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Are strict churches really stronger? A study of strictness, congregational activity, and growth in American Protestant churches

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Are Strict Churches Really Stronger? A Study of Strictness, Congregational Activity, and
Growth in American Protestant Churches

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Thesis submitted to the
Eberly College of Arts and Sciences
at West Virginia University
in partial fulfillment of the requirements for the degree of

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in
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Abstract

Are Strict Churches Really Stronger? A Study of Strictness, Congregational Activity, and Growth in American Protestant Churches

Rebecca A. Flynn

The purpose of this study was to determine whether strict churches are more likely than others to experience growth and what role congregational activity might play in the relationship between strictness and growth. Using data from the Faith Communities Today (FACT) 2000 survey, I tested Dean Kelley's (1972) claim that strictness is an important factor in church growth and Laurence Iannaccone's (1992) assertion that strict churches grow because they reduce free-riding, or increase congregational activity. The results lend only limited support for the idea that strict churches are more likely than more lenient churches to experience growth and do not conclusively support the idea that congregational activity acts as a mediator between strictness and growth.

Dedication

I would like to dedicate this work to the memory of my late mother Diane Flynn.

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INTRODUCTION

In the last half-century, Protestant denominations have demonstrated a pattern of declining membership (Hout, Greeley, and Wilde 2001). However, some churches—particularly those affiliated with some of the most conservative denominations—have managed to stay strong, or even to grow. One explanation for United States church membership trends suggests that strictness—that is, the existence of explicit rules regarding loyalty, belief, and living a moral lifestyle for members or participants, the enforcement of these rules, and a rejection of other ways of thinking—explains the continued growth of some churches (Iannaccone 1992, 1994; Kelley 1972, 1978). In the 1970s, Dean Kelley (1972, 1978), a theologian and National Council of Churches official, noticed that conservative denominations were growing while mainline denominations were shrinking. The denominations Kelley (1972, 1978) categorized as conservative include “non-ecumenical” denominations like the Southern Baptist Convention, Seventh-Day Adventists, and the Church of the Nazarene. Mainline denominations include older, less conservative denominations like the Episcopal Church and the United Church of Christ (Iannaccone 1994).

Kelley (1972) proposed that conservative denominations’ success may be a result of their higher levels of strictness, meaning demanding loyalty, strong belief, and adherence to a moral lifestyle. Strict churches are those that display three qualities: absolutism, conformity, and fanaticism. Absolutism refers to a rejection of all beliefs or explanations of life except for that of the particular church or denomination (Kelley 1972). For example, some conservative movements within the United Methodist Church aim to establish boundaries on acceptable beliefs in response to increased liberalism in the denomination as a whole. These movements denounce abortion, homosexual practice, and seeking salvation by any means other than a belief in Jesus Christ (Finke and Stark 2001). Conformity refers to some churches’ intolerance of any deviance or dissent among their members. The Amish, for example, require members to wear certain clothing that is identified with the church and distinguishes them from others. Fanaticism refers to an inclination to go out and spread their “Good News” while refusing to hear what others have to say. A group called “The Children of God” display their fanaticism when, in their attempts to convert people, they teach that all true Christians must abandon everything except for a devotion to God—even that they should abandon their families (Kelly 1972).

Drawing on Kelley's "strictness theory," Iannaccone (1992, 1994) explains that strictness can discourage free-riding, or attending church without contributing to the life of a congregation, and can encourage the production of a more attractive church environment with more to offer to potential members, thus promoting church growth. In this study, I look at churches' congregational activity, which is how involved in church life the churches' members or participants are and the extent to which churches reduce free-riding. The study addresses three research questions: Are strict churches more likely than more lenient churches to experience growth? Are more active congregations more likely than others to grow? Finally, if there is a significant relationship between strictness and growth, does congregational activity explain—or mediate—this relationship?

Purpose of the Study

The purpose of this study is to test Kelley and Iannaccone's theory of the relationship between church strictness and congregational growth using congregational-level data from the Faith Communities Today (FACT) 2000 survey. The Hartford Institute for Religion coordinated this survey—the largest survey of United States congregations—in an effort to examine the characteristics of churches and other faith communities at the turn of the millennium (Dudley and Roozen 2001; Roozen 2002). While several researchers have studied Kelley's strictness theory, their studies largely focused on denominational-level analyses (Bibby 1978; Hout, Greeley, and Wilde 2001; Iannaccone 1994; Iannaccone, Olson, and Stark 1995; Sherkat 2001; Tamney and Johnson 1998). Tamney, Johnson, McElmurry, and Saunders (2003) suggest that research on church growth ought to focus on congregations rather than denominations because churches grow, or bring in new members, at the congregational level.

In a study modeling church growth as the outcome of increased time and money contributed by congregants, Iannaccone and colleagues (1995) examine membership growth at both the denominational level and the congregational level. Analyses at both levels produce similar results, suggesting that denominational-level findings from studies of churches should hold true at the congregational level. General Social Survey (GSS) respondents who reported contributing significantly to their churches also tended to report belonging to denominations with which increasing numbers of people identify on the GSS over time. Significant contributions from members also predicted growth in a sample of Disciples of Christ congregations and a

sample of United Church of Christ congregations. Likewise, one would expect that, if Kelley's strictness theory is accurate, strictness in churches should have an effect at the congregational level, such that congregations in which rules are strictly enforced would experience increased attendance rates.

Quantitative and qualitative studies that have taken a congregational-level approach to the strictness theory (Hadaway 1980; Tamney 2005; Tamney et al. 2003; Wellman 2002) generally limit their focus to churches within a small number of denominations or to churches within a small geographic area (e.g., United Presbyterian churches in the United States; Protestant churches in Muncie, Indiana; activist, liberal churches on the West Coast). I examine congregational-level information across denominations throughout the United States using data from the Faith Communities Today 2000 (FACT 2000) survey. The Hartford Institute for Religion Research developed the FACT 2000 survey, to provide a profile of American religion, and in 2000 it was the largest survey of congregations ever conducted (Dudley and Roozen 2001).

The use of FACT 2000 data allows for a larger-scale congregational-level study of strictness theory than has been conducted in the past. In addition to studying strictness theory on a larger scale than past studies that have used congregations as the unit of analysis, I examine a factor that has not been thoroughly studied—the possibility that high levels of congregational activity help strict churches to grow. The strictness theory developed by Kelley (1972, 1978) and Iannaccone (1992, 1994) leads one to expect that strict churches are likely to be more active than other churches because strictness actually helps to attract more committed members and discourages free-riding. However, research on what I refer to as the “strictness theory” has not thoroughly addressed whether a decrease in free-riding and increased commitment might be the link between strictness and growth. The previous research (Bibby 1978; Hadaway 1980; Hout et al. 2001; Iannaccone 1994; Sherkat 2001; Tamney 2005; Tamney and Johnson 1998; Tamney et al. 2003; Wellman 2002) simply looked for a correlation between strictness and growth, or between strictness and free-riding, without testing for mediating factors. This thesis is aimed at filling this gap in the existing research. Based on the theory developed by Kelley (1972, 1978) and Iannaccone (1992, 1994), I hypothesize that strict churches are more likely than lenient churches to experience growth. I also hypothesize that a high level of congregational activity, or low level of free-riding, is associated with strict churches and explains a tendency for strict

churches to grow. Iannaccone (1994) explains that strict churches attract people who want to be very involved in church life and suggests that people feel more comfortable joining churches where most members are highly active.

Definition of Terms

Strictness. Strictness refers to the existence of particular expectations, and enforcement of such expectations, for churches' members or active congregants. One should note that, while Dean Kelley's 1972 book is titled *Why Conservative Churches Are Growing*, conservatism is not the same thing as strictness. Kelley (1978) later commented that he ought to have used a different title to lessen the likelihood that people would equate conservatism with the strictness he studied. Kelley saw strictness as a characteristic of many conservative churches and as the explanatory factor for many conservative churches' growth, but conservatism should not be equated with strictness.

Members of strict churches make greater sacrifices for their churches than do members of more lenient churches (Kelley 1972). Strict churches ask congregants to make sacrifices, such as abstaining from alcohol consumption, without any immediate benefits (Iannaccone 1997). Stark and Finke (2000) define strict churches as those having high tension with their surroundings. However, the level of tension with a church's surroundings seems more like a consequence of strictness than a defining characteristic of strict churches. Thus, I focus on Kelley's (1972) definition of strictness rather than levels of tension. Kelley (1972) attempts to define strictness by describing three distinct, but related, traits of strict churches—absolutism, conformity, and fanaticism.

Absolutism. Absolutism refers to a rejection of all beliefs or explanations of life except for the church's or the denomination's (Kelley 1972). Absolutist churches, according to Kelley (1972), have a closed system of beliefs and meaning, believing that they are the only ones who know the real Truth about God. Members of such churches attach themselves to the churches' value sets without critically evaluating them (Iannaccone 1994; Kelley 1972). In this study, I address absolutism by examining a strong sense of mission or purpose and regarding creeds, doctrine, and tradition as foundational sources of authority.

Conformity. A church that values conformity does not tolerate deviance or dissent among its members, shunning those who dare go against the church's teachings. As a result, members of a church may display some traits that set them apart from the rest of the population (Kelley 1972). In describing conformity, Iannaccone (1994) says that members of strict churches may follow special diets, dress codes, or rules of speech. The distinctive dress of the Amish is one good example of a religious group's attempt to set itself apart from the rest of the population (Kelley 1972). In my study, I examine whether churches have strictly enforced rules, teach against alcohol consumption, and teach against premarital sex.

Fanaticism. According to Kelley (1972), fanatics have a strong missionary zeal, feeling that they must share their knowledge of God with others, and are unwilling to hear others' views regarding God. Fanatics may isolate themselves from the views of the outside world, or they may drown out other views with a flood of messages proclaiming their own versions of the "Good News" of how one might receive salvation from eternal damnation. Kelley (1972) says that fanatics force their views upon others without believing that other people's views have value. I examine whether churches participate in joint worship services with Christians of other denominations and with those from other faith traditions because fanatics would not be expected to engage in such activities.

Congregational Activity. Congregational activity refers to the extent of church participants' involvement in the church. A church with high congregational activity has little trouble with free-riding, meaning that plenty of people are willing to help with the church's programs. Simply showing up for worship on Sunday morning does not qualify one as highly active. Rather, a highly active congregant is one who participates in activities outside worship and is willing to volunteer time and energy to the programs of the church.

Free-riding. A term borrowed from political science and economics, free-riding refers to the tendency of individuals who are part of a group to enjoy the benefits of the group without making significant contributions to it (Olson 1971). In the context of this study, free-riding means being affiliated with a church without making a meaningful contribution to the life of the church through volunteering or working to bring in new members. Iannaccone (1994) explains that those who do not make meaningful contributions to their churches decrease the average level

of energy and enthusiasm in the church. Also, churches struggle to survive if congregants do not contribute money or effort to support the churches' activities.

Church Growth. Tippett (1970) explains that some do not believe that counting church members or participants is proper because it is considered unscriptural. However, church growth literature does generally refer to church growth in terms of the numbers of people who participate in the life of or belong to churches, or in terms of the numbers of people who identify with churches (Easum 1990; McGavran 1970; Tippett 1970). Church growth is important to Christians because they believe God has called them to spread the Christian faith (Tippett 1970). In this study, church growth refers to an increase in the number of a church's regularly participating adults, not to be confused with highly active congregants, a subgroup of the regular participants. Regularly participating adults would include those adults who simply attend worship but do not participate in other activities. For this study, each pastor or church leader reported approximately how much the number of regularly participating adults in the church had increased or decreased over the past five years, with possible responses of "Decreased 10% or more," "Decreased 5% to 9%," "Stayed about the same (+/-4%)," "Increased 5% to 9%," and "Increased 10% or more."

Limitations

Using data from FACT 2000 has some distinct advantages. The FACT 2000 dataset is available without financial cost and provides information about more than 10,000 congregations with various faith traditions throughout the United States. Most individual researchers could not collect so much data pertaining to such a wide variety of congregations on their own. The FACT 2000 survey also provides free data that can be used to test relationships among variables before an original study might be conducted.

Despite the survey's advantages, using available data in general, and this data in particular, does pose problems. Because I did not create the survey items myself, many of the items are not worded in the way that I would have chosen and in ways that would have been best for my study. For example, were I to design my own survey in order to study strictness theory and church growth, I would include questions about both official membership rates and the numbers of active participants in churches.

Also, the survey measures the variables in question indirectly, asking the pastor or church leader questions about the behaviors of his or her parishioners. Ideally, I would survey church members or participants and aggregate data to the church level. Surveying pastors and church leaders is problematic because they could bias the data either consciously or unconsciously. The pastors might be dishonest in order to make their churches appear healthier and so that they appear to be doing their jobs well, since the survey was sent out by denominations. Also, the data could be accidentally biased because the pastors may lack knowledge regarding their parishioners' demographics and lives.

In addition to the drawbacks presented by question wording and variety, the sampling methods employed for secondary data may be problematic (Thomas and Heck 2001). Because I did not collect the data myself, I cannot be sure of exactly how the sample was drawn and exactly how the data was handled. In general, a multistage stratified random sampling technique was used. Each denomination or faith group was asked to draw a stratified random sample of its congregations, stratified with respect to region and size of congregation, with a minimum sampling error of plus or minus four percentage points at a 95% confidence level. Most groups followed this technique, with some drawing straight random samples. The procedure by which the Gallup Organization drew a sample of historically black congregations is unknown (ARDA n.d.). One sampling issue for this survey is that there would not be sampling frames for some groups. While a denomination such as the United Methodist Church would have a list of all congregations within the denomination, a clear-cut list of all the nation's historically black churches may be harder to come by. Also, vastly different return rates for different denominations or faith groups (98% for the Church of Jesus Christ of Latter-Day Saints versus 5.32% for nondenominational churches, for example) may weaken the representativeness of the sample (Hartford Institute for Religion Research n.d.).

Another problem with the data is that whites may be over-represented. FACT 2000 includes a sample of pastors at historically black churches. However, the surveys for the various denominations and faith groups were not all the same, and the survey which these pastors received did not ask whether or not their churches had experienced growth (Dudley and Roozen 2001). Thus, they are not included in my analysis.

Significance of the Study

This study attempts to fill gaps in research on the relationship between strictness and growth in churches. The study can provide important insight into the effect strict expectations may have on a congregation and insight into what might motivate people to choose particular churches. While the results of this study cannot appropriately be applied to organizations as a whole, the results may suggest a possible relationship that could be studied between strict expectations and growth for organizations in general.

REVIEW OF THE LITERATURE

The 1970s were marked by an increased interest among sociologists and pastors alike in church growth and decline (Davidson 2008). Sociologists of religion were interested in understanding what could make some churches more likely than others to grow in membership. For their own reasons, pastors and other church officials were interested in finding out what might help them to grow their own churches. Speculation as to what promotes church growth continues today.

In 1972, Dean Kelley suggested a theory of a causal relationship between strictness—with regard to loyalty, beliefs, and living morally—and church growth. In *Why Conservative Churches Are Growing*, Kelley attempted to explain why some of the most conservative denominations in Christianity continued to grow when more liberal denominations had begun to decline toward the end of the 1960s. Conservative churches, he claimed, have more active, committed congregations because of their strictness or seriousness. Thus, he argued that strictness in conservative churches had helped to create environments that promoted growth. Finke and Stark (1992) reflect this idea, suggesting that denominations started to slip whenever they rejected their traditional doctrines, adopted worldly values, and did away with serious demands for parishioners. In recounting the history of Christianity in the United States, for example, Finke and Stark (1992) explain that Methodists saw a sharp decline in their share of Christian adherents at the time when they sought to abandon behavioral restrictions and make their doctrines less harsh.

