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Does Religious Participation Promote Educational Attainment

Among Youth?

By

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Abstract

Many recent studies, both popular and academic, have focused attention on the life prospects of children. A subset of these studies aims to determine the factors that contribute to educational success. One factor that has been relatively overlooked in the literature is whether association with a religious institution can contribute to educational success. This study aims to shed light on the contribution of religious participation during the teen years to graduation from high school or completion of an equivalent, and total years of educational attainment.

Results of analysis provide evidence that support the claim that religious participation contributes to successful educational outcomes for teens. The timing and nature of this participation matters, and benefits are limited to subgroups of the population. Many forms of "secular participation" (sports and non-sport activities) are as effective as religious participation, and can provide additional rather than substitute benefits.

Public policy cannot promote religious participation, but it can remove obstacles to participation and help religious organizations to become more effective without violating legal principles governing the separation of church and state and establishment of religion. Future study should focus on comparing the relative efficacy of religious and secular participation and exploring the role that organizational characteristics contribute to that efficacy.

Table of Contents

CHAPTER 1. INTRODUCTION 1

I. INTRODUCTION 1

II. THEORETICAL FRAMEWORK 6

A. Human Capital 7

B. Social Capital 9

C. Intermediate Outcomes 10

III. OVERVIEW OF LITERATURE 11

A. Family Characteristics 11

B. Individual Characteristics 13

C. Structural Constraints and Contextual Factors 14

D. Teen Activities 15

E. Religious Participation 16

F. Shortcomings of Extant Literature 17

IV. DATA 18

V. RESEARCH METHODOLOGY 20

A. Model Specification 21

1. Outcomes 21
2. Key Explanatory Variables: Religious Participation 22
3. Religious Control Variable 22
4. Family Characteristics 22
5. Individual Characteristics 22
6. Contextual Factors 22
7. Teen's Activities 22

B. Model Construction 23

VI. POTENTIAL POLICY IMPLICATIONS 24

VII. PLAN OF STUDY 25

CHAPTER 2. DETERMINANTS OF EDUCATIONAL SUCCESS: OVERVIEW OF EMPIRICAL STUDIES 26

I. FAMILY BACKGROUND AND PARENTAL CHARACTERISTICS 27

A. Intact Family Status 27

B. Parent a Teen at Child's Birth 28
C. Number of Siblings 29
D. Family Income 30
E. Family Assets 32
F. Educational Attainment of Parents 33
G. Working Parents 33
H. Residential Stability 34
I. Parents' Expectations for Child 36
J. Parents' Immigrant Status and Language Spoken at Home 37
II. CHILD'S OWN CHARACTERISTICS 39
A. Gender 40
B. Race/Ethnicity 40
C. Disability Status 41
D. Academic Achievement 42
III. CONTEXTUAL FACTORS 42
A. Neighborhood and Geographic Characteristics 42
B. School Characteristics 45
IV. TEEN'S ACTIVITIES 46
A. Teen Parenthood 47
B. Delinquency 48
C. Substance Abuse 49
D. Participation in Secular Groups and Institutions 49
V. THE ROLE OF RELIGIOUS PARTICIPATION 53
A. The Meaning of Attendance and Participation in Other Religious Activities 53
B. Why Religious Participation Should Make a Difference 55
1. Empirical Results 59
C. Other Characteristics Related to Religion 62
1. Denomination 62
2. Importance of Religion / Religiosity 66
VI. RELIGIOUS PARTICIPATION SHOULD BE TREATED AS AN ENDOGENOUS VARIABLE 67
A. Numerous Factors Influence Religious Participation 67
B. These Same Factors May Influence Outcomes 72
VII. SUMMARY AND SHORTCOMINGS OF EXTANT LITERATURE 74

CHAPTER 3. RESEARCH METHODOLOGY 76

I. ESTABLISHING CAUSALITY 76

II. ENDOGENEITY 78

A. Analytical Approach 78

1. Heterogeneity 79
2. Numerous Factors Influence Religious Participation 81
3. Simultaneity? 81

B. Modeling Procedure 82

1. Baseline Model 82
2. Test for Consistency 83
3. Test for Validity of Instruments 85

III. RESEARCH QUESTION 1 85

A. Analytical Approach 86

B. Modeling Procedure 86

IV. RESEARCH QUESTION 2 87

A. Analytical Approach 87

B. Modeling Procedure 87

1. Model 87
2. Hypothesis 87

V. RESEARCH QUESTION 3 88

A. Analytical Approach 88

B. Modeling Procedure 89

1. Model 89
2. Hypothesis 91

VI. LIMITATIONS OF THE STUDY DESIGN 91

VII. STATISTICAL PROCEDURES 92

CHAPTER 4. DATA AND VARIABLES 95

I. DATA: NATIONAL EDUCATIONAL LONGITUDINAL SURVEY (NELS) 1988 95

II. LIMITATIONS OF THE DATA SET 98

III. VARIABLES 100

A. Outcomes 100

1. Outcome 1. On-Time Graduation 101

2. Outcome 2. High School Diploma or GED, Ever 101
3. Outcome 3. Total Educational Attainment 102
B. Key explanatory variables: religious participation *102*
1. Attendance at Worship Services 102
2. Participation in Non-Worship Religious Activities 103
C. Religious Control Variable *104*
1. Religiosity 104
2. Denomination 104
D. Family Characteristics *107*
1. Intact Family Status 107
2. Parent a Teen at Child's Birth 108
3. Number of Siblings 108
4. Family Income 109
5. Family Assets 109
6. Parents' Educational Attainment 110
7. Working Parents 111
8. Residential Stability 112
9. Parental Expectations 112
10. Parents' Immigrant Status and Language Spoken at Home 113
E. Individual Characteristics *114*
1. Gender, Race/Ethnicity, Disability Status 114
2. Academic Achievement 115
F. Contextual Factors *115*
1. Neighborhood Characteristics: 116
2. School Characteristics 117
G. Teen's Activities *118*
1. Teen Parenthood 118
2. Misbehavior / Delinquency 119
3. Substance Abuse 119
4. Participation in Groups and Institutions 119
IV. SAMPLE CHARACTERISTICS 120
A. Outcomes *121*
B. Religious Participation *121*

1. Attendance and Other Forms of Participation 121
2. Change in Religious Participation as the Teen Ages 123
C. Family characteristics *124*
D. Child's Characteristics *126*
E. Contextual Characteristics *127*
F. Teen's Activities *128*
1. Harmful Behaviors 128
2. Participation in Groups and Institutions 128
CHAPTER 5. ANALYSIS 132
I. BIVARIATE RELATIONSHIPS 132
A. Religious Participation and Outcomes *133*
B. Other Characteristics and Outcomes *135*
1. Family Characteristics 135
2. Individual Characteristics 137
3. School Characteristics 137
4. Teen's Activities 138
II. FROM ASSOCIATION TO CAUSATION 141
III. MULTIVARIATE ANALYSIS 144
A. Endogeneity *145*
B. Research Question 1 ..... *145*
C. Research Question 2 ..... *148*
D. Research Question 3 ..... *152*
1. Differences by Race and Ethnicity 152
2. Differences by Family Income Group 154
3. Differences by Neighborhood Type 158
E. Other Background Characteristics *161*
1. Total Years of Educational Attainment 162
2. On-time Graduation from High School 163
3. Completion of 12th Grade, Ever 164
4. Summary of Sub-Group Analysis 161
IV. SUMMARY OF ANALYTICAL RESULTS 164

CHAPTER 6. POLICY IMPLICATIONS AND CONCLUSION 169

I. POLICY IMPLICATIONS 169

A. Public Policy Measures to Reduce Obstacles to Religious Participation 170

1. More Houses of Worship in a Community Would Encourage Religious Participation 170
2. Understanding the Role of Organizational Characteristics Could Enhance the Effectiveness of Teen Participation 172
3. Improving Access to Secular Activities Could Improve Educational Outcomes 173

B. Limitations to Religious Participation as a Means to Educational Success 174

C. Other Conditions and Characteristics of the Teen's Life Make a Difference for Educational Success 176

D. Implications for the Faith-Based Initiative 177

II. CONCLUSIONS 178

APPENDIX 180

I. NELS 88 RELIGIOUS PARTICIPATION SURVEY QUESTIONS 181

II. DESCRIPTIVE STATISTICS AND BIVARIATE ASSOCIATIONS 183

III. DETAILED RESULTS OF MULTIVARIATE ANALYSIS 197

A. Endogeneity 197

1. Baseline Model 197
2. Test for Consistency 199
3. Test for Validity of Instruments 201

B. Research Question 1 203

1. Total Years of Educational Attainment 203
2. Completion of 12th Grade, Ever 204
3. On-Time Graduation from High School 205

C. Research Question 2 206

1. Total Years of Educational Attainment 206
2. Completion of 12th Grade Ever 207
3. On-Time Graduation from High School 208

D. Research Question 3 209

1. Race and Ethnicity 209
2. Family Income Quartile, 1988 215
3. Family Income Quartile, 1992 221

4. Neighborhood Educational Attainment Quartile, 1988 227
E. Other Background Characteristics *233*
1. Total Years of Educational Attainment 233
2. Completion of 12th Grade Ever 240
3. On-Time Graduation from High School 247
RESOURCES 254

Table of Figures

Figure 1. 1988 Participation Correlations 130
Figure 2. 1990 Participation Correlations 131
Figure 3. 1992 Participation Correlations 131
Figure 4. Outcomes 133
Figure 5. Participation Variables 133
Figure 6. Summary of Results, Research Question 1 147
Figure 7. Summary of Results: Research Question 2 150
Figure 8. Research Question 3: Outcomes by Race and Ethnicity 154
Figure 9. Research Question 3: Outcomes by 1988 Family Income Quartile 157
Figure 10. Research Question 3: Outcomes by 1992 Family Income Quartile 158
Figure 11. Research Question 3: Outcomes by 1988 Neighborhood Quartile 160
Figure 12. Summary of Results: Bivariate, Research Questions 1-3 165
Figure 13. Survey Questions Used to Create Religious Participation Variables 181
Figure 14. Descriptive Statistics and Bivariate Associations 183
Figure 15. Additional Descriptive Statistics 195
Figure 16. Baseline: Total Years of Educational Attainment (EDYRS) 197
Figure 17. Baseline: On-Time Graduation from High School (ONTIME) 198
Figure 18. Baseline: Completion of 12th Grade or Equivalent Ever (HSGRAD) 198
Figure 19. Religious Participation Variables Found to Be Significant with Respect to Educational Outcomes (Model 1) 199
Figure 20. Potential Instrumental Variables 200
Figure 21. Test for Significant Residuals as an Indicator of Endogeneity 201
Figure 22. Test for Validity of Potential Instruments 201
Figure 23. Research Question 1: Total Years of Educational Attainment, Religious Participation Results Only 203
Figure 24. Research Question 1: Completion of 12th Grade or Equivalent Ever, Religious Participation Results Only 204
Figure 25. Research Question 1: On-Time Graduation from High School, Religious Participation Results Only 205
Figure 26. Research Question 2: EDYRS Regressed on All Participation Variables 206
Figure 27. Research Question 2: HSGRAD Regressed on All Participation Variables 207
Figure 28. Research Question 2: ONTIME Regressed on All Participation Variables 208
Figure 29. EDYRS by Race and Ethnic Groups 209
Figure 30. HSGRAD by Race and Ethnic Groups 211
Figure 31. ONTIME by Race and Ethnic Groups 213
Figure 32. EDYRS By 1988 Family Income Quartile 215

Figure 33. HSGRAD by 1988 Family Income Quartile 217
Figure 34. ONTIME By 1988 Family Income Quartile 219
Figure 35. EDYRS by 1992 Family Income Quartile 221
Figure 36. HSGRAD By 1992 Family Income Quartile 223
Figure 37. ONTIME by 1992 Family Income Quartile 225
Figure 38. EDYRS Regressed on Religious Participation by 1988 Neighborhood Educational Attainment Quartile 227
Figure 39. HSGRAD By 1988 Neighborhood Educational Attainment Quartile 229
Figure 40. ONTIME by 1988 Neighborhood Educational Attainment Quartile 231
Figure 41. Total Years of Educational Attainment, Full Regression Results (Research Question 1) 233
Figure 42. Completion of 12th Grade Ever, Full Regression Results (Research Question 1) 240
Figure 43. On-Time Graduation from High School, Full Regression Results (Research Question 1) 247

Chapter 1. INTRODUCTION

I. Introduction

Many recent studies, both popular and academic, have focused attention on the life prospects of children. There is particular concern about the lingering effects of disadvantages experienced during childhood, such as family instability, neighborhood instability, and the inadequacy of institutions. These factors are thought to work together to ensure that poor families stay poor, and that youth from disadvantaged backgrounds carry those disadvantages with them to young adulthood.

A subset of these studies focuses on the children that are able to overcome the disadvantages of their youth to later become at least minimally "successful," in terms of completing high school, enrolling in college, joining the labor force, and earning wages sufficient to support a family. Although the specific results vary from study to study, the key factors that are typically found to play a role in educational attainment and labor market outcomes are parental achievements, household stability, and neighborhood/school characteristics.

One factor that has been relatively overlooked in the literature is whether a child's or teen's association with a religious institution (church, synagogue, temple or other house of worship) can contribute to his or her socioeconomic success.

The purpose of this study is to examine the role of religious participation during the teen years in graduation from high school or completion of an equivalent, and total years of educational attainment, especially for poor and minority teens. "Religious participation" includes attendance at worship services and participation in other activities through a religious institution, such as participating in youth group, volunteering opportunities, or classes.

This study does not explicitly consider the role of belief in a higher power per se or adherence to particular religious tenets, except to acknowledge that espousal of certain religious beliefs may influence an individual's attitudes and behaviors, which in turn may influence his or her prospects for socioeconomic success.

The primary research questions are:

1. Does religious participation during teen years, controlling for other characteristics of the child's life, contribute to educational success, defined here as completing high school on time, ever receiving a high school or equivalent diploma, and total educational attainment?
2. Does religious participation remain significant when controlling for participation in "secular" activities?
3. Do the above effects differ for the poor, minorities, or persons living in neighborhoods of concentrated disadvantage?

These research questions delve into the role of religious participation in the development of teenagers in the context of other circumstances and conditions in the child's life, particularly "secular" forms of participation (such as extracurricular activities and involvement in community organizations). The first question establishes a baseline estimate of the impact of

religious participation using linear modeling techniques. Research Question 2 explores whether participation in religious organizations makes any difference above and beyond participation in secular groups or institutions. Finally, modeling of subsamples address whether the impact of religious participation varies by race, poverty status, and neighborhood characteristics.

Prerequisite to the primary research questions, analysis explores the possibility that any impact of religious participation is misestimated due to the influence of other characteristics and conditions in the child's life on the decision to participate in a religious organization.

Exploring the role of religious participation is interesting for several reasons. Denominations and individual churches have long been instrumental in the formation and implementation of public policy aimed at helping the disadvantaged. The adoption of "charitable choice" provisions in several major federal social service programs since 1996 has revived debate on the role of religion in public policy. One justification given for charitable choice is the assertion that all else being equal, religious organizations have an advantage in providing some social services to some clients. Credit for the putative advantage is given, in part, to the central role of values in these programs and the explicitly transformational approach assumed to be common among religious institutions. Yet little is known about the effectiveness of religion and religious institutions in promoting "successful" adult outcomes. Although this study does not specifically examine the efficacy of faith-based social services, it does attempt to shed light on whether a religious setting per se benefits the individual, specifically with respect to educational attainment.

A second reason to study the role of religion in these outcomes is that more than 90 percent of Americans believe in a higher power[1], and more than 40 percent report attending worship services "regularly," although roughly the same percentage are "unchurched," (Gallup and Lindsay 1999). With so many people already engaged in this activity, it seems important to understand the potential benefits. Moreover, it is a "treatment" that is nearly universally available at least in some form to all, including the disadvantaged. There are no minimum standards to participate, no application requirements, and no eligibility criteria to enroll. Importantly, it does not entail the expenditure of public funds.

Third, the poor live predominantly in neighborhoods of concentrated disadvantage, and in neighborhoods of increasingly concentrated disadvantage[2]. In many of these neighborhoods, the primary neighborhood institutions that remain are the religious institutions (Wilson 1997). Although much is known about the types of activities that churches engage in (see, for instance, Chaves, Konieczny et al. 1999) little is known about the impact of these activities on the measurable well-being of their congregations[3]. This paper begins to quantify the benefits of religious institutions to the most disadvantaged communities, particularly their poor and minority youth.

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[1] This same study reports that only 70 percent of Canadians and 61 percent of Britons believe in a higher power.

[2] Recent analysis of the 2000 Census suggests that these trends may have started to ease or reverse. In a joint presentation at the Brookings Institution on May 19, 2003, Paul Jargowsky of the University of Texas at Dallas and Tom Kingsley of the Urban Institute used recently released Census data to demonstrate that the concentration of poverty and the portion of poor living in concentrated poverty in many U.S. cities were generally lower in 2000 than in 1990. However, Bel Sawhill of Brookings pointed out that the 1990 Census was taken during a downturn in the economy, while the 2000 Census was taken during a long expansion; gains in deconcentration might not hold when controlling for the business cycle. Sawhill also argued that changes in several dimensions of disadvantage from 1990 to 2000 have not been adequately studied, suggesting that claims of neighborhood recovery somewhat premature Jargowsky and Kingsley 2003.)

[3] Because of the nature of the data available, this study does not address the influence of specific activities on the outcomes of congregation members. However, this type of analysis would be a logical direction for future research.

Related, local land use regulations and building code requirements can prevent or discourage houses of worship from locating in new or existing buildings or expanding their operations, particularly in more developed areas where design, traffic and compatibility with nearby uses are a greater concern. Local governments may discourage church siting in commercial areas because land owned by bona fide religious organizations is not subject to real property tax. In residential areas, there are compatibility issues, and in industrial areas, there are safety issues (Reed 2003). Land development approval processes typically focus on the physical and financial impact of having a house of worship locate in the community and on a particular site. However, local government should also understand the social and personal impact of these uses,[4] especially with respect to the disadvantaged.

Finally, religious institutions are normative by design, actively seeking to shape the beliefs, attitudes and behaviors of its members and others that pass through their doors or experience some level of contact[5]. "Most religious institutions are forthright and specific about their moral-behavior injunctions and do employ many time-tested methods of indoctrination and social control: early education, parental reinforcement, conditional status and membership, appeals to tradition and an all-seeing judge, and collective activities that foster social ties, facilitate monitoring, and raise the cost of disobedience. Church members in general, and parents in particular, do seem to believe that religious training makes a difference, and do invest substantial resources in religious activities designed to help their children grow up 'good,' " (Iannaccone, 1998; note, p. 1476). Participants in several qualitative studies that

---

[4] The recent National Congregations Survey Chaves 1998 revealed that on average, 19 percent of participants in a congregation live within a 10-minute walk, and 57 percent live within a 10-minute drive. For people without cars or who have limited mobility, having a house of worship nearby may encourage attendance.

[5] See Smith 2003 for a discussion of the specific ways in which religious participation influence teens.

asked participants to identify the factors that contributed to their success often cite their religious upbringing as providing the contacts, moral strength, and coping mechanisms they felt were critical to their success (Cook 2000; Hrabowski 2002; and Bailey 2001). This study investigates the validity of the apparently widely held perception that religious participation makes a difference.

The next section of this chapter sets forth the theoretical frameworks that inform this study, human capital and social capital. Various processes through which religious participation is thought to contribute to the outcomes of individuals are also discussed. Section III briefly reviews studies that aim to account for educational outcomes, as well as studies that find a relationship between religious participation and various related outcomes. This third section serves as a synopsis of the literature review in Chapter 2.

Section IV describes the data set used to explore the research questions described above. Section V outlines the methodology proposed for this study, and explains why this approach is an improvement over previous studies. Section VI anticipates the implications for public policy of knowing the answer to the research questions. Each of these sections foreshadows the remaining chapters of the dissertation; the plan of study is described in SectionVII.

II. Theoretical Framework

Two theoretical frameworks suggest why religious participation should make a difference in educational outcomes. In addition, studies in other social sciences have identified numerous processes through which religious participation is thought to make a difference. These processes promote intermediate outcomes that in turn promote educational success.

A. Human Capital

In the economics literature, an individual's capacity for "success" in terms of education and the labor market is commonly understood as command of personal "human capital" or "productive skills" (Becker 1964). Teens accrue human capital as a result of investments made by their schools, communities, families, and by the teens themselves. Academic achievement and educational attainment reflect the amount of human capital that the child accumulates over time. As the child reaches early adulthood, these measures signify his or her initial value in the labor market, which influences his or her ability to find a job and earn decent wages. Work experience and specialized training offer the young adult further opportunities to build his or her stock of human capital, which in turn opens the door to job stability and advancement.

One of the key obstacles facing the poor is lack of human capital. The poor have lower rates of educational attainment, typically attend poorly performing schools, and tend to have weaker skill sets and less work experience than the non-poor. A number of studies have explained these deficits and obstacles as insufficient "investments" made by parents, neighbors, and institutions in the human capital development of poor youth. Each of these investment decisions is made based on preferences for investment, constrained by the capacity for making those investments. Parents' educational attainment and labor market success, intact family status, good parenting skills, a supportive home environment, higher family income, residential stability, and favorable neighborhood and school characteristics are the hallmarks of greater capacity for making investments in children.

Like schools, families and communities, religious institutions implicitly make investments in youth and other congregants. Peterson (1992), Verba, Schlozman, et al. (1995), Brown and Gary (1991), and Schneider (2003) contend that worshippers gain certain skills directly as a

byproduct of more active modes of church attachment[6]. For instance, parishioners may be called upon to write letters, run meetings, resolve sources of disagreement within the organization, plan events, communicate with others outside of their religious institution, budget resources, and speak in public (Smith 2003)[7]. These activities allow the individual to build communication, organizational, interpersonal and leadership skills that can be useful on the job. Volunteer work through religious organizations can become an opportunity for on-the-job training for related employment opportunities (Schneider 2003).

Religious participation can also facilitate the accumulation of "softer" human capital skills that promote job readiness[8]. These include building the individual's capacity for self-regulation and helping the individual to learn to abide by standards and rules (Cook 2000)[9]. Religious participation may improve an individual's prospects in the labor market through "the acquisition of traits such as honesty, diligence, and reliability that are compensated in the labor market and may affect the returns to human capital. Monitoring and sanctions by group members may ensure greater adherence to these tenets among members than by other

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[6] Peterson (1992) and were trying to explain the higher rates of at least some forms of political participation observed among individuals who attend worship services, rather than socioeconomic outcomes. Djupe (2001) disagreed, providing evidence that people bring their skills into the church from their secular lives, rather than developing those skills at church.

[7] Specifically, "religious youth may find themselves organizing a car wash, facilitating a Bible study, arranging a trip to Israel, sitting in as a youth delegate on a church committee, serving as altar boy or girl, helping to coordinate a social justice march, assisting in a tutoring program, planning a retreat, sitting in on a congregational meeting, reading scripture in a service, and much more," (Smith 2003

[8] In a literature review, Danziger, Corcoran et al. (2000) identified the key obstacles to work as lack of motivation, inability to perform the most basic work tasks [Holzer (1996) found that most entry-level jobs required workers to read and write paragraphs, deal with customers, do arithmetic, and use computers], lack of experience, transportation problems, health and mental problems, substance abuse, domestic violence, and child care problems. Religious participation per se does not address these obstacles. However, many religious institutions, particularly those that serve the disadvantaged, provide social services to congregants and to the community. See Chaves and Higgins 1992 and Chapman 2001, among others, for exploration of the social service and capacity-building functions of churches, especially the black church.

[9] Economist John Bishop 1998 has argued that general social and cognitive skills are more important than reading, writing, and mathematics in the labor market.

individuals, creating incentives among employers to use religion as a signal for productive characteristics," (Tomes 1985, p 246).

B. Social Capital

Social capital has been defined as "the stocks of social trust, norms, and networks that people can draw upon in order to solve common problems," (Lang and Hornburg 1998.[10]).

Individuals do not accumulate social capital in the same sense that they accumulate human capital. Rather, individuals associate with groups and/or institutions that facilitate the accumulation of social capital among their members. Individuals both contribute to the available stock of social capital and benefit from access to social capital. Social support can help a person to address his or her own daily logistical needs. Access to a social network can supply a conduit to success by providing access to job information (Briggs 1998). Exposure and pressure to comply with group norms and standards can promote success by providing positive role models and constructive peer pressure (Muller and Ellison, 2001). Furstenburg, Cook et al. (1999) suggests that parents' connections with "social resources, networks, and institutions outside of the family, including participation in religious and other formal, community-based institutions" promotes adolescents' own active involvement and connectivity, which in turn can contribute to their own well-being and success.

The disadvantaged have lower rates of civic engagement, including lower rates of affiliation with many types of institutions and organizations (Putnam 1993; Tolbert, Lyson et al. 1998; Sacerdote and Glaeser 2001). There is a tendency for "the social capital-rich [to] get

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[10]As Wuthnow (2002), Greeley 1997, Temkin and Rohe , Foley and Edwards have noted, social capital is an elusive concept, whose meaning has been stretched at times to cover a wide range of sometimes only loosely related concepts. The aspect of social capital that is of interest for the current study, and which is contemplated by Wuthnow and others, is as a means to individual and not just community ends.

richer and the poor [to get] poorer because social capital runs in virtuous circles and vicious spirals," (Putnam 1998, p. vii), primarily due to social segregation. As local institutions and as gathering places, churches, synagogues, mosques, and other houses of worship provide a setting for the development of social capital (Putnam 2000). Association with others through a religious organization can facilitate contacts and networking with individuals of similar or very different socioeconomic status, depending on the characteristics of the congregation. Opportunities for leadership within the congregation can also give the individual access to leaders in other milieus (Wuthnow 2002). Teens in particular benefit from building relationships with adults, and participating in an organization on a similar basis as adults (Smith 2003).

C. Intermediate Outcomes

Religious participation contributes to educational outcomes directly by way of human capital and social capital development. Religious participation also contributes to educational outcomes indirectly by helping teens to navigate the major obstacles to success, including early sexual activity and parenthood, alcohol and substance abuse, and delinquency.

A second indirect pathway or set of pathways by which religious participation promotes educational success indirectly is by promoting overall well-being. Attendance at worship services and participation in other forms of religious activity provide access for the individual or family to many benefits that a congregant can expect to enjoy from affiliation with a particular organization. In addition to the human capital and social capital benefits, houses of worship typically provide comfort and an opportunity for social contact. There is evidence that individuals who attend worship services enjoy a heightened sense of psychological well-being, improved health, possibly due to "cleaner living," and greater longevity. Parents may take

their children to worship services and other religious activities in order to instill the "right" attitudes and behaviors, convey their culture and beliefs, and encourage their children to engage in a wholesome activity. Although these benefits are not prerequisite for success, they can be helpful to individuals as they navigate potential obstacles, set personal objectives, and develop strategies to pursue those objectives.

III. Overview of Literature

Children's educational success is determined by any number of individual factors, some of which are observable, many of which are not. This section provides an overview of the empirical literature that has addressed the factors that contribute to educational success. Chapter 2 elaborates on the importance of factors noted here, which are family background, contextual factors, the child's own characteristics, and religious participation. The rationale behind providing such a far-reaching literature review is to demonstrate that the effects of a wide range of circumstances during childhood persist through early adulthood. This section also addresses an important premise of this study, that religious participation influences and is influenced by a whole system of factors in a child's life.

A. Family Characteristics

Individual dimensions of family life operate on children in distinct ways, yet there is little consensus on the factors that are most critical or even relevant in encouraging successful adult outcomes. Relative to various educational attainment outcomes, studies have established the significance of intact family status (McLanahan 1985; Haveman, Wolfe et al. 1997; Krein and Beller 1988; Thomson, Hanson et al. 1994), number of siblings (Haveman and Wolfe 1994; Haveman, Wolfe et al. 1997; Conley 1999; Keister 2003; Downey 1995), family assets

(Conley 1999), income (Haveman, Wolfe et al. 1997 1997; Hill and Duncan 1987; Duncan, Yeung et al. 1998), poverty status (Teachman, Paasch et al. 1997; Haveman, Wolfe et al. 1997: Duncan, Yeung et al. 1998: Haveman and Wolfe 1994; Haveman, Wolfe et al. 1991), parents' educational attainment (Haveman, Wolfe et al. 1997; D'Amico, Haurin et al. 1983; Keane and Wolpin 2001; Conley 1999; Teachman, Paasch et al. 1997; Axinn, Duncan et al. 1997), having a working mother during childhood (Kalmijn 1994; Haveman, Wolfe et al. 1991; Fleisher 1977; Hill and Duncan 1987).

The role of residential stability, in the sense of number of family relocations and family homeownership, is an emerging area of research. Several studies provide mixed evidence on the role of residential stability in successful outcomes (Aaronson 2000; Green and White 1997; Axinn, Duncan et al. 1997; Haveman and Wolfe 1994; Haveman, Wolfe et al. 1991; Huang 2000); see also literature review in Dietz and Haurin (2003).

At least some forms of parental involvement in their children's development promote teens' academic achievement (Fan 2001; Desimone 1999), but perhaps only slightly (Keith 1996). Parental involvement has also been found to deter dropping out (Anaya 2001), and at least one study has found that it is more effective in preventing children from dropping out (especially for more affluent and white students) than in promoting academic achievement (McNeal 1995).

Immigrants and the children of immigrants tend to lag behind native-born children academically (Moss and Puma 1995). Much of the deficit can be attributed to predominantly low incomes (Schwartz 1996) inadequate housing and health care (Capps 2001), language barriers (Brown, Hammond et al. 1997), and their parents' obstacles to involvement in their academic development and school life (Daniel-White 2002). Yet strong ties within the

immigrant community (Suro 1998) and within the family (Harker 2001) can promote educational and labor market success. Dual language proficiency, which is more common among immigrant children, can be advantageous in the labor market (Brown, Hammond et al. 1997).

B. Individual Characteristics

Descriptive statistics in nearly all studies demonstrate that minorities are disproportionately disadvantaged in terms of socioeconomic status. Controlling for other family characteristics, black children attain lower earnings as adults than do white children (Corcoran, Gordon et al. 1989; Datcher 1982; Peters and Mullis 1997; Corcoran and Adams 1997). Although black children complete fewer years of education, on average, than do white children, these differences disappear when controlling for family circumstances, and in fact black children attain more education than similarly situated white children (Peters and Mullis 1997; Haveman and Wolfe 1994; Haveman, Wolfe et al. 1991; Teachman, Paasch et al. 1997). This effect is especially pronounced for black girls (Haveman and Wolfe 1994; Haveman, Wolfe et al. 1991; Axinn, Duncan et al. 1997).

Females are slightly more likely to graduate from high school (Haveman, Wolfe et al. 1997; Haurin 1992; Haveman, Wolfe et al. 1991; Haveman and Wolfe 1994), while males may (Powell and Parcel 1997; Krein and Beller 1988) or may not (Haveman and Wolfe 1994) complete more years of total education. Nonintact family status hinders educational attainment for black and white men and black women, but not white women (Krein and Beller 1988).

Rates of educational attainment for disabled persons are lower than for non-disabled persons (U.S. Census Bureau 2000), although several program initiatives have been shown to improve academic performance (Hall, Griffin et al. 1985).

Academic achievement is closely associated with educational attainment because minimum competencies are often required to advance through grade levels and to receive a diploma (U.S. Department of Education 1999).

C. Structural Constraints and Contextual Factors

Other than individual and family factors, structural constraints are built-in obstacles that can limit success by systematically constricting opportunities. These factors set a context for individual decision-making, and shape opportunities and incentives faced by the individual.

Several studies find that some aspect of the neighborhood is found to be significant in explaining young adult outcomes in many of these studies (Ginther, Haveman et al. 2000; Datcher 1982; Aaronson 1998; Crane 1991, among many others), but there is wide variation and even contradictory evidence as to which aspect of neighborhood quality is most important. Other studies demonstrate that neighborhood effects diminish or disappear when a wide range of family and individual variables are included as controls (Haveman and Wolfe 1994; Ensminger, Lamkin et al. 1996; Evans, Oates et al. 1992; Aaronson 1997).

Students in urban schools have long performed lower on math and reading achievement tests than their suburban and rural counterparts, but that gap may be closing gradually in some cities. Compounding the urban-nonurban gap is a longstanding black-white achievement gap, and the deficits of (disproportionately urban) students who come to school with acute needs, such as physical or other disabilities, limited English proficiency, and inadequate family resources (Casserly 2003).

A wide range of programs and policies implemented at the school level are intended to raise aggregate educational attainment and labor market success rates. The characteristics of the institution, classroom, fellow students and peers can also be influential (Hallinan 1988;

Barro and Kolstad 1987; Card and Krueger 1992 and 1992; Angrist and Lavy 1999; Deardon, Ferri et al. 2002; Corman 2003; Betts 2001; Robertson and Symons 2003).

The weaker life prospects of disadvantaged children have also been explained in the broader context of structural constraints faced by the poor generally, including social isolation, (Wilson 1997) spatial mismatch (Gramlich and Heflin 1998; Holzer, Ihlanfeldt et al. 1994; Holzer 1991) and differences in expected returns to education (Wilson 2001; Altonji and Dunn 1996).

D. Teen Activities

During the teen years, children start to make their own decisions regarding their behavior and the way that they spend their time, either in consonance or in conflict with the guidance that they have received from their parents and other influences in their lives.

Teen motherhood may impede (McElroy 1996; Hoffman, Foster et al. 1993; Anderson 1993), promote (Ribar 1994), or make no difference (Upchurch and McCarthy 1990) in the ultimate educational attainment of girls, depending on which of the myriad background disadvantages that these girls face are controlled for in the modeling process. Delinquent teens drop out at higher rates than other teens (Barro and Kolstad 1987), but other factors may influence both delinquency and dropping out (Fagan and Pabon 1990). Drug use has been shown to interfere with educational success (Mensch and Kandel 1988; Friedman, Glickman et al. 1985; Krohn, Lizotte et al. 1997; Register, Williams et al. 2001). The evidence on the impact of alcohol use is mixed (Krohn, Lizotte et al. 1997; Williams, Powell et al. 2003; Dee and Evans 2003).

The role of extracurricular activities and participation in secular groups and organizations has been the subject of numerous studies. Evidence on the significance of these activities for

educational outcomes is mixed. Variations may be attributable to differences in variable specification, and to a lesser extent, model specification.

Empirical work shows that at least some forms of participation in extracurricular or other activities are associated with educational attainment (Otto 1975; Redd, Brooks et al. 2002; Parkerson 2001; Barber, Eccles et al. 2001; Doebler 1998; Mahoney and Cairns 1997). This relationship may (Broh 2002) or may not (McNeal 1995) hold when controlling for athletic participation. Participation in non-athletic activities has also been associated with higher educational aspirations (O'Brien and Rollefson 1995) and greater academic achievement (O'Brien and Rollefson 1995), even when controlling for participation in athletics (Broh 2002).

An important subset of these secular participation activities is athletics. Empirical studies have found that athletic participation is associated with educational attainment (McNeal 1995), but not for all race/ethnic groups (Eide and Ronan 2001; Melnick, Sabo et al. 1992; Marsh 1993). Other studies have questioned whether an association between athletic participation and educational outcomes exists at all when controlling for other background and contextual characteristics (Melnick, Vanfossen et al. 1988; Melnick, Sabo et al. 1992; Eitle and Eitle 2002; Eide and Ronan 2001).

E. Religious Participation

A number of studies have explored the role of religion and religious participation in educational attainment, labor market outcomes, and aggregate income. The vast majority of these studies utilize cross-sectional data gleaned from surveys to examine the contemporaneous impact of either denomination or attendance on outcomes. A few of these studies ask adult respondents to describe their religious upbringing retrospectively, usually in

terms of denomination. Even fewer studies use longitudinal data to focus on the role of religious participation during childhood in promoting adult outcomes.

Evidence is mixed on the contribution of attendance at worship services to education outcomes. Attendance at worship services has been found to contribute to total years of schooling (Loury 1997), high school completion (Coleman and Hoffer 1987) college enrollment (Eccles and Barber 1999), achievement test scores (Coleman and Hoffer 1987; Regnerus 2000), and higher grades (Eccles and Barber 1999), although various measures of family and community social capital partially mediate the relationship (Muller and Ellison 2001). When controlling for a wide range of personal, family, and neighborhood background characteristics, attendance at worship services during childhood does not contribute significantly to either high school graduation outcome or total years of educational attainment (Haveman and Wolfe 1994). Sojourner and Kushner (1997) found that religious socialization, defined as considering oneself to be a religious person and attending worship services, was not found to have a statistically significant relationship with mathematics and reading achievement. A study of successful black female college students revealed the importance they placed on involvement with a house of worship in various aspects of their success (Hrabowski 2002).

F. Shortcomings of Extant Literature

The literature on the role of religious participation in educational attainment provides some evidence that religious attendance is associated with success. However, these studies give an incomplete picture in a number of ways. Most of the studies are cross-sectional, which study the impact of religious participation on contemporaneous outcomes, rather than religious participation as a background characteristic. Many studies examine the role of either

attendance or denomination, but few also examine other measures of religious participation, such as participating in youth groups or attending religious training, and very few of these studies control for religious fervor or perception of self as religious. In addition, none of these studies controls for participation in non-religious groups and organizations.

Most importantly, only one study is known to account for the endogeneity of religious participation at the individual level[11], although several acknowledge that this issue should be explored (Sander 2002; Freeman, 1986; Azzi and Ehrenberg 1975; Iannaccone 1998; Haveman, Wolfe et al. 1990; Guiso, Sapienza et al. 2002).

The present study addresses each of these deficiencies in the literature by using a longitudinal data set that describes worship service attendance habits during high school in addition to other forms of participation and religious identification, and most importantly, explores religious participation as an endogenous variable.

IV. Data

This section describes and justifies use of the National Educational Longitudinal Study of 1988. Section V outlines the proposed methodology for this study.

To operationalize the research questions, the researcher needs a data set that includes a wide range of variables, including variables that capture religious participation, family,

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[11] Sander (2002) tests the commonly held view that individuals who are better educated are more likely to participate in religious organizations. He used two-stage least squares to model the reciprocal relationship between educational attainment and religious activity. He concluded that although education is positively associated with religious participation, it is not found to have causal power with respect to religious participation when it is treated as endogenous. At the aggregate level, Waters, Heath, et al, 1995 treats choice of religion and religious practices as jointly determined with income. This study makes the case that choice of religion influences socioeconomic status, and socioeconomic status is an important predictor of several aspects of religious practice.

Outside of this literature, McKenzie 2001 wrote a two-equation model to account for the endogeneity of religious attendance in a study to predict political participation. The study concluded that religious attendance does not contribute to local board meeting participation.

individual and contextual characteristics, and educational outcomes. A research methodology must be developed that adequately depicts the hypothesized relationship among variables.

The data set chosen for this study is the National Educational Longitudinal Survey (NELS). NELS was begun in 1988 by the National Center for Education Statistics, U.S. Department of Education. All respondents were in 8th grade at the beginning of the survey period, approximately age 14. Follow-up surveys took place in 1990, 1992, 1994, and 2000, when survey respondents were 16, 18, 20, and 26. The original sample included 24,599 students, but subsequent rounds included only a portion of this group. A total of 12,144 individuals participated in all five rounds of the survey.

Participants in the survey responded to questions regarding denomination, attendance, enrollment in a religious school, youth's participation in other religious activities and groups, whether a religious environment is a consideration in a future school choice, whether religious participation is important to friends, and perception of self as being "religious." Surveys also provide a great deal of information about the child's and family's secular joining behavior, including participation in volunteer work and public service activities.

Surveys were also administered to the parents, school administrators, and teachers of youths participating in the survey, providing a wide array of family background characteristics, school attributes, curriculum, and other personal data. Family characteristics include family composition, language spoken at home, immigrant status, financial resources available to support education, income and poverty status, participation in public assistance programs, parents' educational attainment, and parental involvement in the child's development. School and academic data include aggregate and individual attendance, discipline, transcripts, standardized test scores, curriculum, and other school characteristics.

Personal characteristics include attitudes and perceptions about school, friends, family, and self, expectations and aspirations, time use, including work, and physical impairment. Respondents are also asked to reveal whether they engage in risky behaviors such as smoking, drug use, unprotected sex, and delinquent activities.

An advantage of NELS is that is provides a wide range of background characteristics and control variables, including joining behavior of both parents and children. Attendance at worship services, participation in non-worship religious activities and religious identification are each observed. Participants are age 26 in the latest round of data, and most will have made a transition to school, work or idleness. Unfortunately, the pre-teen years are only addressed in retrospect. Another drawback of this data set is that parents are only surveyed twice, once in 1988 and then again in 1992, so that changes within the family and the timing of those changes are not captured. Nonetheless, NELS provides the best combination of relevant variables among the major longitudinal data sets.

V. Research Methodology

The main objective of this study is to find out whether religious participation during high school, controlling for other variables, contributes to the on-time completion of high school, completion of 12th grade or the equivalent ever, and total educational attainment, in young adulthood..

Prior to addressing the primary research questions, analysis explores whether religious participation is an endogenous variable, influenced by other characteristics and circumstances of the teen. Results of this preliminary analysis informs subsequent modeling.

A series of research questions explore alternative hypotheses for the purpose of building a body of evidence regarding the significance of religious participation. Does religious

participation contribute to educational outcomes, controlling for a wide range of background characteristics? Is it religious participation that makes a difference or participation in general? Does the effect of religious participation differ for subgroups of the population? This section describes the operationalization of these questions; a fuller discussion appears in Chapter 3.

A. Model Specification

If religious participation as a treatment could be randomly applied, then the researcher could set up an experiment in which two random samples of individuals were chosen. One group would receive the treatment of engaging in religious activities, while a control group would not. Random assignment would ensure no systematic difference between the groups, and also ensure that everyone in the experiment would have the same chance of being "treated." However, it is not possible to conduct such an experiment. The United States has a long tradition of self-determination with respect to worship practices, which precludes the interference of a third party. For this reason, analysis for this study must rely on multivariate analysis.

Analysis focuses on sorting out the role of religious participation from the concurrent effects of myriad other circumstances that the child faces. To do this, the model must include a wide range of variables that contribute to the outcome in question. Included in this study are a wide range of family attributes, parental background variables, school and neighborhood characteristics, and personal traits of the child.

