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The Role of Parental Religiosity in High School Completion

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Abstract

Scientists have produced a modest literature documenting the associations between individual religious behaviors and educational outcomes. Most scholars hypothesize that religion provides a context of social capital in which students reap educational benefit (or detriment) from the adults in the religious community. Despite the intergenerational influence inherent in the various social capital explanations, few studies have directly examined the role of parental religiosity in the educational outcomes of adolescents. In this study, I begin to address this gap by investigating whether and how parental religiosity is associated with a student's chances of graduating from high school. I seek to answer three questions related to parental religiosity and students' high school graduation. First, does parental religiosity affect a student's chances of graduating from high school? Second, if parental religiosity is associated with high school graduation, does it operate primarily through the student's own religiosity or is there an independent effect? Third, if parental religiosity is independently associated with a student's high school graduation, what are the mechanisms by which it is associated? Using data from the first and third waves of the National Longitudinal Study of Adolescent Health (Add Health), I find that students whose parents attend religious services more often have greater odds of completing high school, and students who attend religious services with parents are almost 40% more likely to finish high school, net of a number of other religious and sociodemographic factors.

Almost twenty-five years ago, James Coleman and his colleagues reported that students in Catholic schools performed better on standardized tests of math and verbal skills than comparable students at public schools (Coleman et al. 1982). The subsequent scholarship debating the so-called Catholic school findings has birthed an impressive legacy, at least two aspects of which are notable here. First, to interpret the Catholic school findings, Coleman developed his theory of social capital, today still a widely used (and misused) framework. Second, scholars began to explore religion as a potentially important influence on the educational trajectories and outcomes of students.

Much of the work on religion and education explores the impact of religious schooling, but scientists have also produced a modest literature documenting the associations between individual religious behaviors and educational outcomes. Mostly for good, but occasionally for ill, "more" religion is associated with better educational outcomes for students. That there is an association is rarely disputed. What is much less clear is *exactly how* religious associations, beliefs, and behaviors might influence education. Most scholars have hypothesized that religion provides a context of social capital in which students reap educational benefit (or detriment) from the adults in the community, and a number of studies at least partially support this explanation.

Despite the intergenerational influence inherent in the various social capital explanations, no study to date has directly examined the role of parental religiosity in the educational outcomes of adolescents. In this study, I begin to address this gap by investigating whether and how parental religiosity is associated with a student's chances of graduating from high school. I seek to answer three questions related to parental religiosity and students' high school graduation. First, does parental religiosity affect a student's chances of graduating from high school? Second, if parental religiosity is associated with high school graduation, does it operate primarily through the student's own religiosity or is there an independent effect? Third, if parental religiosity is independently associated with a student's high school graduation, what are the mechanisms by which it is associated? Specifically, I briefly review the literature on religion and educational outcomes, developing several theoretical mechanisms by which parental religiosity may be associated with a student's odds of graduating from high school. I investigate these mechanisms using data from the first and third waves of the National Longitudinal Study of Adolescent Health (Add Health). Finally, I discuss several promising directions for future research on the influence of religion on educational outcomes.

Religion, Social Capital, and Educational Outcomes

In the United States, religious groups have differed widely in their postures toward education. The more conservative, adversarial responses quickly conjure up colorful episodes like the Scopes Monkey Trial of the 1920s. The more supportive positions, like founding and funding hundreds of schools that serve the poor, are less entertaining but perhaps more significant. It is not surprising, then, that when Coleman, Hoffer, and Kilgore reported that students in Catholic schools were outperforming similar public school students, their findings were met with some skepticism (Coleman 1987). Coleman and colleagues explained the Catholic school effect with the concept of social capital. The social structures linking school, family, church, and community gave Catholic school students an advantage, enabling them to more efficiently access and utilize the human capital of adults around them.

Following Coleman's findings, social scientists took a renewed interest in the relationship of religion and education. One line of investigation resurrected an older body of research in the differences in educational outcomes among the various religious denominations. Most of the older research focused on Catholic and Protestant differences or highlighted the Jewish advantage in educational attainment (e.g., Lenski 1961). The new research deals more with differences among Protestants, especially the ultraconservative Fundamentalists. Fundamentalist affiliation was found to be associated with lower educational outcomes compared to nearly every other group (Darnell and Sherkat 1997). Subsequent research has further clarified educational differences by affiliation, pointing out important variations by race, gender, and type of conservative Protestant (Sherkat and Darnell 1999; Beyerlein 2004; Lehrer 2006).

Another area of research examines the effects of personal religiosity, either controlling for or ignoring religious affiliation. Religiosity is usually measured as participation in religious services or activities, but occasionally as religious salience (importance of religion) or as a combination of several elements of religious fervor. A number of studies find that greater religiosity is positively associated with various educational outcomes, such as high educational expectations, number of years of schooling completed, degree attainment, on-track performance, and college readiness (Freeman 1985; Brown and Gary 1991; Regnerus 2000; Muller and Ellison 2001; Regnerus and Elder 2003; Loury 2004). Greater religiosity also appears to be especially beneficial for the educational outcomes of minorities and

students in high-risk communities (Freeman 1985; Brown and Gary 1991; Regnerus and Elder 2003).

Various manifestations of social capital theory have predominated explanations for the effects of religiosity on education. In most cases, available data did not allow scientists to do more than speculate about specific mechanisms linking religiosity to educational outcomes, though there are some notable exceptions. In his 1985 study, Freeman found that, for African American youth, church attendance is associated with better school attendance and less time spent in delinquent activities. More recently Muller and Ellison (2001) use data from the 1988 National Educational Longitudinal Study (NELS) to show that certain aspects of social capital (intergenerational closure, parental expectations, parent-child interactions, and peer academic values) explain most, but not all, of the effects of religious involvement.