Kelley (1972) focuses on the importance of creating meaning, suggesting that only those churches which provide their parishioners with real meaning can thrive. Creating meaning, he says, is about more than talking about something meaningful. Strict churches, he suggests, thrive

by requiring parishioners to truly be engaged in doing meaningful work and to believe in what the church regards as ultimate truths.

The strictness theory has been categorized as a rational choice approach to the study of religion (Sherkat 2001). The rational choice approach focuses more on people's calculated choices than their values (Smith 2003). The strictness theory claims that strict churches are more attractive than others, suggesting that people choose to go to strict churches for reasons other than simple religious values or beliefs (Sherkat 2001). The connection between the strictness theory and rational choice theory is clearer as Kelley's strictness theory is further developed.

Approximately 20 years after Kelley published his theory of growth among strict churches, Iannaccone (1994), a proponent of the rational choice approach to the study of religion, set out to expand upon the strictness theory. In adding to Kelley's ideas, Iannaccone (1994), suggested that the reduction of "free-riding" in strict churches explains these churches' strength. Free-riding is the tendency of individuals who are part of a group to enjoy the benefits of the group without making significant contributions to it (Olson 1971). Iannaccone (1994) explains that, while increased strictness translates into increased costs for church members, churches that eliminate free-riding may provide rewards, such as a sense of solidarity, that outweigh the costs of strictness (Iannaccone 1994). Churches can provide members with such benefits as social support, programming for children, and leadership opportunities (Sherkat 2001).

Stricter churches discourage free-riding and may force out members who are not committed. These churches also motivate participation among those committed members who remain. Iannaccone (1994) emphasizes the importance of religion's collective side, stating that one's religious experience depends partly on how many others participate and how deeply committed these others are. People, this suggests, do not enjoy church as much if they are surrounded by free-riders. He found that strictness is related to a reduction in free-riding but did not test what he believed was an obvious negative relationship between free-riding and growth.

Iannaccone's version of the strictness theory, along with the rational choice approach in general, has been controversial within the sociology of religion and has prompted further study of church strictness (Bruce 1993; Marwell 1996; Smith 2003; Spickard 1998). Marwell (1996) criticizes Iannaccone for looking not at church growth but at church "strength," which he says

Iannaccone does not adequately define or distinguish from strictness. Iannaccone, he says, attempts to determine whether strictness causes strength but provides similar descriptions of the two concepts. Marwell also claims that Iannaccone does not provide sufficient evidence to back up his claim that free-riding hurts churches. Spickard (1998) and Bruce (1993) suggest that a rational choice approach to studying religion is very limited theoretically because it ignores cultural issues, such as people's backgrounds and what religious practices people consider socially acceptable, and downplays religious belief. Smith (2003) criticizes the rational choice approach because it ignores values and preferences, which he claims explain people's actions, and which he insists cannot be neglected in social research.

Several studies (Bibby 1978; Hout, Greeley, and Wilde 2001; Iannaccone 1994; Iannaccone, Olson, and Stark 1995; Sherkat 2001; Tamney and Johnson 1998) have tested the strictness theory of church growth by examining individuals' self-reported denominational affiliations. While the data in these cases came from individuals, the unit of analysis was the denomination, as researchers aggregated the data. These studies examined whether the denominations categorized as strict showed more growth than other denominations, concluding that strictness is not a highly significant predictor of actual growth. Bibby (1978), who used a Canadian national survey and a demographic approach to study church growth, found that higher birth rates among conservative Protestants is a more important factor than strictness in explaining congregational growth among conservative Protestant churches. Hout and colleagues (2001) found that the General Social Survey (GSS) of 1974 to 1998 shows that conservative Protestants' higher fertility rates and earlier childbearing patterns account for 76% of the trend toward growing conservative churches. In his examination of the General Social Surveys, Sherkat (2001) did not find evidence of growth among conservative denominations based on how many people identified with those denominations, but claims that conservative denominations are simply losing fewer members than other denominations.

Tamney and Johnson (1998) attempted to study the strictness theory using individuals as the unit of analysis, asking respondents how important certain church qualities would be to them in looking for a new church. They did not find support for the strictness theory. In fact, they found, through closed-ended telephone interviews with residents of the Muncie, Indiana, metropolitan statistical area, that those qualities that most closely describe strict churches were the least appealing qualities to the respondents. It seems, however, that the manner in which

respondents were asked about these qualities may have made them seem very unappealing, especially compared to the other qualities in question, like attending a church where people “go out of their way to be your friends” or where the pastor “is certain that what he teaches is the truth.” While people may say they do not especially like being told what they must wear to church and how much money they must give to the church, they could still be attracted to strict churches if strict churches do, in fact, foster greater congregational activity.

Smith (1998) also conducted research in which individuals were the unit of analysis, conducting face-to-face interviews and a telephone survey. He was not primarily concerned with strictness, but rather with the success of evangelical churches. However, Smith does discuss strictness, and while he does not assert that a causal relationship exists between strictness and church strength, his study suggests that the denominations which seem to be thriving are those which could be characterized as strict.

Several studies of the strictness theory have used congregations as the unit of analysis (Hadaway 1980; Tamney 2005; Tamney, Johnson, McElmurry, and Saunders 2003; Wellman 2002). This seems to be a more appropriate unit of analysis than denominations for studying how strictness might be related to growth, since individual churches within denominations can vary in strictness and in growth, and since not all churches belong to denominations. Studying individual church congregations makes sense if one wants to learn about growth within churches.

Tamney and colleagues (2003) found a positive correlation between strictness and growth within working-class congregations, but not within middle-class congregations in a study of 98 churches in Lynd and Lynd’s (1929) “Middletown” study of Muncie, Indiana. Tamney (2005), however, found no support for the strictness theory in his open-ended interviews with members of two working-class Protestant congregations. Rather, he found that some working class people were drawn to certain churches because they were *not* perceived as strict. While this conclusion does not lend support to Kelley’s strictness theory, it certainly does not disprove it either. Tamney studied people’s opinions of strict rules, rather than whether strict churches really grow.

Some congregational-level studies (Hadaway 1980; Wellman 2002) examined the possible effects of strictness within more liberal denominations. A study of United Presbyterian churches found that conservative churches within that denomination were somewhat more likely than others to grow in membership, but the study found little support for Kelley’s theory that

strictness is what causes growth in these churches (Hadaway 1980). More recent research shows that some West Coast liberal churches are growing because of their liberal, activist Protestantism, which places strict demands on members, such as requiring self-criticism and engagement in social activism (Wellman 2002).

Tamney and Johnson (1998) were able to show that strict churches are not attractive simply because of their strictness, or their rigorously enforced rules, but this does not necessarily mean that there is no relationship between strictness and growth. This simply suggests that if a relationship exists between strictness and growth there is also some other factor at work, such as congregational activity.

The strictness theory developed by Kelley (1972, 1978) and Iannaccone (1992, 1994) leads one to expect that strict churches are likely to be more active than other churches if strictness actually helps to attract more committed members and discourages free-riding. However, research on the strictness theory has not addressed whether a decrease in free-riding and increased congregational activity might be the link between strictness and growth. The previous research (Bibby 1978; Hadaway 1980; Hout et al. 2001; Sherkat 2001; Tamney 2005; Tamney and Johnson 1998; Tamney et al. 2003; Wellman 2002) simply examined a possible correlation between strict requirements and growth, without determining how or why the two are connected, or looked simply at the relationship between strictness and a reduction in free-riding, assuming that reducing free-riding would promote growth.

METHODS

Data

Data for this study comes from the 2000 Faith Communities Today (FACT 2000) survey, produced by the Hartford Institute for Religion Research and the Cooperative Congregational Studies Partnership, a multid denominational effort, including some entities outside the Christian faith, to improve religious research (Carroll 2000; Roozen 2002). The Cooperative Congregational Studies Partnership includes 41 denominations or faith groups¹ that worked

¹ The survey includes the following denominations and faith groups: American Baptist Churches USA, Assemblies of God, Bahá'is of the United States, Christian Church (Disciples of Christ), Christian Reformed Church, Church of Jesus Christ of Latter-day Saints, Church of the Nazarene, Churches of Christ (Non-Instrumental), Episcopal Church, Evangelical Lutheran Church in America, Historically Black Denominations, Independent Christian Churches (Instrumental), Jewish, Mega-churches, Mennonite Church USA, Muslim, Nondenominational, Orthodox

together to develop and administer the FACT 2000 survey to explore the practices and policies of United States congregations. These faith groups mailed the survey to more than 25,500 congregations or faith communities in 2000 (Dudley and Roozen 2001; Roozen 2002).

While several surveys have asked questions related to religious issues and church communities, the FACT 2000 survey has two distinct advantages for my study. First, the survey includes congregations from throughout the United States and represents a broad spectrum of denominations, rather than being limited to a small geographical area or a handful of denominations. Second, the survey covers the topics necessary to test hypotheses about strictness, congregational activity, and church growth. Items in the FACT 2000 survey address strictness, congregational activity, and church growth, though the question wording and construction are not perfect for my purposes. For example, church leaders were asked about the importance of historic creeds, doctrines, and tradition as sources of authority in their churches. While strong adherence to church doctrine, or a particular church's beliefs and teachings, is seen as a sign of absolutism, members of absolutist churches may not use the words "doctrine" and "tradition" to describe the church beliefs to which they adhere. Also, instead of using one question to ask whether congregations have explicit expectations for members and whether these are enforced, the survey should have asked separate questions about how explicit a congregation's expectations for members are and how strictly the expectations are enforced.

Sampling

My study explores the relationships among strictness, congregational activity, and growth in Protestant congregations throughout the United States, with the individual congregations as the unit of analysis. I use only a subset of the FACT 2000 data—only the data pertaining to Protestant congregations—because Kelley (1972) wrote of patterns of growth and decline and Protestant churches. Data from the FACT 2000 survey include information from 41 denominations and other faith groups and is not limited to Christian denominations. FACT 2000 includes Muslim, Jewish, and Bahá'í faith groups, in addition to many Christian groups (Roozen 2002).

Christian, Presbyterian Church (U.S.A.), Reformed Church in America, Roman Catholic Church, Seventh-day Adventist Church, Southern Baptist Convention, Unitarian Universalist Association, United Church of Christ, and United Methodist Church.

The FACT 2000 data consist of information from 14,301 congregations or faith communities (Roozen 2002). Of these, 11,301, or about 79%, are Protestant congregations and make up the sample for this project. The Hartford Institute for Religion Research developed the FACT 2000 survey and asked representatives of the denominations or faith groups involved in the survey to draw their own stratified random samples of congregations or faith communities (Dudley and Roozen 2001; Roozen 2002). Most groups stratified by both region and congregational size, while some used straight or systematic random sampling. Because the sizes of the samples drawn by faith groups were disproportionate to the sizes of these groups, the dataset includes weights to reflect the proportion of congregations each group has in the United States (ARDA n.d.). Survey statisticians commonly use sampling weights, the inverse of elements' sampling inclusion probabilities, to combat problems associated with complex sampling designs (Pfeffermann 1993). The weights attempt to correct for over-representation of some groups that had high response rates, meaning that churches from under-represented denominations (or under-represented groups such as nondenominational churches) are weighted more heavily in the computation of model coefficients.

Among the 41 denominations and faith groups included in the FACT 2000 survey, the response rate averaged over 50%. However, response rates varied greatly among denominations and faith groups. The Church of Jesus Christ of Latter-Day Saints, for example, had a response rate of 98%. Other groups, such as independent churches, had very low response rates (Roozen 2002). Roozen (2002) suggests that the high response rate for the Church of Jesus Christ of Latter-Day Saints can be attributed to the church's hierarchy, while the low response rate for independent churches reflects these churches' lack of hierarchy. Leaders of churches that belong to denominations may have been more likely than others to respond because denominations, rather than some unfamiliar entity, sent the surveys to most of these church leaders. The response rate for Protestant groups together was approximately 48.8%² (Hartford Institute for Religion Research n.d.). The sample is not representative of the country's religious landscape because of the varying response rates.

² This approximate response rate is calculated from reports at fact.hartsem.edu of numbers of surveys sent and received by 18 of 19 Protestant groups. This information is not available for the Lutheran Church-Missouri Synod.

Dependent Variable

Congregational Growth. The FACT 2000 survey asked church leaders whether the number of people who participate in their congregations had grown or declined in the past five years, and by how much. Specifically, the question asks, “Since 1995, has the...number of regularly participating adults,” with response options of “Decreased 10% or more,” “Decreased 5% to 9%,” “Stayed about the same (+/-4%),” “Increased 5% to 9%,” and “Increased 10% or more.” This question asks for an estimate, producing data which is not precise. The survey assumes that pastors are familiar with trends in membership and participation in their churches, and some pastors may have actually referred to official membership records in answering these questions, but others may not have tried very hard to give accurate estimates.

While it would be ideal to know both official membership rates and numbers of active participants, an estimate of changes in the number of active participants can help to give an idea of which types of churches may be growing. In an effort to obtain specific numbers, the survey could have specifically asked for numbers based on official church membership. However, asking about official membership numbers may also have provided inaccurate data because those people who are members of churches do not necessarily participate in the church. Depending on how much official membership is emphasized in a church, that church could have a higher or lower number of members than of people who are even minimally active in the church. It seems that knowing about those people who actually participate at all in worship and other church programs is more appropriate than looking at actual membership numbers in this case. Also, the way members are counted varies among different religious bodies, and some churches do not have any actual, official counts of members (Lindner 2002).

Independent Variables

Congregational activity. Iannaccone (1994) suggests that strict congregations are successful because they reduce free-riding and their members are more active. In this study, congregational activity is measured using a number of questions from FACT 2000 addressing whether churches have difficulty finding leaders for programs, how many congregants hold volunteer leadership roles, and whether congregants are willing to participate in recruitment efforts.

A church with high congregational activity is expected to have little trouble filling volunteer positions. With regard to whether churches have difficulty finding volunteers to serve in leadership positions, the survey asks which of the following statements best describes the respondent’s congregation:

1. We do not have any problem getting people to accept volunteer leadership roles.
2. Recruiting volunteer leaders is a continual challenge, but we eventually find enough willing people.
3. We cannot find enough people who are willing to serve.

In addition to this item, I use an item which asks the church leaders what percentage of congregants are active in leadership positions within the church. The possible responses are ranges: “None, 0%,” “Hardly any, 1-10%,” “Few, 11-20%,” “Some, 21-40%,” “Many, 41-60%,” “Most, 61-80%,” and “All or nearly all, 81-100%.” A church with high congregational activity, it seems, should have a high percentage of members or participants serving in leadership positions.

The last item I use to measure congregational activity asks how many congregants the respondent estimates are involved in recruiting new members. The possible responses are “None,” “Few,” “Some,” “Most,” and “Almost All.” Congregants in a church with high congregational activity would be expected to actively recruit new church members.

Table 1: Correlations Among Congregational Activity Variables

	LayVols	Vols	Recruit
LayVols		-.180**	-.266**
Vols			.136**

** $p \leq .01$

Table 1 shows correlations among the three congregational activity variables. There are statistically significant correlations between each set of variables, lending support to the use of these three variables to represent congregational activity. The variable addressing whether churches have trouble recruiting lay volunteers is negatively associated with the other two variables because of the way in which the variable is coded—having trouble finding volunteers has a higher value than having plenty of volunteers.