Variables to be included in this study are listed below:

1. *Outcomes*

1. On-time graduation
2. Graduation or GED, ever
3. Total educational attainment

2. *Key Explanatory Variables: Religious Participation*

    a. Attendance at Worship Services
    b. Participation in non-worship religious activities

3. *Religious Control Variable*

    c. Identifies self as a religious person

4. *Family Characteristics*

    d. Intact Family Status
    e. Parent a Teen at Child's Birth
    f. Number of Siblings
    g. Family Income
    h. Family Assets
    i. Parents' Educational Attainment
    j. Working Parents
    k. Residential Stability
    l. Parents' Expectations for Child
    m. Parents' Immigrant Status and Language Spoken at Home

5. *Individual Characteristics*

    n. Gender
    o. Race/Ethnicity
    p. Disability Status
    q. Academic Achievement (score on standardized test)

6. *Contextual Factors*

    r. Neighborhood and Geographic Characteristics
    s. School Characteristics

7. *Teen's Activities*

    t. Teen Parenthood
    u. Misbehavior / Delinquency
    v. Substance Use
    w. Secular Participation

B. Model Construction

The standard approach to multivariate analysis is the use of ordinary least square (OLS) regression. The Gauss-Markov theorem predicts that OLS will produce the best (as in most efficient) linear unbiased estimators having minimum variance among all linear unbiased estimators, as long as certain assumptions are met (Pindyck and Rubinfeld 1998). The first research question employs this analytical technique.

However, OLS may not be the appropriate technique to model the relationship between religious participation and young adult outcomes because religious participation is not randomly distributed across individuals. An underlying claim of this study is that religious participation varies systematically across individuals and changes over time in response to a number of circumstances and factors in an individual's life, some of which are observable and measurable, some of which are not. Many of the factors that influence religious participation may also influence or closely approximate other factors that influence young adult outcomes.

The second research question implicitly addresses the alternative hypothesis that it is not religious participation, per se, that makes a difference; rather, it is organizational involvement that makes a difference. "Secular participation," in the form of extracurricular activities, participation in other organizations, and participation in sports are added to the model. The results of this model reveal whether these categories of participation have an independent impact on outcomes.

Interactive variables are incorporated into the final set of models to explore the possibility of differential effects by household income, minority and ethnic status, and neighborhood. Differential effects could arise because individuals choose religious participation to match their needs, needs vary systematically among groups, and the organizations that groups affiliate with differ systematically. Greater effectiveness will result when individuals affiliate

with organizations that best match their needs, and individuals are better able to match their needs when they have many feasible options.

VI. Potential Policy Implications

The main contribution of this study is to enhance understanding of the extent to which religious and secular participation from 8th grade to 12th grade helps late adolescents complete their education. This understanding has direct implications for policy.

Religious participation may promote the educational success of teens, but the government cannot directly provide churches to disadvantaged or other communities. Nonetheless, there are legitimate ways that the government can alter incentives that the individual faces to encourage religious participation.

Policy initiatives can also increase opportunities for religious participation, even for public school children. First, schools can promote any kind of organizational involvement by providing the meeting space and adult leadership, scheduling to accommodate activities during the school day, resources, recognition, and a supportive environment. Elected and other officials can bolster religious organizations by acknowledging religious leaders and religious organizations. Religious organizations and schools can work together to develop programming and mentoring for students.

The effectiveness of religious participation, and the importance of this finding, should be considered in the context of other opportunities to promote success. While parents are able to provide religious participation directly to their children, other activities may be more effective.

This study also demonstrates that a wide array of circumstances and conditions in a teen's life can have an impact on educational outcomes. While addressing any individual factor can

make a difference, considerable improvement can result from a multi-faceted, holistic approach, particularly for teens who experience multiple disadvantages.

VII. Plan of Study

Chapter 1 has provided an overview of the entire study. Chapter 2 reviews the relevant literature on the role of religious participation in promoting the success of teens, the role of background characteristics in promoting educational outcomes, and the myriad characteristics that influence a family's religious participation. Chapter 3 describes the methodology employed for each research question in greater detail, including descriptive statistics. Chapter 4 describes the data set chosen for this study, and presents simple descriptive statistics for the variables utilized in study models. The results of simple cross-tabulations among certain key variables and a synopsis of model results are described in chapter 5, followed by discussion and implications in Chapter 6.

Chapter 2. DETERMINANTS OF EDUCATIONAL SUCCESS: OVERVIEW OF EMPIRICAL STUDIES

This chapter reviews the literature related to educational outcomes for late adolescents and young adults. A wide range of factors has been found to contribute to educational outcomes. The key variable of interest for this study is religious participation, with secondary interest in secular forms of participation. The review below examines the family, individual, and contextual characteristics, as well as the activities of teens that are thought to influence success. For each variable, arguments supporting the causal impact on outcomes are presented, followed by a summary of empirical results.

This review is followed by a more thorough examination of several dimensions of religious participation. The discussion of the impact of religious participation focuses on educational outcomes, but the findings of studies that address intermediate outcomes that in turn promote or inhibit educational success are also presented. Literature on the role of religious participation in promoting employment outcomes is also reviewed because an education is increasingly important as a means to employment.

I. Family Background and Parental Characteristics

A number of family background characteristics are widely believed to influence adult outcomes. Sociology, psychology, economics, and other disciplines have developed numerous theories on how these factors influence children, focusing on the various aspects of the role that parents play in their children's lives:

- Parents provide physical and emotional comfort and the basic necessities for their children.
- Parents act as role models.
- Parents spend time with their children, providing companionship, guidance, discipline, affirmation and assistance.
- The extent to which parents engage in behavior that supports their own success allows them to better help their children.
- In addition to a healthy, supportive and nurturing environment, parents provide a genetic endowment that may predispose their children to certain ranges of physical and mental ability.

Individual dimensions of family life can have distinct ways of operating on children, yet there is little consensus on which factors are most critical or even relevant in encouraging successful adult outcomes. Below is a summary of findings from studies that focus on family variables.

A. Intact Family Status

Conventional wisdom holds that children are better off living with two married parents. What are the consequences for children if that arrangement is not possible? Single parenthood can be detrimental to children for several reasons. There is at most one parent who can be employed and generate income. A single working parent does not have a spouse to watch the children while he or she works and so must arrange and pay for child-care. If the single parent is an unemployed woman, the family may be receiving welfare or other forms of public

support. Yet introducing a step-parent into the family is not necessarily more beneficial for the children (Thomson, Hanson et al. 1994).

Most studies find that growing up in a single-parent household is associated with lower levels of educational attainment (Barro and Kolstad 1987), but the disadvantage is reduced (McLanahan 1985; Krein and Beller 1988; Haveman, Wolfe et al. 1997; Ver Ploeg 2002) or disappears (Haurin 1992; Haveman and Wolfe 1994; Loh 1996; Conley 1999) when controlling for income and/or wealth.

B. Parent a Teen at Child's Birth

Teen parents are less often married and otherwise tend to be less able than their older counterparts to address the needs of their children. If they drop out of school to care for or try to financially support their children, they may be perpetually stuck at the low end of the job market. In some instances, older relatives in the family, such as the child's grandparents, play more of a parental role. Such an arrangement may attenuate but not necessarily fully offset the teen parent's shortcomings. If the arrangement is less than permanent, then the young parent who takes over parenting responsibilities does so without having developed a strong parental bond with the child and learned parenting skills along the way.

Numerous studies focus on the impact of motherhood outside of marriage, with relatively few examining the impact of parenthood on married or unmarried teens. Studies that explore the deleterious and long-lasting impact of early parenthood on the teen parents themselves are more common than studies that look at the lasting impact on their offspring (see Section D below). Regarding educational outcomes, studies that do focus on teen parents' offspring find that much of the disadvantage is associated with the background disadvantages of the teen mother, such as larger family size, the teen mother's lower academic achievement, the teen

mother's nonintact family status and her parents' lower educational attainment, (Levine, Pollack et al. 2000; Geronimus and Korenman 1992; Baldwin and Cain 1980; Haveman, Wolfe et al. 1997), as well as the father's typically lower earnings (Haveman, Wolfe et al. 1997). Controlling for background characteristics also may (Barber 2001; Furstenberg, Levine et al. 1990) or may not (Haveman, Wolfe et al. 1997) eliminate the association between being born to a teen mother and then becoming a teen mother. Having a teen mother has been found to have an independent effect on outcomes related to the offspring's well-being and tendency to engage in risky behaviors, as well as health, emotional and cognitive development (Levine, Pollack et al. 2000; Levine, Pollack et al. 2001; Moore, Morrison et al. 1995; Baldwin and Cain 1980; Moore, Morrison et al. 1997), although studies have shown that high quality prenatal care can reduce some of the health and development deficits, while having another adult in the child's life can improve cognitive development (Baldwin and Cain 1980). Children born to mothers in their early twenties are not much better off in terms of their home environment and their typical levels of academic achievement (Moore, Morrison et al. 1997). Finally, the extent of disadvantage associated with being born to a teen mother may not persist as the child develops (Hofferth and Reid 2002).

C. Number of Siblings

More children in the family may mean that the parents have less time, energy and money to devote to each individual child, particularly in larger families, or it may mean that each individual child has one or more siblings available as resources. Older siblings may perform some parental functions for younger siblings, potentially to the advantage of both. Empirical results for this variable, though, are mixed and inconsistent, suggesting that the importance of adding one more child to a family may depend on the family's circumstances, such as how

many children there already are in the family, age spacing between children, and how well the parents are able to provide for them.

Results associated with family size are mixed and, as a group, inconclusive. Having more siblings may (Haveman, Wolfe et al. 1997; Haveman and Wolfe 1994; Conley 1999; Barro and Kolstad 1987; Guo 1998; Downey 1995) or may not (Bahr and Leigh 1978; Huang 2000) reduce educational attainment. Yet one study shows that for black adults, having sisters or having additional sisters is *positively* related to own educational attainment (Kaestner 1996). Having more siblings is not associated with idleness (Conley 1999), except when the sample is restricted to young men (Flouri and Buchanan 2002). Another study finds that for disadvantaged, rural girls, having more siblings is associated with a lower incidence of participation in the labor force, but is not associated with lower educational attainment (Doebler 1998). Larger family size has also been associated with lower wealth accumulation as an adult (Keister 2003).

D. Family Income

Parents' command of monetary resources better enables them to provide for their children. In low-income families, this may mean providing enough of the basic necessities to ensure the child's physical and emotional comfort. For more affluent families, this may mean investing in enrichment activities and pursuits for their children, such as private school, cultural opportunities and enabling social connections. One explanation for the strong correlation between parents' and children's eventual earnings as adults is that parents serve as important role models in the areas of ambition, self-discipline, value of work, sense of efficacy and other possibly unobserved characteristics. Closely related, parents may directly (by teaching) and/or indirectly (by example) shape their children's vocational and financial expectations and

aspirations. The marginal effect of a unit of increased income is generally strongest among families with the lowest income.

Some studies also include a variable to denote poverty status, which allows for the detection of nonlinear income effects. "Poverty" status combines family size with family income to indicate family need. Typically measured as a dichotomous variable, or as the number of years within a stage of the child's life in which the family lived in poverty, a significant coefficient reveals the extent to which living in need is detrimental. Poverty can inhibit the social and emotional development of children because it is typically accompanied by a poorer quality physical environment, and fewer stimulating experiences (Eamon 1998; Garrett, Ng'andu et al. 1994), and has been associated with diminished mental health of children (Mcleod and Edwards 1995).

Higher income is associated with improved educational outcomes (Haveman, Wolfe et al. 1997; Hill and Duncan 1987; Duncan, Yeung et al. 1998; Barro and Kolstad 1987) although the effect disappears when controlling for family wealth (Conley 1999). The detrimental impact of living in poverty increases with duration (Teachman, Paasch et al. 1997; Haveman, Wolfe et al. 1997). Studies that examine stage of development disagree as to when the negative effect of living in poverty was strongest. It may be most acute when occurring during the early stages of a child's life (Duncan, Yeung et al. 1998), ages 9-11 (Haveman and Wolfe 1994), or during adolescence (Haveman, Wolfe et al. 1991; Teachman, Paasch et al. 1997).

The role of family income in predicting idleness is less clear. Higher family income may discourage idleness *and also* hours worked (Conley 1999), or it may be irrelevant (Haveman and Wolfe 1994; Vartanian 1999).

E. Family Assets

Assets represent the accumulation of excess income over a period of time. Liquid assets can be used to stabilize a household's finances in the short run, although persons most likely to suffer disruptions in income are the least likely to have savings to cover the bad times (Ruggles and Williams 1989). The possession of wealth may also contribute to the emotional stability of a family if it fosters a sense of mutual trust through co-ownership and demonstrates a commitment to planning for the family's future. However, children may not be aware of family assets (other than an owned home) and may only benefit indirectly, to the extent that their parents benefit from these stabilizing effects. Many types of accumulated wealth can be used to create more wealth, as well as to secure loans and mortgages to make possible more spending or other investments, including investments in the children. There is some debate over whether the significance of family wealth is related to the intergenerational transfer of capital or its role in facilitating investments in the child [see Hofferth, Boisjoly et al. 1999; Henretta 1984].

Several authors have explored the reasons that black families possess sharply fewer assets than do white families (Sherraden 1991; Massey and Denton 1993; Oliver and Shapiro 1995; Conley 1999), yet the role of family wealth in the adult outcomes of children has been largely overlooked in the literature. Conley (1999) interprets the positive relationship between family wealth and both high school and college graduation as the consequences of families using wealth to finance their children's education, and greater property wealth in a community can mean higher property tax revenues available for spending on schools. A more recent article by the same author bolsters the evidence that family wealth plays an important role in college matriculation and graduation, in ways that are distinct from family income (Conley 2001).

Conley (1999) also found that parental wealth reduces the likelihood of idleness and encourages hours worked, but depresses wages.

F. Educational Attainment of Parents

Parents' educational attainment may reflect some underlying personal characteristics, such as initiative, tenacity and ambition, as well as the resources that their parents (i.e., the child's grandparents) were able to devote to them as they were growing up. More education can have a positive impact on children's outcomes by teaching their children to value education and indirectly by allowing parents to set a good example for their children. Better-educated parents also tend to have higher incomes and better jobs, both of which also have a positive impact on children's outcomes.

Mother's education is consistently found to have a positive impact on her children's education (Haveman, Wolfe et al. 1997), especially her daughters (D'Amico, Haurin et al. 1983). Studies that examine the impact of both parents also find a positive relationship (Keane and Wolpin 2001; Conley 1999; Barro and Kolstad 1987; Anaya 2001), although there is disagreement as to whether the effect of the mother's education is greater (Teachman, Paasch et al. 1997) or the father's (Axinn, Duncan et al. 1997). Conley (1999) found that the educational attainment of the head of the household is positively associated with hours worked and wages, and negatively associated with idleness.

G. Working Parents

Studies have addressed the importance of having a working mother, but little attention has been paid to the role of having a working father. Nonetheless, some of these mechanisms undoubtedly are relevant for fathers, when they are present in the household.

Theory offers conflicting predictions on the long-term impact of having a mother work during childhood. Does mothers' employment contribute to developmental problems due to loss of parental time spent with children, or does it enhance the children's future prospects by contributing income to the family and setting a good example for her children? Studies finding a negative coefficient may point to the importance of contact time between parents and children, and direct supervision and care-giving by parents, or more likely the mother. Studies finding a positive coefficient may conclude that a working mother is a good role model for her children, or may emphasize the harmful effects that family dependence on public assistance (resulting in part from the mother not working) may have on children's aspirations and on their capacity for independent actions.

The evidence on the impact of having a working mother on educational attainment is mixed. Having a working mother may be beneficial (Kalmijn 1994) or inconsequential (Huang 2000; D'Amico, Haurin et al. 1983) or mixed, depending on the child's stage of development or the level of educational attainment being considered (Haveman, Wolfe et al. 1991; Barro and Kolstad 1987).

H. Residential Stability

A number of studies have considered the lasting effect of residential stability on children's outcomes. Infrequency of residential moves is often associated with homeownership, which is a precondition to accumulation of housing wealth. Housing wealth can be an important component of a family's financial stability, and give parents the wherewithal to fund their children's education (Conley 1999). Jointly, these factors may benefit children by providing an opportunity to form lasting relationships, and progress through the same school system.

Moving has been shown to be detrimental to children's educational outcomes (Green and White 1997; Ingersoll, Scamman et al. 1989; Rumberger, 1999 #399}). Yet at least one study calls into question whether moving has a significant impact on children's educational achievements (Huang 2000). Mobility is detrimental because of the loss of social capital (McLanahan and Sandefur 1994; Astone and McLanahan 1994; Haveman, Wolfe et al. 1991; Pribesh and Downey 1999), and because of the psychological harm to the student (Rumberger, Larson et al. 1999). However, some of the negative effects of moving are related to other characteristics of children and families that move a lot (Pribesh and Downey 1999; Hartman 2002), particularly the family disruption that often accompanies a move (Astone and McLanahan 1994), although one study suggests that residential mobility is not significant when controlling for family disruption (Theroux 2000). Another study suggests that some of the loss of social capital associated with moving is reduced when accounting for the limited ability of some parents to make social connections in their neighborhood at all (Pettit and McLanahan 2003).

Educational mobility (moving to a new school not as a result of normal grade progression) is more disruptive than residential mobility (Theroux 2000; Swanson and Schneider 1999) and the timing of such moves makes a difference. Changing schools after tenth grade does the greatest harm to students' educational outcomes and increases the likelihood of behavioral problems, while changing schools between eighth and tenth grade can be beneficial (Swanson and Schneider 1999). Other studies conclude that moving is especially harmful through the child's age 7 or 8 and 12 to 15, but unimportant for the middle years (Haveman and Wolfe 1994; Haveman, Wolfe et al. 1991). Educational mobility is also significantly related to dropping out (Anaya 2001). Attending a school with a high turnover rate, regardless of the

student's own mobility, is also disadvantageous, especially for lower income and minority students (Hanushek, Kain et al. 2001).

I. Parents' Expectations for Child

Parenting practices, such as styles of discipline, granting of responsibility and privileges, family climate, and support for children's independence shape the skills, abilities, and psychological well-being of children, directly influencing the competencies that allow them to succeed during the teen years. Parents set limits for their children, convey their expectations, and set an emotional tone for the household. In response, children develop their own sense of efficacy, well-being, and competence (Furstenburg, Cook et al. 1999). Studies that examine parenting behaviors tend to focus on their immediate or near-term impact, such as behaviors and scholastic achievement while in school, rather than the impact on children's eventual outcomes (see Furstenburg, Cook et al. 1999; Shonkoff and Phillips 2000; Duncan 1994).

Fan (2001) points out that "parental involvement" has been used in the literature as an umbrella term to capture many aspects of parental involvement in the academic lives of their children, including parents' aspirations for their teens' educational attainment, communication with children about their progress at school, parents' participation in school activities, parents' communication with teachers, and supervision at home. In his literature review, he reveals that, not surprisingly, studies that operationalize parental involvement differently come to different conclusions about whether parental involvement contributes to their children's educational attainment and achievement. Using NELS 88, Fan finds that parental aspirations for their children's education is the only dimension that is consistently related to academic

achievement, and the results were reasonably consistent across race and ethnic groups[12]. In a similar study, Desimone (1999) found that several dimensions of parental involvement contributed to their children's achievement, and the results vary according the race/ethnicity, income, and whether achievement is measured as grade-point average or test scores. Keith (1996) concluded that parental involvement promotes achievement only slightly, and that the impact does not vary according to whether the school was located in a rural, suburban or urban area. Parental involvement has also been found to deter dropping out (Anaya 2001), and at least one study finds that it is more effective in preventing teens from dropping out (especially for more affluent and white students) than in promoting academic achievement (McNeal 1995).

J. Parents' Immigrant Status and Language Spoken at Home

Children who were born in another country, or whose parents were born in another country, face a set of obstacles that are unfamiliar to native-born children. Immigrant children and their parents may not possess a strong command of English, and may be unfamiliar with American customs and institutions. As minorities, immigrants of color may face discrimination. Studies have shown that Latino immigrants enjoy relatively low returns to education in the labor market, in part because of the low quality of the school systems in their home countries (Bratsberg and Terrell 2002), but differences in human capital only account for some of the observed differences in productivity (Hendricks 2002). Immigrant children are

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[12] Fan made two unusual methodological decisions that undermine the strength of the results. First, he used the very high standard of alpha = 0.01, ather than the more conventional alpha = 0.05. He did not report t-statistics or standard errors, so it is unclear whether additional dimensions of parental involvement could be considered to be significant contributors to the children's academic achievement. Second, he only controlled for parents' socioeconomic status, omitting many other family, individual, and contextual factors that could either mediate or suppress parental involvement variables.

more than twice as likely as native-born children to grow up in the lowest income quartile (Schwartz 1996), and much more likely to live in poverty (Capps 2001). Immigrant children are also more than twice as likely as native-born children to live in crowded housing and to lack health insurance or adequate health care (Capps 2001). Beyond the effects of concentrated disadvantage, one researcher has suggested that some immigrant children do poorly in school because they absorb "oppositional culture" of minorities, which pushes them towards apathy and failure (Rodriguez 2002).

However, the immigrant experience is diverse, and even among immigrants from South and Central America, the ability to succeed varies greatly (Rodriguez 2002), in no small part due to the strength and attributes of the immigrant community where individuals settle (Suro 1998). Overall, immigrant children and their parents have higher educational aspirations than native-born children. Immigrant children, especially those whose country of origin is in Asia, are more likely to enroll in a college preparatory curriculum, and are more likely to enroll in college than native-born children (Schwartz 1996; Hagy, Staniec et al. 2002) . Strong family relationships promote psychological well-being among children who were born and socialized in another country (Harker 2001), which in turn may promote educational and labor market success. At the same time, however, the children of immigrants are increasingly likely to forsake the language of their parents in favor of learning English only (Schwartz 1996). A language barrier can foster alienation between generations and undermine parents' efforts to support and monitor their children. Children who themselves immigrate at an earlier age face less severe language and cultural obstacles than children who immigrate at a later age (Gonzalez 2003).

Non-English speaking parents may also have trouble participating in their children's education, either to help them with their homework, communicate with teachers, or participate in parents' organizations (Daniel-White 2002). Children of non-English speakers may lag in their own English skills; on the other hand, proficiency in two languages at an early age can be advantageous (Brown, Hammond et al. 1997). Language minority status has been shown to be significantly related to dropping out of high school (Anaya 2001) and low academic achievement (Moss and Puma 1995).

II. Child's Own Characteristics

A child's own characteristics also shape life chances. Children's success is determined by any number of individual factors, some of which are knowable and measurable, many of which are not. A child's ability to navigate through life's challenging moments and transitions may vary considerably with a number of factors that cannot be controlled in an experimental or model setting. Moreover, some children are naturally resilient or become resilient, overcoming great odds and untold personal obstacles to go on to lead reasonably "normal" and successful lives (Werner and Smith 1992).

There are reasons to believe that gender, ethnic and racial background are important predictors of many kinds of success. Persons who bear some kind of minority status or are otherwise perceived to be outside the mainstream may be at a disadvantage due to discrimination (Beckley and Burstein 1994). Others have suggested that this type of disadvantage arises from cultural influences that undermine an individual's potential (Ogbu 1992; Wilson 1994), isolation from the mainstream (Wilson 1997) or differences in innate ability (Herrnstein and Murray 1994).

A. Gender

A number of studies look at samples of only men (Corcoran, Gordon et al. 1992; Couch and Lillard 1998; Eide and Showalter 1999; Fleisher 1977; Ensminger, Lamkin et al. 1996) or only women (McLanahan and Bumpass 1988). Differences in specifications impede efforts to compare results across these studies. Studies that include a dummy for gender facilitate direct comparison of males and females, as other factors are held constant. For instance, all else being equal, females are slightly more likely to graduate from high school (Haveman, Wolfe et al. 1997; Haurin 1992; Haveman, Wolfe et al. 1991; Haveman and Wolfe 1994), while men may (Powell and Parcel 1997; Krein and Beller 1988) or may not (Haveman and Wolfe 1994) complete more years of total education. Finally, a few studies run separate regressions for subsamples by gender, revealing differences in the impact of particular variables. For instance, nonintact family status hinders educational attainment for black and white men and black women, but not white women (Krein and Beller 1988).

B. Race/Ethnicity

Descriptive statistics in nearly all studies demonstrate that non-white individuals as a group are disproportionately disadvantaged. Observed differences among races in income, welfare participation, home ownership, neighborhood choice, educational attainment, and other key factors skew the opportunities for successful adult outcomes.

Although black teens complete fewer years of education, on average, than do white children, these differences disappear when controlling for family circumstances, and in fact black teens attain more education than similarly situated white teens (Peters and Mullis 1997; Haveman and Wolfe 1994; Haveman and Wolfe 1995 Haveman, Wolfe et al. 1997; Howell and Frese 1982; McNeal 1995; Teachman, Paasch et al. 1997). This effect is especially

pronounced for black girls (Haveman and Wolfe 1994; Haveman, Wolfe et al. 1997; Axinn, Duncan et al. 1997).

C. Disability Status

Some forms of disability can limit a child's prospects for success, although many disabled children can lead happy and productive lives. Since 1975, states have been required to provide a free and appropriate public education for all students regardless of disability status. The Individuals with Disabilities Education Act (IDEA), adopted in its current form in 1997, requires the integration of disabled students into the regular classroom as much as possible, and requires special education students to participate in district assessment programs, with adaptations, as necessary (Gardner 2001). Rather than graduate, some severely disabled youth remain in school in order to continue to receive services through their high school until they reach the maximum allowable age for enrollment, which varies by state.

Persons with disabilities attain fewer years of education than do their non-disabled counterparts. One-quarter (25.2 percent) of disabled young adults (aged 18 to 34) have not completed high school, while the rate among non-disabled young adults is below one-sixth (14.5 percent). Overall, disabled adults are over-represented in the categories of lower educational attainment and under-represented in the categories of higher educational attainment (U.S. Census Bureau 2000). There is evidence that special education boosts academic achievement (Hanushek, Kain et al. 1998). Factors such as mother's education, teacher support, student/teacher ratio, and home support have also been shown to promote academic achievement among disabled high school students (Hall, Griffin et al. 1985).

D. Academic Achievement

Academic achievement, whether measured through grades or achievement test scores is a direct measure of how well a child is absorbing the learning opportunities to which he or she is being exposed. Minimum grades are required to avoid "flunking out," while at least seven states require students to pass a test to receive their high school diploma or to advance to the next grade level (U.S. Department of Education 1999). Colleges and universities examine transcripts and SAT or ACT scores as part of their admissions process, with high levels of academic proficiency typically required for acceptance at the more competitive institutions of higher learning. Some states have experimented with tying academic performance to guaranteed acceptance and scholarships at their public universities (Bishop 2004; Long 2002).

Students with poor grades are more likely to drop out of high school (Anaya 2001; Barro and Kolstad 1987; Howell and Frese 1982), and grades are an even stronger predictor of dropping out than are low achievement test scores (Barro and Kolstad 1987). Test scores and high school grade-point average are both important predictors of completing a bachelor's degree, but the rigor of the high school curriculum is even more important. The effect is stronger for blacks and Latinos (Adelman 1999).

III. Contextual Factors

A. Neighborhood and Geographic Characteristics

A number of studies examine neighborhood factors in addition to family factors, based on the intuitively appealing yet notoriously elusive proposition that place matters. Some aspect of the neighborhood is found to be significant in many of these studies, but there is wide variation and even contradictory evidence as to which aspect of neighborhood quality is most important.

Studies have found that children who grow up in neighborhoods with a lower percentage of youths in the neighborhood who are dropouts, a higher percentage of white residents (Ginther, Haveman et al. 2000), a higher percentage of residents in upper income brackets (Datcher 1982; Ginther, Haveman et al. 2000; Ainsworth 2002), a lower percentage of unemployed or out of school youths and a lower poverty rate (Aaronson 1998) evince more successful educational attainment outcomes. Children that grow up in neighborhoods with very low percentage managerial/professional workers are less successful in educational attainment (Crane 1991).

A sense of relative deprivation can diminish (Halpern-Felsher, Connell et al. 1997) or reverse (Ginther, Haveman et al. 2000; Garner and Raudenbush 1991; Gleason and Vartanian 1999) the advantage of neighborhood conditions for disadvantaged or minority teens.

Other studies demonstrate that neighborhood effects diminish or disappear when a wide range of family and individual variables are included as controls (Haveman and Wolfe 1994; Ensminger, Lamkin et al. 1996; Evans, Oates et al. 1992; Aaronson 1997; Oreopoulos 2003; Page and Solon 2003).

Geography contributes to unequal educational opportunities for children enrolled in public schools. Many children that grow up in cities have systematically different opportunities and access to resources than children who grow up in the suburbs or in rural areas. In many states, particularly where education is supported by property tax revenues, urban school districts are less well-funded than their suburban counterparts, and have to respond to the needs of a poorer, more diverse student body (Casserly 2003). In response, some states have established funding equalization policies, some of which are in response to court orders that cite states' own requirements for equal access to education (Gardner 2001). Cities also generally have

school buildings that are older, more dilapidated, less likely to have computers, with smaller athletic and other non-academic space than suburban schools (U.S. General Accounting Office 1996). Numerous reports have connected school dilapidation with poor student performance (see reviews of studies in Fisher 2001 and Lyons 2001). In addition, the poor live in cities disproportionately, and while poverty has a direct impact on persons experiencing it, concentration of poverty has a spillover effect on others in its proximity. Results from recent NAEP (National Assessment of Educational Progress) scores support this relationship. In 2000, average 4th grade NAEP math scores in schools in which at least 50% of students were eligible for free or reduced-price lunch were lower than in schools in which no more than 25% of students were eligible for free or reduced-price lunch. On average, non-eligible children in schools in which at least 50% of students were eligible scored lower than non-eligible children in schools in which no more than 25% of students were eligible (U.S. Department of Education 2003).

On the other hand, an urban-nonurban split may oversimplify the structural differences in the educational prospects of children. Dropout rates are about one-quarter lower in the Northeast and North Central than in the South and West, two-thirds lower in the suburbs than in cities, and slightly lower in the suburbs than in rural areas. The biggest differentials between urban and suburban dropout rates are in the Northwest and North Central states, with very little differential in the South and reverse differential (i.e., rates are lower in the cities) in the West (Barro and Kolstad 1987). The U.S. Department of Education reported that in a 2003

trial study of ten urban school districts, fourth-graders in some cities scored above the national average in reading and mathematics[13] (Dobbs 2003).

B. School Characteristics

A wide range of programs and policies implemented at the school level are intended to raise aggregate educational attainment and labor market success rates. Teens that are enrolled in school are exposed to most of these programs through their school. State and federal programs and funding schemes provide for special education, Limited English Proficiency (LEP) and English for Speakers of Other Languages (ESOL) classes, school breakfast and lunch programs, standardized testing, targeted funding for schools with students from poor families, class-size reduction, and many other initiatives aimed at improving educational outcomes and enhancing the well-being of students. Fledgling charter school and voucher programs are also intended to improve educational outcomes by introducing competition into the school service delivery arena and giving parents some choice as to where they send their children to school[14].

There is also a wide range of small-scale programs undertaken at the local, individual school, and school district levels, developed by officials in response to local conditions and needs. Many of these programs combine an emphasis on academic achievement and successful transition to work. Non-profit organizations are key players in many of these

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[13] Newer cities, such as Charlotte and Houston were among the high performers, as were some of the oldest cities, such as New York and Washington. See also the U.S. Department of Education web site for details of this study and its findings, including remarks by Assistant Commissioner of the National Center for Education Statistics Valena W. Plisko at http://nces.ed.gov/commissioner/remarks2003/12_17_2003.asp.

[14] See the U.S. Department of Education web site at www.ed.gov, and individual state education web sites for information on current policies and programs.

programs. For an overview of some of the most innovative programs, see American Youth Policy Forum (1997) and American Youth Policy Forum (1999).

Empirical studies have attempted to quantify the role of various school characteristics in the success of students. School characteristics, such as resources, school size, composition, climate, philosophy and pedagogical practices, influence individual students' prospects for success (Hallinan 1988; Barro and Kolstad 1987; Card and Krueger 1992; Card and Krueger 1992; Angrist and Lavy 1999; Deardon, Ferri et al. 2002), but not as much as do family characteristics (Hallinan 1988) or individual or family characteristics (Corman 2003). Some of the benefits of greater school resources are limited to black students, and even those benefits dissipate over time (Betts 2001). Long (2003) has suggested that no single school characteristic matters all that much, rather many school characteristics matter somewhat [need permission for cite]. Robertson and Symons (2003) has suggested that it is really peer group characteristics that matter, rather than school characteristics.

IV. Teen's Activities

Despite all of parents', school administrators', church leaders', and others' exhortations, teens ultimately make their own decisions that influence not only their well-being at the moment, but also sometimes alter their own life course. The decisions to engage in delinquent behavior, to engage in sexual activity, to remain in school, or to get a job influence and are influenced by the child's previous decisions, in addition to family, peers, neighborhood, school, housing and other factors. For instance, the decision to stay in school may render a child less prone to make a series of decisions that culminate in teen parenthood, and lead to more fruitful participation in the labor market. On the other hand, teens who become parents

are less likely to finish high school and more likely to be economically inactive in early adulthood.

A. Teen Parenthood

Parenthood during the teen years, especially for teen girls, can represent a major obstacle to socioeconomic success. Teen mothers miss some school or drop out as the result of the pregnancy and childbirth. Ongoing childcare responsibilities take away time available for studies and other activities that keep the teen mother engaged in school. Changing financial needs may push the young mother to find a job rather than go back to school.

Evidence on the impact of teen parenthood is mixed. Having a child during high school diminishes the likelihood of the mother receiving a high school diploma, and teen mothers are less likely to go to college (McElroy 1996; Hoffman, Foster et al. 1993; Anderson 1993; Hofferth, Reid et al. 2001), but are more likely to complete a general equivalency diploma (GED) (Hotz, McElroy et al. 1997). On the other hand, teen mothers who can avoid dropping out are just as likely as other girls with similar backgrounds to graduate from high school (Upchurch and McCarthy 1990), and at least one study has found that teen parenthood during high school is *positively* associated with graduation, suggesting the possibility that young mothers are more diligent in finishing their education than other similarly situated young women (Ribar 1994)[15]. It is possible that the disadvantage associated with teen motherhood is minor compared with the pre-existing disadvantages that teen mothers face, so that the same background characteristics that move girls towards teen parenthood also discourage them from completing their education. Several studies find that the incremental effect of having a baby is

[15] The literature has also suggested that the causation goes the other way, that lower educational attainment and achievement put teens at risk for early parenthood (Thornberry, Smith et al. : Ribar).

negligible or at least reduced when controlling for background characteristics, such as parents' socioeconomic status, less educational attainment, lower academic ability, low expectations for their adult lives, and lower marital stability (see literature review in Baldwin and Cain 1980; Ribar 1994; Haggstrom, Kanouse et al. 1986; Brewster, Billy et al. 1993; Geronimus and Korenman 1992). The detrimental impact on educational attainment is greater for younger mothers (Anderson 1993). Providing day care for the children of teen mothers has been shown to improve the mothers' educational attainment and economic independence (Campbell, Breitmayer et al. 1986). Teen parenthood has also been shown to be associated with lower educational attainment for married teen fathers than teen fathers who were unmarried at the time of conception, but the gap closes by men's late twenties (Brien and Willis 1997).

B. Delinquency

Delinquency is a form of antisocial behavior that is part of an alienation process from the mainstream, and one of many forms of risky behavior that often coincide. Disregard for the law or for rules can be interpreted as uncooperativeness, lack of respect for others and for authority, and lack of moral guideposts. Time devoted to delinquent activities is time not spent in more productive or beneficial pursuits.

Not surprisingly, teens who have disciplinary problems in school, have been suspended or placed on probation, or have been in serious trouble with the law drop out at much higher rates than do other teens (Barro and Kolstad 1987), although one study argues that dropping out is more closely related to inadequate family support and social isolation (Fagan and Pabon 1990). Dropping out, in turn, promotes criminal behavior (Hartnagel and Krahn 1989), especially among higher status teenagers (Jarjoura 1996).

C. Substance Abuse

Alcohol and drug use have long been assumed to distract students from their academic pursuits and put users at risk for many other forms of deleterious behaviors.

Drug use, especially early drug use, contributes to dropping out (Mensch and Kandel 1988; Friedman, Glickman et al. 1985; Krohn, Lizotte et al. 1997) and lower educational attainment (Register, Williams et al. 2001). There is disagreement however, as to whether alcohol use does (Krohn, Lizotte et al. 1997; Williams, Powell et al. 2003) or does not (Dee and Evans 2003) inhibit schooling.

D. Participation in Secular Groups and Institutions

The role of extracurricular activities and participation in secular groups and organizations has been the subject of numerous studies. Evidence on the contribution of these activities to educational outcomes is mixed. Variations may be attributable to differences in variable specification, and to a lesser extent, model specification.

Secular participation has been associated with improved educational outcomes, at least for some teenagers, but the robustness of the findings and the nature of the causal relationship is a matter of debate.

If teens who participate in secular activities do have an edge over other teens as a result of their participation, it may be the result of distracting participants from detrimental activities, fostering attachment to school or other institutions, helping participants to hone time management skills and other competencies, building confidence, applying classroom lessons in a realistic setting, learning to work with others, and bolstering educational expectations (Parkerson 2001; O'Brien and Rollefson 1995; Barber, Eccles et al. 2001; Fredricks, Alfeld-Liro et al. 2002; Holland and Andre 1987). On the other hand, such participation may actually

detract from some educational outcomes, particularly if participation is a consumption good that diverts individual and institutional resources away from more productive activities (Eide and Ronan 2001; Fejgin 1994), instead of representing an investment in human capital.

The association between secular participation and socioeconomic status is well-established (Putnam 1993; Tolbert, Lyson et al. 1998; Wilson and Musick 1997; Sacerdote and Glaeser 2001), as is the association between volunteering and status (Smith 1994; Hayghe 1991; Hart, Atkins et al. 1998; Sundeen and Raskoff 2000). These studies focus on the extent to which status predicts participation, concluding that higher status individuals participate in groups and civic life more than do lower status individuals. Empirical work shows that at least some forms of participation in extracurricular or other activities are associated with educational attainment (Otto 1975; Redd, Brooks et al. 2002; Parkerson 2001; Barber, Eccles et al. 2001; Doebler 1998; Mahoney and Cairns 1997). This relationship may (Broh 2002) or may not (McNeal 1995) hold when controlling for athletic participation. Participation in non-athletic activities has also been associated with higher educational aspirations (O'Brien and Rollefson 1995) and greater academic achievement (O'Brien and Rollefson 1995), even when controlling for participation in athletics (Broh 2002). About two-thirds (68%) of college-bound high school seniors participated in two or more extracurricular activities (Owings, McMillen et al. 1995).

Participation in non-athletic activities has also been associated with lower incidence of substance abuse (Barber, Eccles et al. 2001), lower delinquency rates (even when controlling for athletic participation; Landers and Landers 1978; Holland and Andre 1987). However, at least one study suggests that participation in extracurricular or other activities does not deter teen parenthood (Doebler 1998).

Yet it is unclear whether extracurricular participation is instrumental in promoting education outcomes or if the association is the result of self-sorting. Some researchers have concluded that the association between participation and educational outcomes is spurious, both being influenced by some other pre-existing characteristic of the child (Eide and Ronan 2001; Broh 2002), such as motivation, organizational skills, curiosity, sociability, competitiveness, and ambition.

An important subset of participation activities is athletics. Many of the same students who participate in extracurricular activities also participate in athletic activities (Melnick, Vanfossen et al. 1988). Broh (2002) suggests three mechanisms through which athletic participation may foster academic achievement. First, participating in sports may instill values that promote success (such as a work ethnic, respect for authority, and perseverance). Second, success in high school sports may also provide access to a group of high achieving friends, which in turn promotes achievement. Finally, participation in sports may build human capital by promoting social ties among students, parents and schools. Other researchers have emphasized the influence of teaching athletes how to follow rules and set goals, building character, teaching participants how to operate as part of a team, increasing students' interest in and identification with school, providing an incentive to keep grades up to maintain eligibility, and providing an incentive to stay in school in the hope of being able to play in college (Loveless 2002; Eide and Ronan 2001; Snyder and Spreitzer 1990; Fredricks, Alfeld-Liro et al. 2002; Fejgin 1994; Marsh 1993; O'Brien and Rollefson 1995). Educational success associated with sports participation may also accrue from reputation; college admissions officers and potential employers may take sports participation as a signal that a teen has some

desirable qualities that will help them succeed, without seeing actual evidence that the teen possesses such qualities (Loveless 2002; Ewing 1995).

Empirical studies have found that athletic participation is associated with educational attainment (McNeal 1995), but not for all race/ethnic groups (Eide and Ronan 2001; Melnick, Sabo et al. 1992; Marsh 1993), and it has been shown that black and white students' athletic participation varies in frequency and by sport (Goldsmith 2003). Participating in sports has also been associated with academic achievement as measured by test scores (Broh 2002; Loveless 2002) and grades (Fejgin 1994), although among male athletes, results differ by race (Eitle and Eitle 2002). In some school settings, a strong emphasis on sports has been found to have a positive spillover effect on the academic achievement of some non-athletes, possibly due to a higher level of engagement and "school spirit" among non-athletes and the strong ties among teachers, administrators, coaches and parents[16] (Loveless 2002). However, at the college level, having a successful athletic program has been shown to promote the graduation rates of student athletes, especially for women athletes (Rishe 2003). Athletic participation is also associated with higher educational aspirations (Melnick, Vanfossen et al. 1988; Fejgin 1994; Marsh 1993). Other studies have questioned whether an association between athletic participation and educational outcomes exists at all when controlling for other background and contextual characteristics (Melnick, Vanfossen et al. 1988; Melnick, Sabo et al. 1992; Eitle and Eitle 2002; Eide and Ronan 2001). Participation in sports has been associated with lower rates of delinquency (Landers and Landers 1978; Melnick, Vanfossen et al. 1988; Fejgin 1994) but higher rates of drinking alcohol (Eccles and Barber 1999).

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[16] Loveless also notes that a heavy emphasis on sports in a school can be polarizing, leading to greater disengagement among students who do not share this interest. Fejgin also discusses the potentially detrimental impact of sports programs on non-participants.

V. The Role of Religious Participation

A. The Meaning of Attendance and Participation in Other Religious Activities

Attendance is a measure commonly used by researchers to indicate the individual's level of participation with a religious organization, which in turn proxies the individual's choice of extent to expose him- or herself to denominational influences.

According to a recent survey, 40 percent of adults attend worship at some point over the course of a typical weekend, and this figure has been roughly constant since the 1960s. Attendance rates are strongest in South, and weakest in West, and slightly higher among Catholics than Protestants (Gallup and Lindsay 1999).