Religious organizations make possible many of the social structures which create social capital. Religious organizations promote norms and employ effective social sanctions; provide multiple channels for the dissemination of information; enable trust and obligations among members; often have closed, intergenerational networks; and the structures, skills, and beliefs they facilitate are appropriable to other areas of life (Coleman 1988; Muller and Ellison 2001). Additionally, many religions hold altruism as one of their central tenets, which can serve as an engine to produce public goods like social capital. Indeed, religious organizations are probably the most pervasive centers of social capital in America today (Greeley 1997). Children who grow up participating in religious organizations are likely to have large amounts of social capital available to them. As noted above, this social capital needn't translate into better educational outcomes; in some cases it clearly does not (Darnell and Sherkat 1997; Keyser and Kosmin 1995; Lehrer 1999). The balance of the evidence, however, is that religious involvement in general is associated with better educational outcomes.

Why would we expect (and find) that religious social capital is beneficial to a student's education? The simplest explanation is that the social capital inherent in religious organizations makes other kinds of capital more readily available to students. The religious organization opens to the child a community of adults who can serve as role models, key informants, or financial, emotional, and intellectual resources. Moreover, these adults can provide clear normative prescriptions for behaviors both positive (get your diploma) and negative (stay away from drugs) along with the supervision to help enforce the desired behaviors (Coleman 1988; Muller and Ellison 2001). Additionally, the practice of religion itself can structure habits of the mind and body such as self-discipline, positive intergenerational interaction, and organizational attachment, all of which translate positively into the school setting (Regnerus and Elder 2003). Though there is an important intergenerational component to all of the social capital theories, no study to date has directly examined the role of parental religiosity in students' educational attainment.

Connecting Parental Religiosity and Educational Outcomes

Why should a parent's religiosity matter for a student's educational outcomes? I suggest three related, but distinct, possibilities. First, a parent's religiosity may influence a student's educational outcomes primarily through the student's own religiosity. The parent exposes the student to religious community and values and they “take”; the student identifies the religion as his or her own. If this is the case, it is the student's faith that is “working” and we would expect religious students whose parents aren't particularly religious to accrue the same educational benefits as students whose parents are religious. Second, a student may benefit from his or her parent's religiosity independent of the student's own religiosity. In this case, it is the parent's faith that facilitates the student's educational advantages, and the student

may benefit regardless of whether she shares her parent's faith or fervor. Note that these first two possibilities are not mutually exclusive, and there may be an additive effect where a student benefits from both her own religiosity and that of her parent. Third, there may be a synergistic relationship where students reap educational benefits only to the extent that *both* they and their parents are religious. Before moving to the empirical analysis, I elaborate each of these three possibilities, especially noting the kinds of mechanisms we might expect to link them to educational outcomes.

The majority of religious parents seek to pass on their faith to their children. For many religions, the intergenerational transmission of the faith is expected and normative for adherents. Sometimes the children accept and internalize the faith; others participate simply because it is expected of them without accepting the beliefs and practices as their own. According to the concept of religious social capital articulated above, we would expect that children involved in a religious organization would benefit from the social capital of the community. Parents who are more religious are also more likely to involve their children in their religious community, and the child benefits from the “transmitted” religiosity. Additionally, those children who are involved in a religious organization, but whose parents are not, should still benefit from the social capital of the community. To the degree that this is the case, we would expect that parents' religiosity affects their children's educational outcomes primarily *indirectly*, through the transmission of the faith. Aspects of social capital that are measured through parental involvement, such as parental knowledge of the child's friends, parental involvement with school activities, or parental expectations would not be expected to mediate this pathway because it is the child's involvement in the religious community *per se* that accrues the educational benefits.

It is also possible that parents who are involved in a religious organization benefit themselves from the resources of the community. Religious communities have traditionally been interested in equipping parents with skills to aid in their parenting. Even religious traditions which are associated with particularly authoritarian parenting practices contain resources which can facilitate positive parent-child relations (Wilcox 1998). Many religious traditions promote and facilitate the formation and maintenance of two-parent families, a family form which has been linked to positive educational outcomes (Astone and McLanahan 1991). Parents can also utilize the social capital inherent in many religious organizations to access other forms of capital, which may be especially important for parents in high-risk situations (Freeman 1985; Brown and Gary 1991; Regnerus and Elder 2003). In these cases, the student is benefiting *directly* from their parents' religiosity. It follows that students who do not share their parents' religiosity could still reap educational benefit from it. This pathway is also compatible with the indirect pathway mentioned above. It is important to note that there is some evidence that students and parents who do not share religious values might be more likely to have conflicts, which could erode any educational benefits that might otherwise accrue to the student (Regnerus and Burdette 2006). We would expect this direct pathway to be explained largely by parental expectations, parental involvement in school activities, and positive parent-child relations.

Finally, parental religiosity and student religiosity might be linked such that students experience educational benefits from religious communities when both they and their parents are invested and/or involved. This synergistic linkage could operate such that it is compatible with the two above pathways and provides an *additive* effect. Or it could be that the student experiences positive educational outcomes only when *both* student and parent are religious. In this latter case, some religious organizations might be structured so that social capital is available to the student largely through the parent, but only if the student herself is also involved. Another explanation for this possibility is that it is the shared faith, the intrafamily social capital, which is actually at work for the student. For either of these

intrafamily religious linkage explanations, we would expect that joint participation would be an important predictor of positive educational outcomes, and positive family relationships and parental expectations would be key explanatory mechanisms.

Data

The data for this study are from Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health). Add Health is funded by the National Institute of Child Health and Development (NICHD) and seventeen other federal agencies. Wave I was conducted in 1994 and 1995, including in-depth interviews with 20,745 American adolescents in grades seven through twelve. Adolescents' parents, siblings, friends, romantic partners, fellow students, and school administrators were also surveyed. Wave III was conducted in 2001 and 2002 and consisted of interviews with 15,197 of the Wave I respondents. Add Health is particularly well suited to address the research questions of this study because I am able to measure parental religiosity, student religiosity, and a host of mediating and control variables at Wave I, then estimate their effect on the outcome of interest, high school graduation, which is measured at Wave III. More information about Add Health is available at www.cpc.unc.edu/addhealth.