Strictness. Kelley (1972) attempts to define strictness by describing three traits of strict churches—absolutism, conformity, and fanaticism. Absolutism refers to a church’s high

commitment to church doctrines, goals, and beliefs. This includes a commitment to living a moral lifestyle (Iannaccone 1994; Kelley 1972). In describing conformity, Iannaccone (1994) explains that members of strict churches may follow special diets, dress codes, or rules of speech. Kelley (1972) suggests that fanatics may force their views upon others without believing that other people's views have value.

In addition to describing the traits of a strict church, Kelley (1972) provides three traits of leniency, which is the opposite of strictness. These three traits are relativism, dialogue, and diversity. Members of lenient churches, Kelley (1972) claims, are able to see value in other people's beliefs and are willing to engage in dialogue with those who hold different beliefs. Lenient churches, he says, also welcome and encourage diversity, believing that different people have different gifts to contribute.

While I cannot measure all aspects of strictness, I use a number of items from FACT 2000 to measure whether churches have strictly enforced expectations for members, and whether they show signs of absolutism, conformity, and fanaticism. The most obvious indicator of strictness among the FACT 2000 data regards whether or not churches have strictly enforced rules. The survey asks church leaders which of the following three statements best fits the church in question:

1. Our congregation has only [implicit/vague] expectations for members that are seldom, if ever, enforced.
2. Our congregation has fairly clear expectations for members, but the enforcement of these expectations is not very strict.
3. Our congregation has [explicit/definite] expectations for members that are strictly enforced.

The 641 (5.7%) churches that are described by the third statement are considered strict churches, whereas churches for which the first and second statements were selected are not considered strict. This is the only item in the survey that explicitly refers to strictness, but there are several items that address the traits by which Kelley (1972) has defined strict churches.

Because Kelley (1972) says that members of strict churches are highly committed to church goals, one would expect a strict, absolutist church to have a clear purpose. Thus, in

measuring strictness I use the survey item which asks how well the statement, “Our congregation has a clear sense of mission and purpose,” describes the respondent’s church—“Not at all,” “Slightly,” “Somewhat,” “Quite well,” or “Very Well.” Of the Protestant church leaders in the sample, 45.3% said that the statement describes their churches either “Quite Well” or “Very Well.”

Iannaccone (1994) also describes a high commitment to church doctrine as a sign of absolutism and strictness in churches. I use the survey item which asks how important “historic creeds, doctrine, and tradition” are in the worship and teaching of the respondent’s congregation—“Does not apply,” “Absolutely foundational,” “Very important,” “Somewhat important,” or “Little or no importance.” Creeds, doctrine, and tradition are reportedly “absolutely foundational” in 16.1% of churches.

Strict churches, displaying a desire for conformity, also demand that members live a moral lifestyle (Iannaccone 1994). Thus, strict churches might be expected to shun the consumption of alcohol and engaging in premarital sex. I use two items from FACT 2000 that address whether churches emphasize abstinence from alcohol and premarital sex in their worship and education. Again, the possible responses are “Not at all,” “A little,” “Some,” “Quite a bit,” and “A great deal.” 20.8% and 37.9% of churches reportedly emphasize abstinence from alcohol and premarital sex, respectively, at least “Quite a bit.”

Because strict, fundamentalist churches, unlike lenient churches, tend to see different beliefs as valueless (Kelley 1972), strict churches would not be expected to participate in interdenominational activities. FACT 2000 asks church leaders whether their churches have participated in joint worship services with those from other Christian denominations, and with those from other faith traditions, in the previous 12 months. Strict churches would not be expected to have participated in such events. 42.4% of churches participated in joint worship services with churches belonging to other denominations, and 7.5% of churches joined with those from other faith traditions for worship.

Table 2 shows correlations among the strictness variables. Most variables have statistically significant correlations with one another, but doctrine as a source of authority is only correlated with an emphasis on abstinence from alcohol, an emphasis on abstinence from premarital sex, and worshiping with other Christian denominations. This suggests that the

Table 2: Correlations Among Strictness Variables

	Strict	Purpose	AuthDoct	NoDrink	NoShack	Joint_Y2	Joint_Y3
Strict		.346**	.010	.352**	.343**	.133**	.049**
Purpose			.014	.181**	.255**	.051**	-.040**
AuthDoct				.080**	.080**	.100**	.002
NoDrink					.634**	.174**	.084**
NoShack						.104**	.090**
Joint_Y2							.125**

** $p \leq .01$

doctrine variable may not address the same issue as the other variables; this could, perhaps, be related to previously mentioned problems with question wording. The variables addressing whether congregations worshiped with other Christian denominations and those of other faith traditions are positively correlated with most of the other variables. However, these should be negatively correlated with the other variables according to the definition of strictness used in this study. Thus, these variables, along with the doctrine variable, could be problematic.

Control Variables

Denominational Family. Much of the research on the strictness theory (Bibby 1978; Hout et al. 2001; Iannaccone 1994; Kelley 1972; Sherkat 2001) focuses on strictness within conservative denominations, using conservatism as a measure of strictness. However, conservatism and strictness are not interchangeable. Strictness exists even in some congregations that would be classified as liberal, as Wellman (2002) demonstrates in his study of how strictness has helped some liberal churches to thrive. He found that some West Coast liberal churches are growing because of their liberal, activist Protestantism, which places strict demands on members, such as requiring self-criticism and engagement in social activism (Wellman 2002). While the book that began the debate about whether or not strictness produces growth is titled *Why Conservative Churches Are Growing*, Kelley (1972; 1978) later suggested that he ought to have titled the book *Why Strict Churches Are Strong*, because strictness, and not necessarily conservatism, is what he believes strengthens churches, based on comparisons of denominations.

In this study, I use denominational family as a control variable and a proxy for conservatism. Those studies which use conservatism as a measure of strictness (Bibby 1978; Hout et al. 2001; Iannaccone 1994; Kelley 1972; Sherkat 2001) examine whether the denominations they identify as conservative display greater growth than other denominations. Rather than providing specific denominations in the dataset, FACT 2000 divides churches into

rough “denominational families,” including evangelical protestant, moderate protestant, and liberal protestant. Several studies (Bibby 2001; Hadaway 1980; Hout et al. 2001; Iannaccone et al 1995) have treated evangelicalism as a proxy for conservatism because churches commonly categorized as evangelical tend to be more religiously conservative than other Protestant churches. Thus, I use a binary variable representing evangelical Protestant versus other Protestant churches as a control variable in my analysis. This binary variable was created by recoding the original denominational families variable from the FACT 2000 dataset, combining the moderate and liberal Protestant categories into one non-evangelical category. The evangelical Protestant category, as developed by the FACT 2000 researchers, includes Assemblies of God, Christian Reformed, Nazarene, Churches of Christ, Independent Christian Church, mega-church, nondenominational Protestant, Seventh-day Adventist, and Southern Baptist congregations (Dudley and Roozen 2001).

Socio-economic Status. In this study, I include as control variables several socio-economic status measures, including church leaders’ perceptions of the incomes of church members and actual income ranges of those who live near the churches. I use the FACT 2000 item regarding the responding church leader’s estimation of what percentage of a church’s adult participants have household incomes of less than \$20,000. This question seeks to measure about how many people in the congregation would be considered poor.

The FACT 2000 dataset also includes U.S. Census data for the zip codes in which congregations are located (ARDA n.d.). Thus, in addition to using church leaders’ estimates of the incomes of church-goers, I also examine the incomes of the people around churches. I use the three items that give the percentage of households with incomes below \$20,000, between \$20,000 and \$74,999, and over \$74,999 in 2000. Each of these items is similar. The item regarding how many households within the zip code containing a church have incomes under \$20,000, for example, tells whether the percentage of households with incomes in that range is “0 thru 10%,” “11 thru 15%,” “16 thru 20%,” “21 thru 40%,” “41 thru 60%,” or “61 thru 100%.”

Population Increase. Bibby (1978) claims that birth rates are more important than strictness in explaining congregational growth. The FACT 2000 dataset does not include a measure of the birth rate within a particular church. However, the dataset does include zip code-level census data regarding population change. An increase or decrease in the population of an

area would certainly be expected to affect the number of participants in the area's churches, though people do not necessarily attend churches in their own zip codes. I use a measure of population change at the zip code level between 1990 and 2000 as a control variable in my analysis. This variable certainly does not capture only birth rates—rather, this variable also addresses migration. However, all changes in population could be important for changes in church memberships.

Hypotheses

Based on the ideas put forth by Kelly (1972, 1978) and Iannaccone (1992, 1994), I developed three hypotheses. These hypotheses are concerned with the relationships among church strictness, congregational activity, and church growth.

Hypothesis 1. Church leaders who report greater congregational activity are more likely than others to report growth.

Hypothesis 2. Leaders of churches that show signs of strictness are more likely than others to report growth.

Hypothesis 3. Congregational activity works as a mediating variable, explaining the greater likelihood of the leaders of strict churches to report growth.

Multivariate Data Analysis Procedures

This study uses logistic regression procedures to measure the amount of variance in church growth that can be explained by the various independent variables. Logistic regression, designed to assess how well a set of predictor variables explain one categorical dependent variable, allows for the examination of whether the variables of strictness and congregational activity affect the probability of congregational growth (Pallant 2007; Press and Wilson 1978). I chose logistic regression rather than linear regression because of the limited dependent variable, rather than a continuous variable, to describe growth or decline in churches. I chose to run binary logistic models because of their ease of interpretation. I first ran models in which both the independent variables and the dependent variable were converted into binary variables, producing numbers which are fairly simple to interpret. I then ran these same models with original nominal, ordinal, and ratio independent variables to discover how much statistical power might have been lost in the collapsing of the independent variables into two categories each. I

also ran ordinal regression models to determine how much power was lost when the dependent variable was collapsed.

Because binary logistic regression uses binary dependent variables, requiring the dependent variable to have only two possible categories, I recoded the dependent variable (church growth) into a dummy variable (DeMaris 1995). The first category contains those churches that experienced growth, while those churches that either stayed the same size or declined fall into the second category. Appendix B shows how the predictor variables were collapsed into binary variables for the initial binary logistic models.

The regression analyses use four basic models for predicting church growth. Model 1 includes the denominational family, socio-economic status, and population change control variables. In Model 2, I add congregational activity variables to test whether churches with more active congregants are more likely than churches with low congregational activity to grow. Model 3 includes the control variables and strictness variables to examine whether strictness increases the probability of congregational growth. In Model 4, I test for mediating effects.

Figure 1: Test for Mediating Effect in Model 4

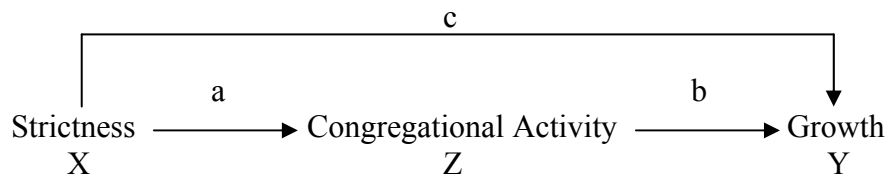


Figure 1 shows the relationship tested in Model 4. In this model, I use the congregational activity variables as a mediator between strictness and growth, accounting for the relationship between the strictness variables and growth (Baron and Kenny 1986). I examine the possibility that a causal chain exists in which strictness in a church increases congregational activity, which in turn produces church growth. In addition to using these logistic regression models to test hypotheses, I use stepwise logistic regression to determine which of the predictor variables in my analysis are the most important for predicting church growth.

I first looked at the four basic models and the stepwise logistic regression model using a binary logistic regression method with all binary independent variables. I then examined the relationships in these models using the original nominal, ordinal, and ratio independent variables

with the binary growth variable as the dependent variable. For each model, I examined the coefficients and odds ratios associated with the predictor variables in order to assess their associations with the growth variable. The coefficients in logistic regression correspond to multiple linear regression B values and give the directions of associations between predictor variables and the dependent variable (Pallant 2007). A positive coefficient suggests a positive relationship between a predictor variable and the dependent variable. Interpreting the value of the coefficient is tricky, though, so one will often examine odds ratios, which compare the categories of a predictor variable to one another, in order to better understand relationships between variables in logistic regression (DeMaris 1995).

In order to find the odds ratio for a given predictor variable, one may exponentiate the coefficient associated with that predictor variable (O’Connell 2006). In other words, an odds ratio is e to the power of the coefficient. For example, a coefficient of -2.5 corresponds to an odds ratio of $e^{-2.5}$, or 0.082. The odds ratio, in the context of this study, represents the ratio of the odds that a church in one category of the predictor variable experiences growth to the odds that a church in another category (or *the* other category, in the case of a binary predictor variable) experiences growth. The odds that a church will experience growth is the ratio of the probability that the church will experience growth to the probability that it will not (Menard 2002). For example, if the Evangelical Protestant variable has an odds ratio over 1, say 1.5, this suggests that Evangelical Protestant churches are more likely than others to grow. One could say that Evangelical Protestant churches appear to be approximately 1.5 times as likely, or 50 percent more likely, than other churches to grow. Conversely, an odds ratio of 0.5 would suggest that Evangelical Protestant churches are only 0.5 times as likely—or 50 percent less likely—than other churches to grow.

I also assessed each model by examining how many cases are properly categorized in each model and the values of the Cox & Snell R Square and Nagelkerke R Square statistics. These statistics are “pseudo-R-squares,” similar to the R-square statistic, which indicates the amount of variation in the dependent variable that is explained by predictor variables in linear regression (Pallant 2007). These goodness-of-fit measures approximate the extent to which the information provided by predictor variables in logistic regression improve the prediction of the dependent variable (Menard 2002).

As Table 3 shows, using the original independent variables in Model 4, which includes all variables in the analysis, does significantly improve the model. The increases in the Cox & Snell R Square and Nagelkerke R Square values demonstrate an improvement in the goodness of

Table 3: Comparing Methods

		Dependent Variable	
		Binary	Ordinal
Independent Variables	Binary	Cox & Snell R Square: .091 Nagelkerke R Square: .121 Percentage Correct: 62.9	Cox & Snell R Square: .111 Nagelkerke R Square: .117
	Nominal/Ordinal/ Ratio	Cox & Snell R Square: .144 Nagelkerke R Square: .192 Percentage Correct: 65.4	Cox & Snell R Square: .184 Nagelkerke R Square: .194

fit. Because logistic regression with all binary independent variables is very easy to interpret, however, I chose to keep both binary logistic regression methods. I did run ordinal regression with all binary independent variables and then with the original independent variables. This, too, increases the Cox & Snell R Square and Nagelkerke R Square values, but only minimally. Because these methods improve the fit of the model only slightly and have little interpretability, I chose not to include the ordinal logistic models.

FINDINGS

Preliminary Bivariate Analysis

As a preliminary analysis, I examined crosstabulations, or bivariate tables that aid in determining relationships between two categorical variables at a time (Frankfort-Nachmias 1999). I first examined crosstabulations between church growth and the control variables, strictness variables, and congregational activity variables. Table 4 shows the results of this bivariate analysis. I also examined relationships between strictness variables and congregational variables, shown in Table 5. While the variables were converted into binary variables for logistic regression later on, the preliminary analysis uses mostly original variables with their original categories.