Among adults, religious participation increases with age, education (at least up to college graduation), and income, and is higher for minorities, women, people outside of urban areas, the elderly, and families with school-aged children (Knefel, 2002; Boling 1975; McNamara and St George 1978; Sander, 2002; Sacerdote and Glaeser 2001; Shaw 2002; Barro and McCleary 2002; Barro and McCleary 2003; Gallup and Lindsay 1999). Individuals who hold more conservative beliefs or are affiliated with more conservative denominations attend at higher rates (Iannaccone 1998). Attendance rates are much higher in countries where there are many denominations[17] (Barro and McCleary 2002), suggesting that individuals who are reasonably well able to match their preferences in the religious market attend at higher rates than do others. Individuals who are physically isolated because of geographic remoteness or because of limitations on their own mobility may have less choice from a practical standpoint, and therefore may be less inclined to attend worship services. On the other hand, social

[17] By contrast, in countries with a single national church, attendance rates are relatively low.

pressure and paucity of other choices (for spending time or for accessing the benefits that are available through some religious institutions) may encourage attendance for persons living in remote areas or with mobility limitations.

American teenagers attend worship services at a higher rate than do adults. Since 1977, teen religious attendance has averaged more than 50 percent. Three out of five Protestant teens surveyed had attended services in the preceding seven days (Gallup and Lindsay 1999).

Family influence is key to the religious participation of youth. Parents' attendance at worship services is an important predictor of their children's attendance (Hoge and Petrillo 1978), although a recent survey revealed that just over two-thirds (68%) said that they attended services at their own initiative while just over one-quarter (28%) said they attended only or mostly because their parents want them to attend (Gallup and Lindsay 1999).

About half of American adolescents participate in religious youth groups, and there is a high correlation between attendance at worship services and youth group participation (Smith, Denton et al. 2002). Peer influences and leadership are important contributors to youth group participation (Hoge and Petrillo 1978). This finding suggests that the influence of a non-family member with whom a teen has a relationship can also motivate religious participation.

Religious participation of youth, both in terms of attendance at worship services and participation in youth group, declines with age. Smith, Denton et al. (2002) suggest that this may reflect "increased autonomy from the authority of religious parents; increased participation in paid jobs that may compete with religious activities for time; an expansion of available alternative social and recreational activities through increased ability to drive and access to friends who drive; and perhaps other factors," (p. 609).

B. Why Religious Participation Should Make a Difference

Section II of chapter 1 identified two theoretical frameworks that predict that religious participation should make a difference in the socioeconomic success of children. These are the human capital framework and the social capital framework.

The human capital framework predicts that religious participation should make a difference because of the investments made by religious organizations in their congregants. As a result of attending, congregants have the opportunity to develop many of the skills that they need to succeed in school and in the labor market.

Evidence to support the idea that religious participation contributes to the acquisition of specific skills is limited. Peterson (1992) found a weak but significant association between religious involvement, including involvement in group problem-solving and active decision-making, and political participation, which he attributes to a greater sense of self-efficacy that arises from participation. Similarly, Verba, Schlozman, et al. (1995) argued that the lower level of political participation among Latinos as compared to blacks could be attributed to their association with the Catholic church, which does not provide as much opportunity for its congregants to develop civic skills as do the Protestant churches. Jones-Correa and Leal (2001) disputed this finding, however, arguing that the associational benefits of attendance are more important than variations in skill-building opportunities observed at the denominational level. Djupe and Grant (2001) also disagreed with Verba, providing evidence that people bring their skills into a religious organization from their secular lives, rather than developing those skills as a result of their affiliation. Brown and Gary (1991) cited opportunities for education, skill-building, and informal opportunities for development of social skills through religious classes and seminars. Schneider (2003) emphasized the importance of learning how to act,

dress, talk, and otherwise present oneself in order to fit in as a prerequisite for success, all of which can be learned through a religious organization.

The social capital framework emphasizes the importance of access to social support, social networks, and adoption of group norms and standards. A number of studies have tied religious participation directly to enhancement of social capital, which in turn promotes success.

Social support promotes success by helping the individual to address his or her own daily logistical needs. Social support is a key benefit of church affiliation, and is an important feature of many black churches (Eng, Hatch et al. 1985).

Access to a social network can supply a conduit to success by providing access to job information (Briggs 1998) and helping the individual to develop social skills and "reaffirm self- and group-identity." (Brown, 1991; p. 413). Religious participation can make social networks more dense by providing additional opportunities for contact among neighbors (Muller and Ellison 2001) and families whose children attend the same schools, as is common among Catholics (Coleman and Hoffer 1987).

Individuals, including children, are socialized at a house of worship through social interactions, exposure to norms and standards and other activities that help form values, attitudes and behaviors (Brown, 1991). Positive role models, personal relationships with adults who have chosen to live their lives consistent with certain standards, and constructive peer pressure further encourage children to abide by group standards (Muller and Ellison 2001; Hallinan and Williams 1990; Smith 2003). Moreover, a religious organization is likely to set a normative environment that directly proscribes or indirectly discourages certain harmful behaviors (Brewster, Billy et al. 1993), thereby making such behaviors "costlier" in terms of the threat of opprobrium in the present life and loss of salvation in the next.

Numerous other mechanisms and processes through which religious participation is thought to make a difference have been identified in the literature. Rather than promoting success directly, many of these related benefits set the stage for success by eliminating obstacles and promoting well-being.

Religious participation has been associated with greater personal happiness, satisfaction, sense of well-being (Hadaway 1978; Ellison, Boardman et al. 2001), especially for black men and women (Saint George and McNamara 1984). Children of parents attending church at least weekly had fewer emotional and behavioral problems compared to those whose parents attended less frequently (Christian and Barbarin 2001). Religious participation promotes self-esteem (Brown 1991; Sojourner and Kushner 1997; Ellison 1993; although Vaughn 1998 questions this connection), self-worth (Cook 2000; Hadaway and Roof 1978, self-concept[18] (Sojourner and Kushner 1997; Brown 1991), and the formation of moral identity[19] (Hart, Atkins et al. 1998). Religious participation also equips congregants with the resources needed to cope with difficult times and manage their responsibilities (Brown 1991; Steward and Jo 1998; Britt 1995; Waters, Heath et al. 1995; Bailey 2001; Smith 2003; literature review in Feinman 2001; Bailey 2001)[20], and provides meaning for the participant's life and activities by offering a way to understand life events and circumstances, as well as a framework for interpreting the world (Kelley 1986; Youniss, McLellan et al. 1999).

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[18] Sojourner defines self-concept as "the set of ideas [that people hold] about themselves – what they can and cannot do, how they look and feel, how they compare to others," p. 5. Positive self-concept is expected to promote some measures of success.

[19] Hart defines moral identity as "commitment consistent with one's sense of self to lines of action to promote or protect the welfare of others" (p. 515).

[20] A greater ability to cope has been associated with greater academic achievement among black teens (Steward and Jo 1998).

Studies have shown that religious participation and engagement in various religious activities also contribute to better health outcomes (Najman, Williams et al. 1988; Eng, Hatch et al. 1985) and increased longevity (Hummer 1999). Some of this effect may be attributable to "clean living" practiced predominantly by members of more conservative denominations. Mormons, Seventh-Day Adventists and similar groups proscribe the use of alcohol, drugs, tobacco (Iannaccone 1998) and caffeine, in some cases.

Religious participation can support parenting efforts by instilling the "right" attitudes and behaviors, conveying parents' culture and beliefs, and encouraging their children to engage in a wholesome activity. Parents may take their children to worship services specifically as a means of conveying culture, including beliefs and socialization[21], (Dijkstra and Peschar 1996).

Religious participation has been associated with adoption of prosocial behaviors and altruism (Bridges and Moore 2002; Werner and Smith 1992; Youniss, McLellan et al. 1999; King 2001); prosocial behavior has been associated with lower substance use, higher self-esteem, greater likelihood of college graduation (Barber, Eccles et al. 2001), and improved academic achievement and educational attainment (Eccles and Barber 1999). Some of this effect can be attributed to greater opportunities to do volunteer work (Bridges and Moore 2002). Volunteering is generally associated with organizational involvement, such as schools and religious institutions. The majority of volunteer work is performed through a religious organization (Hayghe 1991), and teens who attend worship services are more likely to find out about volunteer opportunities, and are more likely to undertake volunteer activities[22] (Sundeen

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[21] Religious socialization is the "process by which an individual learns and internalizes attitudes, values, and behaviors within the context of a religious system of beliefs and practices," (Brown, 1991; p. 412).

[22] Teens who are non-Hispanic white, who have high grade-point averages, whose parents volunteer and enjoy high occupational status, and whose school encourages community service are also more likely to volunteer. Most teens find out about volunteer opportunities through peers (Sundeen and Raskoff, 2000).

and Raskoff 2000; Greeley 1997). Religious organizations facilitate volunteering by providing information, logistical support, contacts, meeting space, and transportation. (Wilson and Musick 1997; Hayghe 1991). Because religious organizations typically recruit volunteers by emphasizing the religious meaning behind the activity, volunteering can help teens to develop a sense of identity[23] (Youniss, McLellan et al. 1999).

1. Empirical Results

A number of studies have explored the role of religion and religious participation in educational attainment, labor market outcomes, and aggregate income. The vast majority of these studies utilize cross-sectional data gleaned from surveys to examine the contemporaneous impact of either denomination or attendance on outcomes. A few of these studies ask adult respondents to describe their religious upbringing retrospectively, usually in terms of denomination. Even fewer are longitudinal studies that focus on the role of religious participation during childhood in promoting adult outcomes.

Evidence is mixed on the contribution of attendance at worship services to education outcomes. Attendance at worship services has been found to contribute to total years of schooling (Loury 1997), high school completion (Coleman and Hoffer 1987) college enrollment (Eccles and Barber 1999), achievement test scores (Coleman and Hoffer 1987; Regnerus 2000), and higher grades (Eccles and Barber 1999), although various measures of family and community social capital partially mediate the relationship (Muller and Ellison 2001). Yet one study that controls for a wide range of personal, family, and neighborhood

[23] Identity formation has to do with understanding one's role in society and relationship to others. Religious-sponsored service activity helps this process along because participants are likely to adopt the religious meaning that is attached to the activity, and use the experience to help them develop their own framework for interpreting the world (Youniss, 1999).

background characteristics, found that attendance at worship services during childhood does not contribute significantly to either high school graduation outcome or total years of educational attainment (Haveman and Wolfe 1994). Another study found that when controlling for secular forms of participation, religious attendance does not contribute to educational attainment for disadvantaged, rural girls (Doebler 1998).

As discussed above, attendance contributes to social capital. In turn, various forms of social capital have been associated with improved educational outcomes (Parcel and Dufur 2001; Teachman, Paasch et al. 1997), although at least one study disputes that there is a connection (Averett 2001).

Cook (2000) undertook a series of interviews with thirty-two at-risk Boston teenagers. Several of the church-aligned teens had mentors in the church, or had received guidance in the church, a form of assistance that was largely unavailable through other sources to the non-church-aligned teens. Other benefits of participation mentioned by the teens included building the teen's own capacity to self-regulate, providing a standard for right and wrong, providing a community, providing "something to do," and enhancing the teen's sense of self-worth. Cook's study noted that the church-aligned teens were more likely to be working.

Religious participation can be expected to help teens avoid the primary obstacles to success of teen parenthood, delinquency, and substance abuse. There is evidence that teens who attend worship services are more likely to avoid teen parenthood (Tomal 1999; Ribar 1994) and premarital sex, especially among members of sects (Beck, Cole et al. 1991)[24]. Teens who attend worship services are less likely to use or abuse alcohol and drugs (Johnson, Larson et al. 2000; Richard, Bell et al. 2000; Feinman 2001, including literature review),

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[24] See also literature review in Beck, 1991.

especially among denominations that explicitly discourage drinking (Goetz 1994)[25]. Religious participation deters criminality, delinquency, and other risky behaviors (Langehough, Walters et al. 1997; Muller and Ellison 2001; literature review in Feinman 2001; literature review in Tittle and Welch 1983) by contributing to social organization and the individual's resilience (Johnson, Larson et al. 2000). Parents' religious participation has been associated with fewer behavioral problems among their children (Christian and Barbarin 2001). As discussed in section IV of this chapter, teen parenthood, delinquency and substance abuse can all limit a child's prospects for success.

None of these studies make a distinction that could be important in understanding the role of religious participation. What is the difference in impact among individuals and families that participate in order to receive whatever benefits and those that participate out of some other, perhaps more belief-centered motivation? Understanding the extent to which people purposefully seek a treatment in order to receive a particular benefit, as opposed to receiving that benefit incidentally while in pursuit of some other benefit, could provide insight into how the treatment works and how people might be drawn to receive it.

It may not be possible to credibly operationalize such a distinction, for several reasons. First, a mix of motives is likely operative; people participate in religious organizations in pursuit of many benefits, not just one. Second, those motives could fluctuate with ever-changing circumstances and conditions that the family faces. Third, parents may or may not be able to identify the specific benefits that they expect to receive. It seems likely that parents involve themselves and their families in religious organizations because they perceive that it's "good for" them and their children, broadly. The implication for this study is that in general,

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[25] The literature review in Goetz, however, presents mixed evidence on the role of religious participation.

individuals and families do not participate in religious organizations for the sole purpose of promoting the children's educational prospects[26]. Rather, improvements to educational outcomes and other related outcomes are assumed to be incidental to religious participation.

C. Other Characteristics Related to Religion

1. Denomination

Membership figures for the various denominations represented in the United States have proven to be elusive. Denominations have different standards for membership, and individual religious organizations with loose or no affiliation with a national organization are notoriously difficult to identify, much less enumerate. Therefore denominational membership figures are a rough estimate, at best, of religious affiliation.

The largest individual denomination is the Catholic Church, representing about one-quarter of the population. Approximately sixty percent of the population counts itself as affiliated with one of the Protestant churches. Baptists, although not members of a single denomination, represent the largest Protestant affiliation at 18 percent. One in eleven Americans (9 percent) is Methodist. The other mainline Protestant denominations, including Presbyterian, Episcopalian, Lutheran, Pentecostal, and Church of Christ each comprise less than 5 percent of the population. Since the late 1960s, mainline denominations have been shrinking, while the Catholic church has held steady. Combined, the Orthodox, Mormon, Jewish, Muslim, Hindu, and other smaller faiths comprise about 5 percent of the population. Protestants are predominant in the South and among the older population, while Catholicism

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[26] Exceptions to this principle are not hard to conjure. For instance, an entrepreneur might participate in order to generate business opportunities, a newcomer to an area might participate in order to tap into a social network that could lead to employment, a family might participate in order to improve their children's chances of enrolling in a high-quality school that is associated with the religious institution.

is more prevalent in the East (40%) (Gallup and Lindsay 1999; National Opinion Research Center 2000).

Some of the benefits of denominational affiliation can be attributed to advantages (or disadvantages) associated with group membership and identification. For instance, members of certain denominations may get priority to higher quality or more affordable private schools (Tomes 1985). Denominational membership can also provide useful connections (Tomes 1984; Wuthnow 2002). The role of discrimination must also be considered[27], in which employers fail to hire, retain or promote adherents of a particular denomination, based on his or her misgivings related to that denomination or religion in general. Employers may block employees' efforts to observe the Sabbath and religious holidays, or otherwise conduct themselves in a manner consistent with their faiths[28]. On the other hand, in the hiring process, employers could be favorably predisposed towards certain denominations, or could take religiosity in general as a signal that the individual is more likely to possess skills that are valued in the work place, such as honesty, diligence, and reliability (Tomes 1985[29]).

It has been noted that religious attendance promotes the adoption of values that may help the individual to succeed. Yet the values promoted by individual denominations differ widely and may be the source of some variation in individuals' success across denominations, particularly for women. These processes suggest that denomination is transformative to the

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[27] Greeley, 1976 allows that discrimination might be a factor in the different intergenerational transmission of status among denominations, while noting that it is nearly impossible to sort out the effects of discrimination from internal cultural pressures.

[28] Between 1964, when Title VII of the Civil Rights Act was passed, and 1984, more than 40,000 complaints of religious discrimination had been filed with the U.S. Equal Employment Opportunity Commission, with an increasing number each year. Decisions most often were filed by individuals attempting to observe the Sabbath. Other issues of accommodation included refusal to pay union dues on religious grounds, appearance and clothing (such as turbans and yarmulkes), and not working on religious holidays, (Beckley and Burstein 1994).

[29] Barro, 2002 predicts an association between religion and aggregate growth on the national level if the dominant denomination promotes honesty and trust.

individual. For instance, denominations differ in their posture towards the accumulation of material wealth (Barro 2002), which in turn influences the individual's drive to pursue education and succeed in the labor market. More broadly, the "value and achievement orientations [of society] are differentially accepted and thus socialized by religious groups" (Mueller, 1980; p 141)[30], again suggesting systematic variation in adherents' predispositions towards the importance of education and labor market success.

Denominations also vary in their acceptance of and rules governing divorce. Studies dating to the 1960s found that Catholic marriages were less likely to end in divorce than marriages among Protestants, but studies using more recent data do not confirm this differential. Other recent studies have established that Mormons enjoy exceptionally stable marriages, while the unaffiliated have exceptionally high divorce rates. Also, marriages among couples of the same denomination are more stable than "mixed" marriages (Lehrer 1996). The family's denomination can have an indirect influence on children's outcomes by contributing to the persistence of the parents' marriage. As described elsewhere in this chapter, growing up in a single-parent household is associated with lower levels of educational attainment, although this effect may be in part or in whole attributable to differences in family income levels.

On the other hand, denominational differences may be incidental to (that is, merely correlated with) other characteristics of the child and family that influence the prospects for children. Many of these studies emphasize the ways in which denominations gather

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[30] According to Mueller, Hofstadter 1962 (1962),Bressler and Westoff 1963 (1963), and Lenski 1961 (1961) blame the lower socioeconomic status of Catholics to "the 'narrowness' of Catholicism (such as traditional orientation to work and valuing obedience above autonomy)," while Steinberg (1974) credits the higher socioeconomic status of Jews on Jewish "'intellectualism' and positive orientation toward educational achievement," (p 141).

likeminded people and people of similar socioeconomic and other characteristics. A number of studies have examined differences by denomination on the grounds that religious background is a marker for other cultural and ethnic characteristics of the family that could influence children's life chances. That denomination is significant for outcomes after controlling for a wide range of characteristics and circumstances lends credence to the notion that denomination "reflects substantive differences in abilities, opportunities, goals, values, or family culture" (Tomes 1983).

Denomination may also be one aspect of cultural and ethnic identity, closely tied to national or ancestral origin. Tomes (1984) suggests that denominational differences account for systematic variation in certain goals and skills that may influence occupational choice. Greeley (1976) contends that the lower occupational status of Catholics despite their relatively high educational attainment is a part of their ethnic identity. "Catholics may settle for lower prestige but higher income occupations precisely because income is more important than prestige to those who still have the immigrant memory," (p. 58). Stryker (1981) also provides evidence that denominational effects differ by country of origin (see also literature review in Barro and McCleary 2002). Researchers have also taken denomination as an indication of the resources available to the child, mainly through the cumulative advantages that each successive generation of parents were able to convey to their children (Tomes, 1984; Steinberg, 1974).

Researchers have also attributed differences to the tendency of certain immigrant groups to settle in areas that tend to have higher levels of educational attainment (Greeley 1976; Tomes 1983). In particular, Steinberg (1974) argues that a culturally based predisposition among Jewish immigrants to value education and success in the labor market contributed to

their attraction to cities in the eastern U.S. where there were superior opportunities to attain these outcomes. Variations in labor market success could be attributable to differences in returns to education (Tomes 1985; Meng and Sentance 1984), and differences in investments in schooling (Chiswick 1983; Tomes 1983; Chiswick 1985).

Empirical studies on educational differences by denomination generally agree that all else being equal, Jews attain higher levels of education than do other religious groups, although the relative standing of Catholics and individual Protestant denominations along this dimension has been the subject of debate (Greeley 1976; Tomes, 1983, 1984, 1985; Mueller 1980; Najmi 1969; Hirschman and Falcon 1985; Sander 1992). In a longitudinal study, Haveman, Wolfe et al. (1990) finds that growing up in a family with some religious affiliation contributes to completion of high school. Some of these studies employ very few control variables, and none of them include measures of attendance.

2. *Importance of Religion / Religiosity*

According to a recent survey (Gallup and Lindsay 1999), three-fifths of Americans reported that religion was "very important" to them, including two-thirds of women, 85 percent of blacks, three-fourths of Hispanics, and two-thirds of adults age 50 to 64 (with even higher percentages reported for older adults). The importance of religion is also reported highest among the conservative and fundamentalist Protestants.

Attendance is an imperfect measure of the intensity or nature of an individual's faith or, more importantly, the quality of involvement with the organization and its members. For this reason, some studies have examined the role of religious socialization, which Brown (1991) defines as the "process by which an individual learns and internalizes attitudes, values, and behaviors within the context of a religious system of beliefs and practices." (p. 412). These

studies draw on self-reported measures of the importance of religion and the role that religious principles and association play in the life of the individual. For instance, a sample of black adults under the age of 46 was asked whether religious ideas helped them to understand their own lives, whether they perceive that their religious participation helped them to get ahead, and whether the beliefs instilled in them as children still helped them. The strength of positive responses to these questions was found to be positively related to higher educational attainment (Brown and Gary 1991).

Further evidence on the role of religious socialization, religiosity and importance of religion is mixed. A study of successful black female college students revealed the importance they placed on involvement with a house of worship (Hrabowski 2002). In other qualitative studies, informants often cited their involvement with a house of worship as a critical factor in their professional success because it offset difficulties in life and helped them to deal with various life struggles (Harrington and Boardman 1997; Bailey 2001). Yet religious socialization has not been found to contribute to achievement in math and reading (Sojourner and Kushner 1997).

VI. Religious Participation Should Be Treated as an Endogenous Variable

A. Numerous Factors Influence Religious Participation

As noted in chapter 1, several studies acknowledge that the possible endogeneity of religious participation should be explored (Sander 2002; Freeman, 1986; Azzi and Ehrenberg 1975; Iannaccone 1998; Haveman, Wolfe et al. 1990; Guiso, Sapienza et al. 2002).

The previous section established that religious participation has been shown to increase with age, education (at least up to college graduation), and income, and is higher for

minorities, women, people outside of urban areas, the elderly, and families with school-aged children (Knefel, 2002; Boling 1975; McNamara and St George 1978; Sander, 2002; Sacerdote and Glaeser 2001; Shaw 2002; Barro and McCleary 2002; Barro and McCleary 2003; Gallup and Lindsay). Attendance is also higher among the more conservative denominations (Iannaccone 1998), and in geographic areas where there is greater choice of denominations (Barro and McCleary 2002).

Sociologists and economists have suggested many reasons or motivations that inspire people to attend worship services[31]. Many of these motivating factors can be observed, measured, and incorporated into a model that aims to explain religious participation, while others can not.

One impetus for religious participation is the salvation motive (Azzi and Ehrenberg 1975). Participation in religious activities can be viewed as an investment in "afterlife consumption," with greater benefits accruing from greater investments of time. Sacerdote and Glaeser (2001) suggest that this motivation is strongest among the least educated individuals, which is why they attend worship services at higher rates than more highly educated individuals. Iannaccone (1994) suggests that stricter churches compel members to attend under threat of damnation. People who join stricter churches typically have the least to lose by cutting themselves off from the mainstream (such as people who are less successful in the labor market), and may have friends or family already associated.

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[31] The literature does not distinguish between the ongoing decision to continue to attend worship services and the decision to make the transition from non-attendance to attendance. Given the techniques that religious institutions typical use to attract new worshipers (being invited by a friend, door-to-door proselytizing, handbills, direct mailing, etc.) it seems likely that a separate set of factors play a role in the latter, possibly some combination of the individual's receptivity to the suggestion and serendipity at having been asked.

Second, a consumption motive arises from the enjoyment associated with engaging in religious activities (Azzi and Ehrenberg 1975). An individual benefits from his or her own participation in the service, and also from the presence of others, their singing, their devotion to praying, and other activities that can inspire and reassure the individual (Iannaccone, 1994). A conventional economic interpretation of these factors is as preferences that shape an individual's indifference curve between religious and non-religious consumption, where people consume bundles of religious and other goods in such a way that maximizes their own utility. Iannaccone (1990) argues that underlying preferences evolve from one's stock of "religious human capital," which he describes as familiarity with religious practices, theology, and personal relationships with fellow congregants. Religious consumption may vary with the availability and appeal of non-religious consumption opportunities, which in turn would vary with an individual's circumstances.

Economic analysis also conceives of the decision to attend worship services in terms of a tradeoff with other ways to spend time. Individuals who have a relatively low value of time, for whom the opportunity costs (that is, the "cost" associated with foregoing the next best alternative way that an individual might want to spend time) of engaging in religious activities are relatively low, attend more often. This group includes the young and the old because they do not work, and people who live outside of urban areas where there are few alternative activities on a Sunday morning (Barro 2002). Higher rates of attendance have been interpreted as the result of having relatively low value of time so that the opportunity costs of going to worship services are relatively low. Higher rates of attendance among women and black workers reflect their lower earnings in the labor market relative to men and white workers (Azzi and Ehrenburg 1975).

Time use, as well as exposure to the "right" values and behaviors, can motivate parents to expose their children to religious activities. By providing something for their children to do and some place for them to be, parents may be able to prevent their children from finding less salutary ways of occupying their time. As the child moves through the teen years and becomes exposed to various influences, parents' interest in exposing their children to the positive influence of religious participation is likely to change. At some point, teens themselves may take the initiative to continue the relationship with a religious organization as a way of keeping themselves out of trouble.

Community norms may motivate an individual to associate with a house of worship as a route to greater success in business or political pursuits (Azzi and Ehrenberg 1975). This motivation is not necessarily limited to high status individuals. Lower status individuals may use their association "as an aid in [their own] status ascendance," (Boling 1975, p 77). Wuthnow (2002) suggests that this process is evidence of social capital. "If social capital consists of interpersonal networks that help people attain their goals, then religious involvement may be one source of such networks and, in particular, congregations may be one of the places participants can meet influential people in their communities, or at least interact with other congregants who know such people," (p. 669). Additional studies have explored religious organizations as repositories of social capital, (King 2001; Greeley 1997). Differences in availability of access to social capital and shifting preference for such access could influence an individual's attendance decisions. Another study suggests that community orientation and espousal of traditional values are key predictors of religious participation (Roof and Hoge 1980), suggesting that values precede religious participation, rather than religious participation shaping values.

Other motivations to attend are directly related to the benefits that a congregant can expect to enjoy from association. Chapter 2 described the various ways that religious participation is thought to help individuals and families. A person may be motivated to attend worship services in whole or in part with the intention of accessing these benefits, while other benefits are incidental. Preferences for these benefits are certain to vary across individuals and within individuals across time. This source of heterogeneity is one way to understand the different participation decisions of individuals.

Some researchers have suggested that people who are objectively worse off will tend to be more involved in a religious organization because religion buffers their suffering (McNamara and St George 1978; Boling 1975). Some religious organizations, such as the black church, make social support part of their mission (Billingsley and Caldwell 1991; Greenberg 1998; Chaves and Higgins 1992[32]). Iannaccone (1988) suggests that sects tend to the needs of their predominantly lower status members (mainly lower income, young, minority and female) as a quid pro quo. "Because the sect demands the rejection of society (and with it the loss of many secular commodities), it must provide an alternative society of its own. It cannot merely exhort its members to sell all they have; it must also provide them with everything they need" (p 259). Sects tend to attract lower status members precisely because they focus on the material needs of their members, providing "such mundane commodities as status, friendship, food and shelter," (s260). These rationales suggest both that long-term deprivation may promote long-term religious commitment, and that loss of status may lead to a rise in participation.

Associating with a religious organization may simply be a manifestation of joining behavior. Individuals with more education tend to associate themselves with organizations

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[32] See also literature review in Chaves and Higgins, 1992.

more often, and participating with a religious organization is one example of that behavior. Kelley (1986) contends that secular organizations offer all of the same benefits that religious organizations do, often more effectively, except for the pursuit of salvation. Glaeser and Sacerdote (2002) suggests that more educated people may be more interested in making social capital investments, may be better "socially trained," may realize higher returns to social interaction, may be wealthier and more able to consume social interaction. This explains why better educated people join organizations more often, including religious organizations[33]. Wilson (1997) argues that underprivileged blacks participate less in institutions because the institutions (importantly, except for the churches) have left the inner city. All of these factors contribute to the likelihood that an individual will join any organization, religious or not.

Finally, people may also attend worship services and engage in related religious activities for the sake of developing relationships with other people with whom they have something in common. Whether friends attend church is a significant albeit weak predictor of an individual's attendance decision (Sacerdote and Glaeser 2001).

B. These Same Factors May Influence Outcomes

Many of these factors that influence religious participation may also influence or closely approximate other factors that influence young adult outcomes.

As noted above, certain personal circumstances and characteristics, such as income, education, age, and family status, are associated with higher levels of religious participation.

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[33] Earlier, it was noted that lower status individuals attend services more often, while it is noted here that higher status individuals join religious organizations more often. Sacerdote and Glaeser (2001) argue this apparent anomaly arises from the fact that more educated people self-sort into denominations that do not make great demands on adherents to attend worship services.

Previous sections of this chapter describe findings in other studies that relate these variables and many others to children's outcomes.

Among the motivations for religious participation described above, future orientation may encourage parents and children to take steps to ensure their well-being and success in later years, rather than focusing on the present. On the other hand, promise of rewards in the afterlife may lead some to undervalue material success in this life. Preference for religious "consumption" and time devoted to religious activities may discourage or displace detrimental forms of consumption and time use, which in turn could hamper success. Social relationships can provide valuable contacts as well as pressure to comply with prosocial norms and standards, which can contribute to success. Social support can help to move a family beyond subsistence and allow parents to shift their focus from meeting daily needs to helping their children to thrive. Religious participation also carries some "signaling" value, so that adults or others in a position to decide whether to give a teen some opportunity may be positively influenced by the teen's choice of association.

There are many other traits that are difficult or impossible to quantify that could motivate religious participation and promote outcomes, such as motivation, initiative, concern for the child's well-being, follow-through, and self-control. Family attendance at worship services may reflect a higher level of parental involvement in the lives of their children, a greater predisposition to look outside the family for positive influences on the development of their children, and/or a stronger desire to find ways to occupy children's time. As noted several times throughout this chapter, many of these traits are not adequately addressed in the modeling process. Rather than abandoning the modeling process, however, the analyst must acknowledge the omission of these factors when interpreting the results.

VII. Summary and Shortcomings of Extant Literature

The extensive literature on the role of family, individual and contextual characteristics provides notable evidence that many dimensions of a child's background can contribute to or diminish their chances for success in early adulthood. Apparent contradictions among some studies result from variations in model specification and methodology, but nonetheless contribute to a broad understanding of the dynamics at work in the lives of children, as well as the interrelatedness of many of the conditions and circumstances under study.

The literature on the role of religious participation in educational outcomes provides some evidence that at least some forms of participation are associated with success. However, these studies give an incomplete picture in a number of ways.

First, most of the studies are cross-sectional, which study the impact of religious participation on contemporaneous outcomes, rather than religious participation as a background characteristic.

Related, very few of these studies control for religiosity, or identification of self as religious. Controlling for religiosity is necessary in order to distinguish between the role of believing in a higher power and the particulars of one's faith, as opposed to the associational benefits of being involved in a (religious) organization.

In addition, none of these studies controls for participation in non-religious groups and organizations. Including this variable would allow the researcher to distinguish between the effects of participation in non-worship religious activities and participation in general. Some of these studies control for very little of the child's background.

Finally, only one study is known to account for the endogeneity of religious participation at the individual level[34], although several acknowledge that this issue should be explored (Sander 2002; Freeman, 1986; Azzi and Ehrenberg 1975; Iannaccone 1998; Haveman, Wolfe et al. 1990; Guiso, Sapienza et al. 2002).

The present study addresses each of these deficiencies in the literature by using a longitudinal data set that describes worship service attendance habits during 8th grade and high school, other forms of participation and religiosity, and most importantly, models religious participation as an endogenous variable.

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[34] Sander (2002) tests the commonly held view that individuals who are better educated are more likely to participation in religious organizations. He used two-stage least squares to model the reciprocal relationship between educational attainment and religious activity. He concluded that although education is positively associated with religious participation, it is not found to have causal power with respect to religious participation when it is treated as endogenous. At the aggregate level, Waters, Heath, et al, 1995 treats choice of religion and religious practices as jointly determined with income. This study makes the case that choice of religion influences socioeconomic status, and socioeconomic status is an important predictor of several aspects of religious practice.

Outside of this literature, McKenzie 2001 wrote a two-equation model to account for the endogeneity of religious attendance in a study to predict political participation. The study concluded that religious attendance does not contribute to local board meeting participation.

Chapter 3. RESEARCH METHODOLOGY

This study addresses several objectives related to understanding the role of religious participation in educational success. The first objective is to find out whether and what type of religious participation during high school, controlling for other variables, contributes to educational success. Next, this study attempts to shed light on whether any advantage of religious participation persists even when controlling for "secular" participation. Finally, analysis aims to establish whether the effect differs for disadvantaged persons or for persons living in neighborhoods of concentrated disadvantage. This chapter describes the operationalization of these questions.

I. Establishing Causality

The central claim of this study is that the observed relationship between religious participation and outcomes is evidence of the transformative power of religious participation, giving teens the resources and the motivation they need to thrive. The alternative is that some other characteristic of the teen or teen's family provides the wherewithal to succeed and the observed relationship between religious participation and outcomes is spurious. In this latter scenario, teens that are on a path to success, for whatever reason, may be more likely to participate in religious organizations, and that participation does nothing to promote or

diminish the likelihood of success. The possibility of spurious association threatens the validity of study findings.

This study aims to provide evidence that religious participation has a *causal* relationship with educational outcomes. Three criteria must be met to establish causation between two variables, X and Y (Selltiz 1959). First, X and Y must be significantly correlated. Second, X must precede Y. Finally, other possible causal factors must be ruled out, in order to establish that the relationship observed between X and Y is not spurious.

Establishing correlation is a straightforward process; bivariate associations between each of the outcomes and the explanatory variables are presented in chapter 5. Establishing precedence is also relatively straightforward because the researcher can observe the teen's religious participation in years prior to the outcomes. In this study, various dimensions of religious participation are observed during 8th grade and high school (including dropouts), and outcomes are observed at the end of high school and during young adulthood. Nonspuriousness is a much more difficult criterion to meet.

Iannaccone (1998) acknowledges that the relationship between religion and positive outcomes may be spurious. Some underlying characteristic may motivate both church-going and positive outcomes; "good" kids may avoid harmful and risky behaviors and also attend worship services. An experimental setting in which the "treatment" of religious participation is applied to a randomly selected group of teenagers and then outcomes compared to a randomly selected group of teenagers who did not receive the treatment would shed light on the direction of causality (Freeman, 1986). As discussed above, however, this procedure is not feasible.

Nonetheless, there are reasons to believe that religion is causal. First, theory supports the claim that religious participation is influential in educational outcomes. Section II of Chapter 1 describes how the human capital and social capital frameworks support the claim that religious participation plays a causal role in these outcomes. This section also identifies the mechanisms through which religious participation is thought to influence preconditions (or intermediate outcomes) which in turn promote educational success.

Second, although causality can never be proven, rival hypotheses can be ruled out (Asher 1976). Each control variable introduced into the model represents a rival hypothesis that rather than X causing Y, it is actually control variable Z that causes Y. Specifically, a model including variables $Z_1, Z_2, \ldots Z_n$ implicitly tests the competing hypotheses that each of these variables is the true causal variable. If X, religious participation, remains significant as control variables are added to the model, then we cannot conclude that X is *not* causative[35]. The research questions explore several key alternative hypotheses, adding other variables that could have true causal effect on educational outcomes.

II. Endogeneity

Prior to examining the three primary research questions, analysis explores whether religious participation should be treated as an endogenous variable.

A. Analytical Approach

If religious participation as a treatment could be randomly applied, then the researcher could set up an experiment in which two random samples of individuals were chosen. One

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[35] More formally, the null hypothesis is that religious participation is not causal, $\beta_{RP} = 0$. A t-test reveals whether we can reject the null or fail to reject the null. In the latter case, we can only conclude that we cannot determine that religious participation is *not* causative. We cannot accept the alternative hypothesis, that religious participation is causative.

group would receive the treatment of engaging in religious activities, while a control group would not. Random assignment would virtually ensure that there are no systematic differences between the groups, as well as ensure that every individual in the experiment would have the same chance of being "treated." However, it is not possible to conduct such an experiment. The United States has a long tradition and legal framework establishing self-determination with respect to worship practices and religious association. Intrusion of a third party such as a researcher is not possible. For this reason, analysis must rely on multivariate analysis.

Analysis performed for this study focuses on sorting out the role of religious participation from the concurrent effects of myriad other circumstances that the child faces. To do this, the model must include a wide range of variables that contribute to the outcome in question. Hence, included in this study are a wide range of family attributes, parental background variables, school and neighborhood characteristics, and personal traits of the child.

The standard approach to multivariate analysis is the use of ordinary least square (OLS) regression. The Gauss-Markov theorem predicts that OLS will produce the best (as in most efficient) linear unbiased estimators having minimum variance among all linear unbiased estimators, as long as certain assumptions are met (Pindyck and Rubinfeld 1998).

1. Heterogeneity

OLS may not be the appropriate technique to model the relationship between religious participation and young adult outcomes because religious participation is not randomly distributed across individuals. An underlying claim explored in this research question is that religious participation varies systematically across individuals and changes over time in response to a number of circumstances and factors in an individual's life, some of which are observable and measurable, some of which are not. Failure to account for this endogeneity

could result in misestimation of the influence of religious participation on outcomes, to the extent that excluded variables are associated both with religious participation and outcomes.

The potential endogeneity of religious participation can be understood as arising from self-selection. Individuals decide for themselves whether, where, when, and how often to participate, based on a variety of factors related to compatibility with their own values, needs and preferences. As a result, there may be a systematic difference between people who expose themselves to the "treatment" of religious participation and those who do not. Multivariate regression allows the researcher to control potentially for much of the difference between individuals who attend religious services and those who do not, but it is inevitable that some unmeasured systematic difference would remain unaccounted for.

In this sense, self-selection can be conceptualized as a problem of omitted variables (Galster 2001). When a variable is left out of the model, coefficients will be *biased* upward (or downward) to the extent that the omitted variable is positively (or negatively) and significantly correlated with any of the included variables[36]. Coefficients will be *inconsistent* because the bias is not resolved as the sample size increases. An estimate of the variance will be biased, rendering t-statistics unreliable (Greene 2000). An obvious remedy for omitted variable bias is to include the omitted variable in the model. However, this is not possible when the omitted variable is unobservable or unmeasurable.

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[36] The literature also suggests that at least some forms of religious participation influence socioeconomic status, suggesting the possibility that that these two variables are jointly, simultaneously determined. The question of interest in this study, though, is how *prior* religious participation influences outcomes, rendering moot the relationship between contemporaneous religious participation and young adult outcomes.

2. *Numerous Factors Influence Religious Participation*

As noted in chapter 1, several studies acknowledge that the possible endogeneity of religious participation should be explored (Sander 2002; Freeman, 1986; Azzi and Ehrenberg 1975; Iannaccone 1998; Haveman, Wolfe et al. 1990; Guiso, Sapienza et al. 2002). The premise underlying the second research question is that religious participation varies systematically across individuals and changes over time in response to a number of circumstances and factors in an individual's life, some of which are observable and measurable, some of which are not. The literature on the determinants of religious participation supports the case that religious participation should be treated as an endogenous variable. That literature is summarized in chapter 2.

3. *Simultaneity?*

The argument has been made that religious participation is endogenous, subject to the influence of other characteristics and circumstances of the child's or family's life. The case could also be made, and has been made in numerous other studies (see, for example, Regnerus 2003) that the reverse is true, that religious participation influences many of the characteristics, circumstances, and events of the child's and family's lives. If this is the case, then why not model religious participation as simultaneously determined with other endogenous variables, rather than simply exploring the influence of certain variables on religious participation?

A study addressing the larger question of which background factors, including religious participation, are important to ensuring a child's success as an adult, after controlling for the mutual influences of these factors on one another, would be a logical extension of the current research project. However, such study would be premature at this point. First, religious participation must be shown to make a significant contribution to success when controlling for

a wide range of background characteristics. Second, evidence must be provided that religious participation is an endogenous variable and that accounting for this endogeneity alters coefficient estimates. The present study addresses both of these issues.

It must be noted, though, that neglecting the possible impact of religious participation on other background characteristics, as well as the simultaneous impact of these other variables on each other, is likely to result in biased coefficient estimates associated with these other variables. Therefore interpretation of results must recognize that the relationship between background characteristics (other than religious participation) and outcomes may be misestimated.

B. Modeling Procedure

There are three steps to exploring whether religious participation should be treated as an endogenous variable. The first step is to run baseline regressions to uncover the pairs of religious participation variables and outcomes that are associated when religious participation is treated as an exogenous variable. The second step is to determine whether coefficients estimated through OLS are consistent. The third step is to determine whether instruments used to make this determination are valid.

1. Baseline Model

The baseline model regresses each outcome separately on individual, family, and contextual variables, as well as dummy variables indicating attendance at worship services ever during the preceding year in 1990 (ATTEVR90) or 1992 (ATTEVR92) and participation in non-worship religious activities in 1988 (RELACT88), 1990 (RELACT90), or 1992 (RELACT92). A significant coefficient on any of these variables is interpreted to mean that engaging in that form of religious participation, controlling for a wide range of family,

individual and contextual background variables, is associated with the outcome when religious participation is treated as an *exogenous* variable.

Model

$$\begin{pmatrix} \text{EDYRS} \\ \text{ONTIME} \\ \text{HSGRAD} \end{pmatrix} = \alpha + \begin{pmatrix} \beta_1 * \text{ATTEVR90} \\ \beta_2 * \text{ATTEVR92} \\ \beta_3 * \text{RELACT88} \\ \beta_4 * \text{RELACT90} \\ \beta_5 * \text{RELACT92} \end{pmatrix} + \begin{pmatrix} \gamma_1 * \text{FINTCT88} \\ \gamma_2 * \text{FINTCT90} \\ \ldots \\ \gamma_{j-1} * \text{WK88} \\ \gamma_j * \text{WK92} \end{pmatrix} + \varepsilon$$

<1> **OUTCOMES** = $\alpha +$ $\beta *$ **RP** + $\gamma *$ **X** $+ \varepsilon$

Hypothesis

H_0: $\beta_1 = 0$; $\beta_2 = 0$; $\beta_3 = 0$; $\beta_4 = 0$; $\beta_5 = 0$

H_A: β_1, β_2, β_3, β_4, β_5 not all = 0

2. *Test for Consistency*

The procedure for determining whether coefficients estimated in the baseline model are consistent is to test the significance of the residuals. The implicit null hypothesis is that OLS would yield consistent estimates. The alternative hypothesis is that religious participation is an endogenous variable, the effect of that endogeneity is meaningful, and IV should be employed to get consistent estimates.