Measures

Dependent Variable

The dependent variable is a simple dichotomous measure of the respondent's self report of whether they have graduated from high school (1 = graduated). This item is taken from Wave III when almost all of the respondents have had time to complete high school. The few respondents who report still being in high school at Wave III are excluded from this analysis. While obtaining a bachelor's degree is becoming the new educational threshold for entry into the middle class, high school graduation still plays an important role in predicting future life chances. Middle class aspirations aside, among those who do not graduate high school life trajectories are bleaker and social mobility highly limited. I use high school graduation here because it remains a culturally salient marker of educational attainment, is easily interpretable, and serves to highlight the effects of the independent variables.

Religion Variables

Religious Affiliation—Though I do not focus on religious affiliation in this study, it is an important independent variable for several reasons. First, as noted earlier much of the literature on religion and education deals with educational differences by affiliation. While I don't wish to rehash those analyses here, not including affiliation in the models could give inaccurate estimates of the effects of religiosity. Second, affiliation is essentially the gateway to the religion questions in Wave I of Add Health. Respondents who did not indicate a religious affiliation were skipped out of all subsequent questions. Following other Add Health users, I impute the lowest values on religiosity for those who indicated no religious affiliation (e.g., Regnerus and Elder 2003). To help account for this imputation I include no affiliation as one category of affiliation in all of the models (with mainline Protestant as the reference category), where it essentially serves as a missing flag for religiosity.

For this analysis I use a modified form of the RELTRAD coding scheme for religious affiliation (Steensland et al. 2000). The primary difference from RELTRAD is that I move Black Protestants into either the mainline or evangelical Protestant category, depending on the religious beliefs and traditions of the particular Black Protestant denomination. I remove the Black Protestant category from RELTRAD to prevent potential colinearity issues with

controls for race. Preserving race as an analytical category is more important to this analysis than any advantages that would be gained by using the Black Protestant category. Because so few of the Add Health respondents indicated religious affiliations other than Catholic or Protestant, I group all other religious affiliations into an “other” category. I don't consider this an interpretable category so it essentially functions as a control to preserve the integrity of the reference category.

The religious affiliation inventory used in Wave I is not precise enough to make important distinctions among Protestant groups. For some denominations, such as Presbyterians and Baptists, it is impossible to distinguish the more conservative (evangelical) adherents from the more moderate (mainline) adherents. I follow Wilcox (1988) and others in putting all Baptists in the conservative Protestant category and all Presbyterians in the mainline Protestant category. The relatively small sizes of the “misclassified” adherents should work to balance out one another on the aggregate. This imprecision does not allow me to make the fine-grained distinctions among conservative Protestants that Beyerlein and others recommend (e.g., Beyerlein 2004).

Religiosity—Following Muller and Ellison (2001), I use an index to measure religiosity. This measure is created from the sum of three questions: “In the past twelve months, how often did you attend religious services?”, “How important is religion to you?”, and “In the past twelve months, how often did you attend [religious] youth activities?” Each question gives respondents four choices, with one indicating the lowest level of religiosity and four the highest. The summed measure has a Cronbach's alpha of .85, a high value for a combination of items that were not specifically designed to be summed together.¹ I also construct a similar measure for parental religiosity. At Wave I, one parent of each respondent was asked the same questions as the student concerning religious attendance and the importance of religion (usually referred to as religious salience). The question about attending youth activities was not asked of the parent. The two-item summed measure of parental religiosity has an alpha of .73, lower than the student value, but still well above the normal threshold for valid indexes.

Other studies have demonstrated that there is value in separating measures of religiosity (especially attendance and salience) and even including them in the same models despite the high degree of overlap (e.g., Regnerus and Elder 2003). For the purposes of this study, I use the index measures to simplify interpretation and focus on the relative contributions of parental versus student religiosity. The high alphas of the summed measures indicate the high reliability that they are measuring a common underlying construct.² In exploratory analyses (not shown) I separated the religiosity items and the results do not differ substantively for those shown below. Among the religiosity items, attendance was the strongest independent predictor, consonant with findings from other studies of religiosity and education (Regnerus and Elder 2003).

Church Attendance with Parents—In a section on parental relations, Wave I respondents were asked to indicate “yes” if they have attended church with their mom (and later with dad) in the last four weeks. I create a summed measure of the response for

¹I also experimented with an index which excludes the question on youth group attendance. The alpha for this index is .80, and it yielded substantively similar results in the analysis. I prefer the index with the youth group attendance item included because it is a better measure of the underlying construct of student religiosity. For some adolescents attendance at youth group or similar activities is their primary connection to organized religion.

²As one reviewer noted, my indexes, like all survey based measures, are subject to measurement error. It may be that either student or parent religiosity is easier to measure than the other, which could bias the results. I think the combination of attendance and salience in an index helps to offset some measurement error, and the robust results shown later in this study could not be easily explained away by measurement error.

attendance with both mother and father. I add the items for both parents (rather than using a dummy for attending with either parent) because there may be some added benefit to attending with both parents. This measure is especially helpful in examining the role of parental religiosity for two reasons. First, it is a direct measure of the linkage between parental and student religiosity (at least for attendance) and can function as an explanatory or mediating variable between the measures of parental and student religiosity. Second, this question was asked of all respondents, including those who were skipped out of the religion section because they indicated no affiliation. As such it serves as a proxy measure of religiosity for the non-religiously affiliated. Additionally, this measure taps any potential benefit from attending with two parents as opposed to one only. This may be an especially important distinction in households where religious discord exists between parents and the youth attends with only one parent. The obvious shortfall of the item used to create this measure is that it is much less likely to pick up infrequent attendees. This weakness is less detrimental for this study because it is likely that only regular attendees (at least once a month) accrue any measurable educational benefit from attendance, and because the other indicators of religiosity will help measure at least some of the lower attending youth.³

Joint Religiosity—To assess how different combinations of parent and student religiosity are related to the odds of high school graduation, I constructed a set of nine dummy variables. For each student I added the value of their responses on the religious attendance and religious salience variables. I did the same for each parent, yielding comparable indexes which ranged from 0–6. Scores of 5 or higher on the index were considered “high,” scores of 3 or 4 are “mid,” and scores of 2 or lower are considered “low.” The nine dummy variables are constructed from the various combinations of high, mid, and low parent and student religiosity.