Table 4: Crosstabulation between Predictor Variables and Church Growth

	Change in number of regularly participating adults since 1995					Chi-Square	P-Value
	Decreased 10% or more	Decreased 5% to 9%	Stayed about the same (+/- 4%)	Increased 5% to 9%	Increased 10% or more		
Denominational Family							
Liberal Protestant	7.8%	9.8%	34.1%	18.8%	29.4%	334.264	.000
Moderate Protestant	8.5%	11.2%	36.7%	17.8%	25.2%		
Evangelical Protestant	10.4%	8.0%	26.3%	14.5%	37.5%		
Estimated percent of households with incomes below \$20,000							
None 0%	10.4%	5.5%	32.4%	12.8%	32.6%	215.274	.000
Hardly any 1-10%	8.4%	8.5%	29.7%	17.0%	35.0%		
Few 11-20%	8.6%	10.5%	29.1%	16.5%	34.2%		
Some 21-40%	13.0%	9.8%	32.8%	14.1%	26.5%		
Many 41-60%	10.1%	9.6%	33.2%	16.5%	29.9%		
Most 61-80%	9.6%	12.4%	27.9%	18.3%	28.3%		
All or nearly all 81-100%	15.3%	9.3%	43.2%	11.0%	16.9%		
Percent of households with income under \$20,000, by zip code							
0 thru 10%	11.3%	7.0%	23.2%	15.8%	38.9%	208.056	.000
11 thru 15%	8.8%	6.0%	23.9%	15.4%	44.0%		
16 thru 20%	7.9%	7.4%	30.7%	15.4%	35.1%		
21 thru 40%	9.9%	10.0%	31.8%	16.2%	30.7%		
41 thru 60%	7.8%	13.2%	33.3%	16.9%	28.5%		
61 thru 100%	10.0%	.0%	50.0%	20.0%	20.0%		
Percent of households with income between \$20,000 and \$74,999, by zip code							
0 thru 20%	19.0%	9.5%	38.1%	9.5%	23.8%	51.728	.000
21 thru 40%	10.1%	7.5%	23.3%	15.1%	40.8%		
41 thru 60%	9.2%	9.6%	30.6%	16.3%	32.6%		
61 thru 80%	10.0%	9.8%	32.6%	15.7%	30.7%		
81 thru 100%	100.0%	.0%	.0%	.0%	.0%		
Percent of households with income over \$74,999, by zip code							
0 thru 10%	8.0%	13.8%	34.3%	14.0%	29.0%	212.401	.000
11 thru 15%	9.8%	12.3%	33.3%	15.4%	28.6%		
16 thru 20%	9.1%	9.8%	32.6%	16.7%	30.4%		
21 thru 40%	9.7%	7.6%	29.0%	16.7%	34.6%		
41 thru 60%	9.3%	6.0%	22.0%	15.8%	43.3%		
Population change between 1990 and 2000							
Growth	8.7%	8.3%	29.1%	16.8%	35.1%	127.134	.000
Decline or no change	11.2%	12.5%	33.8%	14.4%	27.2%		

Table 4: Crosstabulation between Predictor Variables and Church Growth, cont.

Strict							
Vague expectations seldom enforced	28.6%	17.9%	21.4%	17.9%	14.3%	388.683	.000
Clear expectations not strictly enforced	11.1%	11.9%	37.0%	16.8%	22.6%		
Definite expectations strictly enforced	8.3%	8.0%	30.4%	17.0%	34.8%		
Clear sense of mission or purpose (how well does this describe congregation)							
Not at all	27.3%	19.0%	32.7%	10.2%	10.2%	1184.567	.000
Slightly	17.9%	17.7%	40.0%	10.6%	13.4%		
Somewhat	10.5%	11.5%	36.9%	16.0%	24.2%		
Quite well	6.6%	4.5%	18.3%	14.6%	50.7%		
Very well	9.4%	9.3%	30.7%	16.2%	32.5%		
Importance of historic creeds, doctrines, and tradition as sources of authority							
Absolutely foundational	10.0%	9.6%	32.3%	15.9%	28.5%	163.008	.000
Very important	9.6%	8.6%	34.2%	16.5%	29.6%		
Somewhat important	10.0%	9.7%	29.0%	16.2%	34.1%		
Little or no importance	7.1%	10.3%	22.9%	16.0%	40.0%		
Emphasis on abstaining from alcohol							
Not at all	8.9%	9.8%	34.2%	16.9%	28.8%	113.425	.000
A little	10.4%	11.9%	29.2%	15.7%	30.9%		
Some	11.2%	7.8%	29.3%	14.8%	35.0%		
Quite a bit	7.2%	9.2%	31.9%	16.7%	33.9%		
A great deal	9.0%	7.3%	28.1%	16.8%	35.9%		
Emphasis on abstaining from premarital sex							
Not at all	11.9%	13.5%	35.8%	11.9%	26.6%	332.386	.000
A little	7.6%	13.9%	34.6%	18.9%	23.9%		
Some	12.2%	9.0%	33.2%	16.6%	27.6%		
Quite a bit	8.6%	7.8%	30.2%	17.4%	33.8%		
A great deal	7.6%	7.1%	26.2%	15.3%	40.8%		
Joint worship services with other Christian denominations in past 12 months							
Yes	8.7%	8.8%	31.6%	17.7%	31.3%	27.696	.000
No	10.2%	9.7%	29.8%	14.7%	33.6%		
Joint worship services with those from other faith traditions in past 12 months							
Yes	9.3%	7.9%	29.6%	19.9%	31.7%	15.637	.008
No	9.5%	9.4%	30.7%	15.9%	32.5%		

Table 4: Crosstabulation between Predictor Variables and Church Growth, cont.

Problems finding volunteers for leadership roles							
No problem getting volunteers	6.1%	4.7%	29.0%	15.7%	42.1%	465.182	.000
Challenge, but eventually find volunteers	7.4%	9.9%	32.4%	18.9%	30.3%		
Cannot find enough volunteers	19.1%	12.6%	34.8%	9.6%	21.9%		
Estimated percentage of lay persons holding volunteer leadership roles							
None 0%	8.1%	3.2%	48.4%	12.9%	19.4%	283.751	.000
Hardly any 1-10%	16.2%	11.9%	32.4%	11.0%	25.4%		
Few 11-20%	9.9%	8.9%	33.9%	16.7%	27.9%		
Some 21-40%	8.5%	8.5%	27.3%	16.9%	37.9%		
Many 41-60%	7.8%	9.5%	31.7%	16.5%	32.4%		
Most 61-80%	12.5%	10.7%	29.5%	14.9%	30.2%		
All or nearly all 81-100%	10.5%	13.6%	37.7%	9.3%	21.0%		
How many church participants are involved in recruiting members							
None	19.7%	16.3%	39.7%	11.1%	11.7%	742.174	.000
Few	11.9%	12.6%	38.7%	14.1%	22.0%		
Some	6.8%	7.2%	28.7%	19.8%	36.3%		
Most	5.0%	4.8%	21.4%	17.1%	48.7%		
Almost all	7.8%	4.8%	20.0%	13.7%	47.8%		
Total sample	9.5%	9.3%	30.6%	16.1%	32.5%		

Strictness and Growth

Analysis of the crosstabulation between the basic strictness variable and church growth is consistent with Kelley's (1972, 1974) strictness theory. Of the church leaders who reported having definite, strictly-enforced expectations for members, 34.8% also reported that the number of actively participating adults in their churches had increased 10% or more over the last five years. On the other hand, of church leaders who reported only vague expectations that are seldom enforced or clear expectations that are not strictly enforced, only 14.3% and 22.6% respectively reported growth of at least 10%. Only 8.3% of church leaders in congregations with strictly enforced expectations reported a decline of 10% or more, compared to 11.1% of church leaders who reported clear expectations without strict enforcement and 28.6% of church leaders who reported vague expectations that are seldom enforced. Churches with clearer, more strictly enforced expectations appear more likely than others to experience significant growth.

Analysis of the crosstabulation between sense of mission or purpose and church growth also lends support for strictness theory. Church leaders who reported that the statement, “Our congregation has a clear sense of mission and purpose,” describes their congregations either quite well or very well tended to report increased, or at least unchanging, numbers of regularly participating adults. Church leaders who thought that the statement either did not describe their congregations well at all or only described their congregations slightly well tended to report maintenance or decline in the numbers of regularly participating adults.

Because Iannaccone (1994) suggests that a high commitment to church doctrine is a sign of absolutism and strictness in churches, one would expect church leaders who report that historic creeds, doctrines, and traditions are foundational sources of authority for their congregations would be more likely than others to report growth. However, it appears from an analysis of the crosstabulation between doctrine as a source of authority and growth that leaders of churches that consider historic creeds, doctrines, and traditions as being of little or no importance are actually more likely than others to report growth. This may be the result of negative reactions to terms such as “doctrines” and “traditions.”

Because strict churches are more adamant than others in demanding that members live a moral lifestyle (Iannaccone 1994), if strictness theory is accurate, one would expect churches that emphasize abstinence from alcohol and premarital sex to report growth. While the crosstabulation between an emphasis on abstinence from alcohol and growth produces a significant chi-square, the relationship between an emphasis on abstinence from alcohol and church growth is unclear. The relationship between an emphasis on abstinence from premarital sex and growth is a bit clearer, with 40.8% of leaders of churches that emphasize abstaining from premarital sex “a great deal” reporting growth of at least 10% in the number of the churches’ regularly participating adults. Within each of the groups of church leaders reporting that their churches emphasize abstinence from premarital sex “quite a bit,” “some,” “a little,” or “not at all,” 33.8% or fewer church leaders report growth of at least 10%.

Strict churches tend to see different beliefs as valueless (Kelley 1972). Thus, they would not be expected to participate in interdenominational activities. Congregations that participate in joint worship services with people from other Christian denominations or other faith traditions would not be expected to report growth if the strictness theory is accurate. However, the

cross-tabulations between holding services with other Christian denominations and growth and between holding services with those from other faith traditions and growth do not show substantively significant differences between those churches that participated in such joint services in the past year and those that did not.

Congregational Activity and Growth

If Iannaccone (1992, 1994) is correct that congregational activity explains a connection between strictness and church growth, churches that do not have trouble finding volunteers to fill leadership positions would be expected to report growth more often than other churches. An analysis of the cross-tabulation between problems finding volunteers and growth does suggest such a trend. Churches with plenty of volunteers seem to be more likely than others to find volunteers to report growth of at least 10%.

Just as having no problem finding volunteers is expected to be related to growth, a church with a large percentage of lay members filling volunteer leadership positions is expected to report growth. An analysis of the cross-tabulation between the estimated percentage of persons holding volunteer leadership roles and growth, however, does not show a clear relationship between the variables. The number of people active in recruiting new members is also expected to be positively related to growth. An analysis of the cross-tabulation between how many church participants are involved in recruiting members and growth seems to reflect such a relationship. 47.8% of church leaders reporting that almost all participants at their church are involved in recruiting members report growth of at least 10%. Of the church leaders who report that none of their churches' participants recruit new members, only 11.7% reported growth of 10% or more.

Strictness and Congregational Activity

Table 5 shows the cross-tabulations between strictness variables and measures of congregational activity. Knowing whether relationships exist between strictness variables and congregational activity variables aids in determining whether congregational activity could have a mediating effect on the relationship between strictness and growth. That is, examining a possible relationship between strictness and congregational activity is important for determining whether congregational activity explains the relationship between the strictness variables and growth (Baron and Kenny 1986). The cross-tabulation between strictly enforced expectations and problems finding volunteers supports Iannaccone's (1992, 1994) idea that strict churches are less

likely to have problems with free-riding. Of the church leaders who report that their churches have definite expectations that are strictly enforced, 36% report having no problem getting enough volunteers. Only 16.3% of those leading churches with vague expectations that are seldom enforced make such a claim.

Table 5: Crosstabulation between Strictness Variables and Congregational Activity Variables

	Problems finding volunteers for leadership roles			Chi-Square	P-Value
	No problem getting volunteers	Challenge, but eventually find enough volunteers	Cannot find enough volunteers		
Strict					
Vague expectations seldom enforced	16.3%	61.7%	22.0%	342.014	.000
Clear expectations not strictly enforced	23.3%	64.0%	12.6%		
Definite expectations strictly enforced	36.0%	51.0%	13.0%		
Clear sense of mission or purpose (how well does this describe congregation)					
Not at all	6.3%	43.2%	50.5%	1005.144	.000
Slightly	8.1%	56.7%	35.1%		
Somewhat	14.6%	66.3%	19.1%		
Quite well	25.9%	64.8%	9.2%		
Very well	38.2%	55.0%	6.7%		
Importance of historic creeds, doctrines, and tradition as sources of authority					
Absolutely foundational	26.8%	62.4%	10.7%	43.843	.000
Very important	21.8%	62.1%	16.0%		
Somewhat important	20.5%	63.5%	16.0%		
Little or no importance	21.9%	59.6%	18.6%		
Emphasis on abstaining from alcohol					
Not at all	22.4%	63.9%	13.6%	47.667	.000
A little	22.3%	62.1%	15.5%		
Some	21.2%	62.9%	15.9%		
Quite a bit	19.0%	64.4%	16.6%		
A great deal	23.9%	57.7%	18.3%		
Emphasis on abstaining from premarital sex					
Not at all	22.4%	59.0%	18.5%	60.646	.000
A little	24.7%	62.3%	12.9%		
Some	19.6%	61.9%	18.5%		
Quite a bit	20.4%	65.4%	14.2%		
A great deal	23.8%	61.2%	15.1%		
Joint worship services with other Christian denominations in past 12 months					
Yes	20.8%	64.6%	14.6%	23.555	.000
No	23.3%	59.7%	17.0%		
Joint worship services with those from other faith traditions in past 12 months					
Yes	23.0%	64.3%	12.7%	4.569	.206
No	22.0%	61.9%	16.0%		

Table 5: Crosstabulation between Strictness Variables and Congregational Activity Variables, cont.

	Estimated percentage of lay persons holding volunteer leadership roles							Chi-Square	P-Value
	None 0%	Hardly any 1-10%	Few 11-20%	Some 21-40%	Many 41-60%	Most 61-80%	All or nearly all 81-100%		
Strict									
Vague expectations seldom enforced	.5%	6.4%	26.8%	37.1%	19.4%	7.3%	2.2%	277.068	.000
Clear expectations not strictly enforced	.7%	5.8%	21.9%	38.7%	22.0%	8.4%	2.3%		
Definite expectations strictly enforced	.6%	6.2%	23.3%	37.7%	21.2%	8.2%	2.5%		
Clear sense of mission or purpose (how well does this describe congregation)									
Not at all	1.4%	14.2%	39.3%	25.6%	11.4%	4.3%	3.8%	327.832	.000
Slightly	1.1%	11.3%	26.9%	31.8%	17.5%	9.6%	1.8%		
Somewhat	.8%	5.4%	25.7%	37.8%	19.2%	8.3%	2.5%		
Quite well	.4%	4.7%	22.8%	40.0%	23.3%	6.3%	2.4%		
Very well	.7%	5.0%	15.9%	37.0%	26.4%	11.8%	2.9%		
Importance of historic creeds, doctrines, and tradition as sources of authority									
Absolutely foundational	.5%	4.9%	26.0%	33.6%	19.8%	10.3%	4.6%	666.588	.000
Very important	.4%	6.3%	25.5%	34.3%	21.8%	8.6%	2.7%		
Somewhat important	.8%	5.3%	22.1%	40.2%	22.0%	7.8%	1.6%		
Little or no importance	1.1%	7.5%	16.3%	42.9%	23.1%	7.0%	2.2%		
Emphasis on abstaining from alcohol									
Not at all	.6%	5.5%	23.7%	39.9%	20.5%	8.0%	1.7%	480.012	.000
A little	.4%	5.1%	22.1%	41.2%	21.6%	7.2%	2.3%		
Some	.4%	6.0%	20.5%	39.8%	21.3%	9.9%	1.9%		
Quite a bit	1.0%	6.7%	23.3%	35.3%	22.0%	8.9%	2.9%		
A great deal	1.0%	7.2%	25.4%	31.3%	23.0%	7.5%	4.4%		
Emphasis on abstaining from premarital sex									
Not at all	.8%	6.0%	23.3%	31.8%	21.2%	13.2%	3.5%	758.154	.000
A little	.4%	5.3%	24.7%	38.4%	21.1%	7.6%	2.3%		
Some	.5%	6.2%	25.6%	38.2%	20.7%	6.7%	2.0%		
Quite a bit	.8%	6.2%	20.2%	42.5%	20.0%	8.6%	1.7%		
A great deal	.7%	5.8%	22.6%	34.9%	24.2%	8.2%	3.5%		
Joint worship services with other Christian denominations in past 12 months									
Yes	.1%	5.1%	24.1%	38.7%	21.6%	8.1%	2.1%	74.531	.000
No	1.2%	6.7%	22.3%	36.4%	21.7%	8.6%	2.8%		
Joint worship services with those from other faith traditions in past 12 months									
Yes	.0%	5.6%	20.6%	43.2%	22.9%	6.4%	.9%	23.446	.001
No	.7%	6.0%	23.3%	37.1%	21.6%	8.5%	2.6%		

Table 5: Crosstabulation between Strictness Variables and Congregational Activity Variables, cont.