The test proceeds as follows, separately for each religious participation variable that was found to be significant with respect to a particular outcome[37]. In the first stage, each of the religious participation variables is regressed separately on exogenous explanatory variables in the system[38]. A variable is created that contains the residuals from this model. The residuals are then incorporated into equations estimating outcomes. A significant coefficient on the residuals variable is interpreted to mean that the residuals vary systematically with the outcome, and the religious participation variable is endogenous. [39] If any of the religious participation variables is found to be endogenous, then IV estimation is indicated.

Four instruments are explored. The first two instruments are the voter participation rate by county and voter registration rate by county for 1992[40]. Several studies have established that religious attendance is associated with voting (Milbrath and Goel 1977; Macaluso and Wanat 1979; Hougland and Christensen 1983; Martinson and Wilkening 1987; Peterson 1992; Harris 1994; Verba, Schlozman et al. 1995; Rosenstone and Hansen 1993). There is no theoretical basis for believing that voter participation rates at the county- or city-level influence individual children's life chances, so this variable meets the criterion to serve as an instrument.

The third instrument is the number of churches by county. According to the National Congregations Study (Chaves 1998), more than half (57%) of religious participants live within

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[37] The test procedure used is a variant of the Hausman (1978) specification test. STATA documentation suggests this manual version of the test < http://www.stata.com/support/faqs/stat/endogeneity.html> as an alternative to the Hausman command possible in conjunction with certain estimation procedures. However, this option is not possible because of the design effects; attempts to perform this test failed.

[38] Other variables in the system may well be endogenous, but it is beyond the scope of this study to attempt to model or estimate the effect of that endogeneity. For the purposes of this study, the other variables in the system are treated as exogenous.

[39] STATA tests the significance of the residual by way of an adjusted Wald test. When the p-value ("Prob >F ") exceeds 0.05, we cannot reject the null, cannot accept the alternative, cannot conclude that the religious participation variable under study is endogenous.

a 10-minute drive of their place of worship, including 19% who live within a 10-minute walk. Therefore proximity is likely an important consideration in the attendance decision. Finally, a variant of the third instrument is the number of denominations represented in a county; Barro and McCleary (2002) found that attendance tends to be higher in places where there are many denominational choices[41]. Neither the density nor the diversity of houses of worship is expected to have any impact on teens' educational attainment.

3. *Test for Validity of Instruments*

The final step is to determine whether the instruments used are valid. The endogenous religious participation variable is regressed on the proposed instruments, as well as all of the other exogenous variables in the model. A significant coefficient on any of the instruments signifies that the instrument has a significant relationship with the religious participation variable. This is a prerequisite condition for instruments.

Then the Hansen-Sargan test of overidentifying restrictions, used when there is more than one instrument under consideration, tests the joint hypothesis that the instruments are not correlated with the error term and are therefore valid.

III. Research Question 1

Does religious participation during teen years, controlling for other characteristics of the child's life, contribute to educational success, defined here as completing high school on time, ever receiving a high school or equivalent diploma, and total educational attainment?

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[40] Not all states require voter registration, so use of this instrument entailed elimination of teens residing in those states in 1992.

[41] The Barro and McCleary (2002) study used national level data to compare attendance rates in countries where a single denomination is predominant (as is common in Western Europe) to countries where religious pluralism prevails, primarily the United States. They argue that religious pluralism leads to healthy competition among denominations, and that people are better able to find a denomination that suits their preferences when they have a choice.

A. Analytical Approach

This research question estimates the impact of religious participation while controlling for a wide array of background characteristics in addition to any significant impact of those background characteristics on religious participation. Modeling accounts for any endogeneity detected in the preliminary stage of analysis.

B. Modeling Procedure

Based on the results of preliminary analysis, IV estimation is used to re-estimate the impact of any endogenous religious participation variables on the educational outcomes. IV estimation entails introducing as a regressor an explanatory variable that is unrelated to the child's outcome ("instrumental variable"), but related to the endogenous variable. Evans, Oates et al. (1992) first suggested the IV approach as a way to investigate the significance of an explanatory variable that is the subject of a decision made by the individual.

In the first stage of IV estimation, the explanatory variable that is thought to be influenced by unobserved characteristics, religious participation, is regressed on one or more "instruments." The instrument must be highly correlated with religious participation but uncorrelated with the unobserved characteristics and as such, uncorrelated with educational outcomes. This regression produces an estimate of religious participation that is purged of the influence of the unobserved characteristics, and which is then used in an equation estimating outcomes. The outcome equations include the same set of family, contextual, and individual characteristics that were included in the baseline models.

IV. Research Question 2

Does religious participation remain significant when controlling for participation in secular activities?

A. Analytical Approach

The second research question addresses the significance of religious participation in light of other forms of group participation ("secular participation"), considering the possibility that religious participation is simply one form of participation in general. Sport and non-sport secular activities act as additional controls in the model.

B. Modeling Procedure

The same model employed in Research Question 1 is used, except that additional variables for sport and non-sport participation in each of the survey years are included. As appropriate, the endogeneity of the religious participation variables are also accounted for.

1. Model

<4> $\mathbf{OUTCOMES} = \alpha + \beta * \mathbf{RP} + \gamma * \mathbf{X} + \delta * \mathbf{SP} + \varepsilon$

Where **SP** is a vector of secular participation and sports participation variables: SECPAR88, SECPAR90, SECPAR92, SPORT88, SPORT90, and SPORT92.

2. Hypothesis

H_0: $\beta_1 = 0$; $\beta_2 = 0$; $\beta_3 = 0$; $\beta_4 = 0$; $\beta_5 = 0$

H_A: β_1, β_2, β_3, β_4, β_5 not all = 0

V. Research Question 3

Does the effect differ for the poor, minorities, or persons living in neighborhoods of concentrated disadvantage?

A. Analytical Approach

Analysis associated with the third research question of this study introduces interactive terms to reveal differential effects by measures of family income, race, and neighborhood. The objective of this research question is to explore differential effects on possibly important sorting factors among organizations.

All models up to now, while controlling for a wide range of background factors, have not explored the possibility that the impact of religious participation may differ by subgroup. As discussed elsewhere in this study, religious participation is not randomly distributed across the population. Rather, religious participation varies systematically with a number of background characteristics.

The present study does not examine the extent to which the characteristics of religious organizations do vary with background characteristics or how these characteristics work together to promote success. However, previous studies (described in Chapter 2) point to a number of stylized facts that make this research question interesting. First, religious affiliation is a private choice, social and family pressure notwithstanding. Individuals and families can choose to participate in whatever religious organization best suits their needs and preferences.

Next, needs vary systematically among groups sharing some background characteristics. This is a basis upon which individuals and families sort themselves into religious organizations. The membership or participant profile of different organizational types varies systematically across background characteristics.

The types of religious organizations in which people choose to participate also vary with a number of background characteristics. Because it is beyond the scope of the data set, it is also beyond the scope of this study to explore the association between background characteristics and organizational characteristics. Accordingly, no claims are made about the relationship between specific organizational characteristics and the effectiveness of those organizations in promoting success among their affiliates. However, any differences that are detected would be a logical area for additional study.

The corollary to this observation is that the organizations that groups affiliate with differ systematically. This implies that greater effectiveness will result when individuals affiliate with organizations that best match their needs, and individuals are better able to match their needs when they have many feasible options.

B. Modeling Procedure

In order to answer the third research question, the model is run again separately for subsamples. Interactive variables are created separately for each religious participation variable by race, poverty status, and residence in a low-income neighborhood.

1. Model

<5a> **OUTCOMES** = $\alpha + \beta * \mathbf{RP} *$ RACE $+ \gamma * \mathbf{X} + \varepsilon$

Where

RACE

1 Non-Hispanic White

2 Non-Hispanic Black

3 Hispanic

4 Asian or Pacific Islander; American Indian or AK Native; Missing or unknown

And

Base group: Non-Hispanic white, never attended religious services in 1990 or 1992, never participated in non-worship religious activities in 1988, 1990, or 1992.

<5b> **OUTCOMES** = $\alpha + \beta * \mathbf{RP} *$ INC88q $+ \gamma * \mathbf{X} + \varepsilon$

Where

INC88Q: categorical variable denoting income quartiles in 1988

First quartile	Q1 <= $26,856.09
Second quartile	$26,856.09< Q2 <= $35,808.13
Third quartile	$35,808.13< Q3 <= $50,728.18
Fourth quartile	$50,728.18< Q4

And

Base group: Income quartile 1 in 1988, never attended religious services in 1990 or 1992, never participated in non-worship religious activities in 1988, 1990, or 1992.

<5c> **OUTCOMES** = $\alpha + \beta * \mathbf{RP} *$ INC92q $+ \gamma * \mathbf{X} + \varepsilon$

Where

INC92Q: categorical variable denoting income quartiles in 1992

First quartile	Q1 <= $22,500
Second quartile	$22,500 < Q2 <= $42,500
Third quartile	$42,500 < Q3 <= $62,500
Fourth quartile	$62,500 < Q4

And

Base group: Income quartile 1 in 1988, no religious participation.

<5d> **OUTCOMES** = $\alpha + \beta * \mathbf{RP} *$ EDRT88q $+ \gamma * \mathbf{X} + \varepsilon$

Where

EDRT88Q

First quartile	12.28% < Q1 <= 65.93%
Second quartile	65.93% < Q2 <= 75.10%
Third quartile	75.10% < Q3 <= 82.98%
Fourth quartile	82.98%< Q4 <= 100.00%

And

Base group: Neighborhood is in the lowest quartile of educational attainment in 1988, no religious participation.

2. *Hypothesis*

H_0: $\beta_1 = 0$; $\beta_2 = 0$; $\beta_3 = 0$; $\beta_4 = 0$; $\beta_5 = 0$

H_A: β_1, β_2, β_3, β_4, β_5 not all = 0

VI. Limitations of the Study Design

The study methodology was designed to explore a number of alternative hypotheses related to the significance of religious participation. Each model addresses an aspect of the effectiveness of religious participation. Each model is intended to offset some of the shortcomings and omissions of the others. Nonetheless, this study does not provide a comprehensive analysis of the role of religious participation in the lives of teens. Potentially important control factors have been omitted from the model, either because the data are not available or because they are not observable or measurable. Many alternative specifications for the variables and for the models could have been employed, and those specifications could have produced different results.

Although data for dropouts are generally comparable to data for teens who remained enrolled in school, the fact that dropouts were not in school precludes the use of some school-related variables in the 1990 (10th grade) and 1992 (12th grade) surveys, since observations with missing data are discarded from analysis. The alternative is to model the year-to-year likelihood of students dropping out, or to estimate educational attainment only for students. These are interesting outcomes that have been the subject of many studies. However, modeling the decision to drop out or stay in school would measure a reasonably immediate impact rather than a (later) young adult impact. Restricting analysis to students would eliminate insight into the impact of religious participation on dropouts, which is interesting.

A major potential threat to the validity of results is self-selection. A researcher cannot select teens at random for "treatment" of religious participation or a particular kind of religious participation. Random selection of teens for the survey that provides the basis of the data set is an accepted alternative approach, but it leaves unanswered a fundamental question as to whether religious participation is transformative or simply a basis for sorting of individuals and families that already possess some unknown characteristics that promote both religious participation and educational outcomes.

These shortcomings will set the context for interpreting results, and developing the implications for policy.

VII. Statistical Procedures

Data cleaning, variable transformation and univariate statistics were performed using SAS.

Bivariate associations of weighted data were also calculated using SAS. Association between each of the categorical outcomes (on-time graduation and completion of 12th grade

or the equivalent ever) were calculated by way of crosstabulations. Chi-square tests confirmed that the differences among the mean "success" rates for each level of each of the categorical dependent variables was significant, except where noted.

Average years of educational attainment by explanatory categorical variables were estimated using two analytical methods. For explanatory variables with more than two levels, F-tests associated with one-way analysis of variance (ANOVA) confirmed that mean levels of the outcome associated with each of the levels of the explanatory variable were significantly different, except as noted. Independent samples t-tests were performed for explanatory variables with two levels.

For many categorical variables, an additional category was added to denote missing data. Missing data can reduce the randomness of a sample if there are systematic differences between observations that remain in the sample and the full sample. Without this adjustment, the sample was more than decimated, and all dropouts were eliminated. Independent samples t-tests performed to check for significant differences between the full sample and remaining sample revealed significant differences in terms of almost all variables. This adjustment was not made for any of the participation or outcome variables.

Multivariate models were performed in STATA, and adjustments were made for design effects associated with the structure of the survey data.

Models in which totals years of educational attainment (a continuous variable) was the outcome utilized SVYREG, which is a standard regression procedure for survey data. Coefficients estimate the impact on the outcome of the next additional unit of the explanatory variable. The test statistic is the t-statistic.

Models in which the outcome is on-time graduation or completion of 12th grade or the equivalent, ever (categorical variables) use SVYLOGIT. Odds ratios for each variable estimate the likelihood of achieving a successful outcome for the next additional unit of the explanatory variable.

The confidence level for all tests is 95%, and all tests are one-tailed. Figures in the body of this study list significant results only. Figures in section III of the appendix denote significant results in bold.

Chapter 4. DATA AND VARIABLES

The purpose of this chapter is to describe the data set selected for the study, identify the variables used in the modeling process, discuss educational success in the population at large, and to provide basic sample characteristics. This chapter links the research objectives and subsequent analysis by setting the context for the study.

I. Data: National Educational Longitudinal Survey (NELS) 1988

To operationalize the research questions, the researcher needs a data set that includes a wide range of variables, including variables that capture religious participation, family, individual and contextual characteristics, as well as educational outcomes. The data set chosen for this study is the National Educational Longitudinal Survey (NELS) because it includes the best combination of outcome, background, and religious participation data among extant national data sets.

NELS was begun in 1988 by the National Center for Education Statistics, U.S. Department of Education. All respondents were in 8th grade at the beginning of the survey period, approximately age 14. Follow-up surveys took place in 1990, 1992, 1994, and 2000, when survey respondents were 16, 18, 20, and 26. Cognitive tests in the areas of reading, mathematics, social studies and science were administered to survey participants in 8th, 10th,

and 12th grades. Confidential transcript data were collected in conjunction with the second follow-up (at the end of high school for most students) and again in conjunction with the fourth follow-up (when most participants were age 26). The original sample included 24,599 students, but subsequent rounds included only a portion of this group. A total of 12,144 individuals participated in all five rounds of the survey.

As is customary with large data sets of this nature, an oversampling of some minorities was conducted in order to improve the reliability of estimates for these smaller groups. Therefore all modeling procedures include the appropriate weights, as provided in the NELS data set and recommended in the documentation provided with the data set, to adjust for the oversample. Students with severe mental, physical or emotional disabilities, or who possessed insufficient English skills were systematically excluded from the sample.

Even after accounting for the oversampling of minorities, the sample is not "random" in the sense that all children in the 8th grade in the U.S. in 1988 had an equal chance of being selected for participation. The base-year survey used a two-stage, stratified sample design. First, schools were chosen, with an oversampling of certain types of schools to ensure adequate representation of students within those schools. Second, students at those schools were chosen at random (with oversampling of minority students, as described above) to participate. Numerous school types were excluded, including Bureau of Indian Affairs schools, schools for severely disabled children, some vocational schools, and schools that participated in the National Assessment of Educational Programs (NAEP). NELS data and documentation provide factors to adjust for the structure of the data so that results more closely reflect the population at large.

Students who had dropped out of high school at the time of either the first or second follow-up (when most other students were enrolled in 10th or 12th grade) were given a different but generally comparable survey to complete.

Over the course of the study period, survey participants responded to questions regarding denomination, attendance, enrollment in a religious school, youth's participation in other religious activities and groups, whether a religious environment is a consideration in a future school choice, whether religious participation is important to friends, and perception of self as being "religious." Surveys also addressed the teen's secular joining behavior, including participation in volunteer work and public service activities.

Surveys were administered to the parents, school administrators, and teachers of youths participating in the survey, providing a wide array of family background characteristics, school attributes, curriculum, and other personal data. Family characteristics include family composition, language spoken at home, immigrant status, financial resources available to support education, income and poverty status, participation in public assistance programs, parents' educational attainment, and parental involvement in the child's development. School and academic data include aggregate and individual attendance, disciplinary problems, transcripts, standardized test scores, curriculum, and other school characteristics. Personal characteristics include attitudes and perceptions about school, friends, family, and self, expectations and aspirations, time use, including work, and physical impairment. Respondents are also asked to reveal whether they engage in risky behaviors such as smoking, drug use, unprotected sex, and delinquent activities.

The U.S. Department of Education provides geocoded Census data in the confidential portion of NELS. Zip-code level data are matched to individual respondents. Several variables are utilized to characterize the neighborhood in which the child resides.

II. Limitations of the Data Set

Although the data set chosen for this study offers the best combination of background characteristics and religious participation attributes among the national-level data sets it has some shortcomings. Some key characteristics that are thought to play a role in teens' educational success are left out. One serious omission is the parents' homeownership status, which some researchers have found to contribute to children's educational attainment (Aaronson 2000; Green and White 1997), although duration of residence (i.e., the number of residential moves) accounts for some of the effect (Aaronson 2000).

The limited scope of the survey also presents some limitations. The data set only commences when children are in 8th grade, leaving the earlier years of the child's life largely undocumented, and any experience that might influence outcomes, religious or otherwise, are out of the picture. In addition, parents are only surveyed twice, so that changes in family conditions are only coarsely documented.

Religious participation questions document attendance at worship and non-worship religious activities, as well as self-identification as a "religious person." Data on denomination are available, but no survey questions address fundamentalism. A measure of the individual's fundamentalism would indicate the nature of the religious organization with which an individual is involved, as well as the values that that organization attempts to inculcate in its members. The first year of the study did not address attendance at worship services. As a result, the contribution of non-worship participation during 8^{th} grade could be overestimated.

Another serious shortcoming is lack of data on the characteristics of the religious institution with which a teen is involved. This study distinguishes between religious institutions and non-religious institutions, with further distinctions made between worship and non-worship religious activities, as well as sport and non-sport activities. However, there may be important variations within these institutional types and within programs that make a difference for teens. More likely still is the possibility that some institutional characteristics and program characteristics are more important for some teens, and that there are patterns of effectiveness that should be explored. Because no data set provides a full set of background characteristics and institutional characteristics, these distinctions cannot be explored. In the present study, the nature of participation in institutions and programs is treated like a "black box."

Some questions serve as proxies for some other variable of interest, with varying degrees of precision. For instance, attendance rates only approximate a person's level of involvement with a religious organization. Educational attainment, in addition to directly measuring completion of years of schooling, probably closely approximates the actual learning that a person has been exposed to, although not necessarily the amount of learning that an individual has absorbed. Questions asked in retrospect are subject to the individual's memory, although perception itself has value, even if it does not match reality.

Nonetheless, NELS provides the best combination of data among the national longitudinal data sets[42]. NELS provides a wide range of background characteristics and control variables, including joining behavior of both parents and teens. Denomination, religious attendance, and religiosity are each observed, including attendance at religious activities other than worship services. Participants are age 26 in the latest round of data, and most will have made a transition to school, work or idleness. Awareness of these limitations inform interpretation of analytical results.

III. Variables

This section lists the variables proposed to be employed in this study, and describes how each variable is operationalized. A list of actual NELS 88 survey questions used in the creation of each of these variables appears in the appendix.

A. Outcomes

The outcomes of interest include on-time graduation from high school, attainment of a high school diploma or its equivalent ever, and total educational attainment at age 26.

Educational attainment is one measure of the resources an individual has at his or her disposal. It indicates how much a person has learned and accomplished. A high school diploma or its equivalent is typically a minimum qualification for even the lowest skilled work. Total years of educational attainment requires a combination of tenacity, aptitude, financial and other resources, and the ability to apply those resources to the task of progressing

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[42] The Panel Study of Income Dynamics (PSID) asks household heads only for their denomination and religious attendance habits, but not religiosity. Data on teens' activities is very limited. The National Longitudinal Survey 1979 (NLSY79) and its companion, Children of the National Longitudinal Survey 1979, also exclude religiosity, and very few children are old enough in the most recent round of the survey to observe ultimate educational

through school. Graduation from high school, college, and graduate school are important milestones, as well as they key standards by which prospective employers judge the qualifications of potential employees, especially those lacking much work experience.

1. *Outcome 1. On-Time Graduation*

On-time graduation from high school signifies that an individual progressed through school on schedule and without interruption, or that the individual was able to overcome delays and interruptions to reach this milestone with his or her peers. It also signifies that the individual received a diploma rather than a GED.

Operationalize: All sample respondents were in 8th grade in 1988, so on-time graduation would be observed in 1992, at the time of the second follow-up. On-time graduation is a dichotomous variable.

2. *Outcome 2. High School Diploma or GED, Ever*

Closely related to the first outcome, this outcome measures completion of 12th grade or its equivalent, regardless of timing. Success in terms of this outcome includes all students who succeeded in terms of the first outcome (i.e., graduated on time), plus students who graduated late, plus survey respondents who did not graduate but did receive a GED by the time of the fourth follow-up, at approximately age 26.

Operationalize: A dichotomous variable is created to indicate whether survey respondents had completed at least 12 years of education at the time of the fourth follow-up in 2000.

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attainment and young adult labor market outcomes. The more recent National Longitudinal Survey 1997 does address religiosity as well as fundamentalism, but the oldest cohort is only 20 at the time of the most recent survey.

3. *Outcome 3. Total Educational Attainment*

Like on-time graduation, the total number of years of schooling completed measures both proficiency and credentials.

Operationalize: The total number of years of educational attainment is observed as a continuous variable when respondents are age 26, in the fourth follow-up in 2000. A G.E.D. "counts" as 12 years of school, as does a high school diploma. An Associate's degree adds two years, a Bachelor's degree adds four years, a Master's degree adds a total of six years, and a Ph.D. adds a total of nine years.

B. Key explanatory variables: religious participation

The key explanatory variables considered in this study relate to religious participation. Religious participation is measured as attendance at worship services and engagement in other religious activities. Questions from the NELS 88 surveys used to create these variables are including in the appendix, in Figure 13.

1. *Attendance at Worship Services*

Attendance indicates the importance placed by the family or individual on worship by revealing the extent to which the scarce resource of time is allocated to this activity[43]. For younger children, it may indicate the extent to which the parent is actively pursuing enrichment for the child, and attempting to inculcate their values and traditions. Attendance may promote outcomes by providing comfort, social support, opportunity for social contact, and networking for the family, as well as positive role models for teens, and opportunities to engage teens in prosocial activities.

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[43] The seminal work on quantifying religious participation in terms of time use is Azzi and Ehrenburg (1975).

Operationalize: Two dichotomous variables indicate whether a teen attended worship services in either 1990 or 1992.

2. *Participation in Non-Worship Religious Activities*

Participation in non-worship religious activities, such as youth group and religious classes, provides an additional indicator of the value placed by the child or the child's parents on religious participation. Presumably, the same overall message and expectations are delivered as in worship activities, and the same benefits accrue from both, but those benefits are delivered in a different format. Non-worship religious activities can provide the additional benefit of more opportunities for the teen to develop social and other skills, and deeper relationships with other participants. incorporate less strictly religious elements, such as social activities, classes, and volunteer work.

Operationalize: Three dichotomous variables indicate participation in non-worship religious activities in 8th grade, 1990, and 1992.

Survey questions allow the analyst to capture many aspects of "extra" religious participation, but due to the subtle differences in wording of these questions across years, attempts to compare participation rates across years should be undertaken cautiously. In the base year, 1988, 8th graders were asked several questions related to participation in any religious groups in or out of school, or religious classes outside of school. In the 1990 survey, students and dropouts were asked a single question about religious activity, and dropouts were also asked if they had done any work for their religious group. The same questions were asked in the 1992 survey, but 12th grade students (not dropouts) were also asked if they had done volunteer work in conjunction with a church or church-related group. Previous surveys asked about volunteer work, but did not give respondents the opportunity to specify the religious

affiliation of the activity, if any. Survey questions did not explicitly ask teens whether they attended "church school," "Sunday school," or any other classes or sessions that some institutions might encourage teens to attend in lieu of worship services. Presumably, teens would include participation in such activities when responding to questions regarding their involvement in other religious activities.

C. Religious Control Variable

Identification of self as a religious person is included as a control variable, allowing the researcher to parse the associational benefits of religious participation from the spiritual aspects.

1. Religiosity

Considering oneself to be religious at all provides an indication of the importance of religion in the respondent's life. It approximates religious fervor[44].

Operationalize: Two dichotomous variables are created to indicate whether the respondent considers him- or herself to be somewhat or very religious (as opposed to not at all religious), in 1990 and 1992.

2. Denomination

This study does *not* control for denomination, although this variable is available in the data set. The survey question addressing denomination includes fifteen choices for respondents, in addition to "none" and missing. It seems highly unlikely and analytically uninformative to

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[44] As noted in chapter 1, Bridges and Moore (2002) defines religiosity as one's "beliefs and practice of religion," (p 1). It is often measured by the extent to which one perceives oneself to be religious, or reports religious beliefs and practices to be important. Religious fervor could be defined as intensity of religious feeling or expression. For the purposes of this study, the distinction is unimportant. The point is to control for intensity and extent of beliefs in an attempt to differentiate the effect of those beliefs per se from the associational benefits of religious participation.

detect significant differences among all of these options. Moreover, some of the denominations represent only a very small percentage of the sample, in some cases not providing sufficient variation to produce reliable results.

Options for grouping responses were not satisfactory. Grouping all Protestants together, for instance, would mask potentially important variation across individual denominations. Grouping all non-Catholic, non-Protestant teens together is even more problematic because of an even wider variation across individual denominations

Another reason that denomination is not included as a control variable is that the nature of religious participation varies *within* many denominations. Section V of the literature review in Chapter 2 addresses, among other characteristics, the role of beliefs, institutional characteristics, and membership in promoting educational outcomes, all of which can vary considerably within denominations.

First, denomination provides only the loosest approximation of an individual's beliefs. Some studies have suggested that it is really fundamentalism that matters, rather than denomination, and many denominations accommodate a wide range of beliefs along the theological spectrum. The key point is whether the individual's belief system comes with rules, how comprehensive those rules are, how literally the adherent interprets those rules, and how closely the adherent aspires to abide by those rules, regardless of the specifics of the rules. On the other hand, the propensity to let religious beliefs influence activities and decisions may or may not be related to fundamentalism; this dimension also can vary considerably within denominations. Fundamentalist institutions are more likely to be highly involved in the lives of their adherents, demand more of their members, and address a broad range of aspects of its members' lives beyond the worship service.

Second, denomination also provides only a loose approximation of organizational characteristics that render an institution more or less effective in addressing the needs of its members. An institution that is part of a centrally controlled network could have a very different posture towards its members than would an institution in which its own members play a strong role in its governance. Opportunities for leadership could vary, as could the responsiveness of programming to community and member needs, as well as the resource base and expertise of the institution. Urban religious institutions may have more in common with each other than do Baptist churches as a group. Religious institutions in the South may have more in common with each other than all Catholic churches as a group. The "Black Church," has long been recognized as having unique and important impact on its members. The effectiveness of religious participation could also vary by size and age of the institution, effectiveness of the religious leader, mission, and other characteristics.

Finally, although there are significant differences in the aggregate characteristics of members across denominations (such as different average educational attainment levels, and different average income levels), these same characteristics are likely to vary substantially among institutions within denominations. The characteristics of members within an institution are important because members shape the institution, and member needs have bearing on institutional decisions and activities. Also, the effectiveness of religious participation may vary by groups of people with similar needs because religious institutions are well situated to address some types of needs, some groups may be more predisposed to look to religious institutions for help, and some groups may have relatively meager options.

D. Family Characteristics

As noted in the literature review, a wide range of personal, family, and contextual characteristics have been shown to contribute to educational attainment and labor market outcomes. These variables are also included in the model.

A number of family background characteristics are widely believed to influence adult outcomes. Sociology, psychology, economics, and other disciplines have developed competing theories on how these factors influence children, focusing on the various aspects of the role that parents play in their children's lives:

- Parents provide physical and emotional comfort and the basic necessities for their children.
- Parents act as role models.
- Parents spend time with their children, providing companionship, guidance, discipline, affirmation and assistance.
- The extent to which parents engage in behavior that supports or undermines their own success allows them to better help their children.
- In addition to a healthy, supportive and nurturing environment, parents provide a genetic endowment that may predispose their children to certain ranges of physical and mental ability.

The following family characteristics are included in the model:

1. Intact Family Status

Conventional wisdom holds that children are better off living with two married parents. Single parenthood can be detrimental to children for several reasons. Potential family earnings is limited, and a single working parent has to arrange and pay for child-care, which can be logistically and financially challenging for low-wage workers. If the single parent is an unemployed woman, the family may be receiving welfare or other forms of public support.

Operationalize: Three dichotomous variables are created to indicate whether the child's parent is married or "in a marriage-like relationship" in 1988, 1990 and 1992, as reported by the teen.

2. *Parent a Teen at Child's Birth*

Teen parents are often unmarried and tend to be less able than their older counterparts to address the needs of their children. Teen parents often drop out of school. Teens who never continue their educations may be perpetually stuck at the low end of the job market. If the teen abdicates responsibility for child-rearing to an older adult in the family, then the teen may not bond as well with the child, or develop needed parental skills. *Operationalize*: A dichotomous variable is derived from several survey questions to denote whether either of the child's parents were age 18 or under when the child was born.

3. *Number of Siblings*

Parents have finite time, energy and money to devote to their children, and more children means that each child receives a smaller share. On the other hand, older siblings can become a resource for younger siblings. The number of children could influence the family's decision to have one parent stay home with them. Empirical results for this variable, though, are mixed and inconsistent, suggesting that the importance of adding one more child to a family may depend on the family's circumstances, such as how many children there already are in the family, and how well the parents are able to provide for them.

Operationalize: The number of siblings, as reported by a parent, is entered into the model as a categorical variable. Categories are 0, 1, and 2 or more siblings[45]. If the number of reported siblings differs between 1988 and 1992, an average of the two figures is used.

4. Family Income

There are several explanations given in the literature as to why family income consistently makes a difference for children. The most obvious is that parents' command of monetary resources better enables them to provide for their children. At the low end, this may mean providing enough of the basic necessities to ensure the child's physical and emotional comfort. At the high end, this may mean investing in enrichment activities and pursuits for their children, such as private school, cultural opportunities and enabling social connections. An alternative explanation for the strong correlation between parents' and children's earnings is that parents serve as important role models in the areas of ambition, self-discipline, value of work, sense of efficacy and other possibly unobserved characteristics. Third, and closely related, parents may directly (by teaching) and/or indirectly (by example) shape their children's vocational and financial expectations and aspirations. The marginal effect of increased income is generally strongest among families with the lowest income.

Operationalize: Two variables are created in which each family is assigned a value equal to the mid-point of the income range that the parent identified in 1988 and 1992.

5. Family Assets

Assets represent the accumulation of excess income over a period of time. Liquid assets can be used to stabilize a household's finances in the short run, although persons most likely to

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[45] The number of siblings is not treated as a continuous variable because although 2 siblings is twice as many as 1 sibling, bivariate testing demonstrated no significant difference at the 95% confidence level of having 2 siblings

suffer disruptions in income are the least likely to have savings to cover periods of financial hardship (Ruggles and Williams 1989). The possession of wealth may also contribute to the emotional stability of a family if it fosters a sense of mutual trust through co-ownership and demonstrates a commitment to planning for the family's future. However, children may not be aware of family assets and may only benefit indirectly, to the extent that their parents benefit from these stabilizing effects. Many types of accumulated wealth can be used to create more wealth, as well as to secure loans and mortgages to make possible more spending or other investments, including investments in the children.

Operationalize: A dichotomous variable is created to signify whether the parents stated that they planned to use savings or a second mortgage to finance the child's continued education as of 1992.

6. *Parents' Educational Attainment*

Parents' educational attainment may reflect some underlying personal characteristics that may, in turn improve their ability to help their children. More education can have a positive impact on children's outcomes by teaching their children to value education and indirectly by allowing parents to set a good example for their children. Better-educated parents also tend to have higher incomes and better jobs, both of which also have a positive impact on children's outcomes.

Operationalize: A categorical variable is created to reflect the higher of the two parents' total educational attainments, or the attainment of the single parent, if there is only one parent in the household. Implicit in this approach is the assumption that the parent with more education provides a stronger role model and sets a higher standard for his or her children.

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and having more than 2 siblings.

Categories are less than 12th grade, completion of 12th grade, some college or trade school, college degree, and graduate school[46].

7. Working Parents

Theory offers conflicting predictions on the long-term impact of having a mother work during childhood. Does mothers' employment contribute to developmental problems due to loss of parental time spent with children, or does it enhance the children's future prospects by contributing income to the family and setting a good example for her children? Studies finding a negative coefficient may point to the importance of contact time between parents and children, and direct supervision and care-giving by parents, or more likely the mother. Studies finding a positive coefficient may conclude that a working mother is a good role model for her children, or may emphasize the harmful effects that family dependence on public assistance (resulting in part from the mother not working) may have on children's aspirations and on their capacity for independent actions. The importance of having a father working is similar, arising from increased resources in the household and providing a good role model for children.

Operationalize: Two categorical variables are created to denote the work situation of the one or two parents in the household in 1988 and 1992, as reported by the parent. The three categories for 1988 are as follows: at least 1 of 2 parents in the household work full-time while the other parent works full-time, part-time or not at all; a single parent works full-time; neither the single parent nor either of 2 parents in the household works full-time, regardless of whether any of these parents works part-time. The three categories for 1992 are almost the same, except that in 1988, having 2 parents who worked less than full-time was not found to

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[46] Initial specification included more categories, but bivariate testing found no significant differences among some of those categories at the 95% confidence level.

have a significantly different effect than having 1 parent who worked less than full-time. In 1992, having 2 parents who worked less than full-time was not found to have a significantly different effect than having a single parent who worked full-time[47].

8. Residential Stability

The longer a family stays in its residence, the greater the opportunity to form social ties with neighbors and become involved in community institutions. Generally, it also allows children to remain in the same school, not only building relationships with other students, teachers, and administrators, but also, ideally, continuing through a coordinated curriculum from grade level to grade level. Children who move often, especially during the school year, tend to have lower education attainment and achievement because of interruptions in enrollment, difficulties associated with "catching up" to other students, stress associated with adjustment to a new setting, and other problems (Hartman 2002).

Operationalize: The number of school moves from 1988 to 1992, as reported by the teen in 1992, enters the model as a categorical variable. Moves that occurred as a result of promotion to another grade level or a move from middle school to high school in the same district were excluded. Categories are 0, 1, and 2 or more moves[48].

9. Parental Expectations

In addition to setting limits for their children, parents set a standard for their children by conveying their expectations for their success. In response, children develop their own sense

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[47] The initial specification of this variable included many more categories, but bivariate testing found no significant differences among some of those categories at the 95% confidence level.

[48] Categories for "two moves" and "three or more moves" were collapsed because bivariate testing found no significant differences between those categories at the 95% confidence level.

of efficacy, well-being, and competence (Furstenburg, Cook et al. 1999) that can help them to meet their parents' expectations and succeed.

Operationalize: A categorical variable is created to denote parents' expectations for total years of education as reported in 1988. Categories include less than 12th grade, no more than one year beyond high school, up to 2 years beyond high school, and college graduation or beyond[49].

10. Parents' Immigrant Status and Language Spoken at Home

Parents who are not U.S.-born, and who do not speak English at home, may be less integrated in the community and less able to have meaningful contact with their children's teachers and school administrators. This situation can leave their children without effective adult guidance to navigate the complex world of school and community. Another potential source of disadvantage arises if cultural differences put the child in the position of having to choose between the conflicting influences of family and peers. Virtually all children are in this position to a certain extent, but the differences can be much starker for the children of immigrants.

Operationalize: A dichotomous variable denotes whether either parent was born outside of the U.S.[50] and a separate dichotomous variable denotes whether a language other than English is spoken at home. Both variables are based on parental responses in 1988.

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[49] These categories are based on bivariate testing, 95% confidence level. A similar variables for parental expectations in 1992 was also used initially, but was automatically dropped from several models due to multicollinearity, probably due to substantial overlap with the 1988 variable.

[50] The assumption underlying the decision to denote families in which at least one parent is an immigrant, rather than both, is that an immigrant cultural influence from even one parent in the family is influential.

E. Individual Characteristics

A child's own characteristics comprise the second broad category of variables that shape life chances. Family characteristics set the context for the child's development, especially early in life, yet a child also possesses his or her own characteristics that independently influence chances for success. Some of the child's characteristics are knowable and measurable, but many are not. For instance, a child's ability to navigate through some of life's challenging moments and transitions may vary in important ways with a number of factors that vary over time for an individual children and across children at any given age. Some children are naturally resilient, overcoming great odds and untold personal obstacles to go on to lead reasonably "normal" and successful lives.

Included in this study are some innate characteristics, over which neither the child nor the parents have any control, and other variables that describe the child's experiences in school.

1. Gender, Race/Ethnicity, Disability Status

There are reasons to believe that gender, ethnic and racial background, as well as disability status are important predictors of many kinds of success. Persons who bear some kind of minority status or are otherwise perceived to be outside the mainstream may be at a disadvantage due to discrimination (Beckley and Burstein 1994). Others have suggested that this type of disadvantage arises from cultural influences that undermine an individual's potential (Ogbu 1992; Wilson 1994), isolation from the mainstream (Wilson 1997) or differences in innate ability (Herrnstein and Murray 1994). Some forms of disability can limit a child's prospects for success, although many disabled children can lead happy and productive lives.

Operationalize: A dichotomous variables is created for gender. A categorical variable denoting race includes the following: Asian or Pacific Islander; Hispanic; non-Hispanic Black;, non-Hispanic White; and American Indian or Alaska native[51]. A dichotomous variable is created to reflect the parent's report in 1988 that the child has some disability. No measure of innate ability is available.

2. Academic Achievement

Students who are more academically successful in school are more likely to stay in school, and more likely to emerge equipped with the skills necessary to become a productive member of the labor force. Objective measures of academic achievement can approximate the amount of learning that a child has absorbed, as well as define a child's potential to continue with more education. Academic achievement reflects a combination of motivation, opportunity and ability.

Operationalize: Achievement is measured as a percentile associated with a composite math and English standardized test administered to students in 1988.[52]

F. Contextual Factors

As a third category of variables that is thought to shape a child's life chances, contextual factors have been found to play an important role in the educational success of teens. A notable literature has developed around the intuitively appealing yet notoriously elusive proposition that neighborhood matters. Other studies have examined the contributions of school size, total size, classroom size, teacher salaries, location, physical setting, curriculum,

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[51] For Research Question 3, these categories were reduced to Hispanic, non-Hispanic Black , non-Hispanic White, and other racial and ethnic identification.

and socioeconomic and many other characteristics of the school to academic and later achievement. As a child moves through the teen years, it seems likely that various contextual factors hold increasing sway, at the expense of family influences.

1. Neighborhood Characteristics:

Neighborhood characteristics are often measured by the socioeconomic status of its inhabitants. Neighborhoods can have a direct impact on teens' outcomes through peer influence and through the influence of adults in the neighborhood. Children may benefit from positive peer influences (low incidence of teen pregnancy, low incidence of dropping out of high school, low incidence of juvenile delinquency), as well as from the examples set by adults in the neighborhood (low unemployment, high socioeconomic status, high percentage of adults in managerial professional positions, etc.) which may lead to teens' high expectations and aspirations for themselves. Neighborhoods are also a source of social contact, providing access to networks, social support, and norms and standards.

Operationalize: The restricted-use data set includes zip-code level data on 715 Census variables for child's residence, 1988, 1990, and 1992. Variables to be used include the average percentage of persons age 25 and older in the teen's zip code that have graduated from high school, the average unemployment rate among adult male civilians age 16 and older in the teen's zip code, and the average annual per capita earnings, approximated by median household income / # persons per household. Zip code tends to be a geographically larger area than a census tract.

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[52] Standardized test scores are also available for students and dropouts in 1990 and 1992, but a high percentage of missing observations in these later years made these variables unattractive.

2. *School Characteristics*

School characteristics can also contribute to the success of its students. Classroom size, spending per pupil, teacher qualifications, implementation of standardized testing and many other factors have been the focus of efforts to improve student performance, with mixed results.

Children who grow up in a central city have systematically different opportunities and access to resources than children that grow up in the suburbs or in rural areas. One of the most important areas for children is public schools. In many states, particularly where education is supported by property tax revenues, urban school districts are less well-funded than their suburban counterparts, and have to respond to the needs of a poorer, more diverse student body. Cities also generally have school buildings that are older, more dilapidated, less likely to have computers, with smaller athletic and other non-academic space than suburban schools (U.S. General Accounting Office 1996). Numerous reports have connected school dilapidation with poor student performance (see reviews in Fisher (2001) and Lyons (2001)). A wide range of programs and policies implemented at the school level, but in many cases funded at the state or federal level, are intended to raise aggregate educational attainment.

A drawback to using school characteristics in this study is that data are not available for teens who were not in school in 1990 or 1992. Rather than eliminate these variables or lose dropouts, an additional category of "missing / not available" is created.

Operationalize: Categorical variables included whether the student's school was located in a city, suburb, or rural area in 8th, 10th and 12th grade; enrollment in a public or private

school[53] in 8th, 10th and 12th grade, percentage of the student body received free or reduce lunch (0%; 1-10%; 11-50%; more than 50%) as reported by school officials in 8th and 10th grade, and how the teacher ranks the student's class in terms of academic achievement (higher, average or differing, or lower than other classes) as reported by school officials in 8th, 10th and 12th grade. Classroom size, as reported by school officials in 8th grade, is a continuous variable.

G. Teen's Activities

As children move through the teen years, a number of choices that could undermine their life chances become more and more readily available to them. Specifically, early sexual activity resulting in teen parenthood, use of alcohol and drugs, and delinquent behavior can all interfere with their prospects for completing high school, continuing their education, and making the transition to work. The obverse of those choices could promote their success. Participation in groups and institutions, including but not limited to extracurricular activities at school, can help to socialize teens and help them to learn a variety of skills that may be beneficial, which in turn may promote their success. .