Social Capital and Other Explanatory Variables

Relationship with Parents—To measure the student's relationship with her parents I create an index of relationship quality with parents using five questions. The questions are “How close do you feel to your father/mother?” “How much do you think he/she cares for you?” “Most of the time, your father/mother is warm and loving toward you,” “You are satisfied with the way you and your father/mother communicate with each other,” and “Overall, you are satisfied with your relationship with your father/mother.” For each of these questions respondents could respond on a five-point range. I summed the measures for mother and father separately, and for respondents who answered questions about both their mother and father, took the mean of the two sums (alpha .83).

Network Closure—Respondents' parents were asked how many of their child's friends' parents they have talked to in the last four weeks. Parents could respond on a six-point scale, indicating from “no” other parents to “five or more” other parents.

Educational Expectations—Respondents were asked, “On a scale of 1 to 5 (1 is low), how likely is it that you will go to college?” This item serves as the measure of student's educational expectation. In an earlier section of the survey, respondents were asked “On a scale of 1 to 5 (1 low), how disappointed would your mother/father be if you did not graduate from high school?” For this measure I use the average of the scale for respondents

³In exploratory analyses (not shown) I experimented with using crossproduct interactions of parent and student religiosity instead of the joint attendance measure. I also experimented with crossproduct interactions of parent and student attendance. In each case the interactive models were inferior to the ones using the joint attendance measure; none of the crossproduct interactions were statistically significant.

who gave an answer for both their mother and father, otherwise I use the scale for the parent about which they responded.

Parental Involvement with Student's Schooling—To measure respondents' perceptions of how involved their parents are in their schooling I use an item where students respond to the question, “Which of these things (from a list) have you done with your mother/father in the last four weeks?” I sum the responses of students for both their mother and father on these three items: talked about your school work or grades, worked on a project for school, and talked about other things you're doing in school.

Control Variables

Following Regnerus and Smith (2005), I control for several temperamental factors that might select on both religion and educational attainment. Some scientists have suggested that many respondents give socially desired responses to survey items concerning religion (e.g., Hadaway et al. 1993). To help control for the possibility of respondents giving socially desired responses to survey items, I include an index summed from three measures designed to tap social desirability bias. Additionally, some studies have suggested that certain temperaments might be conducive to both higher religiosity and certain positive outcomes (e.g., Miller and Hoffman 1995; Miller and Stark 2002). To control for two different kinds of potential temperament bias, I add a dichotomous variable indicating whether or not the parent respondent said the adolescent had a “bad temper” and an index measuring how strategically a respondent makes decisions (alpha .74) (see Regnerus and Smith 2005 for more on selection issues involving religion).

To control for the respondent's academic progress (and roughly, academic trajectory) at Wave I, I include a measure of verbal ability (standardized pvt score), and dummy variables indicating the respondent was held back in the past, skipped a grade in the past, or was placed in a low math course (below Algebra I) in ninth grade. For school-related delinquency, I control for whether the respondent has ever been expelled and whether the respondent has ever been put in out-of-school suspension, and I also include a measure of the number of times the respondent reports skipping school without excuse.

I control for several standard demographic and SES factors, including variables for gender (coded one for female), age at Wave I, and race. I also include a set of dichotomous variables for family structure, leaving respondents living with two biological parents at Wave I as the reference category. For the education level of the respondent's parents, I create dummy variables for the highest degree attained by either parent. The reference category includes all high school graduates who have not completed a college degree. For the respondent's household income at Wave I, I use total household income divided by 10,000, imputing the median income for missing values and including a flag in the analysis for imputed responses.

Analytic Approach

Only respondents with valid sample weights at Wave III are included in the analytic sample. I exclude those who were in the twelfth grade cohort at Wave I because the measures of the independent variables may have taken place after the student already graduated from high school. I also drop observations for those in the seventh grade cohort at Wave I who have still not completed high school by Wave III. Finally, I use listwise deletion to eliminate observations with missing values on any of the analytic variables (except income as indicated above). The final analytic sample consists of 8,137 observations. Table 1 displays weighted means and other descriptive statistics.

To account for the complex sampling design of Add Health, I use the `svy` command in STATA to incorporate appropriate strata, region, and sample weights in all the multivariate models. All of the models use logistic regression predicting the likelihood of graduating high school versus not graduating. I first estimate the effects of religious affiliation (with no affiliation as the reference category in this model only) without including any of the other key independent variables. This provides a rough comparison with the many studies of religious affiliation and educational attainment. Religious affiliation serves as a control in all subsequent models.⁴ I analyze the effects of student and parent religiosity, as well as the student's report of attending church with parents first in separate models and then concurrently to assess their relative effects.⁵ Next, I add blocks of social capital variables to determine to what degree, if any, these explain the effects of religiosity. This step is especially important for sorting out how parental and student religiosities are contributing to the outcome. Finally, I estimate models using combinations of student and parent religiosity to further examine how parental and student religiosity are jointly associated with the likelihood of high school graduation.