	How many church participants are involved in recruiting members					Chi-Square	P-Value
	None	Few	Some	Most	Almost all		
Strict							
Vague expectations seldom enforced	7.3%	50.0%	34.8%	6.6%	1.1%	1262.998	.000
Clear expectations not strictly enforced	2.3%	34.9%	46.9%	12.6%	3.2%		
Definite expectations strictly enforced	2.2%	17.0%	47.9%	24.6%	8.3%		
Clear sense of mission or purpose (how well does this describe congregation)							
Not at all	30.7%	56.6%	10.1%	1.6%	1.1%	1941.454	.000
Slightly	10.5%	62.9%	24.3%	1.9%	.4%		
Somewhat	4.0%	48.7%	41.0%	5.1%	1.0%		
Quite well	2.1%	31.5%	50.0%	13.9%	2.4%		
Very well	.7%	17.6%	46.3%	26.0%	9.2%		
Importance of historic creeds, doctrines, and tradition as sources of authority							
Absolutely foundational	6.2%	32.9%	42.1%	13.2%	5.2%	522.106	.000
Very important	4.3%	38.8%	43.3%	10.6%	3.0%		
Somewhat important	3.1%	39.1%	43.5%	11.7%	2.4%		
Little or no importance	2.9%	42.8%	39.0%	13.2%	2.1%		
Emphasis on abstaining from alcohol							
Not at all	6.8%	42.2%	38.1%	9.7%	3.0%	896.183	.000
A little	3.6%	43.9%	43.0%	7.5%	1.9%		
Some	3.4%	39.6%	45.4%	9.9%	1.7%		
Quite a bit	2.6%	34.8%	48.0%	12.5%	2.0%		
A great deal	2.2%	30.9%	41.2%	19.2%	6.5%		
Emphasis on abstaining from premarital sex							
Not at all	8.6%	47.7%	32.8%	8.5%	1.9%	1073.224	.000
A little	5.4%	45.2%	37.1%	9.7%	2.6%		
Some	3.6%	45.2%	40.9%	8.3%	1.8%		
Quite a bit	3.4%	35.9%	47.9%	10.4%	2.4%		
A great deal	2.5%	28.7%	46.0%	17.7%	5.1%		
Joint worship services with other Christian denominations in past 12 months							
Yes	3.5%	39.7%	42.7%	11.4%	2.6%	14.294	.014
No	4.4%	37.4%	42.8%	11.8%	3.4%		
Joint worship services with those from other faith traditions in past 12 months							
Yes	4.6%	36.7%	42.2%	12.0%	4.2%	5.616	.345
No	3.9%	38.6%	42.8%	11.5%	2.9%		

Crosstabulations of problems finding volunteers with a clear sense of mission or purpose and with the importance of historic creeds, doctrines, and tradition as sources of authority also lend support for Iannaccone's (1992, 1994) assertions. Crosstabulations between problems finding lay volunteers and emphasis on abstaining from alcohol, emphasis on abstaining from premarital sex, joint worship with other Christian denominations, and joint worship with those from other faith traditions, however, do not show clear relationships.

If strictness is positively related to congregational activity, then indicators of strictness should be associated with higher percentages of congregants serving in volunteer leadership positions. However, crosstabulations of estimated percentages of lay persons in volunteer leadership roles and strictly enforced expectations; a clear sense of mission or purpose; importance of historic creeds, doctrines, and tradition as sources of authority; emphasis on abstaining from alcohol; emphasis on abstaining from premarital sex; joint worship with other Christian denominations; and joint worship with those from other faith traditions do not show clear relationships.

An analysis of the crosstabulation between strictly enforced expectations and how many church participants recruit members does lend support for Iannaccone's (1992, 1994) suggestion that strict churches have more active members. The crosstabulation between how many participants recruit members and a clear sense of purpose also supports this suggestion. Relationships between how many church participants are involved in recruiting new members and the importance of historic creeds, doctrines, and tradition as sources of authority; emphasis on abstaining from alcohol; emphasis on abstaining from premarital sex; joint worship with other Christian denominations; and joint worship with those from other faith traditions are not clear from crosstabulations.

Binary Logistic Regression Analyses of Church Growth

I performed binary logistic regression analyses for the four models that aim to predict reports of church growth. An examination of the coefficients and odds ratios for the predictor variables and R-Square values for the models helps to determine whether the logistic regression analyses support the hypotheses. Table 6 shows the results of the original binary logistic regression analyses, with all binary independent variables, using cases that have been weighted so that the sample better reflects the population.

Table 6: Logistic Regression for Models of Church Growth Using Binary Variables

	MODEL 1			MODEL 2			MODEL 3			MODEL 4		
	Coefficient	Odds Ratio	Standard Error	Coefficient	Odds Ratio	Standard Error	Coefficient	Odds Ratio	Standard Error	Coefficient	Odds Ratio	Standard Error
Denominational Family (Evangelical Protestant)	.378**	1.460	.043	.345**	1.244	.049	.068	1.070	.057	.089	1.093	.059
Perceived Poor (many)	-.176*	.839	.073	-.164*	.829	.085	-.159	.853	.082	-.128	.880	.084
Income < \$20,000 (many)	-.120	.887	.066	-.156*	.898	.082	-.157*	.855	.073	-.177*	.838	.075
Income \$20,000-\$74,999 (many)	-.146	.864	.128	-.046	.887	.129	-.137	.872	.144	-.122	.885	.147
Income > \$74,999 (many)	.180	1.197	.098	.215	1.441	.100	.056	1.057	.114	.045	1.046	.116
Population increase	.388**	1.475	.047	.443**	1.505	.051	.440**	1.553	.053	.442**	1.555	.054
Strict Purpose							.461**	1.586	.097	.411**	1.509	.099
Doctrine							.889**	2.433	.048	.782**	2.187	.050
No Alcohol							-.193**	.824	.074	-.196**	.822	.076
No Premarital Sex							-.051	.951	.061	-.066	.936	.063
Services with other denominations							.342**	1.408	.058	.344**	1.411	.059
Services with other faith traditions							.085	1.089	.050	.102*	1.108	.051
Plenty of volunteers				.466**	1.443	.057				.123	1.131	.101
Many people in leadership roles				-.124*	.946	.049				.315**	1.370	.061
Most people recruit										-.178**	.837	.052
				.796**	2.551	.069				.506**	1.659	.075
N		9210			8082			7901			7747	
(-2 L)		11532.390			10786.747			10293.444			9997.996	
R-Square		.018-.024			.050-.066			.080-.106			.091-.121	

* $p \leq .05$

** $p \leq .01$

In Model 1, the predictor that has the strongest positive, statistically significant association with church growth is zip code population increase, with a coefficient of .388 ($p < .0005$). The positive coefficient for population increase suggests that churches located in areas that experienced population growth between 1990 and 2000 are more likely than others to have reported experiencing at least 5% growth in their numbers of regularly participating adults between 1995 and 2000. According to the odds ratio, the pastors of churches in areas that experienced population growth were 1.475 times as likely as others to have reported growth. Evangelical Protestantism also has a statistically significant ($p < .0005$) positive coefficient (.378). The odds ratio suggests that evangelical Protestant churches are 1.460 times as likely as other Protestant churches to report growth. The estimated percentage of church members with incomes of less than \$20,000 is negatively related to growth, with a statistically significant ($p = .016$) coefficient of -.176. The odds ratio for this predictor suggests that congregations with many low-income households are only .839 times as likely as other churches to report growth. Model 1 correctly predicts 56.4% of cases, an improvement over 50.2% correctly predicted when no predictor variables are used. Model 1 has a Cox & Snell R Square statistic of .020 and a Nagelkerke R Square statistic of .027. The very low values of these statistics for Model 1 suggest poor fit.

Table 7 shows the results of Model 1 when run in binary logistic regression with the original independent variables. The relationship between population increase and growth appears to be weaker using this method, but this is because the variable used here is a ratio variable and must be interpreted differently. Whereas Table 6 indicates that churches in areas that experienced any population growth were 1.475 times as likely as others to have experienced growth, Table 7 indicates a small increase in the probability of growth with each percentage of population increase.

This method also shows a statistically significant relationship between denominational family and church growth. The odds ratios of .751 and .658 for Liberal Protestant and Moderate Protestant, respectively, indicate that these groups were less likely than Evangelical Protestants to grow. The Liberal Protestant churches were only .751 times as likely as the Evangelical Protestant churches to grow and that the Moderate Protestant churches were only .658 times as likely as the Evangelical Protestant churches to grow.

Table 7: Logistic Regression Model 1 Using Original Independent Variables

	Coefficient	Odds Ratio	Standard Error
Denominational Family (Evangelical Protestant is reference)			
Liberal Protestant	-.286**	.751	.065
Moderate Protestant	-.418**	.658	.048
Perceived Poor (All or Nearly All, 81-100%, is reference)			
None, 0%	.904**	2.469	.237
Hardly Any, 1-10%	1.012**	2.752	.216
Few, 11-20%	1.054**	2.869	.216
Some, 21-40%	.712**	2.038	.220
Many, 41-60%	.949**	2.583	.230
Most, 61-80%	.969**	2.635	.251
Income < \$20,000 (61-100% is reference)			
0-10%	.417	1.518	.689
11-15%	.580	1.786	.687
16-20%	.309	1.362	.683
21-40%	.430	1.538	.676
41-60%	.513	1.670	.675
Income \$20,000-\$74,999 (81-100% is reference)			
0-20%	18.902	1.619E8	47747.325
21-40%	20.731	1.008E9	47747.325
41-60%	20.489	7.913E8	47747.325
61-80%	20.402	7.251E8	47747.325
Income > \$74,999 (41-60% is reference)			
0-10%	-.301	.740	.164
11-15%	-.162	.850	.161
16-20%	.077	1.080	.158
21-40%	.203	1.225	.128
Population increase (%)	.013**	1.013	.002
N		9210	
(-2 L)		12423.758	
R-Square		.037-.049	

* $p \leq .05$ ** $p \leq .01$

The negative relationship between the percentage of church participants with incomes under \$20,000 is still evident here. The odds ratios, which are all over 2, indicate that churches that reported that between 0% and 80% of their participants have incomes under \$20,000 are more likely to grow than churches in which all or nearly all members have incomes this low. The Cox and Snell R Square value of .037 and Nagelkerke R Square value of .049 suggest that the model in Table 7 is an improvement over the original Model 1.

Model 2 examines the relationship between congregational activity and growth. In Model 2, using binary independent variables, the predictor variable with the strongest positive

association with growth is the variable indicating whether most people in a congregation are involved in recruiting new members, with a statistically significant ($p < .0005$) coefficient of .796. The odds ratio shown in Table 6 suggests that churches in which most congregants recruit new members are more likely (specifically, 2.551 times as likely) than other churches to report growth. The second-strongest positive association in Model 2 exists between having ample volunteers and church growth. The coefficient (.466) is positive and statistically significant ($p < .0005$), and the odds ratio suggests that churches with plenty of volunteers are 1.443 times as likely as other churches to report growth. Both population increase (.443) and evangelical Protestantism (.345) continue to be positively associated with growth when the congregational activity variables are stepped in. Having many lay people in leadership roles has a statistically significant ($p = .012$) negative association (-.124) with growth, with an odds ratio suggesting that churches with many people in volunteer leadership roles are only .946 times as likely as other churches to report growth. Having many households with incomes under \$20,000 both within the church (-.164) and within the zip code in which the church is located (-.156) is negatively associated with growth. Model 2 correctly predicts whether a church experiences growth in 60.0% of cases. This is an improvement over the 56.4% cases correctly classified in Model 1. Model 2 has a Cox & Snell R Square statistic of .050 and a Nagelkerke R Square statistic of .066.

Table 8 shows Model 2 run with the original independent variables. This table reflects the same relationships indicated in the original model but allows us to better see how various categories of the indicator variables differ from one another. This model also improves upon the original Model 2, with a Cox & Snell R Square statistic of .110 and a Nagelkerke R Square statistic of .147.

Table 8: Logistic Regression Model 2 Using Original Independent Variables

	Coefficient	Odds Ratio	Standard Error
Denominational Family (Evangelical Protestant is reference)			
Liberal Protestant	-.336**	.715	.072
Moderate Protestant	-.301**	.740	.054
Perceived Poor (All or Nearly All, 81-100%, is reference)			
None, 0%	.499	1.648	.284
Hardly Any, 1-10%	.654*	1.923	.261
Few, 11-20%	.627*	1.872	.261
Some, 21-40%	.339	1.403	.264
Many, 41-60%	.622*	1.862	.274
Most, 61-80%	.877**	2.404	.294
Income < \$20,000 (61-100% is reference)			
0-10%	.304	1.355	.713
11-15%	.551	1.735	.709
16-20%	.023	1.023	.704
21-40%	.229	1.257	.696
41-60%	.248	1.282	.694
Income \$20,000-\$74,999 (81-100% is reference)			
0-20%	19.373	2.592E8	47235.349
21-40%	21.602	2.408E9	47235.349
41-60%	21.425	2.017E9	47235.349
61-80%	21.452	2.073E9	47235.349
Income > \$74,999 (41-60% is reference)			
0-10%	-.203	.816	.189
11-15%	-.085	.919	.185
16-20%	.130	1.139	.182
21-40%	.168	1.183	.150
Population increase (%)	.015**	1.015	.002
Plenty of volunteers (Cannot Find Enough Volunteers is reference)			
No Trouble Finding Volunteers	.821**	2.272	.085
Finding Enough Is a Challenge	.539**	1.714	.072
Congregants in leadership roles (All or Nearly All, 81-100%, is reference)			
None, 0%	.287	1.333	.383
Hardly Any, 1-10%	.461*	1.586	.192
Few, 11-20%	.649**	1.913	.172
Some, 21-40%	.690**	1.994	.169
Many, 41-60%	.538**	1.713	.172
Most, 61-80%	.377*	1.458	.184
How many people recruit (Almost All is reference)			
None	-1.669**	.188	.204
Few	-1.122**	.326	.152
Some	-.387**	.679	.151
Most	.073	1.076	.163
N		8082	
(-2 L)		10256.221	
R-Square		.110-.147	

* $p \leq .05$ ** $p \leq .01$

In Model 3, the predictor variable with the largest positive association with growth is a strong sense of purpose, with a statistically significant ($p < .0005$) coefficient of .889. The odds ratio shown in Model 3 of Table 6 for a strong sense of purpose suggests that churches with a strong sense of mission and purpose are 2.433 times as likely as other churches to report growth. The existence of strictly enforced expectations (.461) and an emphasis on abstinence from premarital sex (.342) also have statistically significant positive associations with church growth, whereas seeing doctrine as a foundational source of authority is negatively associated with growth (-.193). Associations between growth and an emphasis on abstinence from alcohol, joint worship with other denominations, and joint worship with those from other faith traditions are not statistically significant. While the existence of many households with incomes under \$20,000 around a church did not have a statistically significant association with growth in the initial model, it does have a statistically significant negative association (-.157) association with growth in model 3. Also, it is important to note that, while population increase continues to have a statistically significant association with growth (.440), the relationship between evangelical Protestantism and growth loses its statistical significance when strictness variables are introduced in Model 3. Model 3 has a Cox & Snell R-Square statistic of .080 and a Nagelkerke R-Square statistic of .106. This model correctly predicts growth or lack thereof for 62.3% of cases, an improvement over 56.4% of Model 1, and a greater improvement than that in Model 2.