1. Teen Parenthood

Teen parenthood can interfere with plans for continued education as child care and reluctance to be away from the child raise the costs of being enrolled in school.

Operationalize: A dichotomous variable is created to denote whether the individual became a parent or was expecting at age 18.

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[53] Bivariate testing revealed no significant difference between private religious and private secular schools in 1988, 1990, or 1992.

2. *Misbehavior / Delinquency*

A child may begin to engage in delinquent or disruptive behavior if the benefits of that behavior (approval of likeminded peers, material, albeit ill-gotten, gains) outweigh the costs (risk of punishment, disapproval of parents or authority figures). Trouble with teachers and school officials can be part of dissociation from school as an institution, and represent steps on a path away from the mainstream.

Operationalize: Separate dichotomous variables are created to indicate whether the teen got into any kind of trouble in 8th, 10th, and 12th grades.

3. *Substance Abuse*

Substance abuse is another form of behavior that has consequences (health impact, opprobrium, monetary cost, potential punishment) and rewards (access to some peer groups, increased stature among some peers, pleasure). Teenagers decide whether this activity provides a net benefit to them individually. Substance abuse marks a path away from the mainstream, and could open the door to additional illegal activity.

Operationalize: Dichotomous variables are created to denote use of alcohol and drugs in 10th and 12th grades.

4. *Participation in Groups and Institutions*

Participation in civic and other groups provides access to networks, social support, norms and standards, and potentially salutary ways to spend time, all of which can help participants succeed. Controlling for the propensity to join organizations allows the researcher to differentiate the benefits of religious participation from other forms of participation. Importantly, these forms of "secular" participation include activities available through school as well as through nonprofit or other organizations in the community. Including non-school

activities reduces the likely bias associated with attendance at a school that has limited extracurricular activities or associated with dropping out of school.

Operationalize: As with religious participation variables, several specifications are used to measure secular participation. First, a dichotomous variable indicates whether a teen participated in any secular activities at any point (that is, in either 8th, 10th or 12th grade). Second, a dichotomous variable indicates whether a teen participated in at least one activity in each of 8th, 10th and 12th grade, to reveal whether consistency is important. A third specification includes separate dichotomous variables for participating in each survey year, to reveal whether timing of attendance makes a difference. A fourth specification denotes the number of activities that the teen participated in throughout high school.

IV. Sample Characteristics

Before examining the incidence of various characteristics in the NELS sample, a brief overview of educational trends in the population provides context for the rates of "success" uncovered by this analysis.

The National Center for Education Statistics, U.S. Department of Education, compiles figures on educational attainment and achievement. A recent summary of some of these indicators (Center on Education Policy and American Youth Policy Forum 2000) noted the following:

- In 1997, 11 percent of 16- to 24-year-olds had not received a high school diploma or equivalent and were not enrolled in school, including 8 percent of white young adults, 13 percent of black young adults, and 25 percent of Hispanic young adults. These rates for each group have fallen since 1972.

- Two-thirds of high school graduates (67 percent) enrolled in college in 1997. Thirty-one percent of all adults age 25-29 had completed a 4-year degree in 1998, up from 26 percent in 1983.

Descriptive characteristics of the sample provide a sense of the "typical" experience of teens who participated in the survey, as well as a sense of the prevalence of the conditions and circumstances under study in the lives of these teens. In terms of the process of analysis, sample characteristics provide valuable background and context for the more complex models that follow by describing the distribution of variables under consideration. The policy response to a variable that is found to be influential is shaped, in part, by its relative frequency in the population.

In the frequencies described below, weights were applied to account for the oversampling of certain ethnic groups, as well as survey design effects, all described above. Figures provided below are listed in Figure 14 and Figure 15 (Section II of the Appendix, beginning on page 183).

A. Outcomes

Most teens in the sample (78.8 percent) graduated from high school on time or early. By the age of 26, 93.6 percent of these teens received a high school diploma or equivalent, with the typical person completing 13.7 years of schooling.

B. Religious Participation

1. Attendance and Other Forms of Participation

Two types of religious participation are examined in this study. These are attendance at worship services and participation in non-worship religious activities. Attendance is a measure

commonly used by researchers to indicate the individual's level of participation with a religious organization. Non-worship religious activities are also included to allow the researcher to distinguish between the effects of inherently religious activities (worship) and activities that incorporate less strictly religious elements, such as social activities, classes, and volunteer work.[54] Such activities can include youth group, religion classes outside of school, and volunteer work associated with a house of worship.

Religious participation is common among teens in the survey, but the forms of participation that they choose vary in form and in timing. About three-fourths (74.9%) of survey teens reporting attending worship services in 1990, as did about two-thirds (67.1%) of survey teens in 1992. Participating in non-worship religious activities was less common in 1988 (65.2%), 1990 (46.6%) and 1992 (45.1%). Attendance figures are not available for 8th grade.

Almost two-thirds of 8th graders participated in some kind of religious activity other than worship, such as youth group, religious classes outside of school, or a religious group at school. Less than half of 10th graders (46.6 percent) and 12th graders (45.1 percent) participated in such activities. While more than three-fourths (78.5 percent) reported engaging in some other religious activity at some point during the study period, only 28.0 percent reported engaging in such activity in each of 8th, 10th, and 12th grades.

Not surprisingly, many of the same teens who attended worship services also engaged in other religious activities, and vice versa. However, a large portion of teens either attended services or engaged in other religious activities, but not both. Among teens who ever attended

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[54] Non-worship religious activities are also more comparable to secular activities.

worship services in 10th grade, fewer than six in ten (58.4%) also participated in non-worship religious activities. The rate is almost the same in 12th grade (58.8%).

Religious identification is highly associated with participation. About two-thirds of teens in the sample (68.7% in 1990 and 62.2% in 1992) identified themselves as being religious at all, but one in six teens who participated in religious activities identified themselves as not religious at all.[55] This suggests that teens participate in worship and non-worship religious activities for reasons beyond religious devotion. Most teens who identified themselves as religious attend worship services (91.1% in 1990 and 90.4% in 1992), but the rate is somewhat lower for non-worship religious activities (62.5% in 1990 and 61.7% in 1992).

2. Change in Religious Participation as the Teen Ages

Most of the survey questions related to religious participation were asked in more than one year, often unchanged, although as noted above, the initial survey did not address the key topic of attendance at worship services in 8th grade. Responses to these questions allow the researcher to track changes in the levels of religious participation among teens in the sample.

Many survey respondents are consistent in their participation decisions from year to year. Consistent participation throughout the study period requires some stability of feasibility and interest, and presents opportunities for stronger relationships with leaders and other participants, an accumulation of skills, and increased exposure to the discipline and values that the activity entails. Shifts in participation can reflect altered needs, interests, priorities, and encouragement from an individual or group. Because participation varies from year to year,

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[55] The disjuncture between religious identification and religious participation could be attributable to stigma associated with self-identification as religious, although stigma should have been at least partially offset by the confidentiality of the survey. Another interpretation is that teens perceive "religious" as something other than and beyond simply being present.

the group "exposed" to participation each year varies, so the timing of exposure can be explored. Observed differences in religious participation over time also support the notion that religious participation is an endogenous variable, subject to change as the other circumstances and conditions of the child's life change.

About three-fourths (78.2%) of teens who reported ever attending worship services in 10th grade also reported ever attending worship services in 12th grade. Among 8th graders who reported participating in non-worship religious activities, fewer than six in ten also participated in 10th grade (58.1%) or 12th grade (54.6%). The retention rate from 10th grade to 12th grade was somewhat higher (70.6%). About two-thirds (65.9 percent) of the teens who did not attend at all in 10th grade continued not to attend in 12th grade.

C. Family characteristics

Simple frequencies of family characteristics reveal the extent to which individual teens in the sample experienced various forms of disadvantage and advantage in their home life. In most respects, a majority of children in the sample enjoyed conditions that might be expected to be conducive to success.

Regarding family structure, the parents of more than two-thirds (69.0 percent) of teens in the survey were together and stayed together throughout the study period from 8th through 12th grade. Very few teens in the sample (1.7 percent) were born to at least one teen parent. The average teen had 1.6 siblings; most had one (39.5 percent) or two (26.2 percent) brothers and/or sisters. Surveys of parents asked respondents to identify the range of their annual income. Almost 1 in 6 teens (15.6 percent) were in a household where the annual income was

less than $15,000. This figure is above the poverty threshold for most families[56], but nonetheless reflects a very low level of income.

By the child's senior year of high school, more than half (57.3 percent) of families had some assets available to fund future education. Half of fathers (50.0 percent) and more than half of mothers (53.8 percent) themselves completed no more than a high school diploma or equivalent, while almost one-third of fathers (30.0 percent) and almost one-quarter of mothers (23.6 percent) had at least a college degree.

Parents' work status was observed when the child was in 8th grade and again when the child was in 12th grade. There was remarkable stability in the portion of parents who worked at both of these points in time, and in their status as part-time or full-time. In just over one-third of families, two parents[57] were present and worked full-time (35.2 percent in 1988, 36.9 percent in 1992). In another one-sixth of families, one parent worked full-time and the other worked part-time (falling slightly from 16.0 percent in 1988 to 15.6 percent in 1992). Not working at all was slightly more common in single-parent households (4.9 percent in 1988 and 5.3 percent in 1992) than in two-parent households (3.7 percent in 1988 and 4.0 percent in 1992), although more than one-quarter of households consisted of two-parent families in which one did not work at all (30.2 percent in 1988 and 26.1 percent in 1992).

Changing schools "off-schedule," i.e., moving to a new school *not* as a result of normal grade progression, was part of the reality for more than half (58.7 percent) of students in the

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[56] The poverty threshold varies with family composition. In 1990, the poverty threshold for a one-parent, two-child household was $10,530, rising about $2,500 per person for one additional parent or child.

[57] "Parent" denotes any adult who plays a role in the raising of the child, rather than denoting either a particular biological or legal relationship between that adult and that child, or a particular relationship between the two adults. For instance, the two "parents" could be the child's mother and grandmother.

sample over the course of their school careers. One-quarter (25.6 percent) of students changed school off-schedule during high school.

About one in eight students (12.0 percent) had at least one parent who immigrated to the United States, and one in ten students lived in a household in which English was not the dominant language.

D. Child's Characteristics

Teens in the sample were roughly evenly split by gender (49.7 percent male, 50.3 percent female). Most teens identified themselves as non-Hispanic white (72.3 percent). The rest of the sample consisted of non-Hispanic black (12.3 percent), Hispanic (10.6 percent), Asian / Pacific Islander (3.4 percent), and Native American (1.4 percent). One in six (16.5 percent) suffered from some mental or physical disability, as identified by their parents.

Victimization was fairly common among students in the sample, although many students escaped it. More than half of teens did not have anything stolen from them in school during the previous year (56.2 percent in 10th grade, 70.5 percent in 12th grade). Most had not been offered drugs at school during the previous year (83.2 percent in 10th grade, 83.8 percent in 12th grade), or been threatened with violence during the previous year (76.9 percent in 10th grade, 85.6 percent in 12th grade). Traveling back and forth to school also proved hazardous for 8.8 percent of 12th graders who were offered drugs and 6.2 percent of 12th graders who were threatened with violence; 10th graders were not asked about their experiences on the way to and from school. Victimization of the forms described above was reported more often among 10th graders (57.5 percent) than 12th graders (44.2 percent).

E. Contextual Characteristics

On average, survey participants lived in neighborhoods (defined by zip code) in which about three-fourths of adults over the age of 25 had graduated from high school, including 73.9% in 1988, 74.0% in 1990, and 74.2% in 1992. The average unemployment rate among men age 16 and over hovered around seven percent (7.0% in 1988, 6.8% in 1990, 6.7% in 1992). Average annual per capita earnings, approximated by median household income / # persons per household, was around $11,500 in all three survey years.

About one-fourth of students (25.8%) attended a school in 8th grade that was located in a central city of a metropolitan area. This figure was slightly higher during high school (28.6% in 10th grade and 28.1% in 12th grade). More students attended a private, religious school in 8th grade (10.5%) than in high school (7.9% in 10th grade and 7.3% in 12th grade).

The vast majority of schools attended by survey participants in 8th grade (98.6%) offered some kind of "secular" activities for students, including academic subject clubs (97.8%), extracurricular music and/or drama activities (96.1%), leadership activities such as school government, yearbook, honor society or newspaper, team and individual sports (96.1%) and other activities such as service and hobbies (63.2%). Only three-fourths of students attended a school that had any of these activities in 10th grade (74.6%), and about four-fifths (82.3%) had access to any activities in 12th grade. Although school is an important node for secular activities, it is not the only source. Many dropouts and students in schools with few or limited opportunities nonetheless have access to formal and informal participation in organizations in the community.

F. Teen's Activities

1. Harmful Behaviors

The frequency of engagement in some potentially deleterious activities reveals that some of these activities are apparently more attractive than others, suggesting either that teens underestimate the risk of those activities, underestimate the harm, or overestimate the benefits.

Almost one in six teens (15.9 percent) became a parent or was expecting a child by the end of 12th grade (including dropouts). This figure consists of the 18.5 percent of girls who became teen mothers and the 13.3 percent of boys who became teen fathers.

Misbehavior, in terms of fighting and other disciplinary problems, was part of the school life of 43.3 percent of 8th graders. In high school, however, almost two-thirds of students (62.0 percent in 10th grade and 65.3 percent in 12th grade) had gotten into some kind of trouble at school, had been arrested, or had spent time in a juvenile home.

Drinking is relatively common among these high school students, including 70.1 percent of 10th graders and 76.9 percent of 12th graders. Far fewer ever used marijuana, hash, cocaine and/or crack, including 14.6 percent of 10th graders and 18.3 percent of 12th graders. These figures include dropouts who were surveyed in the same year.

More than one-third of students (34.6 percent) worked during 10th grade, and more than two-thirds (69.2 percent) worked during 12th grade. Students who worked in 10th grade worked an average of 16.3 hours per week, while those students who worked in 12th grade worked an average of 17.6 hours per week.

2. Participation in Groups and Institutions

Two types of secular participation are examined in Research Question 2. These are sport and non-sport activities, and these activities may be in conjunction with school or some other

public or private organization. Non-sport activities include student government, hobby clubs, drama and music, service groups, and similar activities typically (although not uniformly) available to teens. Sport and non-sport activities differ in structure, and operate in unique ways on teens, and different groups of teens participate in each.

Among schools attended by survey respondents, the vast majority offered some kind of sport or non-sport secular activity (98.6% in 8th grade, 74.6% in 10th grade, 82.3% in 12th grade). The percentage of schools providing sport activities is slightly lower than the percentage of schools providing non-sport activities in each year, with the biggest gap occurring in 8th grade (2.5 percentage points). Presumably all survey participants would have access to some form of sport or non-sport secular activity outside of school, such as scouts, 4-H, and league sports. The unavailability of activities at school (either because they are not offered or because a teen is no longer enrolled) is assumed to provide an unmeasured logistical obstacle to secular participation, rather than an absolute constraint.

Sports participation rates are much higher in 8th grade (59.9%) than in 12th grade (38.7%),

About three-fourths of teens that participated in non-sport secular activities in 8th grade continued that participation in 1990 (72.3%) and 1992 (75.8%), but the dropoff in sports participation is much greater, about two-thirds from 8th grade to 1990 (65.6%) and less than half to 1992 (48.7%). Some of the decline may be due to eligibility requirements placed on some high school student athletes, increased academic work loads, and the availability of many other alternative activities. Some of the decline may be due to the inclusion of dropouts in the sample; teens who are in school have many more opportunities to participate in organized activities than do teens who are out of school. Importantly, these forms of "secular"

participation include activities available through school as well as through nonprofit or other organizations in the community.

Correlations among the different types of participation within years, shown in Figure 1 through Figure 3, reveal that many of the same teens who participate in one activity are participating in other activities.

In the sample, about two-thirds (67.0%) of non-sport participants in 8th grade also participated in sports. This figure falls to less than half (46.9%) by 1992. However, more than three-fourths (78.6% in 1990) to almost all (94.2% in 1988) of sports participants also participated in non-sport activities in the same year.

Teens participating in secular activities were not all the same as the teens who were participating in religious activities. About two-thirds of 8th grade students who participated in sport or non-sport secular activities also participated in non-worship religious activities (68.2% and 68.5%, respectively). The associations among sport and non-sport secular activities and worship and non-worship religious activities were somewhat lower in 1990 and lower still in 1992.

Figure 1. 1988 Participation Correlations

	... Participated in activities in these columns at these rates		
Students who participated in the activity listed in this column:	**Non-Sport Secular Activities**	**Sports**	**Non-Worship Religious Activities**
Non-Sport Secular Activities		67.0%	68.2%
Sports	94.2%		68.5%
Non-Worship Religious Activities	88.0%	62.9%	

Figure 2. 1990 Participation Correlations

	... Participated in activities in these columns at these rates		
Students who participated in the activity listed in this column:	**Non-Sport Secular Activities**	**Sports**	**Non-Worship Religious Activities**
Non-Sport Secular Activities		58.7%	56.8%
Sports	78.6%		53.5%
Non-Worship Religious Activities	84.2%	59.2%	

Figure 3. 1992 Participation Correlations

	... Participated in activities in these columns at these rates		
Teens who participated in the activity listed in this column:	**Non-Sport Secular Activities**	**Sports**	**Non-Worship Religious Activities**
Non-Sport Secular Activities		46.9%	55.5%
Sports	88.4%		54.7%
Non-Worship Religious Activities	89.6%	46.9%	

Chapter 5. ANALYSIS

The purpose of this chapter is to present the results of data analysis. The first section presents relevant bivariate relationships among the key variables of interest and the outcomes. Section II makes the case that bivariate associations bolstered by theoretical arguments provide evidence of a causal relationship between religious participation and outcomes. Section III presents analytical results and interpretation of those results as they relate to each of the research questions. Prior to this analysis, a multi-step statistical procedure was undertaken to determine whether modeling should account for the endogeneity of religious participation.

I. Bivariate Relationships

An important first step of the process of examining the relationship between background characteristics and educational outcomes is to consider the bivariate relationships or simple correlations among these variables. Without controlling for the other characteristics and conditions in the teen's life, are each of the background characteristics associated with some systematic change in educational outcomes? If so, do they move in the same or opposite directions, and by how much? Outcomes and participation variables are listed in Figure 4 and Figure 5. Figure 14 and Figure 15 (Section II of the Appendix, beginning on page 183)

display simple frequencies and bivariate associations for all explanatory variables with each of the outcomes.

Figure 4. Outcomes

Variables	Categories
ONTIME: dummy variable to reflect on-time graduation	1=yes 0=no
HSGRAD: dummy variable to reflect completion of 12th grade, ever	
EDYRS: continuous variable to reflect total years of educational attainment	(number of years)

Figure 5. Participation Variables

Variables	Categories
ATTEVR90: 10th grade attendance at religious services	0=Did not report attending 1=Attended at least occasionally
ATTEVR92: 12th grade attendance at religious services	
RELACT88: Engaged in religious education, a religious group at school or religious youth group outside of school in 8th grade	1=yes 0=no
RELACT90: Engaged in religious activities in 10th grade.	
RELACT92: Engaged in religious activities in 12th grade.	
SPORT88: Participated in sports in 8th grade	
SPORT90: Participated in sports in 10th grade (1990)	
SPORT92: Participated in sports in 12th grade (1992)	
SECPAR88: Participated in any secular activity other than sports in 8th grade	
SECPAR90: Participated in any secular activity other than sports in 10th grade (1990)	
SECPAR92: Participated in any secular activity other than sports in 12th grade (1992)	

A. Religious Participation and Outcomes

If religious participation had no association whatsoever with educational outcomes, then it would be reasonable to see approximately the same distribution of religious participation across outcomes; the rates of religious participation would not vary notably between teens

who did and did not graduate on time, did and did not ever complete 12th grade, and by total years of educational attainment. However, at the bivariate level of analysis, significant differences do exist. In every case, religious participation is associated with improved educational outcomes[58].

Teens who engage in any kind of religious participation have greater educational success than teens who do not. Just over 83% of teens who ever attended worship services in 10th grade graduated on-time, compared to just under two-thirds (65%) of teens who never attended worship services. Ever attending in 12th grade was associated with an on-time graduation rate of 83%, compared to 71% for teens who never attended during 12th grade.

A higher percentage of teens who participated in non-worship religious activities in 8th grade graduated on time (84%) than teens who did not participate in these activities (79%). Participating in non-worship religious activities in 1990 was associated with an even higher rate of graduating on time (87% compared to 71%), with identical figures for participation in 12th grade (87% compared to 71%).

Teens who never attended worship services completed an average 12.9 years of schooling. Teens who attended at least occasionally in 1990 completed an additional 1.1 years of schooling (total of 14.0 years). Any attendance in 1992 was associated with the same increment to years of attainment.

The increased educational attainment associated with participation in non-worship religious activities in any one of the survey years is about 1 year.

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[58] Overall, 78.8 percent of the full sample graduated on time, 93.6 percent ever completed 12th grade, and by the age of 26, the average survey respondent had completed 13.7 years of education.

B. Other Characteristics and Outcomes

1. Family Characteristics

The bivariate relationships listed in Figure 14 (Section II of the Appendix, beginning on page 183) demonstrate that nearly all of the family background characteristics that are generally considered to be beneficial do have a positive association with educational success. These relationships also demonstrate that various aspects of parents' socioeconomic success are key markers for their children's educational success. The factors that individually have the highest association with on-time graduation[59] include average annual family income of $50,000 or more (91.8%), father graduated from college (93.5%) or completed a Master's degree (92.4%) or a Ph.D. or higher degree (92.6%), and mother graduated from college (91.5%) or completed a Master's degree (93.4%). These same factors are associated with the greatest number of years of educational attainment,[60] including average annual family income of $50,000 or more (14.8 years), father graduated from college (14.7 years) or completed a Master's degree (15.1 years) or a Ph.D. or higher degree (15.4 years), mother graduated from college (14.8 years) or completed a Master's degree (15.2 years).

Not surprisingly, parents' lack of socioeconomic success is associated with children's lower educational success, as do some key characteristics of family structure. The lowest levels of on-time graduation[61] are associated with parent a teen at child's birth (54.2%), having six or more siblings (57.1%), average annual family income of less than $15,000 (57.4%), father did not graduate from high school (58.5%), mother did not graduate from high

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[59] Figures for the highest association with on-time graduation include associations of 90.0% or greater.

[60] Figures for greatest number of years of educational attainment include associations with at least 14.5 years of education.

[61] Figures for the lowest association with on-time graduation include associations of 60.0% or less.

school (59.9%), either a single parent or both parents did not work while the child was in 8th grade (53.7% to 56.5%), family moved frequently during high school (51.3%), or during the period from 1st through 12th grade (48.5% to 56.5%).

Despite these low rates of on-time high school graduation, the average teen facing any single (but not necessarily just one) family disadvantage did ultimately complete at least twelve years of education. Many of the same factors are associated with the lowest average levels of educational attainment, including parent a teen at child's birth (12.2 years), having six or more siblings (12.8 years), average annual family income of less than $15,000 (12.4 years), father did not graduate from high school (12.3 years), mother did not graduate from high school (12.4 years), either a single parent or both parents did not work while the child was in 8th grade (12.5 to 12.8 years) or 12th grade (12.5 to 12.7 years), family moved frequently during high school (12.6 to 12.7 years) or during the period from 1st through 12th grade (12.2 to 12.5 years).

Some individual family characteristics evince very wide variation among the success rates associated with different levels of the characteristic. With respect to on-time graduation, the largest gaps[62] between the lowest and highest categories are observed for average annual family income (34.4%), father's and mother's educational attainment (35.0% and 33.5%), parents' combined work status in 1988 (33.1%), and number of moves in high school (36.2%) and throughout the school career (48.5%). The largest gaps in total years of educational attainment[63] are associated with different levels of average annual family income (2.4 years), and father's and mother's educational attainment (3.1 years and 2.8 years).

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[62] Figures for the largest gaps in on-time graduation are differences of at least 30.0%.

[63] Figures for the largest gaps in total educational attainment are differences of at least 2.0 years.

2. *Individual Characteristics*

The on-time graduation rate for males is not significantly different from the on-time graduation rate for females.

Asian/Pacific Islanders have the highest rates of on-time graduation (88.7%), and Hispanics (66.1%) and Native Americans (67.8%) have the lowest rates. Asian/Pacific Islanders also have the highest levels of educational attainment (14.4 years) and Native Americans the lowest (12.5 years). Non-Hispanic white teens graduated on-time from high school at a rate of 81.4% and completed an average 13.8 years of education. Non-Hispanic black teens graduated on-time from high school at a rate of 72.6% and completed an average 13.2 years of education, which is not significantly different from the educational attainment of Hispanic teens (13.0 years).

Teens with some disability, as reported by their parents, complete their high school education on-time much less often (66.2%) and complete 0.9 years less of school (12.9 years compared to 13.8 years) than do their non-disabled fellow students. This is not surprising, given that some disabilities limit educational success. Failure to graduate on time is due in part to the practice in some states of providing a high level of social services past the usual graduation age or year through the public school system to disabled youth.

3. *School Characteristics*

Students who attended an urban school in 8th grade were slightly less likely to graduate on time (76.2% compared to 79.6%), but completed just as much education as their rural and suburban counterparts (13.6 years). On-time graduation rates were highest among students who attended private, religious schools in 8th grade (90.9%), followed by private non-religious (87.3%) and public school (77.2 %). The percentage of the student body that

received free/reduced price lunch in 8th grade (which is an indicator for incidence of low income in the school) is negatively associated with on-time graduation, ranging from 89.1% for students in schools in which none of the student body received this form of assistance to 65.3% for students in schools in which at least half of the student body did. Eighth grade students who were enrolled in classes that the teacher characterized as attaining higher levels of academic achievement than other classes also graduated at higher rates (90.4%) than did students who were enrolled in average (79.2%), mixed (77.8%) or lower level (59.1%) classes. All of these patterns persist for the smaller groups of students who were enrolled in school in 10th grade or 12th grade.

Students who were enrolled in an urban school in 8th grade did not complete significantly different total years of educational attainment (13.6 years). However, enrollment in an urban school in 10th grade is associated with 0.1 additional years of school and enrollment in an urban school in 12th grade is associated with 0.2 additional years of school. Students who were enrolled in either a private, religious school or a private, non-religious school in 8th, 10th, or 12th grade completed about the same number of years of education, in the range of 14.7 to 15.0 years. Public school students in 8th, 10th, or 12th grade completed an average 13.5 to 13.6 years of school. Higher percentages of students receiving free/reduced price lunch in 8th or 10th grade was associated with fewer years of educational attainment. Students enrolled in higher achieving classes in 8th, 10th, or 12th grade tended to complete more years of education.

4. Teen's Activities

Some of the biggest obstacles to educational success are the result of decisions that the teen makes about how to conduct him- or herself. One of the largest single factors in the

likelihood of graduating from high school on-time is avoiding teen parenthood (90.4%). Teens who become parents before finishing 12th grade graduate at a rate of only 18.3%. The average teen parent does not complete high school or the equivalent (11.7 years), while teens that avoid teen parenthood completed an additional 2.4 years of schooling.

Teens who got into some kind of trouble during 8th grade (66.9%), 10th grade (73.8%), or 12th grade (75.4%) graduated at lower rates than teens who did not (87.8%, 90.2%, and 86.8%). Delinquent teens also completed fewer years of education (13.1 to 13.5 years) than did teens who avoided trouble (14.1 to 14.2 years).

As predicted in other studies (see literature review in Chapter 2), the use of alcohol is not consistently associated with lesser educational success. Teens who reported drinking in 10th grade or 12th grade had the same likelihood of graduating on-time (79.4%), but teens who did not report drinking in 12th grade had a lower rate of on-time graduation (76.9%). Drinking in 12th grade had no significant impact on total years of education, and drinking in 10th grade was associated with an additional 0.2 years of education. Drug use had the expected impact on outcomes. Less than two-thirds of teens (63.7%) who reported using drugs in 10th grade graduated on-time, compared to 84.0% who did not report using drugs. The apparent benefit of avoiding drugs was slighter for 12th grade students, 80.7% compared to 72.1%. Similarly, teens who avoided drugs in 10th grade completed almost a full year more (13.9 years compared to 13.0 years) than their peers who did use drugs, while the gain in 12th grade was less than half a year (13.8 years compared to 13.4 years).

Participation in sports and other "secular" activities is consistently associated with higher rates of on-time graduation and more total years of schooling. As with several other variables in this study, higher levels of success associated with later forms of participation are

attributable at least in part to the smaller sample of teens who are enrolled in school in 10th grade or 12th grade. Teens who drop out of school do not have the opportunity to participate in sports or extracurricular activities through school. A very limited set of non-school activities were included in surveys administered to dropouts, and participation in those activities are reflected in the figures below.

Predictably, participation in sports in later years has a greater association with a likelihood of on-time graduation, rising from 82.3% for 8th grade participation to 95.3% for 12th grade participation. The gap between participants and non-participants in sports widens from 8.9% to 27.0%. Students who participated in at least one of the survey years (8th, 10th, or 12th grade) graduated on-time at a rate of 83.5% while the rate for students who never participated in sports was 64.1%. Almost all students who participated in sports in all survey years (96.9%) graduated on-time.

Very similar patterns emerge when examining total educational attainment. Students who participated in sports in 8th grade completed 0.6 years more of school, while participating in 10th grade is associated with an additional 1.1 years of school and participating in 12th grade is associated with an additional 1.3 years of school. Students who ever participated in any of the survey years completed 1.0 additional years of school. Students who reported participating in all of the survey years completed an additional 1.2 years of school.

Participation in "secular," i.e. non-religious extra-curricular or other group activities, also has a positive association with on-time graduation, but this association is not as great in magnitude as the association of sports with on-time graduation. The apparent detriment of not participating is greater than it is for sports. The association with on-time graduation rises from 81.2% for 8th grade participation to 88.6% for 12th grade participation. The gap between

participants and non-participants rises from 15.8% in 8th grade to 36.4% in 12th grade. Ever participating is only associated with an on-time graduation rate of 80.6%, but only 38.4% of teens who never participated graduated on-time[64]. Participating in at least one activity in each of the survey years is associated with an on-time graduation rate of 92.9%, while teens who did not participate in all survey years evinced an on-time graduation rate of 64.2%.

The impact on total years of educational attainment is comparable to that of sports participation. Students who participated in secular activities in 8th grade completed an average 0.9 additional years of school, while participating in 10th grade was associated with an additional 1.1 years of school and participating in 12th grade was associated with an additional 1.6 years of school. Teens who ever participated completed 2.0 more years of school than teens who never participated, and the small group of teens who never participated represent one of only two subsamples considered in this section who, on average, did not complete high school, finishing only 11.8 years of school[65]. Consistent participation across the survey years was associated with an additional 1.4 years of school.

II. From Association to Causation

Dividing the sample into two or more groups and comparing the outcomes of each group reveals some of the key markers of "success," but it is only a preliminary step in supporting an argument for causation. The focus of this study is not to establish all of the operative factors in a teen's educational outcomes. Rather, it is to provide evidence supporting the claim that

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[64] As with all of the potential explanatory variables discussed in this section, interpretation of results must be tempered by acknowledgement of the number of survey respondents who fall into either group. As noted in the previous chapter, 95.7% of survey respondents participated in at least one secular activity (other than sports) in 8th, 10th, or 12th grade.

[65] The other subsample consists of the small group of teens who became parents before the end of 12th grade (observed regardless of whether they were in school at the time).

religious participation has some causal influence, even after controlling for a wide range of other characteristics that likely have some causal influence. Analysis presented in the next section explores this claim in more detail.

Bivariate associations are insufficient to determine whether religious participation has any meaningful bearing on educational outcomes. Multivariate analysis, bolstered by the theoretical arguments for a causal relationship, are critical elements in any efforts to gather evidence on the contribution of religious participation to educational outcomes. Discussion of multivariate results focuses on the *causal* effect of religious participation on outcomes. Distinctions among the causal mechanisms of the types of religious (and secular) participation are emphasized. These distinctions provide guideposts in interpreting the patterns of results.

Another important source of variation among results arises from the nature of the outcomes. If the exact same factors contributed to each of the three outcomes in exactly the same way, then models using the same explanatory variables would produce similar results. Empirical results demonstrate that results differ, sometimes sharply. In addition, teens can succeed at one or two outcomes and not the other one or two. Individual teens have their own sets of needs they need met to reach educational success. Some teens are better able to have those needs met than are others, either because of the nature of the needs or because of limitations on their ability to access resources to address those needs.

Two of the outcomes in the present study are highly related. Teens who succeed at the on-time graduation outcome also succeed at ever completing12th grade or the equivalent, by definition. Differences in results for these two outcomes can be attributed to the group of teens who succeed at the latter but not the former.

The literature review in Chapter 2 addressed broadly the factors that are thought to contribute to educational success, such as family support, parental expectations, role models, pressure from important adults to achieve, freedom from distractions and seemingly attractive alternatives, innate ability, residential stability, and favorable conditions in the neighborhood. In addition, teens must adopt values expressed by the family, culture or society (if they are so expressed) that favor education and socioeconomic success, and they must be comfortable being affiliated with an institution. But what accounts for success along some measures but not others? The results of this study shed light on this question, but a few observations are made, a priori.

In addition to the conditions and characteristics that contribute to educational success generally, to graduate on time, a student must avoid dropping out. Dropout can occur because of low achievement, frustration, change in life or family circumstances, and obstacles such as substance addiction, delinquency, and teen parenthood.

To complete 12th grade ever depends on the same circumstances, and if all of those circumstances are favorable, the teen is likely to graduate on time. The vast majority of teens do graduate on time. If the teen does not graduate on time, however, then the teen must overcome additional obstacles in order to complete 12th grade ever. Teens or young adults who pursue an equivalent degree must pursue their education without the same institutional support that students enjoy, and possibly concurrently with work or other obligations that took them out of school in the first place. Teens who graduate late suffer the stigma of having fallen behind in their education and must interact on a daily basis with students who are younger than they are. These teens who graduate late or receive an equivalent degree must have the wherewithal, including the intestinal fortitude, to pursue it. Emotional and mental strength and

social support are likely to be key factors, and religious participation can provide both of those elements.

Total educational attainment is a continuous variable, and as such has no point at which a teen is deemed to have achieved success. A teen or young adult could decide at any time to discontinue or restart education. Teens will pursue education if they perceive that the benefits exceed the costs, although they may not be able to assess the long-term benefits and costs accurately or apply appropriate weights to net benefits that may accrue outside of the short-term. The nature of the costs and benefits will shift over the teen's life and vary with the nature of the educational pursuit being contemplated. Placing value on future well-being and socioeconomic success, and willingness to make sacrifices in the present for future benefits are important. Religious participation can provide these benefits, but the link is less clear; not all faiths espouse those values.

III. Multivariate Analysis

Multivariate analysis sorts out the role of religious participation from the concurrent effects of myriad other circumstances that the child faces. This section presents first the results of analysis performed to detect endogeneity, then hypotheses associated with each of the research questions and finally the results of analysis performed for each of the research questions. The first research question is a baseline linear model that controls for a full set of background characteristics. Subsequent research questions explore alternative hypotheses regarding the true causal mechanisms that promote educational outcomes. As a group, the research questions explore whether religious participation remains significant when other explanatory factors are introduced.

Following this section, section IV summarizes findings, and the implications of those findings are discussed in Chapter 6.

A. Endogeneity

Is it really religious participation that promotes educational success, or is it the characteristics of the teen, family, and context that motivate religious participation that actually promotes educational success? Religious participation varies systematically across individuals and changes over time in response to a number of circumstances and factors in an individual's life, some of which are observable and measurable, some of which are not. If excluded or included variables are associated both with religious participation and outcomes, models could misestimate the influence of religious participation.

Only participation in non-worship religious activities in 1992 was found to be endogenous with respect to total years of educational attainment. A finding of endogeneity implies that other factors that may or may not be included in the model promote religious participation. Failing to account for that influence would result in misestimation of the role of religious participation. Two instruments are found to be valid, the number of churches per 10,000 population in the county in which the child resided in 1990, and the 1990 voter participation for the county in which the child resided. A detailed discussion of the multi-step procedure used to detect endogeneity and establish whether proposed instruments are valid appears in section IIIA of the appendix, beginning on page 197.

B. Research Question 1

Does religious participation during teen years, controlling for other characteristics of the child's life, contribute to educational success, defined here as completing high school on time, ever receiving a high school or equivalent diploma, and total educational attainment?

Religious participation should make a difference in the educational success of teens because it provides an opportunity for teens and parents to build their own human capital and tap into and foster stronger community social capital. It also promotes well-being and prosocial values and behaviors, which in turn contribute to educational success.

Preliminary analysis demonstrated that non-worship religious activities in 1992 is endogenous with respect to total years of educational attainment, so IV estimation was used in modeling this outcome.

Significant coefficients are listed below in Figure 6 through Figure 11. Modeling results for all religious participation variables appear in section III.B of the appendix, Figure 23 through Figure 25, beginning on page 203.

These results reveal that for a representative sample of teens, some forms of religious participation at some points in teen's development contribute modestly to the likelihood of graduating on time or completing 12th grade or the equivalent ever, but not total years of educational attainment.

- Teens who reported attending worship in 1990 are one-third more likely (1.35 times) than other teens to graduate from high school on time.
- Teens who attend worship in 1992 are almost twice (1.92 times) as likely as other teens to complete 12th grade or the equivalent ever.
- Teens who participate in non-worship religious activity are two-thirds more likely (1.68 times) to complete 12th grade or the equivalent ever.

Figure 6. Summary of Results, Research Question 1

Outcome	Year	Religious Participation	Significant Results
EDYRS: Total Years of Educational Attainment	1988	[illegible]	-
		Non-Worship Religious Activities	-
	1990	Worship Attendance	-
		Non-Worship Religious Activities	-
	1992	Worship Attendance	-
		Non-Worship Religious Activities	-
HSGRAD: Completed 12th grade or equivalent, ever	1988	[illegible]	-
		Non-Worship Religious Activities	1.71
	1990	Worship Attendance	-
		Non-Worship Religious Activities	-
	1992	Worship Attendance	1.92
		Non-Worship Religious Activities	-
ONTIME: Graduated from high school on time	1988	[illegible]	-
		Non-Worship Religious Activities	-
	1990	Worship Attendance	1.35
		Non-Worship Religious Activities	-
	1992	Worship Attendance	-
		Non-Worship Religious Activities	-

These results show that the timing and form of religious participation matter.

Why should timing make a difference? Teens have different needs and face different situations at different points in their life. As teens age, they develop a sense of self, independent of their parents. They become more susceptible to outside influence, good and bad. Older teens are generally more mature, better able to absorb the "message" of participation and better able to take advantage of opportunities associated with participation, if they are so inclined. Continued participation as the teen ages reflects continued influence of parents or whatever other persons in their lives encouraged them to join (which may be

accompanied by other positive influences), the willingness of the teen to accept that influence (which becomes more of an option as the teen gets older) or the independent decision of the teen to engage in a beneficial activity, and some level of comfort in maintaining affiliation with an institution. Religious participation helps teens to navigate a difficult period of transition by providing guideposts. It can also provide teens that are just beginning to gain some logistical independence from their parents an alternative to deleterious activities, "keeping them off the street."

Why does the form of participation make a difference? Attendance at worship services is a basic indicator of the individual's level of participation with a religious organization, and is an inherently religious activity. It delivers a message and a set of expectations, and provides some opportunity for relationships and building a social network. Non-worship religious activities can include less strictly religious elements, such as social activities, classes, and volunteer work. Presumably, the same overall message and expectations are delivered as in worship activities, and the same benefits accrue from both, but

C. Research Question 2

Does religious participation remain significant when controlling for participation in secular activities?

Is it religious participation that makes a difference, or is it participation in general? Does secular participation provide the same benefits with respect to educational success as does religious participation? Does religious participation contribute to educational success above and beyond the contribution of secular participation? Secular participation offers many of the same benefits of non-worship religious activities, including delivering a message and a set of expectations, and providing opportunities for cultivating relationships with other participants

and adult leaders, building a social network, and developing social and other skills. Secular participation does not require or promote religious belief, although many forms of participation do require participants to abide by standards and rules, or meet certain eligibility criteria (such as age, ability, resources). Sports participation can provide additional benefits of improved health, increased status within the institution, enforced discipline, and being the object of collaboration among several adult leaders and parents to ensure success. By definition, secular activities are provided by a different group of organizations, either public or private, non-profit or for-profit. Secular activities can take place at any time of the week and do not have the same locational limitations that religious activities do.[66]

A large portion of schools attended by students in the sample offered some kind of sport or non-sport secular activity (98.6% in 8th grade, 74.6% in 10th grade, 82.3% in 12th grade). Presumably all survey participants would have access to some form of sport or non-sport secular activity outside of school, such as scouts, 4-H, and league sports. Students attending schools that do not offer any activities and teens who have dropped out of school face unquantifiable logistical obstacles to participation. Obstacles raise the cost of participation, and reduce the likelihood that these teens would choose to participate. Interpretation of results and development of associated policy implications must account for this unmeasurable but important suppressive effect.

Key results are summarized in Figure 7. Detailed results are provided in the appendix, Figure 26 through Figure 27. Modeling for total years of educational attainment accounts for the endogeneity of non-worship religious activities in 1992.

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[66] Many religious activities can not take place in public spaces. All activities have some logistical and practical limitations on time and place.

Figure 7. Summary of Results: Research Question 2

Outcome	Year	Secular Participation		Religious Participation	
EDYRS: Total Years of Educational Attainment	1988	Non-Sport	-		
		Sport	-	Non-Worship Religious Activities	-
	1990	Non-Sport	-	Worship Attendance	-
		Sport	+ 0.1 years	Non-Worship Religious Activities	-
	1992	Non-Sport	-	Worship Attendance	-
		Sport	+ 0.2 years	Non-Worship Religious Activities	-
HSGRAD: Completed 12th grade or equivalent, ever	1988	Non-Sport	-		
		Sport	1.68	Non-Worship Religious Activities	1.61
	1990	Non-Sport		Worship Attendance	-
		Sport	2.22	Non-Worship Religious Activities	-
	1992	Non-Sport	1.80	Worship Attendance	1.88
		Sport	-	Non-Worship Religious Activities	
ONTIME: Graduated from high school on time	1988	Non-Sport	-		
		Sport	1.69	Non-Worship Religious Activities	-
	1990	Non-Sport		Worship Attendance	-
		Sport	2.57	Non-Worship Religious Activities	-
	1992	Non-Sport	-	Worship Attendance	-
		Sport	-	Non-Worship Religious Activities	-

Several conclusions emerge from analysis that includes participation in worship and non-worship religious activities, as well as sport and non-sport secular activities.