Because of sample attrition, listwise deletion for observations with missing values, and selection into the original sample (youth who had already dropped out of high school before reaching the grade levels in the sampling frame would be excluded) this study is subject to selection effects. While I believe the results are still representative of a large portion of American youth, some groups are inevitably under-represented. Thus, by using longitudinal data, incorporating a rich battery of controls, and couching my findings in a solid theoretical framework, I make compelling, *but not causal*, claims about the effects of parental and student religiosity on high school graduation.

Results

Religious affiliation may be an important predictor of educational outcomes, so I begin my multivariate analysis with an estimation of the effects of religious affiliation. Model 1 of Table 2 shows that, compared to students who claim no religious affiliation, both Catholic and mainline Protestant students have better odds of graduating. Despite an extensive literature documenting the educational disadvantages of conservative Protestantism, I find no statistical difference here between conservative Protestants and the non religious. As Darnell and Sherkat (1997) note, rule-oriented conservative Protestants may be likely to complete compulsory secondary schooling, but be disadvantaged only in regards to higher education. For the remainder of the multivariate models, I include religious affiliations primarily as controls but I switch the reference category to mainline Protestant to help account for the imputed religiosity information among the nonreligiously affiliated.

Beginning with Table 2, I evaluate the impact of student and parental religiosity on high school graduation. It is important to note that all of these models show the effects of religiosity measured at Wave I on a subsequent educational event: high school graduation. For some of the respondents the Wave I measures are *six years prior* to the outcome. Additionally, all of these models include a host of controls for the students' prior educational achievement and ability, student temperament, and prior delinquency, along with a standard array of sociodemographic controls. Model 2 shows the effect of parental religiosity. In Model 3, as the only measure of religiosity, student religiosity has a modest significant effect, increasing the odds of graduation by about 11% (OR = 1.11). Including parental

⁴In exploratory analyses (not shown) I included crossproduct interactions between student religiosity and religious affiliation. None of these were statistically significant.

⁵Some intercorrelation between variables is expected (especially between the religiosity measures) and acceptable in multiple regression analysis. In all the models shown in this study the standard errors were stable and variance inflation factors were within reasonable limits. There was no evidence of statistical multicollinearity.

religiosity with student religiosity in Model 4 cuts the effect of student religiosity almost in half, though it remains significant. Even while accounting for student religiosity, parental religiosity also has a modest effect on the odds of graduation, predicting about 16% (OR = 1.16) greater odds of high school graduation. Finally, adding the linking variable in Model 5, whether the student reports have attended church with the parent in the last four weeks, reduces student religiosity to insignificance, but only slightly attenuates the effect of parental religiosity. Coattendance has a very strong effect in its own right. Even while controlling for parental and student religiosity, coattendance predicts forty-two percent greater odds of high school graduation.

Taken together, the results in Table 2 present strong evidence that parental religiosity and coattendance are relatively more important predictors of high school graduation than student religiosity. This is not to say that student religiosity is not important; it has been shown to be strongly associated with several positive educational outcomes in other studies, and it has a modest effect on graduation even when controlling for parental religiosity. What these data do suggest is that, at least for high school graduation, the effect of student religiosity serves as a kind of proxy for what is really a more family-oriented process. Students whose parents are more religious reap greater educational benefits compared to those students whose parents are less religious. When parent and student participate together in the religious community, the educational payoff is even higher.

In Table 3, I begin to add additional variables to investigate what factors help explain the observed effects of parental religiosity. It may be that parental religiosity and coattendance are beneficial because they enhance parent-student relationship quality. However, Model 1 of Table 3 does not support this hypothesis because parent-student relationship quality does not reduce the effect of parental religiosity or coattendance. Model 2 shows that network closure (parents communicating with student's friends' parents) is equally inept at explaining the religious effects. Student educational expectations (Model 3) are strongly associated with greater odds of graduation, but instead of reducing the effects of parental religiosity and coattendance, including student educational expectations actually increases the religious effects. Models 4 and 5 paint essentially the same picture as the previous models; religious effects remain strong. Including parents' educational expectations in Model 4 does slightly attenuate the effects of parental religiosity and coattendance but the reduction is trivial. Notably, student religiosity remains nonsignificant in all of these models. The results from Table 3 indicate that several key aspects of social capital fail to help explain the strong effects of parental religiosity and coattendance on high school graduation.

Table 4 concludes the multivariate analyses, presenting estimates for combinations of parent and student religiosity on high school graduation. If high levels of parental religiosity are beneficial independent of student religiosity, then we would expect parental religiosity to have effects even for those students who themselves are not religious. The reference group in this cluster of combinations is composed of students and parents who both report low levels of religiosity (attendance and salience, the youth group attendance item, is not included in this analysis). Strikingly, the only groups that are significantly different from the "low, low" group are the three groups where the parent reports high religiosity. High student religiosity significantly and positively predicts high school graduation only when combined with high parental religiosity. High parental religiosity, on the other hand, significantly and positively predicts high school graduation when combined with all of the student religiosity groups (though the effect is only marginally significant when combined with the "low" student group). The reduction in effect size and significance across the "high" parent groups indicates a slight synergistic effect; high parental religiosity helps all students, but it helps the most religious students the most. The results of the multivariate analyses strongly indicate that parental religiosity is a robust independent predictor of high school graduation,

regardless of the student's own religiosity. Moreover, when parent and student alike are highly religious, the student accrues additional educational advantage.

Discussion and Conclusions

Over the last twenty years, a modest body of research has linked religiosity with positive educational outcomes for students. Most scientists have used theories of social capital to explain the association between religiosity and positive educational outcomes. However, despite the intergenerational assumptions inherent in the social capital theories, little research has investigated the role of parental religiosity. In this study, I hypothesized that parental religiosity could be directly, indirectly, and/or synergistically associated with positive education outcomes. Using the first and third waves of Add Health, I investigated the associations of parental religiosity, student religiosity, and coattendance with the student's likelihood of graduating from high school. I also explored several possible social capital mechanisms which might link religiosity with high school graduation. Below, I briefly draw conclusions based on my empirical analysis and offer discussion about both the limitations of this study and promising directions for further investigations.