Table 9: Logistic Regression Model 3 Using Original Independent Variables

	Coefficient	Odds Ratio	Standard Error
Denominational Family (Evangelical Protestant is reference)			
Liberal Protestant	.155	1.168	.090
Moderate Protestant	.016	1.016	.066
Perceived Poor (All or Nearly All, 81-100%, is reference)			
None, 0%	.775**	2.171	.278
Hardly Any, 1-10%	.838**	2.311	.253
Few, 11-20%	.832**	2.298	.252
Some, 21-40%	.512*	1.669	.256
Many, 41-60%	.705**	2.025	.267
Most, 61-80%	.863**	2.369	.288
Income < \$20,000 (61-100% is reference)			
0-10%	.496	1.643	.726
11-15%	.694	2.001	.722
16-20%	.295	1.344	.717
21-40%	.463	1.589	.708
41-60%	.512	1.668	.707

Table 9: Logistic Regression Model 3 Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error
Income \$20,000-\$74,999 (81-100% is reference)			
0-20%	18.780	1.432E8	47551.057
21-40%	21.079	1.427E9	47551.057
41-60%	20.785	1.064E9	47551.057
61-80%	20.783	1.061E9	47551.057
Income > \$74,999 (41-60% is reference)			
0-10%	-.037	.964	.194
11-15%	.068	1.071	.190
16-20%	.245	1.277	.186
21-40%	.310*	1.364	.154
Population increase (%)	.016**	1.017	.002
Strict (Strictly Enforced Rules is reference)			
Vague Expectations	-.514**	.598	.111
Clear Expectations	-.327**	.721	.102
How well does “clear sense of mission and purpose” describe church (Very Well is reference)			
Not at All	-1.892**	.151	.209
Slightly	-1.799**	.165	.107
Somewhat	-1.011**	.364	.076
Quite Well	-.515**	.598	.074
Importance of doctrine as sense of authority (Absolutely Foundational is reference)			
Little or No Importance	.393**	1.481	.107
Somewhat Important	.360**	1.433	.083
Very Important	.109	1.115	.080
How much is abstinence from alcohol emphasized (A Great Deal is reference)			
Not At All	.042	1.043	.104
A Little	.014	1.015	.098
Some	-.009	.991	.090
Quite a Bit	-.012	.988	.089
How much is abstinence from premarital sex emphasized (A Great Deal is reference)			
Not At All	-.494**	.610	.113
A Little	-.244*	.784	.101
Some	-.304**	.738	.083
Quite a Bit	.018	1.018	.075
Join with other Christian denominations for worship (Yes is reference)			
No	-.113*	.893	.051
Join with other faith groups for worship (Yes is reference)			
No	-.027	.974	.103
N		7901	
(-2 L)		9974.946	
R-Square		.116-.155	

* $p \leq .05$ ** $p \leq .01$

Table 9 shows the result of using the original nominal, ordinal, and ratio predictor variables for Model 3. Again, this improves the original model, with a Cox & Snell R Square statistic of .116 and a Nagelkerke R Square statistic of .155.

Model 4 includes both strictness variables and congregational activity variables, along with the control variables. In the original version of this model, shown in Table 6, the three congregational activity variables—plenty of volunteers (.315), many lay persons in volunteer leadership roles (-.178), and most people recruit (.506)—have statistically significant associations with growth as in Model 2. All strictness variables that had statistically significant associations with growth before the introduction of the congregational growth variables continue to have statistically significant associations in Model 4. The variable that has the strongest positive association with growth is, again, a sense of purpose, with a coefficient of .782. The odds ratio for this variable indicates that churches with a strong sense of mission and purpose are 2.187 times as likely as other churches to report growth. Strictly enforced expectations (.442) and emphasis on abstinence from premarital sex (.344) also have positive associations with growth. The association between joint worship with other Christian denominations and growth, which was not statistically significant before the introduction of the congregational activity variables, is statistically significant in Model 4, with a coefficient of .102. Doctrine as a foundational source of authority continues to be negatively associated with growth (-.196). Having many households with incomes under \$20,000 in the area around a church continues to have a negative association (-.177) with growth, and population increase continues to be positively associated (.442) with growth. Model 4 correctly classifies 62.9% of cases, a further improvement over previous models. The model has a Cox & Snell R Square statistic of .091 and a Nagelkerke R Square statistic of .121.

Table 10 shows the results of a binary logistic regression analysis of how all of the original predictor variables are associated with church growth. This improves upon the original Model 4, with a Cox & Snell R Square statistic of .144 and a Nagelkerke R Square statistic of .192.

Table 10: Logistic Regression Model 4 Using Original Independent Variables

	Coefficient	Odds Ratio	Standard Error
Denominational Family (Evangelical Protestant is reference)			
Liberal Protestant	.041	1.042	.094
Moderate Protestant	.007	1.007	.068
Perceived Poor (All or Nearly All, 81-100%, is reference)			
None, 0%	.548	1.731	.295
Hardly Any, 1-10%	.616*	1.852	.271
Few, 11-20%	.615*	1.850	.271
Some, 21-40%	.301	1.352	.274
Many, 41-60%	.603*	1.827	.285
Most, 61-80%	.821**	2.274	.307
Income < \$20,000 (61-100% is reference)			
0-10%	.457	1.579	.731
11-15%	.704	2.022	.727
16-20%	.215	1.240	.722
21-40%	.389	1.476	.713
41-60%	.394	1.483	.711
Income \$20,000-\$74,999 (81-100% is reference)			
0-20%	19.198	2.176E8	47081.779
21-40%	21.524	2.228E9	47081.779
41-60%	21.237	1.671E9	47081.779
61-80%	21.237	1.671E9	47081.779
Income > \$74,999 (41-60% is reference)			
0-10%	.006	1.006	.199
11-15%	.113	1.119	.195
16-20%	.306	1.357	.192
21-40%	.310*	1.363	.158
Population increase (%)	.016**	1.016	.002
Strict (Strictly Enforced Rules is reference)			
Vague Expectations	-.413**	.662	.115
Clear Expectations	-.294**	.745	.105
How well does “clear sense of mission and purpose” describe church (Very Well is reference)			
Not at All	-1.227**	.293	.219
Slightly	-1.397**	.247	.114
Somewhat	-.753**	.471	.081
Quite Well	-.402**	.669	.077
Importance of doctrine as sense of authority (Absolutely Foundational is reference)			
Little or No Importance	.442**	1.555	.111
Somewhat Important	.353**	1.423	.086
Very Important	.122	1.130	.083
How much is abstinence from alcohol emphasized (A Great Deal is reference)			
Not At All	.032	1.032	.107
A Little	.019	1.019	.101
Some	.006	1.006	.093
Quite a Bit	.004	1.004	.092

Table 10: Logistic Regression Model 4 Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error
How much is abstinence from premarital sex emphasized (A Great Deal is reference)			
Not At All	-.378**	.685	.117
A Little	-.215*	.807	.104
Some	-.271**	.762	.086
Quite a Bit	-.002	.998	.077
Join with other Christian denominations for worship (Yes is reference)			
No	-.108*	.897	.053
Join with other faith groups for worship (Yes is reference)			
No	-.027	.973	.105
Plenty of volunteers (Cannot Find Enough Volunteers is reference)			
No Trouble Finding Volunteers	.533**	1.704	.092
Finding Enough Is a Challenge	.353**	1.424	.078
Congregants in leadership roles (All or Nearly All, 81-100%, is reference)			
None, 0%	.518	1.679	.394
Hardly Any, 1-10%	.532**	1.702	.207
Few, 11-20%	.810**	2.248	.184
Some, 21-40%	.797**	2.220	.182
Many, 41-60%	.607**	1.835	.184
Most, 61-80%	.540**	1.715	.197
How many people recruit (Almost All is reference)			
None	-1.059**	.347	.218
Few	-.656**	.519	.164
Some	-.093	.911	.161
Most	.142	1.153	.172
N		7747	
(-2 L)		9530.177	
R-Square		.144-.192	

* $p \leq .05$ ** $p \leq .01$

Table 11 shows a stepwise (forward conditional) logistic regression analysis, a method for determining which predictor variables are related to the dependent variable, using the control variables, strictness variables, and congregational activity variables to predict church growth (O’Gorman and Woolson 1991). The stepwise model identifies which predictor variables are the most important for predicting growth. The predictor variable with the strongest association with growth is a sense of mission and purpose, with a coefficient of .985 and an odds ratio of 2.679 when considered alone in step 1. Step 10 shows the ten predictor variables that are significantly associated with growth. Strong sense of mission and purpose (.789), most people recruit (.498),

population increase (.449), strictly enforced expectations (.403), emphasis on abstinence from premarital sex (.336), plenty of volunteers (.311), and services with other denominations (.096) all have positive associations with growth. Doctrine as a foundational source of authority (-.212), many households with incomes under \$20,000 around the church (-.193), and many in lay leadership roles (-.182) are negatively associated with growth.

Table 11: Stepwise Logistic Regression for Church Growth Using Binary Variables

		Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Step 1	Purpose	.985**	2.679	.047	10283.195	.057-.076
	Constant	-.567**	.568	.035		
Step 2	Purpose	.960**	2.612	.047	10193.863	.068-.090
	Population increase	.490**	1.633	.052		
	Constant	-.901**	.406	.050		
Step 3	Most people recruit	.583**	1.792	.073	10127.204	.076-.101
	Purpose	.874**	2.396	.048		
	Population increase	.494**	1.639	.052		
	Constant	-.934**	.393	.051		
Step 4	Most people recruit	.559**	1.748	.073	10077.622	.082-.109
	No premarital sex	.339**	1.403	.048		
	Purpose	.824**	2.280	.049		
	Population increase	.476**	1.610	.053		
	Constant	-1.072**	.342	.055		
Step 5	Most people recruit	.507**	1.661	.074	10052.821	.085-.113
	Plenty of volunteers	.298**	1.347	.060		
	No premarital sex	.349**	1.418	.048		
	Purpose	.786**	2.195	.050		
	Population increase	.476**	1.610	.053		
	Constant	-1.113**	.328	.056		
Step 6	Most people recruit	.482**	1.619	.074	10037.622	.086-.115
	Plenty of volunteers	.287**	1.333	.060		
	No premarital sex	.321**	1.378	.049		
	Purpose	.772**	2.165	.050		
	Strict	.378**	1.459	.098		
	Population increase	.478**	1.613	.053		
	Constant	-1.112**	.329	.056		
Step 7	Many people in leadership roles	-.179**	.836	.052	10025.596	.088-.117
	Most people recruit	.493**	1.637	.074		
	Plenty of volunteers	.304**	1.335	.060		
	No premarital sex	.323**	1.381	.049		
	Purpose	.781**	2.185	.050		
	Strict	.388**	1.474	.098		
	Population increase	.475**	1.608	.053		
	Constant	-1.065**	.345	.057		

Table 11: Stepwise Logistic Regression for Church Growth Using Binary Variables, cont.

		Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Step 8	Many people in leadership roles	-.179**	.836	.052	10017.843	.089-.118
	Most people recruit	.496**	1.642	.074		
	Plenty of volunteers	.311**	1.365	.060		
	No premarital sex	.318**	1.374	.049		
	Doctrine	-.208**	.813	.075		
	Purpose	.787**	2.197	.050		
	Strict	.388**	1.475	.098		
	Population increase	.469**	1.599	.053		
	Constant	-1.039**	.354	.058		
Step 9	Many people in leadership roles	-.185**	.831	.052	10010.535	.089-.119
	Most people recruit	.499**	1.648	.074		
	Income < \$20,000 (many)	-.196**	.822	.073		
	Plenty of volunteers	.310**	1.364	.060		
	No premarital sex	.326**	1.386	.049		
	Doctrine	-.207**	.813	.075		
	Purpose	.787**	2.196	.050		
	Strict	-.397**	1.487	.098		
	Population increase	.445**	1.561	.054		
Constant	-1.000**	.368	.060			
Step 10	Many in leadership roles	-.182**	.833	.052	10006.545	.090-.120
	Most people recruit	.498**	1.646	.074		
	Income < \$20,000 (many)	-.193**	.824	.073		
	Plenty of volunteers	.311**	1.365	.060		
	Services with other denominations	.096*	1.101	.048		
	No premarital sex	.336**	1.399	.049		
	Doctrine	-.212**	.809	.075		
	Purpose	.789**	2.201	.050		
	Strict	.403**	1.496	.099		
	Population increase	.449**	1.567	.054		
	Constant	-1.058**	.347	.067		

Note: N = 7747

* $p \leq .05$

** $p \leq .01$

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables

		Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Step 1	Purpose (Very Well)				10089.988	.080-.107
	Not at All	-2.234**	.107	.204		
	Slightly	-2.043**	.130	.102		
	Somewhat	-1.184**	.306	.072		
	Quite Well	-.603**	.547	.071		
	Constant	.839**	2.313	.060		
Step 2	Purpose (Very Well)				9867.953	.106-.141
	Not at All	-1.637**	.194	.211		
	Slightly	-1.646**	.193	.106		
	Somewhat	-.938**	.391	.076		
	Quite Well	-.492**	.611	.073		
	Recruit (Almost All)					
	None	-1.094**	.335	.209		
	Few	-.567**	.567	.155		
	Some	.071	1.074	.153		
	Most	.319	1.376	.165		
	Constant	.858**	2.358	.151		
Step 3	Population increase	.019**	1.019	.002	9774.810	.117-.156
	Purpose (Very Well)					
	Not at All	-1.560**	.210	.212		
	Slightly	-1.594**	.203	.107		
	Somewhat	-.890**	.411	.076		
	Quite Well	-.465**	.628	.074		
	Recruit (Almost All)					
	None	-1.126**	.324	.209		
	Few	-.625**	.535	.155		
	Some	.000	.999	.153		
	Most	.255	1.291	.166		
Constant	.730**	2.076	.152			
Step 4	Population increase	.019**	1.020	.002	9738.055	.121-.161
	Purpose (Very Well)					
	Not at All	-1.390**	.249	.214		
	Slightly	-1.492**	.225	.108		
	Somewhat	-.834**	.435	.077		
	Quite Well	-.449**	.638	.074		
	Lay volunteers (Cannot Find Enough)					
	No Trouble Finding	.512**	1.668	.088		
	Finding is Challenge	.384**	1.468	.074		
	Recruit (Almost All)					
	None	-1.017**	.362	.211		
	Few	-.551**	.577	.157		
	Some	.040	1.041	.155		
	Most	.285	1.330	.166		
Constant	.282	1.326	.169			

