www.christiancollegeguide.net/), a common guide for those wishing to attend a Christian college, displays only 47 Christian colleges in the United States (compared with over 2,500 secular institutions). The vast majority of these colleges do not have a student body that exceeds 1,500. We contend that there is not enough opportunity for religiously based higher education to severely bias our results. The vast majority of people pursuing education among all religious traditions must do so through secular institutions.

Second, our network closure framework does not preclude religious education. The benefits from education will likely be the same as with a secular institution. Moreover, according to Hunter (1983), even religious colleges have a secularizing effect on religious beliefs and behaviors. High levels of education should work in a similar capacity as if the individual went to a secular school.

The sample utilized in this study was rather large and may have led to significant parameter estimates that would have been nonsignificant with a smaller sample. In other words, the large sample size may have lead to an increased chance of committing a type I error. While this is possible, we contend it is unlikely because most of the parameter estimates for key terms were significant at the p < .01 or <.001 level.

Our argument does not necessarily imply that the role of education is causal. It explains why the most educated might also be the most religious in traditions with high levels of network closure. While sectarian groups tend to discourage higher education among their young, it should be noted that all major religious groups have people of all levels of education. Very religious individuals may have pursued higher education because their family did not view higher education as a threat. Later, the practical benefits of education may be especially beneficial for sectarian groups that lacked resources that educated individuals could provide. Because these individuals receive high social esteem in these settings, they may be especially inclined to believe and behave in ways that allow them to keep or increase their social standing.

Although our new argument is not necessarily a causal one, we did perform ancillary analyses that tested for potential socialization effects. First, for all analyses in the text, we included a dummy variable indicating whether the respondent considered themselves a fundamentalist at age 16. Although this variable was positively related to religiosity, it did not diminish the significance or magnitude of the education by tradition interactions. Second, we tested whether religious tradition at age 16 explained the relationship between education, religious tradition, and each measure of religiosity. Again, while several of the indicators of tradition at 16 predicted religiosity, none reduced the significance or magnitude of these interaction terms in any meaningful way.

Future research in this area should investigate specific mechanisms that religious affiliations use in dulling the potentially secularizing effects of education. The cultural tools and methods used vary by tradition as do the efficacy of these mechanisms. Future research should also test how these relationships

play out in different countries. Researching the relationship between educational attainment and religious affiliation in multiple countries would further elucidate how religion maintains vitality in an ever-increasingly modern world.

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