The contribution of religious participation to the likelihood of ever completing 12th grade diminishes little as a result of controlling for secular participation. The magnitude and timing of this contribution (1.61 times the likelihood associated with participation in 1988 and 1.88 times the likelihood associated with participation in 1992) is almost the same as for concurrent secular participation (1.68 times the likelihood associated with participation in 1988 and 1.80 times the likelihood associated with participation in 1992) The likelihood of ever completing 12th grade is the only outcome influenced by religious participation when controlling for secular participation.

Each year of participation in sports influences at least one of the outcomes, and for each outcome, the effect is stronger when it occurs later. Non-sport participation only contributes to the likelihood of ever completing 12th grade when participation occurs in 12th grade. These results imply that sports participation is more effective at promoting educational outcomes. This finding could be the result of more effective delivery of a "success" message, self-selection of teens who are already bound for educational success, or other incentives associated with participation that have the effect of encouraging education. If non-worship religious activities and secular activities address similar needs and provide similar types of benefits, then secular activities seem to be somewhat better able to deliver those benefits in a way that promotes educational success. Unquestionably, part of the greater effectiveness of secular activities must be related to providing an incentive to teens to stay in school. The converse must also be noted, that teens who avoid dropping out have more opportunities for

secular participation, while opportunities for religious participation for dropouts does not change.[67]

The final research question dovetails with this one by exploring whether the impact of religious participation differs by some basic characteristics of teens, in addition to time.

D. Research Question 3

Does the effect differ for the poor, minorities, or persons living in neighborhoods of concentrated disadvantage?

Modeling associated with this research question introduced interactive terms to uncover differences in the effectiveness of religious participation by subgroups of the population. Separate sets of models were run to uncover such differences on the basis of race and ethnicity, family income in 1988 and 1992, and neighborhood. Results associated with Research Question 3 demonstrate that the effectiveness of religious participation is limited to subgroups of the population.

1. Differences by Race and Ethnicity

The first set of models sought differences in the effectiveness of religious participation by race and ethnicity. Minority adolescents might have a different experience with religious participation because religious institutions are highly racially segregated (Roof and McKinney 1987; Smith, Denton et al. 2002), and the religious institutions that minorities belong to are quite different in nature and scope of activities than non-minority institutions (Chaves and Higgins 1992; Rubin, Billingsley et al. 1994; Eng, Hatch et al. 1985; Greenberg 1998; Mews 1989).

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[67] Whether dropouts have the same inclination to participate in religious activities is another question. Alienation from one institution (school) could correlate with alienation from other institutions, religious or secular.

The base case is non-Hispanic white teens who do not participate in any religious activities.

Significant results shown in Figure 8 reveal that the benefits of religious participation are largely limited to non-Hispanic white and non-Hispanic black teens. These findings imply that the religious institutions with which non-Hispanic black and non-Hispanic white teens are affiliated are well-equipped to help these teens to achieve educational success, and that these teenagers are receptive to that kind of assistance. The effectiveness of different forms of religious participation for different racial and ethnic groups demonstrates variation in need that is not accounted for by the wide range of control variables included in the models.

An exception to this limitation is a strong influence of attending worship in 1990 with respect to the likelihood of ever completing 12th grade for Hispanic teens. This finding may reflect a lack of variation among Hispanic teens, suggesting that religious participation is a very strong predictor of being on a path to success. However, the fact that significant results are limited to a single form of religious participation in a single year with respect to a single educational outcome undermines this interpretation.

Figure 8. Research Question 3: Outcomes by Race and Ethnicity

Outcome	Year	Religious Participation	Group	Signif. Results
EDYRS: Total Years of Educational Attainment	All	None	-	-
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	Non-Hispanic White	0.22
			Non-Hispanic Black	0.38
			Other	-0.42
		Non-Worship Religious Activity	Non-Hispanic White	0.19
HSGRAD: Completed 12th grade or equivalent, ever	All	None	Other	0.22
	1988	Non-Worship Religious Activity	Non-Hispanic Black	4.26
			Other	0.04
	1990	Worship Attendance	Hispanic	15.94
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	Non-Hispanic Black	3.29
		Non-Worship Religious Activity	-	-
ONTIME: Graduated from high school on time	All	None	-	-
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	Non-Hispanic White	1.43
		Non-Worship Religious Activity	-	
	1992	Worship Attendance	Non-Hispanic Black	2.47
		Non-Worship Religious Activity	-	-

2. *Differences by Family Income Group*

The second set of models examined potential differences in the effectiveness of religious participation by income group. While controlling for the same range of background

characteristics as other models in this study, are there significant differences in the effectiveness of religious participation across income groups?

Poor adolescents might gain more from secular or religious participation because of the relatively fewer resources available to them in the home, and because organizations may be able to offset some of the myriad disadvantages these adolescents face, either directly or indirectly. In the 1988 survey, when family income is observed, the lowest quartile included families earning up to $19,999, which is above the poverty threshold[68] but nonetheless reflects a very low level of income. [69] In the 1992 survey, families in the lowest income quartile had incomes no greater than $22,500.

The base case is teens in the lowest income quartile who never participated in religious activities. Results by 1988 family income quartiles are shown in Figure 9, and results by 1992 family income quartiles are shown in Figure 10. Only significant coefficients are listed in these figures.

The beneficial effective of religious participation is restricted to families with income in the lowest quartile. The benefit to the lowest income teens is expected because of their relatively greater needs. Any detriment to educational outcomes associated with religious participation could be the result of being affiliated with a denomination that discourages educational or socioeconomic success, or the result of time spent on religious activities taking away from time available for activities that could more effectively promote educational success. No significant benefits for fourth income quartile teens may be because these teens have the resources to access many other alternative activities, some of which are more

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[68] The poverty threshold varies with family composition. In 1990, the poverty threshold for a one-parent, two-child household was $10,530, rising about $2,500 per person for one additional parent or child.

[69] In regressions, 1988 income was adjusted for inflation to 1992 dollars; income for 1992 was also included.

conducive to educational success. Variation among the income groups arises from differences in the nature of the religious institutions that they affiliate with and systematic differences in the needs of teens among the different income groups.

Results differ markedly for 1992 income quartiles. The effects of religious participation are not concentrated among teens in the lowest income quartile. Teens in the lowest income quartile are only more likely to graduate on time as a result of attending worship in 1990 (in the full sample, this association became insignificant when controlling for secular participation). Religious participation in 1992 continues to promote total years of educational attainment, but only non-worship religious activities, and only for teens in the third income quartile. Teens in the second, third, and fourth income quartiles benefit from improved likelihood of graduating on time or completing 12th grade ever as a result of various forms of participation in 1988 and 1992.

That religious participation becomes less effective for low-income teens in 1992 (approximately age 18) than in 1988 (approximately age 14) is puzzling, especially considering that it is later religious participation (in 1992) that benefits teens who are low-income in 1988.. The benefits of several forms of religious participation in 1988 and 1992 to teens in the third and fourth income quartiles, in light of the finding that no religious activity benefited teens in these income groups in 1988, point to a very different role for religious participation in the lives of affluent teens over time, and in comparison to lower income teens. Again, shifts in needs, differences in religious institutions with which they are affiliated, and the availability of alternative influence the effectiveness of religious participation.

Another possible explanation for differences across income groups is that regional differences in income levels would lead to over-representation of some regions in some

income groups, so that the effect of income is confounded by the effect of region. Income differences in urban, suburban and rural areas could also result in overrepresentation of certain groups in certain income quartiles. These geographic characteristics could be the source of at least some of the variation, in which case a number of other interpretations are possible.

Figure 9. Research Question 3: Outcomes by 1988 Family Income Quartile

Outcome	Year	Religious Participation	Quartile	Signif. Results
EDYRS: Total Years of Educational Attainment	All	None	3	0.54
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	1	0.23
			2	-0.42
		Non-Worship Religious Activity	-	-
HSGRAD: Completed 12th grade or equivalent, ever	All	None	-	-
	1988	Non-Worship Religious Activity	1	1.68
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	1	1.96
		Non-Worship Religious Activity	-	-
ONTIME: Graduated from high school on time	All	None	-	-
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-

Figure 10. Research Question 3: Outcomes by 1992 Family Income Quartile

Outcome	Year	Religious Participation	Quartile	Signif. Results
EDYRS: Total Years of Educational Attainment	All	None		-
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	-	-
		Non-Worship Religious Activity	3	0.37
HSGRAD: Completed 12th grade or equivalent, ever	All	None	2	0.38
	1988	Non-Worship Religious Activity	2	2.67
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	3	6.06
			4	5.61
		Non-Worship Religious Activity	3	16.54
ONTIME: Graduated from high school on time	All	None	3	0.31
	1988	Non-Worship Religious Activity	3	2.98
	1990	Worship Attendance	1	1.56
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	2	1.90
			4	5.24
		Non-Worship Religious Activity	-	-

3. *Differences by Neighborhood Type*

The last set of models examines differences by neighborhood type. Neighborhoods are divided into quartiles according to the percentage of persons age 25 and older in the teen's zip code that have graduated from high school. The rate of high school graduation in the lowest

quartile was no more than 67%. Differences by neighborhood are expected because more than half (57%) of religious participants live within a 10-minute drive of their place of worship, including 19% who live within a 10-minute walk (Chaves 1998). Common characteristics among persons living in a zip code will likely equate to common characteristics among persons affiliating with houses of worship in the neighborhood. The characteristics of the member probably influence organizational characteristics. The results of this model will indicate whether there are differences in the ability of houses of worship that serve different locales to promote educational outcomes. The base case is teens who live in the lowest quartile neighborhood and who do not participate in religious activities; see significant coefficients listed in Figure 11.

Almost all of the effect of religious participation for the full sample actually only influences teens in the lowest neighborhood quartile (in 1988). An unexpected result is that worship in 1992 is associated with fewer years of educational attainment for fourth neighborhood quartile teens. Second neighborhood quartile teens only benefit from participation in non-worship religious activities in 1992, with respect to graduating on time. No form of religious participation makes any difference for third neighborhood quartile teens.

These results are very similar to the results for 1988 income quartiles. This is not surprising, given that the lowest income families tend to be concentrated in the poorest quality neighborhoods. This analysis does not reveal, however, if results would differ for the lowest income families in other neighborhoods, or higher income families in the poorest quality neighborhoods.

Figure 11. Research Question 3: Outcomes by 1988 Neighborhood Quartile

Outcome	Year	Religious Participation	Quartile	Signif. Results
EDYRS: Total Years of Educational Attainment	All	None	-	-
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	1	0.30
			4	-0.31
		Non-Worship Religious Activity	4	0.30
HSGRAD: Completed 12th grade or equivalent, ever	All	None	-	-
	1988	Non-Worship Religious Activity	1	2.05
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
ONTIME: Graduated from high school on time	All	None	-	-
	1988	Non-Worship Religious Activity	-	-
	1990	Worship Attendance	-	-
		Non-Worship Religious Activity	-	-
	1992	Worship Attendance	-	-
		Non-Worship Religious Activity	2	2.08

4. Summary of Sub-Group Analysis

Model results listed in Figure 9 through Figure 11 point to the conclusion that the effectiveness of most forms of religious participation with respect to any of the outcomes is limited to a single subgroup of the population. In most instances, the benefits are limited to teens whose families had relatively low income in 1988 or lived in relatively poor quality neighborhoods in 1988 (as measured by the rate of high school completion among adults).

When differentiating by subgroups, analysis reveals that attendance at worship services in 1992 has a complex pattern of impact. When significant, it evinces differential effects on up to three subgroups. It has a *detrimental* effect on total years of educational attainment for teens with racial or ethnic identification other than non-Hispanic white, non-Hispanic black or Hispanic (-0.42 years), for teens whose families were in the second income quartile in 1988 (-0.42 years) and for teens in the fourth neighborhood educational attainment quartile in 1992 (-0.31 years). In each case, another group enjoys a (statistically offsetting) benefit from attending worship in 1992, which may account for findings of insignificance in earlier models that did not seek differential effects.

These findings imply a wide range of needs among teens belonging to each of these groups, and substantial differences in the ability of those religious institutions with which they are affiliated to address those needs. The coincidence of greater benefit for disadvantaged teens where disadvantage is observed along several different dimensions suggests that context could be a critical factor. Relatively poor children in relatively low quality neighborhoods may attend poorly performing schools and have very limited access to resources outside of the family. Racial and ethnic concentration in neighborhoods and institutions (including religious institutions) suggest that racial and ethnic groups have differential access to resources outside

of the family. Religious institutions may be well equipped to address acute and concentrated forms of need.

E. Other Background Characteristics

The findings of this study with respect to other background characteristics do not diverge significantly from studies conducted by other researchers. Some key points are presented in this section, with two caveats regarding the validity of these findings.

All of the background characteristics are treated as exogenous, which may not be realistic. It is beyond the scope of this study to examine the possible endogeneity of these other variables, in which case estimates would not be consistent.

1. Total Years of Educational Attainment

Intact family status in 1988, 1990 and 1992 (each), having at least one parent who is an immigrant, and having a parent who finished high school (but no parent who finished any more than high school) each are associated with up to 0.2 years more of schooling. Higher levels of parental educational attainment have a larger impact, up to 0.8 more years of schooling for teens who have at least one parent with a graduate degree. The biggest impact is associated with parental expectations. Teens whose parents expect them to graduate from college finish 1.0 more years of schooling. These findings confirm that parents have a strong influence on their children's educational success. The strong effect of parental expectations is especially interesting because it is virtually without cost, requiring only communication with the son or daughter.

Males complete 0.17 fewer years of school than do females. Becoming a teen parent (-1.0 years), using drugs in 1992 (-0.2 years), and using alcohol in 1992 (-0.1 years) all reduce total educational attainment. These obstacles arise as a result of decisions that the teen makes.

Decisions reflect a calculation of risk that may or may not be accurate and perceived benefits, both of which are informed by knowledge, experience, and influences of others.

Geographic region of the U.S. in 1988 had a strong bearing on total educational attainment. Compared to teens in the Northeast, teens in every other region completed less schooling, including North Central (-1.4 years), South (-0.6 years), and West (-1.0 years). Limited mobility among regions may have reduced the effect of region in later years. Funding, curriculum, education policy, and culture may all differ systematically across regions. The teacher's assessment of the achievement level of the class the student is in to other classes also accounts for differences of 0.3 years in 8th and 10th grades, and 0.5 to 0.6 years in 12th grade. However, if students are sorted according to ability, then it is unlikely that this factor has much causal power.

One of the neighborhood variables was also found to be significant in each year. Studies that estimate the impact of neighborhood usually address the endogeneity of the neighborhood decision.

2. *On-time Graduation from High School*

Teens whose families moved once and who have at least one parent who is an immigrant are less likely to graduate on time, while teens whose families have assets available in 1992 to pay for future educational expenses, and whose families were intact in 1990 and 1992 (each) were more likely to graduate on time. The interesting finding here is that so few family characteristics make a significant difference.

Becoming a teen parent drastically reduces the likelihood of graduating on time (5% as likely as teens who avoid parenthood). Use of drugs and alcohol is irrelevant, but getting into

trouble at school or with the law and being disabled both reduce the likelihood of graduating on time.

None of the school or neighborhood characteristics had a significant effect on on-time graduation, suggesting that conditions and characteristics influenced by state policy (that would vary geographically) and conditions and characteristics are irrelevant when accounting for family and individual characteristics.

3. Completion of 12th Grade, Ever

Many more family characteristics are related to completion of high school or the equivalent, including intact family status, parent's educational attainment, and having one sibling. Moving once and having been born to a teen parent reduce the likelihood of ever completing 12th grade. Becoming a teen parent, having a disability, being male, and using drugs in 1990 all diminish the likelihood of success. Some region and neighborhood characteristics are significant, and the teacher's assessment of the achievement level of the class the student is in to other classes also accounts for differences.

IV. Summary of Analytical Results

A table summarizing significant coefficients associated with research questions 1-3 appears as Figure 12.

Fundamental principles of economics would predict that people will only participate in an activity if the benefits exceed the costs, and that they will participate in a way that maximizes their net benefits. Systematic variation in participation rates across demographic and other characteristics suggests that there is also systematic variation in needs (or preferences) among individuals and families.

Figure 12. Summary of Results: Bivariate, Research Questions 1-3

Outcome	Year	Religious Participation	RQ1	RQ2	RQ3: Race/ Ethnicity	RQ3: 1988 Family Income	RQ3: 1992 Family Income	RQ3: 1988 Neighborhd Quartile
EDYRS: Total Years of Educational Attainment	1988		-					
		Non-Worship	-	-		-		
	1990	Worship	-	-		-		
		Non-Worship	-	-		-		
	1992	Worship	-	-	0.22 0.38 -0.42	0.23 -0.42		0.30 -0.31
		Non-Worship	-	-	0.19		0.37	0.30
HSGRAD: Completed 12th grade or equivalent, ever	1988		-					
		Non-Worship	1.71	1.61	4.26 0.04	1.68	2.67	2.05
	1990	Worship	-	-	15.94	-		
		Non-Worship	-	-		-		
	1992	Worship	1.92	1.88	3.29	1.96	6.06 5.61	
		Non-Worship	-			-	16.54	

Outcome	Year	Religious Participation	RQ1	RQ2	RQ3: Race/ Ethnicity	RQ3: 1988 Family Income	RQ3: 1992 Family Income	RQ3: 1988 Neighborhd Quartile
ONTIME: Graduated from high school on time	1988		-					
		Non-Worship	-	-		-	2.98	
	1990	Worship	1.35	-	1.43	-	1.56	
		Non-Worship	-	-		-		
	1992	Worship	-	-	2.47	-	1.90 5.24	
		Non-Worship	-	-		-		2.08

Teens participate in religious activities in relatively high rates. Teens who participate in any of the five types of religious activities under study achieve greater educational success than do their counterparts. But do these results persist when controlling for a wide range of other background characteristics?

Some forms of religious participation do contribute to educational outcomes, even after controlling for other conditions and characteristics of the teen's life. The timing of that participation matters, and the nature of that participation matters. Even when controlling for secular forms of participation, attending worship services in 1992 contributes to total years of educational attainment and the likelihood of ever completing 12th grade, and participating in non-worship religious activities in 1988 also contributes to the likelihood of ever completing 12th grade. Models that look for differential effects by subgroup find that in almost all cases, the effect of each of these variables is limited to one or at most two groups. Some of the patterns of effectiveness of various forms of participation at various times for various groups defies clear interpretation.

This study has found results that are significant in a statistical sense, but are they significant in a policy sense?

With some exceptions, very few background characteristics individually have a substantial impact on the educational outcomes under study. However, significant effects are independent of one another, so that improving any one background characteristic does not diminish the effectiveness of improving another background characteristic. Efforts to improve educational outcomes for teens should be multi-faceted, and address multiple background characteristics.

Religious participation per se as a public policy strategy is untenable. Some form of religious participation is readily and freely accessibly to nearly all families, but it is not

necessarily desirable or preferable. Stronger results for secular participation, especially the role of sports participation point to a role for public and private institutions in the lives of teens. Additional study should focus on uncovering the mechanisms that render sports participation so effective to determine whether those mechanisms can be replicated in other settings.

Chapter 6. POLICY IMPLICATIONS AND CONCLUSION

I. Policy Implications

The main contribution of this study is to provide a much deeper and broader understanding of the extent to which religious and secular participation from 8th grade to 12th grade helps late adolescents attain educational success. The results of this study have direct implications for policy.

The overall finding of this study is that religious participation can contribute to successful educational outcomes for teens. The timing and nature of this participation matters, and benefits are limited to subgroups of the population. Differential effects on the basis of timing, nature, and target population arise because of variations in the needs of teens over time and across groups, variations in the institutions with which groups affiliate, variations in the capacities of those institutions to meet the needs of their members, and the availability of other activities that may be more effective for some groups. Many forms of secular participation are as effective or more effective than religious participation, and can provide additional rather than substitute benefits.

A. Public Policy Measures to Reduce Obstacles to Religious Participation

While most forms of religious participation promote educational success only modestly (with some notable exceptions), religious participation has a key characteristic that other "treatments" do not: parents are able to provide religious activities directly to their children without any kind of assistance from other public or private institutions. It is well beyond the purview of public policy to encourage religious participation in any way. But it would be a mistake to interpret that principle (and very clear, longstanding legal restrictions on government activity to promote religion) to mean that government actions have no bearing on the religious participation of individuals. On the contrary, there are legitimate ways that the government can alter incentives that the individual faces to encourage religious participation.

1. More Houses of Worship in a Community Would Encourage Religious Participation

The proliferation of houses of worship would promote religious participation *not* simply because a supply of religious participation opportunities would create demand. Rather, facilitating the location of houses of worship in an area would promote religious participation because a higher density of houses of worship, especially near residential areas, would reduce the costs to the individual of participating by reducing time and distance to travel. According to the National Congregations Study (Chaves 1998), more than half (57%) of religious participants live within a 10-minute drive of their place of worship, including 19% who live within a 10-minute walk. Therefore proximity is likely an important consideration in the attendance decision.

A higher density of houses of worship would also encourage participation because each organization would be slightly different and therefore appeal to a slightly different population. Returning to the concept of religious participation as a consumption good, described in detail

in Chapter 2.VI.A, the market for religious "goods" operates more efficiently when more choices are available because consumers are better able to match their preferences. A higher number of choices equates to greater variation among choices because religious institutions continue, expand or start up in locations where institution leaders perceive that they have something to offer a community that was not already available.

Research by Barro and McCleary (2002) supports this concept. They used national level data to compare attendance rates in countries where a single denomination is predominant (as is common in Western Europe) to countries where religious pluralism prevails, primarily the United States. They argue that religious pluralism leads to healthy competition among denominations, and that people are better able to find a denomination that suits their preferences when they have a choice. Denomination is a marker for a number of organizational differences, but is certainly not the only source of organizational differences. Although denomination may be a primary basis that people use to choose a religious organization, it seems logical that other characteristics would also have a bearing on the decision. A seventh Baptist church, a second Hindu temple, a fifth Catholic church, or a third Jewish synagogue could represent an expansion of options available to a community.

Public policy can reduce or remove obstacles and even facilitate the siting and continued operation of churches in particular areas. Zoning regulations, site development requirements, the building code and tax policies can either encourage or discourage the siting of houses of worship, and can either promote or hamper the ancillary activities of religious organizations that can be so vital to their operations. The approval process, for instance, for a new house of worship in an existing downtown building might require a public hearing to approve the use, waivers for parking requirements and sign regulations, special permission for mid-week

activities and special events, and special permission for outreach and community service activities (particularly activities that bring large numbers of service recipients to the site)[70]. The jurisdiction could require religious leaders to bring the building into full compliance with the Building Code prior to occupancy. Streamlining of the approval process, waivers for religious organizations, and eased requirements for reuse of existing buildings could promote the proliferation of houses of worship in certain areas by reducing the transaction costs and development costs.

2. Understanding the Role of Organizational Characteristics Could Enhance the Effectiveness of Teen Participation

The conclusion that the timing and the nature of participation influence educational success in different ways, and in different ways for subgroups of teens, suggests that organizational characteristics influence the effectiveness of participation. The structure and scope of the data set used for this study prevented all but the most rudimentary distinctions among organization and participation types, distinguishing between religious and non-religious, worship and non-worship, and sport and non-sport. Previous studies summarized in Chapter 2.IV.D and Chapter 2.V suggest numerous ways that each of these forms of participation is thought to promote the educational success of teens. Additional comparative study and dissemination of findings to organizations that provide participation opportunities to teens could improve effectiveness. What organizational characteristics, such as size, governing and decision-making structure, expertise of administrative people, resources, level of demands

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[70] From a land use standpoint, community concerns with construction of new churches, especially large ones, arise from the size and design of the worship buildings (Estrada 1997), the magnitude of the parking lot required to accommodate worshipers, surges in traffic loadings just before and just after services and other events, signage, and compatibility of ancillary uses (particularly social services) with surrounding uses (Reed 2003). These concerns should not be discarded lightly, but instead balanced carefully against the potential benefits of the use.

made on members, leadership, make a difference? What programming characteristics, such as breadth of programming options available to members, values orientation towards success, consistency and persistence of the "success" message, activities that build capacity in members for success, addressing whole life circumstances, frequency and duration, make a difference? Some of these attributes could be shared or adapted across organization types.

3. *Improving Access to Secular Activities Could Improve Educational Outcomes*

Just as improving the proximity and expanding the range of choices of religious activities are likely to boost the level of participation, providing a greater range of choices of secular activities and removing logistical obstacles, such as transportation and scheduling, could boost the level of participation in secular activities. It is beyond the scope of this study to explore why teens participate in secular activities, but the principles discussed at several points throughout this study offer insight here. The type of support that teens need in order to achieve educational success varies, and some of that variation is systematic in the sense of being common to groups of teens sharing certain characteristics. Teens do not have equal access to a full range of support. The organizations with which they affiliate (if any) are not equally suited to providing support, and not all teens seek support from organizations. Nonetheless, teens are more likely to find the support they need from organizations if they are readily accessible, the benefits of affiliation are perceived to outweigh the costs, and there is a sufficient range of choices that teens are reasonable well able to match their preferences.

Schools can promote organizational involvement in myriad ways, such as by providing the meeting space and adult leadership, scheduling to accommodate activities during the school day, resources, recognition, and a supportive environment. Other public entities and nonprofit organizations can provide opportunities for organizational affiliation for teens no longer in

school as well as students. Promoting organizational involvement and making participation opportunities available are not straightforward policy initiatives because of the wide range of options, disagreement about the effectiveness and suitability of certain activities, and competing priorities for limited time, financial support, and other resources.

B. Limitations to Religious Participation as a Means to Educational Success

The recommendations above pertaining to religious participation as a means to educational success are presented with some caveats some of which have already been alluded to. First, increasing religious exposure is one potential pathway to success for teens, but it is not the only pathway. Further study is needed to establish whether increasing religious exposure is a cost effective or resource effective means for parents to promote educational outcomes. A closely related issue is whether in a world of limited education funding and time constraints (of the school day and of teens who may have full schedules), some form of religious participation is the best way to promote total years of schooling, on-time graduation, or other educational outcomes.

Second, not all forms of religious participation are alike. Any number of individuals could attend a single activity or series of activities and respond in distinct ways. In addition, a single person's response to participating in a some activity type, such as youth group, could vary from day to day, from church to church (or synagogue to synagogue, temple to temple, etc.), and from denomination to denomination. Undoubtedly, religious leaders would like to discover the "technology" or process that renders participation more effective in the sense of being more transformative to the individual, but such a technology has apparently not yet been found. Some studies have suggested that stricter denominations have higher participation rates among their members because they place high demands on them and promise great rewards in

return (Iannaccone 1994; Kelley 1986). Building on this framework, we might speculate that any form of participation that requires a low level of engagement and is inconsistent in its message is likely to be less transformational than participation that requires more active involvement and whose message is reinforced in worship services or through some other means.

A third issue that must be considered is that not all religious organizations are alike. Organizational characteristics can also be important, for instance, with respect to how closely programming is tied to the religious life of the church, and operationally how distinct the programming is from other religious activities. A religious organization that sees its mission as helping persons in need would probably be more effective at promoting educational outcomes than would a religious organization that is mainly concerned with proselytizing or recruiting new members. All of these factors and many others play a critical role in program effectiveness and should be considered before implementing any programs or initiatives.

As noted earlier, not all teens respond to programming in the same way. Average effects mask important variations, and it seems likely that some of that variation is systematic and identifiable. The present study makes the teen the unit of analysis, and two possible sources of that systematic variation, low income and minority status, were explored. Many other such characteristics and groups of characteristics should similarly be explored.

Finally, any effort at increasing the religious participation of teens must conform to legal requirements governing the separation of church and state. The "faith-based initiative" and several court cases have established some of those requirements, while some dimensions remain unclear.

C. Other Conditions and Characteristics of the Teen's Life Make a Difference for Educational Success

Including a wide range of background characteristics in this study allows the researcher to observe some of the other factors that contribute to success. Because some teens succeed at one or more educational outcomes and not at one or more of the others, it is clear that there is some variation in the requirements for success in terms of each. This claim is bolstered by empirical results revealing that different factors relate to each of the outcomes and the magnitude of the associations differ for each of the outcomes. Nonetheless, some common findings emerge.

Parental influence is very important in the educational success of their children. The strong association between parents' own educational attainment and their children's educational success demonstrate that parents are important role models, and their own learning can help their children to succeed at school. Policy initiatives to increase the educational attainment of parents could be expensive and difficult to implement. On the other hand, policymakers should understand that the children of parents who have not completed much schooling are at a disadvantage and may need additional assistance to succeed.

Expectations are also highly effective in promoting children's educational success. The strong effect of parental expectations, regardless of how much education the parent has completed, is especially interesting because it is virtually without cost, requiring only communication with the son or daughter. Public awareness campaigns could help parents to understand the importance of setting high expectations for their children. Schools and other organizations could reinforce this message by delivering it through alternative means and doing so consistently.

Intact family status also has some association with educational success. However, studies not reviewed here have suggested that simply having two parents in the household is not an unambiguous improvement over all alternatives. Some public policy initiatives aimed at strengthening the family have been attempted, not without some controversy and as yet without clear results.

The teen years present a number of hazards that if not dealt with successfully could become obstacles to education. Early parenthood derails a majority of teens from education, although empirical results demonstrate that there are a number of factors that contribute to ever completing 12th grade for teens who are not able to graduate from high school on time. Getting in trouble at school or elsewhere and use of drugs and alcohol can also impede educational success, but to a lesser extent. Policy initiatives aimed at improving these intermediate outcomes should be expected to have a secondary benefit of promoting educational success.

D. Implications for the Faith-Based Initiative

The adoption of "charitable choice" provisions in several major federal social service programs since 1996 has revived debate on the role of religion in public policy. One justification given for charitable choice is the assertion that all else being equal, religious organizations have an advantage in providing some social services to some clients. Credit for the putative advantage is given, in part, to the central role of values in these programs and the explicitly transformational approach assumed to be common among religious institutions. Yet little is known about the effectiveness of religion and religious institutions in promoting "successful" adult outcomes. Although this study does not specifically examine the efficacy of

faith-based social services, it does attempt to shed light on whether a religious setting per se benefits the individual, specifically with respect to educational attainment.

Analysis performed in connection with research question 2 points to the conclusion that although religious institutions and religious settings per se have some positive effect, they may be *less* effective than their secular counterparts in promoting educational outcomes. Other systematic variations among organizations and programs could account for these results, and disaggregation of organization type might reveal important exceptions to this finding. Nonetheless, this study calls into question whether faith-based institutions have any advantage in helping people to succeed.

II. Conclusions

Does religious participation contribution to educational success among teens? Yes, to a limited extent, but it varies by form of participation and timing. It is not as effective as other sport and non-sport activities that teens engage in, but it is something that parents can provide to their children without the involvement of any level of government of non-profit organizations. The impact of many forms of secular participation point to the benefit of activities provided by government and non-profit organizations. Results that differ on some of the key characteristics on which people sort themselves into religious institutions (race, income, and neighborhood), suggest that the effectiveness of religious participation varies with some kind of unmeasured need and by organizational characteristics.

Although this study does not contrast explicitly the effectiveness of publicly versus privately provided opportunities for organization, there are implications for the role of such publicly funded opportunities generally. Religious participation is made available and opted into strictly through non-governmental channels; parents can expose their children to

religious participation at their own volition. Other types of organizational participation require the existence of public and non-profit institutions to make those participation opportunities possible. While school-based and non-school-based activities are sure to differ in important ways, this study does not differentiate their impact. Rather, results of this modeling effort demonstrate that parents can provide (religious) participation opportunities that promote educational outcomes. This study also provides evidence to support the importance of secular participation, above and beyond religious participation.

This study has also demonstrated that a wide array of circumstances and conditions in a teen's life can have an impact on educational outcomes. While addressing any individual factor can make a difference, substantial improvement proceeds from a multi-faceted, holistic approach, particularly for teens who experience multiple disadvantages.

APPENDIX

I. NELS 88 Religious Participation Survey Questions

Figure 13. Survey Questions Used to Create Religious Participation Variables

Variables	NELS 88 Survey Questions	Survey Question Responses
ATTEVR90, ATTEVR92: 10th and 12th grade attendance *0=Did not report attending* *1=Attends at least sometimes* *missing discarded*	In the past year, about how often have you attended religious services?	1 More than once a week 2 About once a week 3 2 or 3 times a month 4 Once a month 5 Several times a year 6 Not at all 96-99 Multiple, missing, legit skip
RELACT88 Engaged in religious education, a religious group at school or religious youth group outside of school in 8th grade *0 = no* *1 = yes* *missing discarded*	Have you or will you have participated in any of the following school activities during the current school year, either as a member, or as an officer (for example, vice-president, coordinator, team captain)? *BYS82T Religious organization*	1 Did not participate 2 Participated member 3 Participated officer 6-9 Multiple, missing, legit skip
	Have you or will you have participated in any of the following outside-school activities this year, either as a member, or as an officer (for example, vice-president, coordinator, team captain)? *BYS83B Religious youth groups*	1 Did not participate 2 Participated member 3 Participated officer 6-9 Multiple, missing, legit skip
	Has your eighth grader attended classes outside of his or her regular school to study any of the following? *BYP60E Religion*	1 Yes 2 No 6 – 9 Multi, msg, legit skip

Variables	NELS 88 Survey Questions	Survey Question Responses
	Since your eighth grader began the first grade, has he or she been involved in any of the following non-school activities? (MARK ONE EACH) *BYP63E Religious group*	1 Yes 2 No 6 – 9 Multi, msg, legit skip
RELACT90, RELACT92 Engaged in religious activities in 10th grade. *0 = no* *1 = yes* *missing discarded*	How often do you spend time on the following activities (outside of school)? *F1S44O, F1D34P Attending religious activities* *F2S33C, F2D35C Participating in religious activities*	1 Rarely or never 2 Less than once a week 3 Once or twice a week 4 Every day or almost 6 – 9 Multi, msg, legit skip
	In the past 2 years, did any of the following things happen to you? *F1D27E, F2D24E I did work for my religious group.*	1 Applies 2 Does not apply 7-9 Refusal, msg, legit skip
	Which of the following types of organizations are/were you involved with during your unpaid volunteer or community service work? *F2S39D Church or church-related groups (not including worship services)*	1 Yes 2 No 6-9 Mult, msg, legit skip

II. Descriptive Statistics and Bivariate Associations

Variables that refer to conditions, circumstances or experiences at school in 10th or 12th grade are based on data for students, rather than the full sample. These results are discussed in section of Chapter 5.

Not all of the variables in this table appear in the models.

Figure 14. Descriptive Statistics and Bivariate Associations

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
Outcomes					
ONTIME	Graduated in 1992 or before	78.8			
HSGRAD	Received a high school diploma or GED by 2000	93.6			
EDYRS	Average number of years of schooling: 13.7 years	-			
Key Explanatory Variables					
ATTEVR90	1990 (10th grade) attendance at worship services:				
	Ever attend	74.9 %	83.5 %	95.8 %	14.0 yrs
	Does not report attending	25.1 %	64.5 %	87.1 %	12.9 yrs
ATTEVR92	1992 (12th grade) attendance at worship services:				
	Ever attend	67.1 %	82.8 %	95.4 %	14.0 yrs
	Does not report attending	32.9 %	70.5 %	90.0 %	13.1 yrs

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
RELACT88	Participated in religious classes outside of school, a religious group at school, or a religious group outside of school in 1988 (8th grade):				
	Ever participates	65.2 %	84.0 %	96.1 %	14.0 yrs
	Does not report ever participating	34.8 %	68.9 %	88.9 %	13.1 yrs
RELACT90	Engaged in religious activities in 1990 (10th grade):				
	Ever participates	46.6 %	87.3 %	97.1 %	14.2 yrs
	Does not report ever participating	53.4 %	71.3 %	90.6 %	13.2 yrs
RELACT92	Engaged in religious activities in 1992 (12th grade), including volunteer work with a religious group:				
	Ever participates	45.1 %	87.4 %	97.1 %	14.2 yrs
	Does not report ever participating	54.9 %	71.6 %	90.8 %	13.2 yrs
Religious Control Variable					
RELPER90	Child considers self to be a religious person in 1990 (10th grade):				
	At all	12.6 %	83.9 %	97.3 %	13.9 yrs
	Not at all	87.4 %	72.2 %	93.9 %	13.2 yrs
RELPER92	Child considers self to be a religious person in 1992 (12th grade):				
	At all	14.3 %	81.1 %	94.7 %	13.7 yrs
	Not at all	85.7 %	73.2 %	93.2 %	13.1 yrs

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
Family Characteristics					
FINTACT	Parents were together throughout the study period:				
	Yes	60.0 %	66.2 %	89.6 %	14.1 yrs
	No	40.0 %	87.1 %	96.3 %	13.1 yrs
TNPARENT	Parent a teen at child's birth:				
	Yes	1.7 %	54.2 %	94.2 %	12.2 yrs
	No	98.3 %	79.4 %	66.3 %	13.7 yrs
NUMSIBR	Number of siblings:				
	Zero	15.2 %	73.5 %	91.5 %	13.3 yrs
	One	39.5 %	83.8 %	96.3 %	14.0 yrs
	Two or More	45.4 %	77.2 %	92.1 %	13.5 yrs
FMASSET	Family has assets available for child's educational expenses:				
	Yes:	44.7 %	71.5 %	90.7 %	13.2 yrs
	No:	55.3 %	87.7 %	97.2 %	14.3 yrs
EDUCPARR	Higher of two parents' educational attainment (or attainment of a single parent)				
	Did Not Finish High School	10.8 %	56.3 %	82.8 %	12.2 yrs
	Graduated High School	30.9 %	72.5 %	93.2 %	13.0 yrs
	Junior College or Some College	23.9 %	81.8 %	97.6 %	13.7 yrs
	Graduated College	17.5 %	91.5 %	98.4 %	14.6 yrs
	Graduate Degree	16.9 %	90.8 %	98.7 %	15.0 yrs

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
WK88R	Parents' combined work status in 1988 (8th grade)				
	At least one of two parents work FT	76.3 %	83.4 %	95.1 %	13.9 yrs
	Neither of two parents work FT, or single parent works PT or does not work	12.2 %	58.9 %	86.6 %	12.8 yrs
	Single parent works FT	11.4 %	72.7 %	93.5 %	13.3 yrs
WK92R	Parents' combined work status in 1992 (12th grade)				
	At least one of two parents work FT	72.7 %	83.0 %	94.8 %	13.9 yrs
	Neither of two parents work FT or single parent works FT	19.9 %	70.9 %	92.5 %	13.3 yrs
	Single parent works PT or does not work	7.4 %	61.6 %	86.2 %	12.7 yrs
MOVE92R	Number school moves during high school				
	Zero	77.1 %	83.8 %	95.3 %	13.9 yrs
	One	15.5 %	68.2 %	88.6 %	13.3 yrs
	Two or more	7.5 %	49.0 %	87.1 %	12.7 yrs
EDEX88R	In 1988 (8th grade), parent expected child to complete				
	Less than a HS diploma or GED	0.5 %	16.6 %	45.6 %	10.2 yrs
	HS diploma, GED, some trade school, or less than 2 years of college	25.3 %	61.7 %	84.8 %	12.4 yrs
	2-year college degree or less than 4 years of college	14.2 %	71.8 %	93.5 %	13.1 yrs
	College degree or graduate school	60.0 %	81.7 %	98.1 %	14.4 yrs
IMMIG	Either parent is an immigrant				
	Yes	11.3 %	78.2 %	92.0 %	13.9 yrs
	No	88.7 %	78.8 %	93.8 %	13.6 yrs

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
NONENGL	Foreign language is dominant in the home				
	Yes	10.0 %	70.5 %	89.9 %	13.3 yrs
	No	90.0 %	79.7 %	94.0 %	13.7 yrs
Individual Characteristics					
F3QSEX[71]	Gender				
	Male	49.7 %	78.7 %	93.6 %	13.6 yrs
	Female	50.3 %	78.8 %	93.7 %	13.8 yrs
F3QRACE[72]	Race or ethnic background				
	Asian / Pacific Islander	3.4 %	88.7 %	95.2 %	14.4 yrs
	Hispanic	10.6 %	66.1 %	88.6 %	13.0 yrs
	Black, not Hispanic	12.3 %	72.6 %	92.1 %	13.2 yrs
	White, not Hispanic	72.3 %	81.4 %	94.7 %	13.8 yrs
	Native American	1.4 %	67.8 %	84.4 %	12.5 yrs
DISABIL	Disability status				
	Has some disability	16.5 %	66.2 %	88.0 %	13.0 yrs
	Has no disability	83.5 %	81.2 %	94.7 %	13.8 yrs

[71] The percentage of ontime graduation for males and females is not significantly different at the 95% confidence level.

[72] Total educational attainment for Hispanics and non-Hispanics blacks is not significantly different at the 95% confidence level.

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
School Characteristics					
LUNCH88	Percentage of student body receives free/reduced price lunch in 1988 (8th grade):				
	0%	12.0 %	89.1 %	97.2 %	14.6 yrs
	1 – 10%	24.7 %	84.1 %	96.1 %	14.1 yrs
	11 – 50%	48.1 %	77.6 %	93.0 %	13.5 yrs
	> 50%	15.2 %	65.3 %	88.3 %	12.9 yrs
LUNCH90	Percentage of student body receives free/reduced price lunch in 1990 (10th grade):				
	0%	10.6 %	90.6 %	97.3 %	14.7 yrs
	1 – 10%	36.4 %	88.4 %	97.8 %	14.2 yrs
	11 – 50%	43.0 %	80.8 %	95.8 %	13.6 yrs
	> 50%	10.1 %	74.9 %	91.3 %	13.2 yrs
ACHCL88	Teacher compares achievement level of the class the student is in to other classes in 1988 (8th grade):				
	Higher levels	26.4 %	90.4 %	98.5 %	14.6 yrs
	Average or widely differing levels	57.7 %	78.7 %	93.9 %	13.6 yrs
	Lower levels	15.9 %	59.1 %	86.0 %	12.6 yrs
ACHCL90R	Teacher compares achievement level of the class the student is in to other classes in 1990 (10th grade):				
	Higher levels	31.1 %	97.0 %	99.8 %	14.9 yrs
	Average or widely differing levels	46.6 %	85.1 %	97.0 %	13.7 yrs
	Lower levels	22.3 %	73.2 %	92.0 %	13.1 yrs

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
ACHCL92R	Teacher compares achievement level of the class the student is in to other classes in 1992 (12th grade):				
	Higher levels	49.4 %	99.1 %	100.0 %	15.1 yrs
	Average or widely differing levels	38.4 %	90.8 %	97.1 %	13.8 yrs
	Lower levels	12.2 %	79.5 %	97.1 %	13.2 yrs
SCHL88[73]	Type of school in 1988 (8th grade)				
	Public	88.0 %	77.2 %	93.0 %	13.5 yrs
	Private religious	10.5 %	90.9%	98.1 %	14.7 yrs
	Private non-religious	1.5 %	87.3%	100.0 %	15.0 yrs
SCHL90[74]	Type of school in 1990 (10th grade)				
	Public	90.3 %	78.7%	93.9 %	13.6 yrs
	Private religious	7.9 %	94.3%	97.6 %	14.8 yrs
	Private non-religious	1.8 %	76.1%	98.8 %	14.9 yrs

[73] Total educational attainment associated with attendance at a private religious school in 8th grade and attendance at a private non-religious school in 8th grade is not significantly different at the 95% confidence level.