Parental religiosity is modestly and positively associated with a student's odds of graduating from high school. The effect of parental religiosity appears to be relatively more important than the student's own religiosity, at least for the outcome of high school graduation. In models where they were jointly estimated, parental religiosity reduced by half the effect of student religiosity on high school graduation. What may be even more important is when parent and child participate in religious activities together. Coattendance was one of the strongest predictors of high school graduation in the models I estimated, and when it was included, the effects of student religiosity were reduced to non-significance. Moreover, in models not presented above, I investigated several possible interactions (e.g., parental religiosity $\times$ race, gender, or age at Wave I; parental religiosity $\times$ student religiosity; parental religiosity $\times$ coattendance) to determine if the effects of parental religiosity and/or coattendance vary by other important factors; none of these were significant. Taken together, these results provide strong support that parental religiosity plays a key role in how students' accrue educational benefit from religious communities.

That parental religiosity is associated with a student's odds of high school graduation seems clear. What the results do much less to illuminate is exactly *how* parental religiosity is related to high school graduation. I investigated several aspects of social capital as possible mechanisms linking parental religiosity to a student's high school graduation. Parental educational expectations, student educational expectations, network closure, parent-child relational quality, and parental involvement in the child's schooling all failed to explain the effects of parental involvement and coattendance.

There are several possible explanations for why standard measures of social capital failed to specify the effect of parental religiosity and coattendance on high school graduation. First, it could be that some more fundamental factor selects on parental religiosity, coattendance, and high school graduation. Selection effects plague nearly every social scientific study, but studies of religion seem especially vulnerable to claims of selection (Regnerus and Smith 2005). While I attempted to control for some of the more obvious potential selection biases (academic ability and temperament) additional sources of potential bias remain. It is possible that the kinds of parents who are more likely to be religious are also more likely to support activities that are conducive to success in schools, thus causing an overestimation of the effects of parental religiosity and coattendance. As Lehrer (2004) notes, however, it is also possible that selection biases could operate in the opposite direction. This would be the case if families who are especially vulnerable to poor educational outcomes (and also likely

poorer health and SES outcomes) “choose” religion as a coping mechanism. Indeed, the empirical evidence would support this latter type of bias (Freeman 1985; Regnerus and Elder 2003). In either case, it is beyond the scope of this study to resolve the selection issues and these must be left for future research.

It is also possible that using better and different measures would help uncover the mechanisms linking parental religiosity and coattendance. One likely explanation is that parental religiosity provides an interpersonal context which nurtures coattendance, and that the joint religious participation of parent and child in turn facilitates a number of skills which are readily transferable to the school setting. Of the social capital measures I included, parental involvement in schooling (talking about schooling, helping with projects, etc ...), comes closest to tapping this possibility, and indeed, it was the only social capital measure which attenuated (slightly) the effects of parental religiosity and coattendance. Researchers interested in the linkages between family, religion, and education would do well to further investigate the kinds of habits and skills cultivated in the context of a family that practices religion together, and how these might translate into educational contexts.

Another set of possible explanations moves beyond the realm of social capital. In a 2003 article theorizing the causes of religious effects among American adolescents, Christian Smith suggests nine factors by which religion may impact various adolescent outcomes. Of these nine, three of them: social capital, network closure, and community and leadership skills, have been most commonly investigated in connection with educational outcomes. The other six: moral directives, spiritual experiences, role models, coping skills, cultural capital, and extracommunity skills offer fruitful, largely untouched ground for further investigations. Because fending off failure and staying out of trouble are as important (if not more important) than excelling for many educational outcomes, religiously-honed coping skills might be an important educational resource for both parents and students. Also, Coleman (1988) discusses how families that move frequently might suffer from a lack of social capital. If this is true, then the extracommunity skills and resources that religious organizations offer parents and students might be particularly important for frequent movers and migrants.

This study presents compelling evidence that parental religiosity is an important element in any consideration of religious effects on educational outcomes. In addition to continuing to try to specify the mechanisms by which parental religiosity (and religion more generally) affect educational outcomes, the impact of parental religiosity on a number of other outcomes should also be considered. I investigate one, very basic, outcome: high school graduation. A number of other possible outcomes include: educational achievement (GPA, test scores, etc ...), educational skills and habits (hours spent on homework, reading, etc ...), course taking, course failures, college preparation, college attendance, college performance, college major field of study, and college completion. This study helps demonstrate that the empirical nugget Coleman and colleagues discovered over twenty years ago was far from an isolated find. There are social scientific gems to be mined in the area of education and religion, a rich vein of research situated at an intersection of three primary social institutions: education, family, and religion.

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27516-2524, USA (www.cpc.unc.edu/addhealth/contract.html). Thanks to Chandra Muller and two anonymous reviewers for their helpful suggestions.

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Table 1
Descriptive statistics

	Mean	Std. err.
Graduated from HS – Wave III	0.897	
Parental interactions about school	2.125	0.036
Parents' educational expectations	4.720	0.015
Student's educational expectations	4.182	0.031
Parent contact with student's friends' parents	2.282	0.062
Relationship with parents	14.633	0.031
Attended church with parents	0.622	
Student Religiosity	5.774	0.096
Conservative Prot.	0.309	
No Religion	0.129	
Catholic	0.251	
Other Religion	0.066	
Parent Religiosity	4.148	0.052
Verbal Ability	102.288	0.593
Low Math Placement in ninth grade	0.232	
Student ever held back	0.192	
Student ever skipped a grade	0.013	
Number of unexcused absences	1.501	0.132
Ever been suspended	0.252	
Ever been expelled	0.036	
Strategic personality	15.076	0.047
Social desirability index	0.113	0.008
Parent reports student has “bad temper”	0.301	
Female	0.499	
Age at Wave I	14.867	0.106
Hispanic	0.109	
African American	0.136	
Other Race	0.044	
Asian	0.027	
Single parent family	0.218	
Step parent family	0.168	
Other family structures	0.028	
Parental Education — No HS	0.057	
Parental Education — Bachelor's	0.185	
Parental Education — Graduate	0.148	
Household Income/10000	4.597	0.158
Missing Income	0.106	