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

		Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Step 5	Population increase	.019**	1.019	.002	9697.876	.126-.167
	Purpose (Very Well)					
	Not at All	-1.378**	.252	.215		
	Slightly	-1.517**	.219	.109		
	Somewhat	-.843**	.430	.077		
	Quite Well	-.453**	.636	.074		
	Doctrine (Absolutely Foundational)					
	Little/No Importance	.491**	1.634	.106		
	Somewhat Important	.365**	1.441	.083		
	Very Important	.128	1.136	.081		
	Lay volunteers (Cannot Find Enough)					
	No Trouble Finding	.534**	1.706	.088		
	Finding is Challenge	.400**	1.492	.074		
	Recruit (Almost All)					
	None	-1.013**	.324	.209		
	Few	-.587**	.535	.155		
	Some	.014	.999	.153		
Most	.251	1.291	.166			
Constant	.071	1.073	.181			
Step 6	Population increase	.019**	1.019	.002	9661.212	.130-.173
	Purpose (Very Well)					
	Not at All	-1.388**	.249	.215		
	Slightly	-1.535**	.215	.109		
	Somewhat	-.869**	.419	.078		
	Quite Well	-.472**	.623	.074		
	Doctrine (Absolutely Foundational)					
	Little/No Importance	.499**	1.647	.106		
	Somewhat Important	.368**	1.444	.083		
	Very Important	.135	1.145	.081		
	Lay volunteers (Cannot Find Enough)					
	No Trouble Finding	.530**	1.700	.089		
	Finding is Challenge	.378**	1.460	.075		
	Leadership (All or Nearly All)					
	None	.445	1.560	.390		
	Hardly Any	.516*	1.676	.203		
	Few	.798**	2.222	.181		
Some	.791**	2.206	.177			
Many	.604**	1.829	.180			
Most	.528**	1.695	.193			

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Recruit (Almost All)					
None	-1.086**	.338	.213		
Few	-.671**	.511	.129		
Some	-.064	.938	.157		
Most	.186	1.205	.168		
Constant	-.521*	.594	.240		
Step 7				9639.870	.132-.176
Population increase	.019**	1.019	.002		
Strict (Strict Rules)					
Vague Expectations	-.479**	.619	.108		
Clear Expectations	-.327**	.721	.102		
Purpose (Very Well)					
Not at All	-1.272**	.280	.217		
Slightly	-1.438**	.237	.111		
Somewhat	-.793**	.452	.080		
Quite Well	-.423**	.655	.075		
Doctrine (Absolutely Foundational)					
Little/No Importance	.481**	1.617	.106		
Somewhat Important	.365**	1.440	.083		
Very Important	.131	1.140	.081		
Lay volunteers (Cannot Find Enough)					
No Trouble Finding	.525	1.691	.090		
Finding is Challenge	.376	1.456	.076		
Leadership (All or Nearly All)					
None	.473	1.604	.390		
Hardly Any	.548**	1.730	.204		
Few	.847**	2.334	.182		
Some	.841**	2.318	.178		
Many	.651**	1.918	.181		
Most	.563**	1.756	.194		
Recruit (Almost All)					
None	-1.021**	.360	.214		
Few	-.621**	.537	.159		
Some	-.037	.963	.157		
Most	.195	1.215	.168		
Constant	-.292	.747	.249		
Step 8				9607.007	.136-.181
Poor members (Nearly All)					
None	.618*	1.854	.293		
Hardly Any	.693**	2.000	.270		
Few	.654*	1.924	.271		
Some	.332	1.394	.274		
Many	.612*	1.845	.285		
Most	.838**	2.311	.307		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Population increase	.018**	1.018	.002		
Strict (Strict Rules)					
Vague Expectations	-.506**	.603	.109		
Clear Expectations	-.348**	.706	.103		
Purpose (Very Well)					
Not at All	-1.295**	.274	.217		
Slightly	-1.450**	.234	.112		
Somewhat	-.791**	.454	.080		
Quite Well	-.428**	.652	.076		
Doctrine (Absolutely Foundational)					
Little/No Importance	.474**	1.606	.107		
Somewhat Important	.360**	1.433	.083		
Very Important	.131	1.141	.082		
Lay volunteers (Cannot Find Enough)					
No Trouble Finding	.497**	1.644	.090		
Finding is Challenge	.352**	1.422	.076		
Leadership (All or Nearly All)					
None	.526	1.693	.390		
Hardly Any	.561**	1.752	.205		
Few	.842*	2.321	.183		
Some	.843**	2.324	.180		
Many	.665**	1.944	.182		
Most	.579**	1.784	.195		
Recruit (Almost All)					
None	-1.058**	.347	.215		
Few	-.648**	.523	.160		
Some	-.059	.943	.158		
Most	.176	1.192	.169		
Constant	-.835*	.434	.356		
Step 9				9584.783	.138-.184
Poor members (Nearly All)					
None	.521	1.684	.295		
Hardly Any	.629*	1.876	.271		
Few	.614*	1.847	.272		
Some	.297	1.346	.275		
Many	.589*	1.803	.286		
Most	.824**	2.280	.307		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Income < \$20,000 (61-100%)					
0-10%	.251	1.285	.699		
11-15%	.601	1.823	.699		
16-20%	.152	1.164	.697		
21-40%	.189	1.207	.693		
41-60%	.136	1.145	.695		
Population increase	.016**	1.016	.002		
Strict (Strict Rules)					
Vague Expectations	-.497**	.609	.109		
Clear Expectations	-.333**	.717	.103		
Purpose (Very Well)					
Not at All	-1.291**	.275	.215		
Slightly	-1.440**	.237	.112		
Somewhat	-.782**	.458	.080		
Quite Well	-.428**	.652	.076		
Doctrine (Absolutely Foundational)					
Little/No Importance	.463**	1.589	.107		
Somewhat Important	.355**	1.426	.083		
Very Important	.121	1.129	.082		
Lay volunteers (Cannot Find Enough)					
No Trouble Finding	.516**	1.676	.091		
Finding is Challenge	.366**	1.442	.077		
Leadership (All or Nearly All)					
None	.538	1.713	.392		
Hardly Any	.574**	1.776	.205		
Few	.835**	2.304	.183		
Some	.834**	2.303	.180		
Many	.649**	1.913	.183		
Most	.567**	1.763	.195		
Recruit (Almost All)					
None	-1.059**	.347	.215		
Few	-.652**	.521	.161		
Some	-.057	.944	.158		
Most	.182	1.200	.169		
Constant	-1.001	.367	.776		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

		Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Step 10	Poor members (Nearly All)				9565.549	.140-.187
	None	.567	1.763	.295		
	Hardly Any	.652*	1.919	.271		
	Few	.626*	1.870	.271		
	Some	.309	1.363	.274		
	Many	.599*	1.820	.285		
	Most	.821**	2.273	.307		
	Income < \$20,000 (61-100%)					
	0-10%	.290	1.336	.699		
	11-15%	.648	1.912	.699		
	16-20%	.174	1.190	.697		
	21-40%	.199	1.220	.693		
	41-60%	.133	1.143	.695		
	Population increase	.016**	1.016	.002		
	Strict (Strict Rules)					
	Vague Expectations	-.406**	.666	.113		
	Clear Expectations	-.294**	.745	.104		
	Purpose (Very Well)					
	Not at All	-1.235**	.291	.218		
	Slightly	-1.400**	.246	.113		
	Somewhat	-.752**	.461	.081		
	Quite Well	-.407**	.666	.076		
	Doctrine (Absolutely Foundational)					
	Little/No Importance	.433**	1.541	.107		
	Somewhat Important	.342**	1.408	.084		
	Very Important	.110	1.116	.082		
	No premarital sex (A Great Deal)					
	Not at All	-.296**	.744	.098		
	A Little	-.153	.858	.089		
	Some	-.221**	.801	.073		
	Quite a Bit	.005	1.005	.069		
	Lay volunteers (Cannot Find Enough)					
	No Trouble Finding	.532**	1.702	.091		
	Finding is Challenge	.365**	1.440	.077		
	Leadership (All or Nearly All)					
	None	.516	1.675	.393		
	Hardly Any	.542**	1.720	.206		
	Few	.817**	2.263	.183		
	Some	.814**	2.258	.180		
	Many	.628**	1.874	.183		
	Most	.543**	1.722	.196		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Recruit (Almost All)					
None	-1.034**	.356	.215		
Few	-.632**	.532	.161		
Some	-.056	.945	.158		
Most	.183	1.201	.170		
Constant	-.984	.374	.776		
Step 11				9549.735	.142-.189
Poor members (Nearly All)					
None	.560	1.751	.295		
Hardly Any	.622*	1.863	.270		
Few	.626*	1.852	.270		
Some	.300	1.350	.274		
Many	.594*	1.810	.285		
Most	.813**	2.254	.306		
Income < \$20,000 (61-100%)					
0-10%	.131	1.140	.712		
11-15%	.388	1.473	.705		
16-20%	-.091	.913	.701		
21-40%	.087	1.091	.694		
41-60%	.113	1.119	.695		
Income > \$74,999 (41-60%)					
0-10%	-.107	.898	.181		
11-15%	.007	1.007	.178		
16-20%	.203	1.225	.176		
21-40%	.204	1.227	.147		
Population increase	.015**	1.015	.002		
Strict (Strict Rules)					
Vague Expectations	-.396**	.673	.113		
Clear Expectations	-.289**	.749	.104		
Purpose (Very Well)					
Not at All	-1.209**	.299	.219		
Slightly	-1.389**	.249	.113		
Somewhat	-.743**	.476	.081		
Quite Well	-.397**	.672	.076		
Doctrine (Absolutely Foundational)					
Little/No Importance	.418**	1.519	.108		
Somewhat Important	.336**	1.399	.084		
Very Important	.107	1.112	.082		
No premarital sex (A Great Deal)					
Not at All	-.317**	.729	.098		
A Little	-.164	.849	.089		
Some	-.236**	.790	.073		
Quite a Bit	.011	1.011	.069		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Lay volunteers (Cannot Find Enough)					
No Trouble Finding	.541**	1.718	.091		
Finding is Challenge	.365**	1.441	.077		
Leadership (All or Nearly All)					
None	.478	1.614	.393		
Hardly Any	.548**	1.731	.206		
Few	.815**	2.260	.183		
Some	.810**	2.248	.181		
Many	.614**	1.847	.184		
Most	.542**	1.720	.196		
Recruit (Almost All)					
None	-1.014**	.363	.216		
Few	-.610**	.543	.161		
Some	-.041	.960	.158		
Most	.199	1.220	.170		
Constant	-.886	.412	.794		
Step 12				9535.935	.144-.191
Poor members (Nearly All)					
None	.565	1.760	.295		
Hardly Any	.639*	1.894	.270		
Few	.631*	1.879	.271		
Some	.313	1.367	.274		
Many	.604*	1.830	.285		
Most	.830**	2.293	.306		
Income < \$20,000 (61-100%)					
0-10%	.450	1.569	.730		
11-15%	.691	1.996	.725		
16-20%	.208	1.231	.720		
21-40%	.384	1.468	.711		
41-60%	.381	1.464	.709		
Income \$20,000-\$74,999 (81-100%)					
0-20%	19.264	2.314E8	47678.558		
21-40%	21.598	2.399E9	47678.558		
41-60%	21.303	1.785E9	47678.558		
61-80%	21.300	1.780E9	47678.558		
Income > \$74,999 (41-60%)					
0-10%	.003	1.003	.199		
11-15%	.110	1.116	.194		
16-20%	.306	1.358	.191		
21-40%	.305	1.357	.158		
Population increase	.015**	1.015	.002		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Strict (Strict Rules)					
Vague Expectations	-.390**	.677	.113		
Clear Expectations	-.290**	.748	.105		
Purpose (Very Well)					
Not at All	-1.234**	.291	.219		
Slightly	-1.401**	.246	.113		
Somewhat	-.750**	.472	.081		
Quite Well	-.401**	.669	.076		
Doctrine (Absolutely Foundational)					
Little/No Importance	.420**	1.522	.108		
Somewhat Important	.337**	1.401	.084		
Very Important	.114	1.120	.082		
No premarital sex (A Great Deal)					
Not at All	-.325**	.722	.098		
A Little	-.172	.842	.089		
Some	-.241**	.786	.073		
Quite a Bit	.014	1.014	.069		
Lay volunteers (Cannot Find Enough)					
No Trouble Finding	.541**	1.718	.091		
Finding is Challenge	.363**	1.438	.077		
Leadership (All or Nearly All)					
None	.478	1.628	.393		
Hardly Any	.539**	1.715	.207		
Few	.823**	2.276	.184		
Some	.813**	2.254	.181		
Many	.619**	1.857	.184		
Most	.545**	1.725	.196		
Recruit (Almost All)					
None	-1.069**	.343	.217		
Few	-.659**	.517	.163		
Some	-.095	.909	.160		
Most	.148	1.160	.172		
Constant	-22.555	.000	47678.558		
Step 13				9530.733	.144-.192
Poor members (Nearly All)					
None	.551	1.735	.295		
Hardly Any	.620*	1.859	.270		
Few	.616*	1.852	.271		
Some	.299	1.349	.274		
Many	.601*	1.824	.285		
Most	.822**	2.276	.306		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Income < \$20,000 (61-100%)					
0-10%	.450	1.568	.730		
11-15%	.695	2.005	.726		
16-20%	.207	1.230	.721		
21-40%	.381	1.463	.712		
41-60%	.383	1.467	.710		
Income \$20,000-\$74,999 (81-100%)					
0-20%	19.188	2.153E8	47828.873		
21-40%	21.525	2.230E9	47828.873		
41-60%	21.230	1.661E9	47828.873		
61-80%	21.230	1.661E9	47828.873		
Income > \$74,999 (41-60%)					
0-10%	-.003	.997	.199		
11-15%	.105	1.111	.194		
16-20%	.300	1.350	.191		
21-40%	.306	1.358	.158		
Population increase	.016**	1.016	.002		
Strict (Strict Rules)					
Vague Expectations	-.403**	.668	.113		
Clear Expectations	-.290**	.748	.105		
Purpose (Very Well)					
Not at All	-1.232**	.292	.219		
Slightly	-1.398**	.247	.113		
Somewhat	-.753**	.471	.081		
Quite Well	-.402**	.669	.076		
Doctrine (Absolutely Foundational)					
Little/No Importance	.431**	1.539	.108		
Somewhat Important	.344**	1.411	.084		
Very Important	.116	1.124	.082		
No premarital sex (A Great Deal)					
Not at All	-.339**	.712	.099		
A Little	-.188*	.829	.089		
Some	-.254**	.775	.073		
Quite a Bit	.004	1.004	.070		
Worship with other denominations (Yes)					
No	-.116*	.891	.051		
Lay volunteers (Cannot Find Enough)					
No Trouble Finding	.538**	1.712	.091		
Finding is Challenge	.357**	1.429	.077		

Table 12: Stepwise Logistic Regression for Church Growth Using Original Independent Variables, cont.