[74] Total educational attainment associated with attendance at a private religious school in 10th grade and attendance at a private non-religious school in 10th grade is not significantly different at the 95% confidence level.

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
SCHL92[75]	Type of school in 1992 (12th grade):				
	Public	90.8 %	80.2%	94.0 %	13.6 yrs
	Private religious	7.3 %	94.7%	97.5 %	14.9 yrs
	Private non-religious	1.9 %	82.9%	99.3 %	15.0 yrs
URBAN88	Student's school in 1988 (8th grade) located in an urban suburban or rural area				
	Urban:	25.8 %	76.2 %	93.9 %	13.6 yrs
	Suburban:	43.7 %	80.6 %	93.9 %	13.9 yrs
	Rural:	30.6 %	78.3 %	92.9 %	13.5 yrs
URBAN90[76]	Student's school in 1990 (10th grade) located in an urban suburban or rural area				
	Urban:	28.7 %	81.6 %	93.4 %	13.8 yrs
	Suburban:	40.5 %	81.3 %	95.1 %	13.9 yrs
	Rural:	30.8 %	79.5 %	93.6 %	13.5 yrs

[75] Total educational attainment associated with attendance at a private religious school in 12th grade and attendance at a private non-religious school in 12th grade are not significantly different at the 95% confidence level.

[76] Total educational attainment for students attending urban and suburban schools in 10th grade is not significantly different at the 95% confidence level.

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
URBAN92[77]	Student's school in 1992 (12th grade) located in an urban suburban or rural area				
	Urban:	28.1 %	89.0 %	94.3 %	13.8 yrs
	Suburban:	40.7 %	82.8 %	95.1 %	13.9 yrs
	Rural:	31.2 %	81.0 %	93.4 %	13.5 yrs
REG88[78]	Student's school in 1988 (8th grade) located in				
	Northeast:	19.4 %	83.1 %	95.9 %	14.1 yrs
	North Central:	25.6 %	81.5 %	94.9 %	13.7 yrs
	South:	35.3 %	74.6 %	92.1 %	13.5 yrs
	West:	19.7 %	78.2 %	92.5 %	13.6 yrs
REG90[79]	Student's school in 1990 (10th grade) located in				
	Northeast:	19.4 %	84.2 %	96.6 %	14.2 yrs
	North Central:	25.5 %	81.7 %	94.9 %	13.7 yrs
	South:	35.7 %	75.2 %	92.2 %	13.5 yrs
	West:	19.4 %	78.6 %	92.5 %	13.6 yrs

[77] Total educational attainment for students attending urban and suburban schools in 10th grade is not significantly different at the 95% confidence level.

[78] At the 95% confidence level, total educational attainment for students attending schools in the West in 8th grade is not significantly different from attainment in the South or North Central, although attainment in the South is significantly different from attainment in the North Central.

[79] At the 95% confidence level, total educational attainment for students attending schools in the West in 10th grade is not significantly different from attainment in the South or North Central, although attainment in the South is significantly different from attainment in the North Central.

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
REG92[80]	Student's school in 1992 (12th grade) located in				
	Northeast:	19.4 %	86.1 %	96.3 %	14.2 yrs
	North Central:	26.0 %	83.1 %	95.8 %	13.8 yrs
	South:	35.3 %	77.6 %	93.0 %	13.6 yrs
	West:	19.4 %	80.7 %	92.8 %	13.6 yrs
Teen's Activities					
TEENPAR	Became a teen parent:				
	Yes	15.9 %	18.3 %	68.5 %	11.7 yrs
	No	84.1 %	90.4 %	98.4 %	14.1 yrs
TRBL88, TRBL90, TRBL92	Misbehavior / delinquency:				
	1988 (8th grade) - yes	43.3 %	66.9 %	89.9 %	13.1 yrs
	1988 (8th grade) – no	56.7 %	87.8 %	96.6 %	14.1 yrs
	1990 (10th grade) - yes	3.7 %	48.0 %	84.1 %	12.6 yrs
	1990 (10th grade) – no	96.3 %	81.3 %	94.7 %	13.8 yrs
	1992 (12th grade) - yes	4.2 %	58.1 %	90.4 %	12.8 yrs
	1992 (12th grade) - no	95.8 %	80.3 %	94.0 %	13.7 yrs

[80] At the 95% confidence level, total educational attainment for students attending schools in the West in 12th grade is not significantly different from attainment in the South or North Central, although attainment in the South is significantly different from attainment in the North Central.

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
ALC90, ALC92[81]	Use of alcohol:				
	1990 (10th grade)- yes	70.1 %	79.4 %	94.6 %	13.7 yrs
	1990 (10th grade) - no	29.9 %	84.8%	94.2 %	13.9 yrs
	1992 (12th grade) - yes	76.9 %	79.4 %	93.9 %	13.7 yrs
	1992 (12th grade) - no	23.1 %	76.9 %	92.0 %	13.7 yrs
DRUG90, DRUG92	Use of drugs (marijuana, hashish, cocaine/crack):				
	1990 (10th grade)- yes	14.6 %	63.7 %	90.4 %	13.0 yrs
	1990 (10th grade) – no	85.4 %	84.0 %	95.4 %	13.9 yrs
	1992 (12th grade) - yes	18.3 %	72.1 %	93.3 %	13.4 yrs
	1992 (12th grade) - no	81.7 %	80.7%	93.6 %	13.8 yrs
SPORT88	Participated in any sport in 1988 (8th grade):				
	Yes	59.9 %	82.3 %	96.0 %	13.9 yrs
	No	40.1 %	73.4 %	90.2 %	13.3 yrs
SPORT90	Participated in any sport in 1990 (10th grade) (10th grade):				
	Yes	51.5 %	90.5 %	98.2 %	14.2 yrs
	No	48.5 %	66.3 %	88.8 %	13.1 yrs
SPORT92	Participated in any sport in 1992 (12th grade):				
	Yes	38.7 %	95.3 %	99.2 %	14.5 yrs
	No	61.3 %	68.3 %	90.1 %	13.2 yrs

[81] At the 95% confidence level, the total years of educational attainment is not significantly different for teens who drank alcohol in 12th grade, compared to teens who did not drink alcohol in 12th grade.

		Percentage of weighted sample	Graduated in 1992 or before	Completed 12th grade ever	Total years of education
SECPAR88	Participated in any secular activity other than sports 1988 (8th grade):				
	Yes	84.2 %	81.2 %	94.8 %	13.8 yrs
	No	15.8 %	65.4 %	87.2 %	12.9 yrs
SECPAR90	Participated in any secular activity other than sports 1990 (10th grade):				
	Yes	69.1 %	86.2 %	96.9 %	14.0 yrs
	No	30.9 %	62.0 %	86.4 %	12.9 yrs
SECPAR92	Participated in any secular activity other than sports 1992 (12th grade):				
	Yes	72.9 %	88.6 %	97.5 %	14.1 yrs
	No	27.1 %	52.2 %	83.1 %	12.5 yrs

Figure 15. Additional Descriptive Statistics

Variable Name	Description
Family Characteristics	
INCOME88	Family income in 1988 (8th grade), in 1992 dollars Mean: $46,821.45 Median: $35,808.12
INCOME92	Family income in 1992 (12th grade), in 1992 dollars Mean: $46,008.43 Median: $42,500.00
Individual Characteristics	
DRPOUT90	Flagged as a dropout in 1990 (10th grade) 6.0 %
DRPOUT92	Flagged as a dropout in 1992 (12th grade) 15.1 %
SCORE88, SCORE90, SCORE92	Average Composite Test Scores 1988 (8th grade): 51.05 1990 (10th grade): 50.91 1992 (12th grade): 51.03

Variable Name	Description
Contextual Characteristics	
EDRT88, EDRT90, EDRT92	Average percentage of persons age 25 and older in the teen's zip code that have graduated from high school: 1988 (8th grade): 73.7 % 1990 (10th grade): 73.8 % 1992 (12th grade): 73.9 %
UNEMRT88, UNEMRT90, UNEMRT92	Average unemployment rate among adult male civilians age 16 and older in the teen's zip code 1988 (8th grade): 7.0 % 1990 (10th grade): 7.0% 1992 (12th grade): 6.9%
PERINC88, PERINC90, PERINC92	Average annual per capita earnings, approximated by median household income / # persons per household 1988 (8th grade): $11,269.64 1990 (10th grade): 11,325.02 1992 (12th grade): 11,343.18
SIZE88	Number of students enrolled in class, as reported by teacher 1988 (8th grade): 24.1 students

III. Detailed Results of Multivariate Analysis

A. Endogeneity

There are three steps to exploring whether religious participation should be treated as an endogenous variable. The first step is to run baseline regressions to uncover the pairs of religious participation variables and outcomes that are associated when religious participation is treated as an exogenous variable. The second step is to determine whether coefficients estimated through OLS are consistent. The third step is to determine whether instruments used to make this determination are valid.

1. Baseline Model

The baseline model regresses each of the outcomes separately on all of the religious participation variables and control variables to uncover the pairs of religious participation variables and outcomes that have a significant relationship. Results for religious participation variables only are shown in Figure 16 through Figure 18.

Figure 16. Baseline: Total Years of Educational Attainment (EDYRS)

EDYRS	Results for Religious Participation Variables Only					
	Coef.	SE	t	P>t	95% Conf. Int.	
Worship, 1990	0.05	0.0586	0.79	0.432	-0.07	0.16
Worship, 1992	**0.19**	**0.0604**	**3.16**	**0.002**	**0.07**	**0.31**
Non-Worship Religious Activities, 1988	0.04	0.0494	0.85	0.395	-0.06	0.14
Non-Worship Religious Activities1990	0.04	0.0571	0.71	0.476	-0.07	0.15
Non-Worship Religious Activities, 1992	**0.12**	**0.0524**	**2.39**	**0.017**	**0.02**	**0.23**

Figure 17. Baseline: On-Time Graduation from High School (ONTIME)

ONTIME	Results for Religious Participation Variables Only					
	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
Worship, 1990	**1.35**	**0.1998**	**2.03**	**0.042**	**1.01**	**1.81**
Worship, 1992	1.09	0.1713	0.53	0.597	0.80	1.48
Non-Worship Religious Activities, 1988	1.18	0.1323	1.47	0.141	0.95	1.47
Non-Worship Religious Activities1990	1.08	0.1646	0.50	0.616	0.80	1.46
Non-Worship Religious Activities, 1992	1.21	0.1814	1.28	0.201	0.90	1.63

Figure 18. Baseline: Completion of 12th Grade or Equivalent Ever (HSGRAD)

HSGRAD	Results for Religious Participation Variables Only					
	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
Worship, 1990	0.87	0.2248	-0.56	0.578	0.52	1.44
Worship, 1992	**1.92**	**0.5093**	**2.47**	**0.014**	**1.14**	**3.23**
Non-Worship Religious Activity, 1988	**1.68**	**0.3416**	**2.57**	**0.010**	**1.13**	**2.51**
Non-Worship Religious Activities1990	0.83	0.2120	-0.74	0.462	0.50	1.37
Non-Worship Religious Activity, 1992	1.13	0.2821	0.47	0.635	0.69	1.84

Full regression results are available from the author upon request.

Baseline models reveal the following significant relationships among religious participation variables and outcomes, listed in Figure 19:

Figure 19. Religious Participation Variables Found to Be Significant with Respect to Educational Outcomes (Model 1)

Religious Participation	Outcome	Impact
Worship, 1992	Total years of educational attainment	+ 0.2 years
Non-worship Religious Activity, 1992	Total years of educational attainment	+ 0.1 years
Worship, 1990	On-time graduation from high school	1.35 as likely
Worship, 1992	Completion of 12th grade, ever	1.92 as likely
Non-worship Religious Activity, 1988	Completion of 12th grade, ever	1.68 as likely

2. Test for Consistency

Analysis is restricted to the pairs of religious participation variables and outcomes that have a significant relationship. These pairs are listed in Figure 19.

First, each of the religious participation variables is regressed separately on the exogenous explanatory variables in the system, including the potential instruments. A variable is created that contains the residuals from this model. The residuals are then incorporated into equations estimating outcomes. A significant coefficient on the residuals variable is interpreted to mean that the residuals vary systematically with the outcome, and that the religious participation variable is endogenous. The instruments used for this analysis are listed in Figure 20.

Figure 20. Potential Instrumental Variables

VOTERT:	1990 voter participation for the county in which the child resided
REGRT[82]:	1988 voter registration for the county in which the child resided
DENOMRT:	number of denominations per 10,000 population in the county in which the child resided in 1990
CHRT:	number of churches per 10,000 population in the county in which the child resided in 1990

Test results appear in Figure 21. When Prob >F exceeds 0.05, the analyst cannot reject the null hypothesis, cannot accept the alternative hypothesis, cannot conclude that OLS would yield inconsistent estimates, and cannot conclude that the religious participation variable under study is endogenous.

Among the forms of religious participation found to be significant with respect to specific educational outcomes in the baseline model, only non-worship religious activities in 1992 is found to be endogenous in a model in which the outcome is total years of educational attainment.

[82] Five states were dropped from this estimation because they do not require voters to register, and there were inconsistencies in the units of analysis in other states.

Figure 21. Test for Significant Residuals as an Indicator of Endogeneity

Religious Participation	Outcome	Prob > F	Endogenous?
Worship, 1992	Total years of educational attainment	0.8016	No
Non-worship Religious Activity, 1992	Total years of educational attainment	0.0003	Yes
Worship, 1990	On-time graduation from high school	0.2600	No
Worship, 1992	Completion of 12th grade, ever	0.1941	No
Non-worship Religious Activity, 1988	Completion of 12th grade, ever	0.8510	No

3. *Test for Validity of Instruments*

The endogenous religious participation variable is regressed on all of the exogenous variables in the model, including the potential instruments. The test to determine the validity of instruments revealed that the number of churches per 10,000 population in the county (CHRT) and the 1992 voter participation rate for the county (VOTERT) are correlated with worship activities in 1992.

Figure 22. Test for Validity of Potential Instruments

Non-worship Religious Activity, 1992	t	P>t
CHRT: number of churches per 10,000 population in the county in which the child resided in 1990	**2.41**	**0.016**
DENOMRT: number of denominations per 10,000 population in the county in which the child resided in 1990	-1.40	0.163
VOTERT: 1990 voter participation for the county in which the child resided	**2.27**	**0.023**

The Hansen-Sargan test[83] of overidentifying restrictions tests the joint (null) hypothesis that the instruments are uncorrelated with the error term and are therefore valid. Results of this test do not allow rejection of the null hypothesis, therefore IV estimation can proceed.

[83] Using STATA procedure ivreg2, the computed Jansen J statistic is 0.028, distributed as a Chi-square(1), with an associated p-value of 0.8673. The null hypothesis cannot be rejected.

B. Research Question 1

Does religious participation during teen years, controlling for other characteristics of the child's life, contribute to educational success, defined here as completing high school on time, ever receiving a high school or equivalent diploma, and total educational attainment?

1. Total Years of Educational Attainment

IV (2SLS) regression with robust standard errors

Number of obs	=	7987
F(109, 7877)	=	40.15
Prob > F	=	0.0000
R-squared	=	0.3927
Root MSE	=	1.5805

Figure 23. Research Question 1: Total Years of Educational Attainment, Religious Participation Results Only

Total Years of Educational Attainment	Coef.	Robust SE	t	P>t	[95% Conf. Interval]	
Attend Worship, 1990	0.02	0.0800	0.19	0.847	-0.14	0.17
Attend Worship, 1992	-0.02	0.2316	-0.08	0.937	-0.47	0.44
Non-Worship Religious Activity, 1988	-0.10	0.1700	-0.62	0.538	-0.44	0.23
Non-Worship Religious Activity, 1990	-0.46	0.5258	-0.88	0.380	-1.49	0.57
Non-Worship Religious Activity, 1992	1.84	1.8011	1.02	0.308	-1.69	5.37

Full model results appear in section E below, beginning on p.233.

2. *Completion of 12th Grade, Ever*

Logistic regression	Number of obs	=	7992
	Wald chi2(103)	=	787.80
	Prob > chi2	=	0.0000
	Log pseudolikelihood	=	-771.35379
	Pseudo R2	=	0.5721

(standard errors adjusted for clustering on psu)

Figure 24. Research Question 1: Completion of 12th Grade or Equivalent Ever, Religious Participation Results Only

Completion of 12th Grade or Equivalent Ever	Coef.	Robust SE	z	P>z	[95% Conf. Interval]	
Attend Worship, 1990	0.84	0.2157	-0.66	0.509	0.51	1.39
Attend Worship, 1992	**1.92**	**0.5102**	**2.44**	**0.015**	**1.14**	**3.23**
Non-Worship Religious Activity, 1988	**1.71**	**0.3481**	**2.63**	**0.009**	**1.15**	**2.55**
Non-Worship Religious Activity, 1990	0.83	0.2105	-0.74	0.459	0.50	1.36
Non-Worship Religious Activity, 1992	1.12	0.2724	0.45	0.650	0.69	1.80

The possibility that the role of participation in 1988 was an artifact of the structure of the data set was explored. The 1988 survey only included data on non-worship religious activities, leaving out attendance at worship services. Additionally, the 1988 variable incorporated explicitly a wider range of non-worship religious activities than did the 1990 and 1992 surveys, opening the door to overestimating the relative importance of this variable. While these internal validity issues cannot be resolved definitively, additional runs of these models offer some insight. The same models were run without attendance at worship services in 1990 and 1992, and the findings for non-worship religious activities (not shown) did not change: The results of these models imply that including attendance at worship services in the models does not reduce the detected effectiveness of participation in non-worship religious activities.

Full model results appear in section E below, beginning on p.233.

3. *On-Time Graduation from High School*

Logistic regression	Number of obs	=	8003
	Wald chi2(109)	=	2040.85
	Prob > chi2	=	0.0000
	Log pseudolikelihood	=	-1785.4294
	Pseudo R2	=	0.5510

(standard errors adjusted for clustering on psu)

Figure 25. Research Question 1: On-Time Graduation from High School, Religious Participation Results Only

On-Time Graduation from High School	Coef.	Robust SE	z	P>z	[95% Conf. Interval]	
Attend Worship, 1990	**1.35**	**0.2006**	**2.02**	**0.043**	**1.01**	**1.81**
Attend Worship, 1992	1.08	0.1713	0.50	0.614	0.79	1.48
Non-Worship Religious Activity, 1988	1.19	0.1331	1.57	0.117	0.96	1.48
Non-Worship Religious Activity, 1990	1.08	0.1638	0.52	0.604	0.80	1.46
Non-Worship Religious Activity, 1992	1.17	0.1780	1.06	0.288	0.87	1.58

Full model results appear in section E below, beginning on p.233.

C. Research Question 2

Does religious participation remain significant when controlling for participation in secular activities?

1. Total Years of Educational Attainment

IV (2SLS) regression with robust standard errors

Number of obs	=	7214
F(111, 7102)	=	41.21
Prob > F	=	0.0000
R-squared	=	0.4750
Root MSE	=	1.446

Figure 26. Research Question 2: EDYRS Regressed on All Participation Variables

Participation Activities	Coef.	Robust SE	t	P>t	[95% Conf. Interval]	
Worship, 1990	0.01	0.0807	0.07	0.941	-0.15	0.16
Worship, 1992	0.01	0.2731	0.03	0.975	-0.53	0.54
Non-worship Religious Activity, 1988	-0.07	0.1993	-0.37	0.708	-0.47	0.32
Non-worship Religious Activity, 1990	-0.37	0.6579	-0.56	0.575	-1.66	0.92
Non-worship Religious Activity, 1992	1.55	2.3951	0.65	0.517	-3.14	6.25
Sports, 1988	0.07	0.0548	1.31	0.191	-0.04	0.18
Sports, 1990	**0.15**	**0.0557**	**2.76**	**0.006**	**0.04**	**0.26**
Sports, 1992	**0.23**	**0.0952**	**2.38**	**0.017**	**0.04**	**0.41**
Non-sport Secular, 1988	-0.01	0.0742	-0.13	0.897	-0.16	0.14
Non-sport Secular, 1990	-0.07	0.0812	-0.92	0.360	-0.23	0.08
Non-sport Secular, 1992	-0.03	0.5298	-0.05	0.962	-1.06	1.01

Full model results, including coefficients for control variables, are available from the author upon request.

2. *Completion of 12th Grade Ever*

Survey logistic regression

pweight: f4pnlwt	Number of obs	=	7220
Strata: stratum	Number of strata	=	27
PSU: psu	Number of PSUs	=	939
	Population size	=	1937247.6
	F(109, 804)	=	6.62
	Prob > F	=	0.0000

Figure 27. Research Question 2: HSGRAD Regressed on All Participation Variables

Participation Activities	Odds Ratio	SE	t	P>t	[95% Conf. Interval]	
Worship, 1990	0.78	0.1994	-0.97	0.334	0.47	1.29
Worship, 1992	**1.88**	**0.4943**	**2.39**	**0.017**	**1.12**	**3.15**
Non-worship Religious Activity, 1988	**1.61**	**0.3426**	**2.24**	**0.025**	**1.06**	**2.44**
Non-worship Religious Activity, 1990	0.86	0.2199	-0.60	0.547	0.52	1.42
Non-worship Religious Activity, 1992	1.00	0.2655	-0.01	0.992	0.59	1.68
Sports, 1988	**1.68**	**0.3403**	**2.57**	**0.010**	**1.13**	**2.50**
Sports, 1990	**2.22**	**0.5606**	**3.17**	**0.002**	**1.36**	**3.65**
Sports, 1992	1.29	0.4340	0.75	0.451	0.67	2.49
Non-sport Secular, 1988	1.21	0.2514	0.90	0.367	0.80	1.82
Non-sport Secular, 1990	0.77	0.1714	-1.18	0.239	0.50	1.19
Non-sport Secular, 1992	**1.80**	**0.4178**	**2.52**	**0.012**	**1.14**	**2.83**

Full model results, including coefficients for control variables, are available from the author upon request.

3. *On-Time Graduation from High School*

Survey logistic regression

pweight: f4pnlwt	Number of obs	=	7228
Strata: stratum	Number of strata	=	27
PSU: psu	Number of PSUs	=	941
	Population size	=	1940253.3
	F(110, 805)	=	19.01
	Prob > F	=	0.0000

Figure 28. Research Question 2: ONTIME Regressed on All Participation Variables

Participation Activities	Odds Ratio	SE	t	P>t	[95% Conf. Interval]	
Worship, 1990	1.26	0.1891	1.56	0.119	0.94	1.69
Worship, 1992	1.06	0.1766	0.33	0.745	0.76	1.47
Non-worship Religious Activity, 1988	1.20	0.1363	1.58	0.114	0.96	1.50
Non-worship Religious Activity, 1990	1.02	0.1557	0.11	0.910	0.75	1.37
Non-worship Religious Activity, 1992	0.88	0.1434	-0.78	0.435	0.64	1.21
Sports, 1988	1.01	0.1335	0.08	0.938	0.78	1.31
Sports, 1990	**1.69**	**0.2357**	**3.75**	**0.000**	**1.28**	**2.22**
Sports, 1992	**2.57**	**0.4317**	**5.61**	**0.000**	**1.85**	**3.57**
Non-sport Secular, 1988	1.24	0.2032	1.30	0.193	0.90	1.71
Non-sport Secular, 1990	1.02	0.1306	0.18	0.861	0.80	1.31
Non-sport Secular, 1992	1.16	0.1802	0.95	0.342	0.85	1.57

Full model results, including coefficients for control variables, are available from the author upon request.

D. Research Question 3

Does the effect differ for the poor, minorities, or persons living in neighborhoods of concentrated disadvantage?

1. *Race and Ethnicity*

a. Total Years of Educational Attainment

Survey linear regression

pweight: f4pnlwt	Number of obs	=	8008
Strata: stratum	Number of strata	=	27
PSU: psu	Number of PSUs	=	948
	Population size	=	2126464.9
	F(115, 807)	=	67.67
	Prob > F	=	0.0000
	R-squared	=	0.5065

Figure 29. EDYRS by Race and Ethnic Groups

Religious Participation	Race/Ethnicity	Coef.	SE	t	P>t	[95% Conf. Interval	
None	Non-Hispanic Black	-0.21	0.20	-1.04	0.299	-0.60	0.19
	Hispanic	0.10	0.15	0.66	0.507	-0.19	0.39
	Other	0.15	0.20	0.73	0.464	-0.25	0.54
Worship, 1990	Non-Hispanic White	0.10	0.06	1.66	0.098	-0.02	0.23
	Non-Hispanic Black	-0.14	0.19	-0.77	0.442	-0.51	0.22
	Hispanic	-0.18	0.18	-0.98	0.329	-0.53	0.18
	Other	0.25	0.19	1.30	0.193	-0.13	0.62

Religious Participation	Race/Ethnicity	Coef.	SE	t	P>t	[95% Conf. Interval	
Worship, 1992	**Non-Hispanic White**	**0.22**	**0.06**	**3.68**	**0.000**	**0.10**	**0.34**
	Non-Hispanic Black	**0.38**	**0.14**	**2.61**	**0.009**	**0.09**	**0.66**
	Hispanic	-0.17	0.16	-1.06	0.290	-0.47	0.14
	Other	**-0.42**	**0.20**	**-2.10**	**0.036**	**-0.81**	**-0.03**
Non-Worship Religious Activity, 1988	Non-Hispanic White	0.01	0.06	0.11	0.911	-0.11	0.12
	Non-Hispanic Black	0.31	0.17	1.82	0.069	-0.02	0.64
	Hispanic	0.08	0.15	0.56	0.577	-0.21	0.38
	Other	-0.25	0.17	-1.42	0.157	-0.59	0.10
Non-Worship Religious Activity, 1990	Non-Hispanic White	0.06	0.06	0.98	0.326	-0.06	0.18
	Non-Hispanic Black	0.05	0.21	0.23	0.821	-0.36	0.45
	Hispanic	-0.23	0.14	-1.64	0.100	-0.51	0.04
	Other	0.12	0.28	0.45	0.656	-0.42	0.67
Non-Worship Religious Activity, 1992	**Non-Hispanic White**	**0.19**	**0.06**	**3.33**	**0.001**	**0.08**	**0.30**
	Non-Hispanic Black	-0.36	0.18	-1.95	0.052	-0.72	0.00
	Hispanic	0.05	0.13	0.41	0.682	-0.20	0.31
	Other	-0.26	0.20	-1.26	0.207	-0.66	0.14

Full model results are available from the author on request.

b. Completion of 12th Grade or Equivalent Ever

Logistic regression

Number of obs	=	7992
Wald chi2(122)	=	962.25
Prob > chi2	=	0.0000
Log pseudolikelihood	=	-735.48122
Pseudo R2	=	0.5920

Figure 30. HSGRAD by Race and Ethnic Groups

Religious Participation	Race/Ethnicity	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
None	Non-Hispanic Black	1.00	0.57	0.01	0.994	0.33	3.06
	Hispanic	1.64	0.78	1.05	0.295	0.65	4.17
	Other	**0.22**	**0.14**	**-2.42**	**0.015**	**0.06**	**0.75**
Worship, 1990	Non-Hispanic White	0.95	0.29	-0.18	0.860	0.53	1.71
	Non-Hispanic Black	1.08	0.62	0.13	0.899	0.35	3.35
	Hispanic	**15.94**	**16.89**	**2.61**	**0.009**	**2.00**	**127.19**
	Other	1.89	0.64	1.89	0.059	0.98	3.66
Worship, 1992	Non-Hispanic White	3.25	2.15	1.78	0.075	0.89	11.88
	Non-Hispanic Black	**3.29**	**1.90**	**2.05**	**0.040**	**1.06**	**10.23**
	Hispanic	0.64	0.34	-0.84	0.398	0.23	1.80
	Other	0.25	0.20	-1.76	0.079	0.05	1.17

Religious Participation	Race/Ethnicity	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
Non-Worship Religious Activity, 1988	Non-Hispanic White	1.63	0.43	1.85	0.064	0.97	2.73
	Non-Hispanic Black	**4.26**	**2.72**	**2.27**	**0.023**	**1.22**	**14.90**
	Hispanic	0.58	0.29	-1.08	0.280	0.22	1.56
	Other	**0.04**	**0.04**	**-3.07**	**0.002**	**0.01**	**0.32**
Non-Worship Religious Activity, 1990	Non-Hispanic White	0.66	0.21	-1.28	0.199	0.36	1.24
	Non-Hispanic Black	2.83	1.90	1.55	0.120	0.76	10.52
	Hispanic	0.63	0.38	-0.77	0.443	0.19	2.07
	Other	2.39	2.63	0.80	0.426	0.28	20.54
Non-Worship Religious Activity, 1992	Non-Hispanic White	1.34	0.45	0.87	0.384	0.69	2.58
	Non-Hispanic Black	0.54	0.37	-0.90	0.370	0.14	2.06
	Hispanic	1.25	0.65	0.44	0.663	0.45	3.46
	Other	0.49	0.46	-0.76	0.445	0.08	3.06

Full model results are available from the author on request.

c. On-Time Graduation from High School

Logistic regression

Number of obs	=	8003
Wald chi2(123)	=	2223.43
Prob > chi2	=	0.0000
Log pseudolikelihood	=	-1761.6591
Pseudo R2	=	0.5570

Figure 31. ONTIME by Race and Ethnic Groups

Religious Participation	Race/Ethnicity	Odds Ratio	Robust SE	z	P>z	[95% Conf.	Interval]
None	Non-Hispanic Black	0.52	0.20	-1.69	0.091	0.24	1.11
	Hispanic	0.77	0.31	-0.64	0.521	0.35	1.70
	Other	2.39	1.37	1.52	0.130	0.77	7.36
Worship, 1990	**Non-Hispanic White**	**1.43**	**0.25**	**2.03**	**0.043**	**1.01**	**2.01**
	Non-Hispanic Black	0.87	0.37	-0.32	0.749	0.39	1.99
	Hispanic	1.09	0.44	0.22	0.828	0.49	2.41
	Other	0.76	0.55	-0.38	0.704	0.18	3.18
Worship, 1992	Non-Hispanic White	1.04	0.19	0.20	0.838	0.73	1.48
	Non-Hispanic Black	**2.47**	**1.01**	**2.22**	**0.027**	**1.11**	**5.51**
	Hispanic	0.65	0.24	-1.15	0.251	0.31	1.36
	Other	0.89	0.50	-0.22	0.830	0.29	2.67

Religious Participation	Race/Ethnicity	Odds Ratio	Robust SE	z	P>z	[95% Conf.	Interval]
Non-Worship Religious Activity, 1988	Non-Hispanic White	1.06	0.15	0.38	0.703	0.80	1.39
	Non-Hispanic Black	1.59	0.56	1.30	0.192	0.79	3.19
	Hispanic	1.36	0.44	0.96	0.337	0.72	2.57
	Other	1.06	0.61	0.10	0.922	0.34	3.26
Non-Worship Religious Activity, 1990	Non-Hispanic White	1.05	0.20	0.24	0.811	0.72	1.52
	Non-Hispanic Black	1.78	0.87	1.17	0.242	0.68	4.65
	Hispanic	0.68	0.26	-1.01	0.311	0.33	1.43
	Other	0.69	0.38	-0.69	0.490	0.23	2.00
Non-Worship Religious Activity, 1992	Non-Hispanic White	1.16	0.20	0.88	0.377	0.83	1.63
	Non-Hispanic Black	1.21	0.56	0.41	0.684	0.49	3.00
	Hispanic	0.96	0.33	-0.13	0.895	0.48	1.89
	Other	0.32	0.25	-1.47	0.143	0.07	1.47

Full model results are available from the author on request.

2. *Family Income Quartile, 1988*

a. Total Years of Educational Attainment

Survey linear regression
pweight: f4pnlwt
Strata: stratum
PSU: psu

Number of obs	=	7391
Number of strata	=	27
Number of PSUs	=	911
Population size	=	1966389.2
F(142, 743)	=	48.27
Prob > F	=	0.0000
R-squared	=	0.5258

Figure 32. EDYRS By 1988 Family Income Quartile

Religious Participation	Income Quartile	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
None	2	0.25	0.13	1.96	0.051	0.00	0.49
	3	**0.54**	**0.15**	**3.63**	**0.000**	**0.25**	**0.83**
	4	0.14	0.18	0.79	0.433	-0.21	0.49
Worship, 1990	1	0.12	0.09	1.31	0.190	-0.06	0.30
	2	-0.01	0.14	-0.08	0.934	-0.28	0.26
	3	-0.17	0.14	-1.17	0.242	-0.45	0.11
	4	-0.19	0.15	-1.31	0.191	-0.48	0.10

Religious Participation	Income Quartile	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Worship, 1992	**1**	**0.23**	**0.08**	**2.77**	**0.006**	**0.07**	**0.40**
	2	**-0.42**	**0.13**	**-3.17**	**0.002**	**-0.68**	**-0.16**
	3	0.02	0.13	0.12	0.904	-0.23	0.27
	4	0.14	0.14	1.07	0.287	-0.12	0.41
Non-Worship Religious Activity, 1988	1	0.11	0.08	1.44	0.149	-0.04	0.26
	2	-0.10	0.12	-0.81	0.420	-0.34	0.14
	3	-0.24	0.13	-1.87	0.062	-0.50	0.01
	4	0.05	0.13	0.39	0.697	-0.21	0.31
Non-Worship Religious Activity, 1990	1	-0.04	0.08	-0.53	0.595	-0.19	0.11
	2	0.14	0.15	0.93	0.355	-0.16	0.43
	3	0.08	0.13	0.64	0.523	-0.17	0.33
	4	0.15	0.14	1.06	0.290	-0.13	0.42
Non-Worship Religious Activity, 1992	1	0.12	0.08	1.54	0.125	-0.03	0.27
	2	0.11	0.14	0.80	0.425	-0.16	0.38
	3	-0.11	0.13	-0.92	0.360	-0.36	0.13
	4	0.07	0.14	0.49	0.627	-0.21	0.35

Full model results are available from the author on request.

b. Completion of 12th Grade or Equivalent Ever

Logistic regression	Number of obs	=	5734
	Wald chi2(136)	=	981.64
	Prob > chi2	=	0.0000
	Log pseudolikelihood	=	-628.91241
	Pseudo R2	=	0.5790

note: [Non-Worship Religious Activity, 1992 = 0] * [4th income quartile] predicts success perfectly; 1046 obs not used

Figure 33. HSGRAD by 1988 Family Income Quartile

Religious Participation	1988 Income Quartile	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
None	2	1.28	0.69	0.45	0.653	0.44	3.70
	3	1.24	1.03	0.26	0.798	0.24	6.36
	4	0.29	0.44	-0.81	0.418	0.01	5.81
Worship, 1990	1	0.87	0.26	-0.45	0.649	0.48	1.58
	2	1.75	0.90	1.08	0.279	0.64	4.79
	3	0.34	0.29	-1.28	0.199	0.07	1.76
	4	0.89	0.68	-0.15	0.879	0.20	3.99

Religious Participation	1988 Income Quartile	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
Worship, 1992	**1**	**1.96**	**0.59**	**2.23**	**0.026**	**1.08**	**3.54**
	2	0.46	0.27	-1.33	0.182	0.15	1.43
	3	1.24	0.93	0.29	0.770	0.29	5.35
	4	7.87	10.60	1.53	0.126	0.56	110.32
Non-Worship Religious Activity, 1988	**1**	**1.68**	**0.42**	**2.08**	**0.037**	**1.03**	**2.72**
	2	0.90	0.45	-0.21	0.833	0.33	2.41
	3	2.81	2.13	1.36	0.174	0.63	12.45
	4	1.27	1.33	0.23	0.817	0.16	9.92
Non-Worship Religious Activity, 1990	1	0.95	0.29	-0.18	0.856	0.52	1.72
	2	0.50	0.29	-1.18	0.237	0.16	1.58
	3	1.46	1.44	0.38	0.703	0.21	10.09
	4	0.25	0.26	-1.35	0.176	0.03	1.85
Non-Worship Religious Activity, 1992	1	1.07	0.33	0.23	0.817	0.59	1.95
	2	1.39	0.74	0.62	0.534	0.49	3.93
	3	0.80	0.62	-0.28	0.776	0.18	3.61

Full model results are available from the author on request.

c. On-Time Graduation from High School

Logistic regression

Number of obs	=	8003
Wald chi2(123)	=	2120.25
Prob > chi2	=	0.0000
Log pseudolikelihood	=	-1780.4015
Pseudo R2	=	0.5523

Figure 34. ONTIME By 1988 Family Income Quartile

Religious Participation	1988 Income Quartile	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
None	2	1.76	0.58	1.73	0.083	0.93	3.34
	3	0.79	0.26	-0.72	0.473	0.42	1.49
	4	1.03	0.52	0.07	0.946	0.39	2.77
Worship, 1990	1	1.24	0.25	1.08	0.279	0.84	1.84
	2	1.49	0.53	1.13	0.257	0.75	3.00
	3	1.15	0.43	0.39	0.699	0.56	2.40
	4	0.75	0.32	-0.68	0.497	0.33	1.72
Worship, 1992	1	1.08	0.21	0.38	0.704	0.73	1.59
	2	0.74	0.27	-0.84	0.402	0.36	1.51
	3	1.35	0.57	0.70	0.485	0.58	3.10
	4	1.18	0.48	0.42	0.678	0.54	2.61

Religious Participation	1988 Income Quartile	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Non-Worship Religious Activity, 1988	1	1.23	0.20	1.26	0.207	0.89	1.70
	2	0.66	0.20	-1.34	0.181	0.36	1.21
	3	0.98	0.31	-0.06	0.954	0.53	1.83
	4	1.41	0.51	0.95	0.343	0.69	2.88
Non-Worship Religious Activity, 1990	1	1.37	0.27	1.59	0.113	0.93	2.02
	2	0.76	0.29	-0.73	0.467	0.36	1.59
	3	0.53	0.23	-1.49	0.137	0.23	1.22
	4	0.64	0.28	-1.01	0.312	0.27	1.51
Non-worship Religious Activity, 1992	1	1.32	0.27	1.37	0.169	0.89	1.96
	2	0.65	0.23	-1.19	0.234	0.32	1.32
	3	1.06	0.44	0.14	0.885	0.47	2.39
	4	0.89	0.37	-0.27	0.790	0.39	2.03

Full model results are available from the author on request.

3. *Family Income Quartile, 1992*

a. Total Years of Educational Attainment

Survey linear regression

pweight: f4pnlwt	Number of obs	=	7391
Strata: stratum	Number of strata	=	27
PSU: psu	Number of PSUs	=	911
	Population size	=	1966389.2
	F(141, 744)	=	59.20
	Prob > F	=	0.0000
	R-squared	=	0.5235

Figure 35. EDYRS by 1992 Family Income Quartile

Religious Participation	1992 Income Quartile	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
None	2	0.03	0.13	0.28	0.782	-0.21	0.28
	3	-0.15	0.17	-0.90	0.370	-0.48	0.18
	4	0.33	0.21	1.57	0.116	-0.08	0.75
Worship, 1990	1	0.11	0.10	1.09	0.276	-0.09	0.30
	2	-0.08	0.12	-0.66	0.512	-0.33	0.16
	3	-0.16	0.16	-1.00	0.317	-0.47	0.15
	4	-0.12	0.19	-0.63	0.527	-0.50	0.26

Religious Participation	1992 Income Quartile	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Worship, 1992	1	0.16	0.09	1.71	0.088	-0.02	0.35
	2	0.07	0.12	0.60	0.546	-0.16	0.30
	3	0.11	0.15	0.72	0.469	-0.18	0.40
	4	-0.01	0.17	-0.04	0.972	-0.34	0.33
Non-Worship Religious Activity, 1988	1	0.06	0.08	0.73	0.464	-0.10	0.23
	2	-0.04	0.11	-0.37	0.713	-0.26	0.18
	3	0.09	0.15	0.59	0.554	-0.21	0.39
	4	-0.15	0.16	-0.97	0.334	-0.46	0.16
Non-Worship Religious Activity, 1990	1	-0.05	0.08	-0.58	0.561	-0.22	0.12
	2	0.15	0.12	1.25	0.213	-0.08	0.37
	3	0.12	0.15	0.79	0.428	-0.17	0.41
	4	0.06	0.17	0.34	0.732	-0.28	0.40
Non-worship Religious Activity, 1992	1	0.02	0.09	0.18	0.854	-0.16	0.19
	2	0.02	0.12	0.17	0.863	-0.21	0.25
	3	**0.37**	**0.15**	**2.50**	**0.013**	**0.08**	**0.66**
	4	0.18	0.17	1.06	0.290	-0.16	0.52

Full model results are available from the author on request.

b. Completion of 12th Grade or Equivalent Ever

Logistic regression	Number of obs	=	7992
	Wald chi2(122)	=	1091.21
	Prob > chi2	=	0.0000
	Log pseudolikelihood	=	-743.67347
	Pseudo R2	=	0.5875

Figure 36. HSGRAD By 1992 Family Income Quartile

Religious Participation	1992 Income Quartile	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
None	**2**	**0.38**	**0.18**	**-1.99**	**0.047**	**0.15**	**0.99**
	3	0.21	0.22	-1.51	0.132	0.03	1.61
	4	0.40	0.58	-0.64	0.525	0.02	6.60
Worship, 1990	1	0.95	0.30	-0.17	0.867	0.51	1.75
	2	0.73	0.36	-0.64	0.519	0.28	1.89
	3	0.23	0.18	-1.87	0.062	0.05	1.07
	4	2.71	2.71	0.99	0.320	0.38	19.29
Worship, 1992	1	1.50	0.48	1.28	0.201	0.81	2.80
	2	1.65	0.92	0.90	0.370	0.55	4.94
	3	**6.06**	**4.67**	**2.34**	**0.019**	**1.34**	**27.42**
	4	**5.61**	**3.51**	**2.76**	**0.006**	**1.65**	**19.11**

Religious Participation	1992 Income Quartile	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Non-Worship Religious Activity, 1988	1	1.27	0.33	0.92	0.356	0.76	2.11
	2	**2.67**	**1.22**	**2.15**	**0.032**	**1.09**	**6.54**
	3	2.35	1.65	1.21	0.226	0.59	9.33
	4	0.22	0.31	-1.06	0.290	0.01	3.65
Non-Worship Religious Activity, 1990	1	0.85	0.29	-0.46	0.644	0.44	1.67
	2	0.72	0.40	-0.60	0.551	0.25	2.11
	3	0.91	0.67	-0.13	0.896	0.21	3.86
	4	0.38	0.40	-0.92	0.355	0.05	2.98
Non-Worship Religious Activity, 1992	1	0.80	0.26	-0.68	0.494	0.43	1.51
	2	2.52	1.42	1.64	0.101	0.83	7.59
	3	**16.54**	**14.14**	**3.28**	**0.001**	**3.09**	**88.39**
	4	0.36	0.32	-1.14	0.256	0.06	2.09

Full model results are available from the author on request.

c. On-Time Graduation from High School

Logistic regression

Number of obs	=	8003
Wald chi2(122)	=	2177.97
Prob > chi2	=	0.0000
Log pseudolikelihood	=	-1767.5501
Pseudo R2	=	0.5555

Figure 37. ONTIME by 1992 Family Income Quartile

Religious Participation	1992 Income Quartile	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
None	2	0.66	0.17	-1.59	0.112	0.40	1.10
	3	**0.31**	**0.11**	**-3.29**	**0.001**	**0.16**	**0.63**
	4	1.12	0.67	0.18	0.856	0.34	3.64
Worship, 1990	**1**	**1.56**	**0.32**	**2.20**	**0.028**	**1.05**	**2.33**
	2	0.60	0.18	-1.73	0.083	0.33	1.07
	3	0.98	0.40	-0.05	0.962	0.44	2.17
	4	0.54	0.34	-0.99	0.323	0.16	1.84
Worship, 1992	1	0.73	0.15	-1.51	0.131	0.48	1.10
	2	**1.90**	**0.58**	**2.08**	**0.038**	**1.04**	**3.47**
	3	1.93	0.75	1.68	0.092	0.90	4.14
	4	**5.24**	**3.04**	**2.86**	**0.004**	**1.68**	**16.31**

Religious Participation	1992 Income Quartile	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
Non-Worship Religious Activity, 1988	1	0.94	0.17	-0.34	0.736	0.66	1.33
	2	1.15	0.31	0.51	0.610	0.67	1.96
	3	**2.98**	**1.04**	**3.12**	**0.002**	**1.50**	**5.90**
	4	1.04	0.64	0.06	0.952	0.31	3.47
Non-Worship Religious Activity, 1990	1	1.07	0.25	0.29	0.774	0.68	1.69
	2	1.29	0.46	0.72	0.471	0.64	2.58
	3	0.78	0.36	-0.52	0.602	0.32	1.95
	4	0.44	0.34	-1.06	0.287	0.10	1.99
Non-Worship Religious Activity, 1992	1	1.36	0.30	1.41	0.159	0.89	2.09
	2	0.90	0.27	-0.34	0.732	0.50	1.63
	3	0.82	0.35	-0.46	0.642	0.36	1.89
	4	0.49	0.37	-0.95	0.345	0.11	2.14

Full model results are available from the author on request.