Table 2
Student and parent religiosity predicting high school graduation (N = 8,137)

	m1 b/se	m2 b/se	m3 b/se	m4 b/se	m5 b/se
Parental Religiosity		0.178*** (0.035)		0.149*** (0.037)	0.114*** (0.039)
Student Religiosity			0.105*** (0.027)	0.063* (0.029)	0.033 (0.030)
Attended church with parents					0.356* (0.139)
No Religion		-0.210 (0.212)	0.137 (0.247)	0.108 (0.245)	-0.022 (0.248)
Conservative Prot.	0.136 (0.188)	-0.398* (0.176)	-0.421* (0.177)	-0.440* (0.177)	-0.446* (0.176)
Catholic	0.473* (0.189)	-0.030 (0.181)	0.045 (0.185)	0.000 (0.183)	0.015 (0.183)
Other Religion	0.162 (0.301)	-0.313 (0.329)	-0.320 (0.327)	-0.317 (0.330)	-0.333 (0.327)
Mainline Prot.	0.473* (0.193)				
Verbal Ability	0.048*** (0.005)	0.048*** (0.005)	0.048*** (0.005)	0.048*** (0.005)	0.048*** (0.005)
Low math placement in 9th grade	0.119 (0.134)	0.138 (0.134)	0.124 (0.132)	0.138 (0.133)	0.133 (0.132)
Student ever held back	-0.881*** (0.107)	-0.900*** (0.105)	-0.863*** (0.107)	-0.886*** (0.106)	-0.882*** (0.103)
Student ever skipped a grade	-0.543 (0.376)	-0.498 (0.393)	-0.531 (0.403)	-0.500 (0.405)	-0.495 (0.397)
Number of unexcused absences	-0.028*** (0.006)	-0.026*** (0.007)	-0.026*** (0.006)	-0.025*** (0.006)	-0.026*** (0.006)
Ever been suspended	-0.761*** (0.103)	-0.757*** (0.103)	-0.737*** (0.105)	-0.745*** (0.105)	-0.730*** (0.104)
Ever been expelled	-0.337 (0.207)	-0.362 (0.206)	-0.377 (0.215)	-0.381 (0.210)	-0.328 (0.208)
Strategic personality	0.025 (0.027)	0.026 (0.027)	0.018 (0.027)	0.021 (0.027)	0.023 (0.027)

Stokes

Page 17

	m1 b/se	m2 b/se	m3 b/se	m4 b/se	m5 b/se
Social desirability index	-0.339** (0.119)	-0.312** (0.115)	-0.342** (0.121)	-0.318** (0.117)	-0.310** (0.116)
Parent reports student has "bad temper"	-0.105 (0.117)	-0.096 (0.117)	-0.092 (0.118)	-0.089 (0.118)	-0.092 (0.118)
Female	0.082 (0.109)	0.102 (0.110)	0.070 (0.110)	0.092 (0.110)	0.096 (0.110)
Age at Wave I	0.176*** (0.042)	0.176*** (0.043)	0.186*** (0.043)	0.182*** (0.044)	0.180*** (0.043)
Hispanic	0.296 (0.167)	0.170 (0.166)	0.230 (0.165)	0.151 (0.166)	0.140 (0.166)
African American	0.966*** (0.204)	0.757*** (0.199)	0.866*** (0.205)	0.730*** (0.202)	0.731*** (0.202)
Other Race	-0.091 (0.263)	-0.142 (0.267)	-0.107 (0.257)	-0.143 (0.264)	-0.144 (0.260)
Asian	0.977* (0.454)	0.893* (0.440)	0.866 (0.450)	0.834 (0.439)	0.854 (0.450)
Single parent family	-0.143 (0.146)	-0.061 (0.145)	-0.098 (0.148)	-0.049 (0.147)	0.019 (0.149)
Stepparent family	-0.245 (0.151)	-0.161 (0.151)	-0.206 (0.153)	-0.154 (0.152)	-0.103 (0.155)
Other family structures	-0.630* (0.256)	-0.640* (0.260)	-0.606* (0.257)	-0.626* (0.260)	-0.574* (0.257)
Parental Education—No HS	-0.632** (0.197)	-0.652** (0.190)	-0.639** (0.194)	-0.653** (0.190)	-0.628** (0.191)
Parental Education—Bachelors	0.574** (0.202)	0.522* (0.205)	0.551** (0.202)	0.518* (0.205)	0.487* (0.204)
Parental Education—Graduate	1.125** (0.337)	1.030** (0.335)	1.049** (0.331)	1.000** (0.331)	0.949** (0.334)
Household Income/10,000	0.089** (0.031)	0.092** (0.032)	0.092** (0.031)	0.094** (0.032)	0.091** (0.031)
Missing Income	-0.049 (0.166)	-0.034 (0.161)	-0.053 (0.165)	-0.042 (0.161)	-0.042 (0.160)
_cons	-5.567*** (0.996)	-5.874*** (1.026)	-5.799*** (1.034)	-6.163*** (1.052)	-5.979*** (1.039)

*
p < .05;
**
p < .01;