	Coefficient	Odds Ratio	Standard Error	(-2 L)	R-Square
Leadership (All or Nearly All)					
None	.525	1.691	.394		
Hardly Any	.536**	1.709	.207		
Few	.814**	2.258	.184		
Some	.803**	2.233	.181		
Many	.612**	1.845	.184		
Most	.541**	1.718	.197		
Recruit (Almost All)					
None	-1.061**	.346	.217		
Few	-.663**	.515	.163		
Some	-.099	.906	.160		
Most	.140	1.150	.172		
Constant	-22.382	.000	47828.873		

Note: $N = 7747$

* $p \leq .05$

** $p \leq .01$

Table 12 shows a stepwise binary logistic regression analysis conducted using original nominal, ordinal, and ratio variable as predictors. This does differ somewhat from the original stepwise regression model as far as which variables have the largest predictive value, but a strong sense of mission and purpose still appears to be the best predictor of church growth out of the independent variables in this analysis.

Examining Hypothesis 1

Hypothesis 1 states that pastors of churches with greater congregational activity are more likely than others to report growth. If this is true, then the congregational activity variables should be positively associated with church growth. However, one of these variables, many people in leadership roles, is actually negatively associated with growth. Also, while there is a statistically significant positive association between plenty of volunteers and growth, the association is not very strong and may not actually be substantively significant. The only congregational activity variable with a strong positive association with growth is most people recruit. Thus, it is not safe to conclude based on this analysis that congregational activity promotes growth.

Examining Hypothesis 2

Hypothesis 2 states that pastors of churches that show signs of strictness are more likely than others to report growth. If this is true, strictly enforced expectations, a strong sense of mission and purpose, doctrine as a foundational source of authority, emphasis on abstinence from alcohol, and emphasis on abstinence from premarital sex should be positively associated with growth. Conversely, participation in services with other denominations and services with other faith traditions should be negatively associated with growth. Model 3 indicates that emphasis on abstinence from alcohol, services with other denominations, and services with other faith traditions do not have statistically significant associations with growth. The model also indicates that doctrine as a foundational source of authority is negatively associated with growth, which conflicts with hypothesis 2. The positive associations between growth and strictly enforced expectations, a strong sense of mission and purpose, and emphasis on abstinence from premarital sex do lend some support to hypothesis. However, only one of these variables, strong sense of mission and purpose, is very strongly associated with growth. The fact that the association between evangelical Protestant and growth diminishes with the addition of the strictness variables, though, does support the hypothesis. Overall, there is limited support for Hypothesis 2.

Examining Hypothesis 3

If congregational activity actually explains a relationship between strictness and church growth, then introducing congregational activity variables to a logistic regression model containing strictness variables should diminish the predictive abilities of the strictness variables. However, all strictness variables that had significant associations with growth before the introduction of the congregational activity variables retain significant associations after the introduction of the congregational activity variables. This suggests that congregational activity does not act as a mediator for the relationship between strictness and growth.

DISCUSSION AND IMPLICATIONS

Kelley (1972, 1978) claimed that the churches that continued to grow as others went into decline grew did so because they displayed characteristics related to strictness. Iannaccone (1992, 1994) tried to explain the potential relationship between strictness and growth by claiming that church strictness leads to a reduction in free-riding, thus making a church more attractive.

This study examined the ability of indicators of strictness and congregational activity to predict church growth and the possibility that congregational activity may mediate a positive relationship between strictness and growth. Previous studies tested for a relationship between strictness and growth and between strictness and free-riding. This study extends that research by testing whether congregational activity actually mediates a relationship between strictness and church growth.

While some indicators of strictness and congregational activity are positively associated with growth, most do not have strong associations with it. My models do produce several statistically significant relationships, but it is important to note that some of the relationships may be statistically significant just because of the large sample size in the study. None of the models explain a large amount of the variability in church growth. Even in the stepwise logistic regression model that includes all significant predictor variables in this study, only around 10 percent of the variability in the church growth variable is explained. This suggests that other factors or church characteristics may be better predictors of church growth, but strictness and congregational activity are associated with growth.

The negative relationship between how many church participants hold leadership positions and church growth is puzzling, especially because pastors of churches that do not have trouble finding lay volunteers were more likely than others to report growth. This does not support the idea that people do not like to go to churches in which most people are not active, but this also does not disprove the idea that free-riding makes a church less likely to grow. Perhaps the real issue is having enough volunteers to provide attractive programming. As long as a church has enough people to fill leadership roles, churches may still grow even if they do not have a high percentage of members serving in lay leadership positions.

While Iannaccone's (1992, 1994) argument that a reduction in free-riding explains whatever positive relationship there might be between strictness and church growth seems reasonable, it appears that the reduction in free-riding, or the increase in congregational activity, is not a substantively significant explanatory factor. Rather, it seems that, if strict churches are indeed more likely than others to grow, this is because of characteristics such as a strong sense of purpose. It seems that knowing and staying true to the church's purpose may be more important for growth than being able to find volunteers and imposing strict rules upon members. Thus, it

might be better for a church looking to grow its membership to get back to basics and refocus itself than to begin insisting that parishioners abstain from drinking alcohol and removing those who do consume alcohol.

The fact that having a strong sense of mission and purpose has a strong relationship with growth does reflect Kelley's (1972) assertion that healthy churches must be engaged in creating meaning. This also suggests that current popular ideas in church growth literature may have some merit. Perhaps, the popular pastor and author of *The Purpose-Driven Life* and *The Purpose-Driven Church* Rick Warren (1995) was onto something in suggesting that churches need to focus on New Testament purposes in order to become healthier and to grow. Further sociological research should be conducted to study the relationship between a sense of purpose and growth in order to determine whether Warren's popular idea has merit.

Overall, strictness appears to be associated with growth; however, Kelley seems to have overstated the importance of strictness. Strictness explains only a small portion of the variability in growth among churches. Since the most important aspects of strictness for predicting growth seem to be a sense of purpose and conformity to a moral lifestyle, perhaps strict churches actually grow because they build strong communities of people who are similar to one another. Promoting solidarity may actually be more important than strictness in particular.

Future Research

My study certainly does not prove, or even lend a great deal of support to, the strictness theory, but my study also does not disprove the theory. While the FACT 2000 survey does address strictness, congregational activity, and church growth, another study could certainly better address these factors. There are facets of strictness that have not been addressed in my study. Future research should, perhaps, focus on whether requiring parishioners *to do* something, such as serve in volunteer positions, has a different effect on growth than requiring parishioners *not to do* something, such as consume alcohol. Also, one could examine whether requiring parishioners to do something physical has a different effect than requiring certain beliefs. Future research should also examine different ways of enforcing rules or expectations, and whether removing church members for breaking rules, for example, has a stronger relationship with growth than simply speaking with members about what they have done wrong in not living up to church expectations.

In addition to looking at the concept of strictness differently, future studies ought to take a different approach to studying congregational activity. A survey of church members, or attendees, themselves would be more constructive than the FACT 2000 questions that ask pastors about how active their congregations are. Such a survey could better allow the researcher to determine what percentage of a congregation actually takes on leadership roles and perhaps to see how individuals react to free-riding within their churches.

Certainly a different measure of church growth would be desirable. A ratio variable would be useful for linear regression models that could help to better determine how much of an effect on growth strictness and congregational activity have. Ideally, one would use exact numbers of the number of participants in a church, or head counts at services, from two separate years and compare these. This would be difficult to accomplish, however, since several churches do not keep membership rolls and those that do would likely not include all active church participants as formal members.

Future research could also examine the role that family and cultural ties might play in promoting church growth. It seems that denominations with strong family or cultural ties would at least be less likely than other denominations to decline in membership, as those raised in churches associated with such denominations might be less likely to leave their churches for others. This could, perhaps, be an important issue within Protestantism and even in the larger realm of religion. Future studies ought to examine this issue, along with strictness and congregational activity in Christianity as a whole, as well as in other religions, and in other countries.

My research could benefit from the addition of correspondence analysis and mosaic plots, two methods for examining multivariate relationships. In the future, I could use correspondence analysis to develop a graphical display of the data to make it more understandable, showing relationships in crosstabulations more clearly (Everitt 2004; Greenacre 2007). I could also display the relationships among crosstabular data through mosaic plots, which use tiles of different sizes to represent frequencies from crosstabulations (Friendly 2002).

Conclusion

In this thesis, I established that, while strict churches appear to be somewhat more likely than other churches to grow, Kelley overstates the extent to which strictness promotes church

growth. Overall, Kelley's (1972, 1974) idea that conservative churches' strict nature helped them to avoid going into decline along with other churches appears to have some merit, but there are certainly several other factors at work in determining whether a church will grow and thrive. There is also some support for the idea that strictness is related to higher congregational activity and that high congregational activity is related to church growth. However, because the introduction of congregational activity indicators into a logistic regression model using strictness to predict church growth does not have much effect on the relationship between strictness and growth, my research does not support the idea that congregational activity actually explains the relationship between strictness and growth.

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APPENDIX: Description, Coding, Means, and Standard Deviations of Variables

Variables in the analysis	Coding/Range of Values	Unweighted		Weighted	
		Mean	Standard Deviation	Mean	Standard Deviation
Dependent Variable					
Since 1995, has the...number of regularly participating adults: (GROWPLAT)	1 = Increased <ul style="list-style-type: none"> • Increased 5% to 9% • Increased 10% or more 0 = Not increased <ul style="list-style-type: none"> • Decreased 10% or more • Decreased 5% to 9% • Stayed about the same (+/-4%) 	.49	.500	.50	.500
Independent Variables					
<i>Congregational Activity Variables</i>					
Which of the following best describes the situation in your congregation? (LAYVOLS)	1 = Plenty of volunteers <ul style="list-style-type: none"> • We do not have any problem getting people to accept volunteer leadership roles. 0 = Trouble finding volunteers <ul style="list-style-type: none"> • Recruiting volunteer leaders is a continual challenge, but we eventually find enough willing people. • We cannot find enough people who are willing to serve. 	.22	.417	.22	.415

Variables in the analysis	Coding/Range of Values	Unweighted		Weighted	
		Mean	Standard Deviation	Mean	Standard Deviation
Of the total number of regularly participating adults, what percent would you estimate are: Currently holding volunteer leadership roles in your congregation, like serving on administrative committees, teaching [Sunday school], running outreach programs, etc. (VOLS)	<p>1 = Many</p> <ul style="list-style-type: none"> • Many 41-60% • Most 61-80% • All or nearly all 81-100% <p>0 = Not many</p> <ul style="list-style-type: none"> • None 0% • Hardly any 1-10% • Few 11-20% • Some 21-40% 	.33	.470	.33	.469
Of your total number of adult participants, how many would you estimate are involved in: Recruiting new members (RECRUIT)	<p>1 = Most</p> <ul style="list-style-type: none"> • Most • Almost all <p>0 = Not most</p> <ul style="list-style-type: none"> • None • Few • Some 	.16	.362	.15	.353

Variables in the analysis	Coding/Range of Values	Unweighted		Weighted	
		Mean	Standard Deviation	Mean	Standard Deviation
<i>Strictness Variables</i>					
Which one of the following three statements best describes your congregation? (STRICT)	<p>1 = Strict</p> <ul style="list-style-type: none"> • Our congregation has [explicit/definite] expectations for members that are strictly enforced. <p>0 = Not strict</p> <ul style="list-style-type: none"> • Our congregation has only [implicit/vague] expectations for members that are seldom, if ever, enforced. • Our congregation has fairly clear expectations for members, but the enforcement of these expectations is not very strict. 	.07	.258	.08	.267
How well does each of the following statements describe your congregation? Our congregation has a clear sense of mission and purpose. (PURPOSE)	<p>1 = Very clear</p> <ul style="list-style-type: none"> • Quite well • Very well <p>0 = Not very clear</p> <ul style="list-style-type: none"> • Not at all • Slightly • Somewhat 	.55	.497	.56	.496
How important are the following sources of authority in the worship and teaching of your congregation? Historic creeds, doctrines & tradition (AUTHDOCT)	<p>1 = Foundational</p> <ul style="list-style-type: none"> • Absolutely foundational <p>0 = Not foundational</p> <ul style="list-style-type: none"> • Very important • Somewhat important • Little or no importance 	.16	.369	.13	.339

Variables in the analysis	Coding/Range of Values	Unweighted		Weighted	
		Mean	Standard Deviation	Mean	Standard Deviation
How much does your congregation, in its worship and education, emphasize the following home and personal practices? Abstinence from alcohol (NODRINK)	1 = A lot <ul style="list-style-type: none"> • Quite a bit • A great deal 0 = Not a lot <ul style="list-style-type: none"> • Not at all • A little • Some 	.25	.435	.35	.477
How much does your congregation, in its worship and education, emphasize the following home and personal practices? Abstaining from premarital sex (NOSHACK)	1 = A lot <ul style="list-style-type: none"> • Quite a bit • A great deal 0 = Not a lot <ul style="list-style-type: none"> • Not at all • A little • Some 	.46	.499	.56	.497
During the last 12 months, has your congregation been involved in any of the following types of inter-congregational, ecumenical or interfaith activities? Joint worship services: From other [Christian] denominations (JOINT_Y2)	1 = Yes <ul style="list-style-type: none"> • Circled 0 = No <ul style="list-style-type: none"> • Not circled 	.51	.500	.47	.499

Variables in the analysis	Coding/Range of Values	Unweighted		Weighted	
		Mean	Standard Deviation	Mean	Standard Deviation
During the last 12 months, has your congregation been involved in any of the following types of inter-congregational, ecumenical or interfaith activities? Joint worship services: From other faith traditions (JOINT_Y3)	1 = Yes <ul style="list-style-type: none"> • Circled 0 = No <ul style="list-style-type: none"> • Not circled 	.09	.287	.06	.244
Control Variables					
Denominational Family (DENFAM)	1 = Evangelical Protestant <ul style="list-style-type: none"> • Evangelical Protestant 0 = Other <ul style="list-style-type: none"> • Liberal Protestant • Moderate Protestant • Historically Black 	.32	.466	.48	.499
Of the total number of regularly participating adults, what percent would you estimate are: In households with incomes below \$20,000 (POORHH)	1 = Many <ul style="list-style-type: none"> • Many 41-60% • Most 61-80% • All or nearly all 81-100% 0 = Not many <ul style="list-style-type: none"> • None 0% • Hardly any 1-10% • Few 11-20% • Some 21-40% 	.11	.315	.12	.322
Zip-Code Census 2000 percent of households with income less than \$20,000 (HH\$00_1)	1 = Many <ul style="list-style-type: none"> • 41 thru 60% • 61 thru 100% 0 = Not many <ul style="list-style-type: none"> • 0 thru 10% • 11 thru 15% • 16 thru 20% • 21 thru 40% 	.13	.341	.16	.368

Variables in the analysis	Coding/Range of Values	Unweighted		Weighted	
		Mean	Standard Deviation	Mean	Standard Deviation
Zip-Code Census 2000 percent of households with income \$20,000 to \$74,999 (HHS00_2)	1 = Many <ul style="list-style-type: none"> • 41 thru 60% • 61 thru 80% • 81 thru 100% 0 = Not many <ul style="list-style-type: none"> • 0 thru 20% • 21 thru 40% 	.94	.234	.95	.214
Zip-Code Census 2000 percent of households with income over \$74,999 (HHS00_3)	1 = Many <ul style="list-style-type: none"> • 41 thru 60% 0 = Not many <ul style="list-style-type: none"> • 0 thru 10% • 11 thru 15% • 16 thru 20% • 21 thru 40% 	.08	.265	.06	.234
Zip-Code population change from 1990 to 2000 (POP90_00)	1 = Increase <ul style="list-style-type: none"> • 1% through 30% or higher 0 = Decrease or no change <ul style="list-style-type: none"> • -20% or lower through 0% 	.65	.477	.65	.476