4. *Neighborhood Educational Attainment Quartile, 1988*

a. Total Years of Educational Attainment

Survey linear regression

pweight: f4pnlwt	Number of obs	=	8008
Strata: stratum	Number of strata	=	27
PSU: psu	Number of PSUs	=	948
	Population size	=	2126464.9
	F(120, 802)	=	73.44
	Prob > F	=	0.0000
	R-squared	=	0.5058

Figure 38. EDYRS Regressed on Religious Participation by 1988 Neighborhood Educational Attainment Quartile

EDYRS	1988 Nbhd Quartile	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
None	2	0.02	0.16	0.14	0.891	-0.30	0.34
	3	0.17	0.19	0.92	0.356	-0.20	0.55
	4	0.26	0.21	1.24	0.217	-0.15	0.66
Worship, 1990	1	0.07	0.11	0.58	0.560	-0.15	0.29
	2	0.03	0.14	0.19	0.852	-0.25	0.31
	3	-0.16	0.16	-1.03	0.303	-0.47	0.15
	4	0.07	0.15	0.46	0.646	-0.23	0.38

EDYRS	1988 Nbhd Quartile	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Worship, 1992	**1**	**0.30**	**0.11**	**2.83**	**0.005**	**0.09**	**0.51**
	2	-0.02	0.14	-0.18	0.860	-0.30	0.25
	3	-0.13	0.14	-0.94	0.345	-0.42	0.15
	4	**-0.31**	**0.14**	**-2.18**	**0.029**	**-0.60**	**-0.03**
Non-Worship Religious Activity, 1988	1	0.06	0.10	0.61	0.545	-0.13	0.25
	2	0.10	0.13	0.80	0.423	-0.15	0.36
	3	-0.09	0.14	-0.64	0.523	-0.36	0.18
	4	-0.08	0.14	-0.58	0.562	-0.37	0.20
Non-Worship Religious Activity, 1990	1	0.03	0.11	0.30	0.764	-0.18	0.25
	2	-0.09	0.15	-0.61	0.545	-0.38	0.20
	3	0.12	0.15	0.75	0.455	-0.19	0.42
	4	0.02	0.16	0.10	0.917	-0.29	0.33
Non-Worship Religious Activity, 1992	1	0.01	0.09	0.12	0.908	-0.17	0.19
	2	0.03	0.14	0.25	0.799	-0.23	0.30
	3	0.14	0.13	1.07	0.286	-0.12	0.40
	4	**0.30**	**0.14**	**2.14**	**0.032**	**0.03**	**0.57**

Full model results are available from the author on request.

b. Completion of 12th Grade or Equivalent Ever

Logistic regression	Number of obs	=	7992
	Wald chi2(118)	=	942.15
	Prob > chi2	=	0.0000
	Log pseudolikelihood	=	-779.53279
	Pseudo R2	=	0.5676

Figure 39. HSGRAD By 1988 Neighborhood Educational Attainment Quartile

HSGRAD	1992 Income Quartile	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
None	2	1.17	0.57	0.33	0.744	0.45	3.04
	3	0.80	0.49	-0.37	0.714	0.24	2.66
	4	1.06	0.78	0.08	0.939	0.25	4.50
Worship, 1990	1	1.07	0.37	0.20	0.839	0.55	2.09
	2	0.64	0.30	-0.93	0.351	0.25	1.62
	3	0.40	0.23	-1.59	0.112	0.13	1.24
	4	1.74	1.27	0.76	0.445	0.42	7.28
Worship, 1992	1	1.82	0.69	1.58	0.115	0.86	3.83
	2	1.82	1.04	1.05	0.292	0.60	5.59
	3	1.11	0.63	0.18	0.857	0.37	3.35
	4	0.27	0.21	-1.67	0.096	0.06	1.26

HSGRAD	1992 Income Quartile	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Non-Worship Religious Activity, 1988	**1**	**2.05**	**0.68**	**2.19**	**0.029**	**1.08**	**3.91**
	2	0.53	0.27	-1.24	0.216	0.20	1.44
	3	1.36	0.69	0.60	0.549	0.50	3.67
	4	0.81	0.61	-0.28	0.778	0.19	3.51
Non-Worship Religious Activity, 1990	1	0.67	0.27	-1.00	0.315	0.30	1.47
	2	1.05	0.63	0.08	0.939	0.32	3.40
	3	2.49	1.59	1.43	0.153	0.71	8.69
	4	1.22	0.83	0.30	0.767	0.32	4.62
Non-Worship Religious Activity, 1992	1	0.81	0.29	-0.60	0.548	0.40	1.63
	2	1.64	0.97	0.85	0.397	0.52	5.20
	3	1.91	1.21	1.01	0.310	0.55	6.62
	4	2.31	2.00	0.97	0.333	0.42	12.63

Full model results are available from the author on request.

c. On-Time Graduation from High School

Logistic regression

Number of obs	=	8003
Wald chi2(119)	=	2071.22
Prob > chi2	=	0.0000
Log pseudolikelihood	=	-1782.3215
Pseudo R2	=	0.5518

Figure 40. ONTIME by 1988 Neighborhood Educational Attainment Quartile

ONTIME	1992 Income Quartile	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
None	2	0.91	0.28	-0.31	0.757	0.50	1.66
	3	1.91	0.70	1.75	0.080	0.92	3.93
	4	1.51	0.70	0.90	0.370	0.61	3.73
Worship, 1990	1	1.23	0.26	1.00	0.317	0.82	1.86
	2	1.17	0.38	0.47	0.638	0.61	2.21
	3	0.89	0.30	-0.33	0.738	0.47	1.72
	4	1.73	0.74	1.27	0.203	0.74	4.02
Worship, 1992	1	1.13	0.29	0.47	0.637	0.69	1.85
	2	1.08	0.37	0.21	0.830	0.55	2.10
	3	0.88	0.29	-0.40	0.689	0.46	1.68
	4	0.80	0.36	-0.49	0.628	0.33	1.93

ONTIME	1992 Income Quartile	Odds Ratio	Robust SE	z	P>z	[95% Conf. Interval]	
Non-Worship Religious Activity, 1988	1	1.17	0.24	0.76	0.447	0.78	1.73
	2	0.90	0.27	-0.36	0.717	0.50	1.62
	3	1.07	0.36	0.19	0.846	0.55	2.08
	4	1.23	0.48	0.53	0.599	0.57	2.62
Non-Worship Religious Activity, 1990	1	1.47	0.34	1.65	0.100	0.93	2.31
	2	0.63	0.23	-1.24	0.215	0.31	1.30
	3	0.65	0.23	-1.25	0.212	0.33	1.28
	4	0.49	0.22	-1.56	0.119	0.20	1.20
Non-Worship Religious Activity, 1992	1	0.91	0.21	-0.41	0.681	0.57	1.44
	2	**2.08**	**0.73**	**2.08**	**0.038**	**1.04**	**4.14**
	3	1.71	0.67	1.37	0.171	0.79	3.68
	4	1.10	0.51	0.21	0.835	0.45	2.72

Full model results are available from the author on request.

E. Other Background Characteristics

1. Total Years of Educational Attainment

Figure 41. Total Years of Educational Attainment, Full Regression Results (Research Question 1)

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
Religious Participation							
ATTEVR90	Attendance at worship services in 1990 (10th grade) or 1992 (12th grade)	0.02	0.0800	0.19	0.847	-0.14	0.17
ATTEVR92		-0.02	0.2316	-0.08	0.937	-0.47	0.44
RELACT88	Non-worship religious activities in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	-0.10	0.1700	-0.62	0.538	-0.44	0.23
RELACT90		-0.46	0.5258	-0.88	0.380	-1.49	0.57
RELACT92[84]		1.84	1.8011	1.02	0.308	-1.69	5.37
RELPER90	Teen identifies self as a religious person in 1990 (10th grade) or 1992 (12th grade)	-0.03	0.1353	-0.26	0.798	-0.30	0.23
RELPER92		-0.20	0.2849	-0.70	0.483	-0.76	0.36
Family Characteristics							
FINTCT88	Parents were together in 1988, 1990, 1992	-0.04	0.1158	-0.33	0.739	-0.27	0.19
FINTCT90		0.04	0.1405	0.25	0.799	-0.24	0.31
FINTCT92		0.14	0.0831	1.65	0.100	-0.03	0.30

[84] Non-worship religious activity in 1992 was modeled as an endogenous variable.

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
TNPARENT	Parent a teen at child's birth	-0.28	0.2137	-1.33	0.183	-0.70	0.13
NUMSIBR_1[85]	One sibling	0.06	0.0791	0.76	0.447	-0.09	0.22
NUMSIBR_2	Two or more siblings	-0.16	0.1124	-1.40	0.161	-0.38	0.06
INCOME88R	Family income in 1988, 1992 (per $10,000)	**0.05**	**0.0104**	**4.59**	**0.000**	**0.03**	**0.07**
INCOME92R		0.00	0.0119	0.16	0.875	-0.02	0.03
FMASST92	**Family has assets available for future education expenses in 1992**	**0.21**	**0.0540**	**3.92**	**0.000**	**0.11**	**0.32**
EDUCPARR_2[86]	**Highest educational attainment of either parent is** **• graduation from high school**	**0.28**	**0.1272**	**2.24**	**0.025**	**0.04**	**0.53**
EDUCPARR_3	**• some college but no degree**	**0.48**	**0.0990**	**4.85**	**0.000**	**0.29**	**0.67**
EDUCPARR_5	**• completion of a college degree**	**0.58**	**0.1120**	**5.21**	**0.000**	**0.36**	**0.80**
EDUCPARR_6	**• graduate school**	**0.76**	**0.1178**	**6.44**	**0.000**	**0.53**	**0.99**
WK88R_4[87]	Neither of two parents work FT, or single parent works PT or not at all	-0.03	0.1256	-0.27	0.788	-0.28	0.21
WK88R_7	Single parent works FT	-0.02	0.1441	-0.17	0.869	-0.31	0.26

[85] "Zero siblings" is excluded from NUMSIBR.

[86] "Neither parent graduated from high school" is excluded from EDUCPARR.

[87] "At least one of two parents work FT" is excluded from WK88R and WK92R.

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
WK92R_4	Neither of two parents work FT or single parent works FT	0.06	0.0744	0.76	0.447	-0.09	0.20
WK92R_8	Single parent works PT or not at all	-0.05	0.1287	-0.42	0.676	-0.31	0.20
MOVE92R[88]	Moved during high school	-0.09	0.1009	-0.84	0.399	-0.28	0.11
MOVE92R_2	• once • two or more times	-0.06	0.1182	-0.52	0.605	-0.29	0.17
EDEX88R_2[89]	In 8th grade, parents expected • completion of 12th grade or less than 2 years of additional school	0.36	0.5061	0.71	0.475	-0.63	1.35
EDEX88R_3	• less than 4 more years of school	0.74	0.5106	1.45	0.148	-0.26	1.74
EDEX88R_4	• college degree or graduate school.	0.98	0.5054	1.94	0.053	-0.01	1.97
IMMIG	**Either parent is an immigrant**	**0.24**	**0.1020**	**2.37**	**0.018**	**0.04**	**0.44**
NONENGL	Foreign language dominant in home	0.09	0.1412	0.67	0.505	-0.18	0.37
Individual Characteristics							
F3QSEX	**Male**	**-0.20**	**0.0608**	**-3.30**	**0.001**	**-0.32**	**-0.08**
F3QRACE_2[90]	Hispanic	-0.10	0.1501	-0.69	0.493	-0.40	0.19
F3QRACE_3	Non-Hispanic Black	-0.16	0.2765	-0.57	0.568	-0.70	0.38
F3QRACE_4	Non-Hispanic White	0.07	0.1493	0.49	0.624	-0.22	0.37

[88] "Did not move at all during high school" is excluded from MOVE92R.

[89] "In 8th grade, parents expected less than a high school diploma or GED" is excluded from EDEX88R.

[90] "Asian or Pacific Islander" is excluded from F3QRACE.

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
F3QRACE_5	Amer Indian or AK Native	-0.22	0.2643	-0.82	0.414	-0.73	0.30
DISABIL	Teen has some disability	-0.06	0.0652	-0.96	0.339	-0.19	0.07
SCORE88R	**Score on standardized reading/math test**	**0.22**	**0.0660**	**3.32**	**0.001**	**0.09**	**0.35**
Neighborhood Characteristics							
EDRT88R	Average percentage of persons age 25 and older in the teen's zip code that have graduated from high school in 1988, 1990, 1992	-0.01	0.0109	-1.38	0.169	-0.04	0.01
EDRT90R		0.02	0.0140	1.52	0.129	-0.01	0.05
EDRT92R		0.00	0.0098	-0.11	0.916	-0.02	0.02
UNEMRT88R	Average unemployment rate among adult male civilians age 16 and older in the teen's zip code in 1988, 1990, 1992	0.00	0.0347	0.03	0.975	-0.07	0.07
UNEMRT90R		-0.05	0.0394	-1.20	0.230	-0.12	0.03
UNEMRT92R		**0.06**	**0.0221**	**2.57**	**0.010**	**0.01**	**0.10**
PERINC88R	Average annual per capita earnings, approximated by median household income / # persons per household in 1988, 1990, 1992	**0.00**	**0.0000**	**2.43**	**0.015**	**0.00**	**0.00**
PERINC90R		**0.00**	**0.0000**	**-2.34**	**0.019**	**0.00**	**0.00**
PERINC92R		0.00	0.0000	1.34	0.180	0.00	0.00

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
School Characteristics							
LUNCH88_1[91]	Percentage of student body receives free/ reduced price lunch, 8th grade • 1-10%	0.07	0.1248	0.60	0.550	-0.17	0.32
LUNCH88_2	• 11-50%	-0.06	0.1292	-0.43	0.665	-0.31	0.20
LUNCH88_3	• > 50%	0.10	0.2117	0.45	0.652	-0.32	0.51
LUNCH90_1	Percentage of student body receives free /reduced price lunch, 10th grade • 1-10%	-0.10	0.1023	-0.93	0.352	-0.30	0.11
LUNCH90_2	• 11-50%	-0.15	0.1061	-1.39	0.164	-0.36	0.06
LUNCH90_3	> 50%	-0.10	0.1408	-0.73	0.466	-0.38	0.17
ACHCL88R_2[92]	Teacher compares achievement level of the class the student is in to other classes in 1988 (8th grade) • Average or widely differing levels	-0.04	0.0863	-0.49	0.626	-0.21	0.13
ACHCL88R_3	• Lower levels	**-0.29**	**0.0932**	**-3.07**	**0.002**	**-0.47**	**-0.10**
ACHCL90R_2	Teacher compares achievement level of the class the student is in to other classes in 1990 (10th grade) • Average or widely differing levels	**-0.23**	**0.0619**	**-3.68**	**0.000**	**-0.35**	**-0.11**
ACHCL90R_3	• Lower levels	**-0.31**	**0.0893**	**-3.48**	**0.000**	**-0.49**	**-0.14**

[91] "Zero percentage of student body receives free/reduced price lunch in 1990 (10th grade)" is excluded from LUNCH88, LUNCH90.

[92] "Teen's class is high level than other classes" is excluded from ACHCL88R, ACHCL90R, ACHCL92R

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
ACHCL92R_2	Teacher compares achievement level of the class the student is in to other classes in 1992 (12th grade) • Average or widely differing levels	**-0.55**	**0.0740**	**-7.44**	**0.000**	**-0.70**	**-0.41**
ACHCL92R_3	• Lower levels	**-0.67**	**0.1108**	**-6.08**	**0.000**	**-0.89**	**-0.46**
URBAN88_2[93]	Student's school located in a suburban area in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.06	0.1093	0.59	0.554	-0.15	0.28
URBAN90_2		0.06	0.2442	0.25	0.803	-0.42	0.54
URBAN92_2		-0.11	0.2074	-0.54	0.587	-0.52	0.29
URBAN88_3	Student's school located in a rural area in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.08	0.2325	0.34	0.735	-0.38	0.53
URBAN90_3		0.56	0.2882	1.94	0.052	0.00	1.13
URBAN92_3		**-0.57**	**0.2391**	**-2.40**	**0.016**	**-1.04**	**-0.11**
REG88_2[94]	Student's school located in North Central in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	**-1.33**	**0.6449**	**-2.06**	**0.040**	**-2.59**	**-0.06**
REG90_2		0.74	0.7432	0.99	0.321	-0.72	2.19
REG92_2		0.35	0.4864	0.73	0.468	-0.60	1.31
REG88_3	Student's school located in South in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	**-0.85**	**0.3958**	**-2.16**	**0.031**	**-1.63**	**-0.08**
REG90_3		0.68	0.4687	1.46	0.146	-0.24	1.60
REG92_3		-0.12	0.3396	-0.34	0.733	-0.78	0.55

[93] "Student's school in 1988 (8th grade) located in an urban area" is excluded from URBAN88, URBAN90, URBAN92

[94] "Student's school located in Northeast" excluded from REG88, REG90, REG92

EDYRS		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
REG88_4	Student's school located in West in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	**-1.08**	**0.4262**	**-2.54**	**0.011**	**-1.92**	**-0.25**
REG90_4		0.88	0.4914	1.80	0.072	-0.08	1.85
REG92_4		-0.12	0.4130	-0.30	0.767	-0.93	0.69
Teen's Activities							
TEENPAR	**Became a teen parent**	**-0.87**	**0.1688**	**-5.16**	**0.000**	**-1.20**	**-0.54**
TRBL88	Misbehavior / delinquency in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	-0.02	0.0890	-0.24	0.807	-0.20	0.15
TRBL90R		-0.20	0.2027	-0.98	0.329	-0.60	0.20
TRBL92R		-0.05	0.1664	-0.30	0.768	-0.38	0.28
ALC90	Used alcohol in 1990 (10th grade), 1992 (12th grade)	0.06	0.1054	0.53	0.593	-0.15	0.26
ALC92		-0.04	0.1317	-0.29	0.770	-0.30	0.22
DRUG90	Used drugs in 1990 (10th grade), 1992 (12th grade)	-0.06	0.1021	-0.60	0.547	-0.26	0.14
DRUG92		-0.16	0.0852	-1.90	0.058	-0.33	0.01

2. *Completion of 12th Grade Ever*

Figure 42. Completion of 12th Grade Ever, Full Regression Results (Research Question 1)

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
Religious Participation							
ATTEVR90	Attendance at worship services in 1990 (10th grade) or 1992 (12th grade)	0.84	0.2157	-0.66	0.509	0.51	1.39
ATTEVR92		**1.92**	**0.5102**	**2.44**	**0.015**	**1.14**	**3.23**
RELACT88	Non-worship religious activities in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	**1.71**	**0.3481**	**2.63**	**0.009**	**1.15**	**2.55**
RELACT90		0.83	0.2105	-0.74	0.459	0.50	1.36
RELACT92[95]		1.12	0.2724	0.45	0.650	0.69	1.80
RELPER90	Teen identifies self as a religious person in 1990 (10th grade) or 1992 (12th grade)	1.52	0.3619	1.76	0.078	0.95	2.42
RELPER92		1.19	0.2853	0.74	0.460	0.75	1.91
Family Characteristics							
FINTCT88	Parents were together in 1988, 1990, 1992	**0.39**	**0.1312**	**-2.80**	**0.005**	**0.20**	**0.75**
FINTCT90		1.03	0.2975	0.10	0.917	0.59	1.81
FINTCT92		1.57	0.3639	1.94	0.052	1.00	2.47
TNPARENT	**Parent a teen at child's birth**	**0.21**	**0.0864**	**-3.79**	**0.000**	**0.09**	**0.47**
NUMSIBR_1[96]	**One sibling**	**2.00**	**0.5173**	**2.68**	**0.007**	**1.20**	**3.32**

[95] Non-worship religious activity in 1992 was modeled as an endogenous variable.

[96] "Zero siblings" is excluded from NUMSIBR.

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
NUMSIBR_2	Two or more siblings	1.23	0.2687	0.94	0.345	0.80	1.89
INCOME88R	Family income in 1988, 1992 (per $10,000)	**1.41**	**0.0983**	**4.94**	**0.000**	**1.23**	**1.62**
INCOME92R		**0.90**	**0.0413**	**-2.38**	**0.017**	**0.82**	**0.98**
FMASST92	Family has assets available for future education expenses in 1992	1.14	0.2348	0.63	0.531	0.76	1.71
EDUCPARR_2[97]	Highest educational attainment of either parent is • graduation from high school	1.41	0.3616	1.33	0.184	0.85	2.33
EDUCPARR_3	• **some college but no degree**	**3.13**	**1.1231**	**3.18**	**0.001**	**1.55**	**6.32**
EDUCPARR_5	• completion of a college degree	1.62	0.8177	0.96	0.338	0.60	4.36
EDUCPARR_6	• **graduate school**	**2.39**	**1.0092**	**2.07**	**0.038**	**1.05**	**5.47**
WK88R_4[98]	Neither of two parents work FT, or single parent works PT or not at all	0.95	0.2668	-0.17	0.865	0.55	1.65
WK88R_7	Single parent works FT	0.79	0.3021	-0.61	0.542	0.38	1.67
WK92R_4	Neither of two parents work FT or single parent works FT	1.18	0.3032	0.64	0.524	0.71	1.95
WK92R_8	Single parent works PT or not at all	1.11	0.3241	0.37	0.715	0.63	1.97

[97] "Neither parent graduated from high school" is excluded from EDUCPARR.

[98] "At least one of two parents work FT" is excluded from WK88R and WK92R.

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
MOVE92R[99]	Moved during high school • once • two or more times	**0.60**	**0.1459**	**-2.09**	**0.036**	**0.37**	**0.97**
MOVE92R_2		1.27	0.3740	0.82	0.413	0.71	2.26
EDEX88R_2[100]	In 8th grade, parents expected • completion of 12th grade or less than 2 years of additional school	2.15	1.3835	1.20	0.232	0.61	7.58
EDEX88R_3	• **less than 4 more years of school**	**3.75**	**2.4947**	**1.99**	**0.047**	**1.02**	**13.81**
EDEX88R_4	• college degree or graduate school.	3.26	2.1369	1.80	0.071	0.90	11.78
IMMIG	Either parent is an immigrant	0.60	0.2067	-1.48	0.139	0.31	1.18
NONENGL	Foreign language dominant in home	2.01	0.7652	1.84	0.065	0.96	4.24
Individual Characteristics							
F3QSEX	**Male**	**0.65**	**0.1361**	**-2.05**	**0.041**	**0.43**	**0.98**
F3QRACE_2[101]	Hispanic	0.57	0.3075	-1.04	0.297	0.20	1.64
F3QRACE_3	Non-Hispanic Black	0.79	0.4756	-0.39	0.693	0.24	2.57
F3QRACE_4	Non-Hispanic White	0.60	0.3324	-0.92	0.359	0.20	1.78
F3QRACE_5	Amer Indian or AK Native	0.30	0.1862	-1.94	0.053	0.09	1.01
DISABIL	**Teen has some disability**	**0.56**	**0.1131**	**-2.86**	**0.004**	**0.38**	**0.83**

[99] "Did not move at all during high school" is excluded from MOVE92R.

[100] "In 8th grade, parents expected less than a high school diploma or GED" is excluded from EDEX88R.

[101] "Asian or Pacific Islander" is excluded from F3QRACE.

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
SCORE88R	**Score on standardized reading/math test**	**0.02**	**0.4621**	**4.38**	**0.000**	**1.61**	**3.46**
Neighborhood Characteristics							
EDRT88R	Average percentage of persons age 25 and older in the teen's zip code that have graduated from high school in 1988, 1990, 1992	0.97	0.0291	-0.99	0.323	0.92	1.03
EDRT90R		1.03	0.0373	0.85	0.397	0.96	1.11
EDRT92R		0.98	0.0256	-0.64	0.521	0.93	1.03
UNEMRT88R	Average unemployment rate among adult male civilians age 16 and older in the teen's zip code in 1988, 1990, 1992	0.85	0.0865	-1.64	0.100	0.69	1.03
UNEMRT90R		1.01	0.1005	0.11	0.911	0.83	1.23
UNEMRT92R		**1.19**	**0.0575**	**3.68**	**0.000**	**1.09**	**1.31**
PERINC88R	Average annual per capita earnings, approximated by median household income / # persons per household in 1988, 1990, 1992	1.00	0.0000	-1.22	0.221	1.00	1.00
PERINC90R		1.00	0.0000	0.08	0.939	1.00	1.00
PERINC92R		**1.00**	**0.0000**	**2.05**	**0.041**	**1.00**	**1.00**
School Characteristics							
LUNCH88_1[102]	Percentage of student body receives free/ reduced price lunch, 8th grade • 1-10%	1.70	0.7255	1.25	0.210	0.74	3.93
LUNCH88_2	• 11-50%	1.32	0.5232	0.70	0.483	0.61	2.87
LUNCH88_3	• > 50%	1.11	0.4878	0.23	0.820	0.47	2.63

[102] "Zero percentage of student body receives free/reduced price lunch" is excluded from LUNCH88, LUNCH 90.

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
LUNCH90_1	Percentage of student body receives free/reduced price lunch, 10th grade • 1-10%	0.89	0.4305	-0.24	0.813	0.35	2.30
LUNCH90_2	• 11-50%	0.79	0.3550	-0.53	0.597	0.33	1.91
LUNCH90_3	> 50%	0.68	0.3587	-0.73	0.464	0.24	1.91
ACHCL88R_2[103]	Teacher compares achievement level of the class the student is in to other classes in 1988 (8th grade) • Average or widely differing levels	0.65	0.2344	-1.19	0.236	0.32	1.32
ACHCL88R_3	• Lower levels	0.65	0.2461	-1.14	0.255	0.31	1.37
ACHCL90R_2	Teacher compares achievement level of the class the student is in to other classes in 1990 (10th grade) • Average or widely differing levels	0.29	0.2012	-1.78	0.075	0.07	1.13
ACHCL90R_3	• **Lower levels**	**0.18**	**0.1295**	**-2.39**	**0.017**	**0.04**	**0.74**
ACHCL92R_2	Teacher compares achievement level of the class the student is in to other classes in 1992 (12th grade) • Average or widely differing levels	0.11	0.1287	-1.91	0.056	0.01	1.06
ACHCL92R_3	• Lower levels	0.11	0.1238	-1.92	0.055	0.01	1.05

[103] "Teen's class is higher level than other classes" is excluded from ACHCL88R, ACHCL90R, ACHCL92R

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
URBAN88_2[104]	Student's school located in a suburban area in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	**0.41**	**0.1663**	**-2.20**	**0.028**	**0.19**	**0.91**
URBAN90_2		**4.08**	**2.2220**	**2.59**	**0.010**	**1.41**	**11.86**
URBAN92_2		0.52	0.2518	-1.35	0.177	0.20	1.34
URBAN88_3	Student's school located in a rural area in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.55	0.3110	-1.05	0.292	0.18	1.67
URBAN90_3		**8.98**	**5.3984**	**3.65**	**0.000**	**2.76**	**29.18**
URBAN92_3		**0.28**	**0.1545**	**-2.31**	**0.021**	**0.10**	**0.83**
REG88_2[105]	Student's school located in North Central in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.04	0.1031	-1.20	0.229	0.00	7.89
REG90_2		2.93	7.2033	0.44	0.662	0.02	363.97
REG92_2		**9.84**	**10.8830**	**2.07**	**0.039**	**1.13**	**86.00**
REG88_3	Student's school located in South in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.28	0.3491	-1.02	0.309	0.02	3.28
REG90_3		0.39	0.4863	-0.75	0.450	0.03	4.46
REG92_3		6.01	5.8549	1.84	0.066	0.89	40.56
REG88_4	Student's school located in West in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.12	0.2473	-1.05	0.294	0.00	6.12
REG90_4		2.55	4.2860	0.56	0.576	0.10	68.52
REG92_4		1.28	1.5988	0.20	0.844	0.11	14.81
Teen's Activities							
TEENPAR	**Became a teen parent**	**0.05**	**0.0118**	**-12.90**	**0.000**	**0.03**	**0.08**

[104] "Student's school in 1988 (8th grade) located in an urban area" is excluded from URBAN88, URBAN90, URBAN92

[105] "Student's school located in Northeast" excluded from REG88, REG90, REG92

HSGRAD		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
TRBL88	Misbehavior / delinquency in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.88	0.1785	-0.64	0.524	0.59	1.31
TRBL90R		0.73	0.2725	-0.85	0.394	0.35	1.52
TRBL92R		**3.24**	**1.3055**	**2.91**	**0.004**	**1.47**	**7.13**
ALC90	Used alcohol in 1990 (10th grade), 1992 (12th grade)	1.32	0.4191	0.88	0.378	0.71	2.46
ALC92		0.65	0.1763	-1.58	0.114	0.38	1.11
DRUG90	Used drugs in 1990 (10th grade), 1992 (12th grade)	0.57	0.1635	-1.95	0.051	0.33	1.00
DRUG92		0.90	0.2351	-0.41	0.679	0.54	1.50

3. *On-Time Graduation from High School*

Figure 43. On-Time Graduation from High School, Full Regression Results (Research Question 1)

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
Religious Participation							
ATTEVR90	Attendance at worship services in 1990 (10th grade) or 1992 (12th grade)	**1.35**	**0.201**	**2.02**	**0.043**	**1.01**	**1.81**
ATTEVR92		1.08	0.171	0.50	0.614	0.79	1.48
RELACT88	Non-worship religious activities in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	1.19	0.133	1.57	0.117	0.96	1.48
RELACT90		1.08	0.164	0.52	0.604	0.80	1.46
RELACT92[106]		1.17	0.178	1.06	0.288	0.87	1.58
RELPER90	Teen identifies self as a religious person in 1990 (10th grade) or 1992 (12th grade)	1.10	0.154	0.64	0.519	0.83	1.44
RELPER92		0.92	0.137	-0.53	0.593	0.69	1.23
Family Characteristics							
FINTCT88	Parents were together in 1988, 1990, 1992	0.86	0.193	-0.66	0.512	0.56	1.34
FINTCT90		**1.49**	**0.254**	**2.31**	**0.021**	**1.06**	**2.08**
FINTCT92		**1.87**	**0.362**	**3.24**	**0.001**	**1.28**	**2.73**
TNPARENT	Parent a teen at child's birth	0.74	0.371	-0.60	0.550	0.28	1.98
NUMSIBR_1[107]	One sibling	1.05	0.174	0.28	0.779	0.76	1.45

[106] Non-worship religious activity in 1992 was modeled as an endogenous variable.

[107] "Zero siblings" is excluded from NUMSIBR.

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
NUMSIBR_2	Two or more siblings	0.88	0.133	-0.86	0.388	0.65	1.18
INCOME88R	Family income in 1988, 1992 (per $10,000)	1.05	0.031	1.78	0.076	0.99	1.12
INCOME92R		0.99	0.030	-0.42	0.675	0.93	1.05
FMASST92	**Family has assets available for future education expenses in 1992**	**1.54**	**0.183**	**3.59**	**0.000**	**1.21**	**1.94**
EDUCPARR_2[108]	Highest educational attainment of either parent • graduation from high school	1.07	0.179	0.42	0.672	0.77	1.49
EDUCPARR_3	• some college but no degree	1.09	0.205	0.45	0.649	0.75	1.57
EDUCPARR_5	• completion of a college degree	1.08	0.273	0.29	0.770	0.66	1.77
EDUCPARR_6	• graduate school	1.01	0.277	0.03	0.978	0.59	1.73
WK88R_4[109]	Neither of two parents work FT, or single parent works PT or not at all	0.85	0.153	-0.90	0.368	0.60	1.21
WK88R_7	Single parent works FT	0.78	0.178	-1.09	0.277	0.50	1.22
WK92R_4	Neither of two parents work FT or single parent works FT	1.14	0.167	0.91	0.361	0.86	1.52
WK92R_8	Single parent works PT or not at all	1.34	0.290	1.36	0.174	0.88	2.05

[108] "Neither parent graduated from high school" is excluded from EDUCPARR.

[109] "At least one of two parents work FT" is excluded from WK88R, WK92R.

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
MOVE92R[110]	Moved during high school	**0.60**	**0.085**	**-3.61**	**0.000**	**0.45**	**0.79**
MOVE92R_2	• once • two or more times	0.68	0.164	-1.59	0.111	0.43	1.09
EDEX88R_2[111]	In 8th grade, parents expected • completion of 12th grade or less than 2 years of additional school	1.13	0.951	0.14	0.886	0.22	5.89
EDEX88R_3	• less than 4 more years of school	1.47	1.247	0.45	0.649	0.28	7.75
EDEX88R_4	• college degree or graduate school.	1.57	1.340	0.53	0.598	0.29	8.37
IMMIG	Either parent is an immigrant	0.69	0.149	-1.74	0.082	0.45	1.05
NONENGL	**Foreign language dominant in home**	**1.64**	**0.373**	**2.18**	**0.029**	**1.05**	**2.56**
Individual Characteristics							
F3QSEX	Male	0.89	0.115	-0.91	0.365	0.69	1.15
F3QRACE_2[112]	Hispanic	0.58	0.213	-1.48	0.139	0.28	1.19
F3QRACE_3	Non-Hispanic Black	1.31	0.524	0.67	0.503	0.60	2.87
F3QRACE_4	Non-Hispanic White	0.91	0.325	-0.26	0.794	0.45	1.83
F3QRACE_5	Amer Indian or AK Native	1.00	0.480	-0.01	0.995	0.39	2.56
DISABIL	**Teen has some disability**	**0.71**	**0.095**	**-2.55**	**0.011**	**0.55**	**0.93**

[110] "Did not move at all during high school" is excluded from MOVE92R.

[111] "In 8th grade, parents expected less than a high school diploma or GED" is excluded from EDEX88R.

[112] "Asian or Pacific Islander" is excluded from F3QRACE.

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
SCORE88R	**Score on standardized reading/math test**	**0.01**	**0.107**	**3.09**	**0.002**	**1.10**	**1.52**
Neighborhood Characteristics							
EDRT88R	Average percentage of persons age 25 and older in the teen's zip code that have graduated from high school in 1988, 1990, 1992	1.03	0.021	1.32	0.187	0.99	1.07
EDRT90R		0.98	0.023	-0.85	0.394	0.94	1.03
EDRT92R		0.98	0.020	-0.76	0.447	0.95	1.02
UNEMRT88R	Average unemployment rate among adult male civilians age 16 and older in the teen's zip code in 1988, 1990, 1992	0.98	0.066	-0.26	0.791	0.86	1.12
UNEMRT90R		0.98	0.074	-0.25	0.801	0.85	1.14
UNEMRT92R		1.02	0.040	0.40	0.692	0.94	1.10
PERINC88R	Average annual per capita earnings, approximated by median household income / # persons per household in 1988, 1990, 1992	1.00	0.000	-0.72	0.472	1.00	1.00
PERINC90R		1.00	0.000	0.94	0.349	1.00	1.00
PERINC92R		1.00	0.000	0.18	0.860	1.00	1.00
School Characteristics							
LUNCH88_1[113]	Percentage of student body receives free/ reduced price lunch, 8th grade • 1-10%	1.12	0.263	0.49	0.622	0.71	1.78
LUNCH88_2	• 11-50%	0.88	0.195	-0.58	0.562	0.57	1.36
LUNCH88_3	• > 50%	0.61	0.160	-1.88	0.060	0.36	1.02

[113] "Zero percentage of student body receives free/reduced price lunch in 1990 (10th grade)" is excluded from LUNCH88, LUNCH90.

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
	Percentage of student body receives free/reduced price lunch, 10th grade						
LUNCH90_1	• 1-10%	0.68	0.227	-1.15	0.250	0.36	1.31
LUNCH90_2	• 11-50%	0.72	0.246	-0.97	0.334	0.37	1.40
LUNCH90_3	> 50%	1.16	0.473	0.37	0.713	0.52	2.58
	Teacher compares achievement level of the class the student is in to other classes in 1988 (8th grade)						
ACHCL88R_2[114]	• Average or widely differing levels	1.00	0.165	-0.01	0.990	0.72	1.38
ACHCL88R_3	• Lower levels	0.73	0.140	-1.65	0.098	0.50	1.06
	Teacher compares achievement level of the class the student is in to other classes in 1990 (10th grade)						
ACHCL90R_2	• Average or widely differing levels	0.55	0.124	-2.66	0.008	0.35	0.85
ACHCL90R_3	• Lower levels	0.41	0.099	-3.68	0.000	0.26	0.66
	Teacher compares achievement level of the class the student is in to other classes in 1992 (12th grade)						
ACHCL92R_2	• Average or widely differing levels	0.23	0.071	-4.78	0.000	0.13	0.42
ACHCL92R_3	• Lower levels	0.13	0.043	-6.15	0.000	0.07	0.25
URBAN88_2[115]	Student's school located in a suburban area in	0.95	0.298	-0.16	0.871	0.51	1.76

[114] "Teen's class is higher level than other classes" is excluded from ACHCL88R, ACHCL90R, ACHCL92R

[115] "Student's school in 1988 (8th grade) located in an urban area" is excluded from URBAN88, URBAN90, URBAN92

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
URBAN90_2	1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.79	0.317	-0.58	0.560	0.36	1.73
URBAN92_2		1.30	0.411	0.82	0.414	0.70	2.41
URBAN88_3	Student's school located in a rural area in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.64	0.299	-0.95	0.344	0.26	1.60
URBAN90_3		1.28	0.707	0.44	0.661	0.43	3.78
URBAN92_3		1.56	0.659	1.04	0.297	0.68	3.57
REG88_2[116]	Student's school located in North Central in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	4.82	4.397	1.72	0.085	0.81	28.81
REG90_2		0.34	0.346	-1.06	0.288	0.05	2.48
REG92_2		0.60	0.514	-0.59	0.553	0.11	3.21
REG88_3	Student's school located in South in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	3.58	2.609	1.75	0.080	0.86	14.93
REG90_3		0.59	0.552	-0.56	0.574	0.10	3.68
REG92_3		0.34	0.216	-1.70	0.089	0.10	1.18
REG88_4	Student's school located in West in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	8.63	7.609	2.44	0.015	1.53	48.60
REG90_4		0.44	0.470	-0.77	0.441	0.05	3.59
REG92_4		0.24	0.189	-1.81	0.070	0.05	1.13
Teen's Activities							
TEENPAR	Became a teen parent	0.05	0.007	-20.18	0.000	0.04	0.07

[116] "Student's school located in Northeast" excluded from REG88, REG90, REG92

ONTIME		*Coef.*	*Robust SE*	*t*	*P>t*	*[95% Conf. Int.]*	
TRBL88	Misbehavior / delinquency in 1988 (8th grade), 1990 (10th grade), 1992 (12th grade)	0.57	0.073	-4.34	0.000	0.45	0.74
TRBL90R		0.60	0.152	-2.02	0.043	0.37	0.98
TRBL92R		0.70	0.178	-1.39	0.165	0.43	1.16
ALC90	Used alcohol in 1990 (10th grade), 1992 (12th grade)	0.74	0.131	-1.68	0.092	0.53	1.05
ALC92		1.22	0.192	1.27	0.203	0.90	1.66
DRUG90	Used drugs in 1990 (10th grade), 1992 (12th grade)	0.75	0.133	-1.61	0.107	0.53	1.06
DRUG92		1.03	0.168	0.16	0.872	0.74	1.42

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