 $p < .001$

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Table 3
Student and parent religiosity predicting high school graduation and including social capital (N = 8,137)

	m1 b/se	m2 b/se	m3 b/se	m4 b/se	m5 b/se
Parental Religiosity	0.115** (0.039)	0.114** (0.039)	0.120** (0.039)	0.113** (0.039)	0.119** (0.039)
Student Religiosity	0.032 (0.030)	0.033 (0.030)	0.022 (0.030)	0.036 (0.030)	0.030 (0.030)
Attended church with parents	0.354* (0.140)	0.353* (0.139)	0.360* (0.143)	0.349* (0.140)	0.332* (0.139)
Relationship with parents	-0.038 (0.035)				
Parent contact with student's friends' parents		0.012 (0.037)			
Student's educational expectations			0.251*** (0.038)		
Parent's educational expectations				0.125* (0.056)	
Parental interactions about school					0.113** (0.035)
Conservative Prot.	-0.444* (0.175)	-0.444* (0.177)	-0.446* (0.175)	-0.451* (0.176)	-0.419* (0.174)
No Religion	-0.023 (0.248)	-0.023 (0.248)	-0.039 (0.245)	0.003 (0.246)	-0.015 (0.246)
Catholic	0.018 (0.184)	0.015 (0.184)	0.007 (0.183)	0.013 (0.184)	0.010 (0.180)
Other Religion	-0.329 (0.327)	-0.334 (0.327)	-0.304 (0.333)	-0.350 (0.328)	-0.327 (0.323)
Verbal Ability	0.048*** (0.005)	0.048*** (0.005)	0.047*** (0.005)	0.047*** (0.005)	0.048*** (0.005)
Low math placement in 9th grade	0.131 (0.132)	0.134 (0.133)	0.167 (0.132)	0.132 (0.133)	0.138 (0.132)
Student ever held back	-0.883*** (0.103)	-0.883*** (0.103)	-0.853*** (0.103)	-0.874*** (0.104)	-0.886*** (0.103)
Student ever skipped a grade	-0.473 (0.399)	-0.493 (0.394)	-0.548 (0.417)	-0.487 (0.401)	-0.484 (0.401)
Number of unexcused absences	-0.026*** (0.006)	-0.026*** (0.006)	-0.024*** (0.006)	-0.026*** (0.006)	-0.025*** (0.006)

	m1 b/se	m2 b/se	m3 b/se	m4 b/se	m5 b/se
Ever been suspended	-0.720*** (0.103)	-0.727*** (0.103)	-0.684*** (0.107)	-0.732*** (0.104)	-0.730*** (0.105)
Ever been expelled	-0.324 (0.208)	-0.326 (0.208)	-0.267 (0.218)	-0.304 (0.210)	-0.315 (0.209)
Strategic personality	0.019 (0.028)	0.023 (0.027)	0.007 (0.027)	0.023 (0.027)	0.018 (0.028)
Social desirability index	-0.326** (0.112)	-0.308** (0.117)	-0.307** (0.114)	-0.311** (0.117)	-0.308** (0.114)
Parent reports student has "bad temper"	-0.081 (0.117)	-0.091 (0.118)	-0.058 (0.115)	-0.075 (0.118)	-0.089 (0.117)
Female	0.110 (0.114)	0.096 (0.110)	0.034 (0.112)	0.098 (0.111)	0.094 (0.110)
Age at Wave I	0.185*** (0.042)	0.181*** (0.043)	0.203*** (0.045)	0.176*** (0.043)	0.184*** (0.043)
Hispanic	0.150 (0.167)	0.150 (0.171)	0.156 (0.167)	0.145 (0.169)	0.138 (0.166)
African American	0.733*** (0.202)	0.735*** (0.202)	0.678*** (0.197)	0.740*** (0.204)	0.718*** (0.198)
Other Race	-0.129 (0.258)	-0.141 (0.259)	-0.155 (0.248)	-0.151 (0.259)	-0.173 (0.264)
Asian	0.863 (0.454)	0.866 (0.457)	0.827 (0.489)	0.854 (0.441)	0.846 (0.456)
Single parent family	0.020 (0.149)	0.021 (0.149)	-0.010 (0.148)	0.005 (0.150)	0.105 (0.156)
Stepparent family	-0.102 (0.155)	-0.101 (0.155)	-0.127 (0.156)	-0.124 (0.156)	-0.063 (0.156)
Other family structures	-0.593* (0.256)	-0.571* (0.257)	-0.553* (0.259)	-0.576* (0.257)	-0.552* (0.256)
Parental Education — No HS	-0.624** (0.191)	-0.628** (0.191)	-0.614** (0.195)	-0.617** (0.191)	-0.637** (0.193)
Parental Education — Bachelors	0.494* (0.204)	0.484* (0.206)	0.401 (0.204)	0.481* (0.203)	0.475* (0.202)
Parental Education — Graduate	0.954** (0.336)	0.945** (0.333)	0.826* (0.339)	0.960** (0.337)	0.938** (0.332)
Household Income/10000	0.091** (0.031)	0.090** (0.031)	0.079* (0.030)	0.087** (0.031)	0.086** (0.031)

Stokes

Page 21

	m1 b/se	m2 b/se	m3 b/se	m4 b/se	m5 b/se
Missing Income	-0.047 (0.160)	-0.040 (0.161)	-0.020 (0.164)	-0.030 (0.162)	-0.023 (0.161)
_cons	-5.459*** (1.205)	-5.996*** (1.043)	-6.842*** (1.104)	-6.407*** (1.093)	-6.215*** (1.047)

*
p < .05;

**
p < .01;

p < .001.

Table 4
Student and parental religiosity combinations predicting high school graduation (N = 8,137)

Parental religiosity	Student religiosity		
	High	Mid	Low
High	0.938*** (0.253)	0.640* (0.279)	0.516 [†] (0.296)
Mid	0.257 (0.281)	0.059 (0.247)	−0.031 (0.251)
Low	−0.621 (0.279)	−0.025 (0.330)	Reference

[†]
 $p < .10$;

*
 $p < .05$;

**
 $p < .01$;

 $p < .001$.

All controls from previous models are included, but not shown. Social capital measures are not included.