

# The Secular Transition: The Worldwide Growth of Mormons, Jehovah's Witnesses, and Seventh-day Adventists

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## Abstract

A question that continues to draw research in the sociology of religion is what factors spur the growth of religions (Kelley 1972; Iannaccone 1994; Bruce 2002; Hoge and Roozen 1979; Stark and Finke 2000). In line with these previous studies, this article examines three well-known Protestant/Other religions that share many characteristics (supply-side factors): Mormonism, Jehovah's Witnesses, and Seventh-day Adventists. Data on the memberships of these three religions was gathered from 1960 through 2006 for almost every country around the world where they have a presence. Growth rates for those countries were analyzed while controlling for country-level characteristics (demand-side factors). The results of this analysis indicate that both supply- and demand-side factors are important in determining growth. The strongest predictors of growth are: organizational momentum in a country, the level of economic development, and several country-level characteristics.

## Introduction

A question in the sociology of religion that continues to attract attention is what factors influence the growth of religions (Bruce 2002; Kelley 1972; Iannaccone, Daniel V. A. Olson, and Stark 1995; Iannaccone 1996, 1994; Stark and Finke 2000; Hoge and Roozen 1979). This question has recently been reframed in economic terms (Stark and Finke 2000): "Supply-side" factors are variables that influence the growth of a religion that are controlled by the religion. "Demand-side" factors are variables that influence the growth of a religion that are controlled by the population in which the religion is trying to grow. Admittedly, disentangling these two sets of factors can be difficult, as supply-side factors can influence demand-side factors and vice versa (Demmitt 1992; Moore 1995). Even so, thinking about the factors that influence growth in this way is useful in that it provides a simple heuristic for thinking about religious growth.

Missionizing religions – religions that actively proselytize for converts – provide fertile ground for testing theories about supply- and demand-side factors as they tend to grow rapidly and maintain relatively accurate membership data (Stark 1984). Previous research has analyzed Latter-day Saint or Mormon growth, but most of that research focuses on Mormon growth as a whole and not on the growth of Mormonism in a localized or country-level context (Gary Shepherd and Gordon Shepherd 1998, 1996; Stark 2001, 1996; Anderson 2006; Bennion and Young 1996; Hadaway 2006; Hepworth 1999; Knowlton 2005; Lobb 2000; Loomis 2002; Phillips 2006). By aggregating growth to a church-wide level, the nuances of growth are overlooked and the factors spurring growth are not easily disentangled. When analyzed at a more localized level (Phillips 2006; Knowlton 2005; Gooren 2006), Mormon growth is recognized to be more complicated than the aggregate numbers indicate.

Previous research has also analyzed Jehovah's Witnesses growth (Voas 2007, 2008; Holden 2002). In this case, the research by Voas (2008) breaks the analysis down by individual countries and finds nuances in growth, including a potential “carrying capacity” for the number of Jehovah's Witnesses a country can handle. However, this analysis fails to account for a number of demand-side factors in examining Jehovah's Witnesses growth. Finally, previous research has also examined the growth of Seventh-day Adventists (Lawson 1995a, 1996). While these analyses look inside countries, a broad perspective comparing growth across countries is lacking.

By examining the global growth of three exclusive, missionizing religions – The Church of Jesus Christ of Latter-day Saints (a.k.a., Mormons or LDS), Jehovah's Witnesses (JWs), and Seventh-day Adventists (SDAs) – country-by-country, this article is able to examine the influence of both supply- and demand-side factors in religious growth. To explore these two sets of factors, data on the growth of these three religions worldwide over the last 30 to 35 years was collected, along with a variety of country-level characteristics that illustrate the influence of demand-side factors. Through a variety of analyses, the importance of both supply- and demand-side factors is illustrated.

## **Literature Review**

### ***Mormon Growth***

The research looking at the growth of the Mormon religion almost exclusively focuses on the religion as a whole and not on Mormon growth in individual countries (Stark 1984, 2001). Perhaps the most well-known examination of Mormon growth is Stark's 1984 projection in which he assumed straight-line, decade-exponentiating growth at either 3% or 5%. Stark's projection was based on past growth of the entire religion and did not look at growth in individual countries nor try to explain why Mormonism was growing in some countries but not others. It appears the primary assumption in Stark's analysis was that it was the characteristics of Mormonism (supply-side) that determined growth and not demand-side factors.

The many responses to Stark's projections have also used only the aggregate membership data of the LDS religion, but have suggested alternative growth trends. Anderson (2006) suggests a logistic equation rather than Stark's exponential equation, resulting in lower estimates. Loomis (2002) also criticizes Stark's exponential equation, arguing that exponential growth indefinitely is untenable. While both Anderson and Loomis are probably right in their criticisms, they also assume that the only factors required to understand Mormon growth are past growth and, in contrast to Stark, a better understanding of growth trends and potentials.

Another group of scholars have looked at Mormon growth in light of the number of Mormon missionaries working to increase the Mormon fold. Hepworth (1999) used lagged autoregression analysis to examine the influence of the number of missionaries on Mormon growth and found that there is a significant relationship between the two: as the number of missionaries goes up, so do Mormon membership numbers. Shepherd and Shepherd (1998, 1996) also find a significant correlation between number of missionaries and Mormon growth. While these analyses add another element to the equation – number of missionaries – they are still aggregating the data as a whole and failing to consider the nuances of growth. Additionally, the number of missionaries is still exclusively a supply-side factor and does not control for demand-side factors. Also, for what it's worth, the number of missionaries can never really be disentangled from the number of

members sufficiently to indicate causality, though Hepworth gives it a valiant effort. The leadership of the LDS religion move missionaries to potential growth spots as well as current hotspots and the number of missionaries is always going to be relative to the number of active members (Bennion and Young 1996). As a result, number of missionaries and Mormon membership numbers will always be correlated, but causality is difficult to determine.

There are several studies that have examined Mormon growth in more detail that are beginning to reveal the nuanced nature of Mormon Growth. Bennion and Young (1996) examine Mormon growth in light of several characteristics. They note the geographic variation in growth – Mormonism is growing in some regions (Latin America and Africa), but not others (Europe). This is a step toward beginning to understand the dynamics of LDS growth. Bennion and Young propose one factor that may explain differences in growth rates: the stability of a country, politically and economically. They find that Mormonism grows more rapidly in “volatile” countries than in “stable” countries, though they do not quantify “stability” and “volatility.” They also note that immigrants in stable countries are more likely to convert than long-standing residents of those countries, a finding reiterated by Lobb (2000).

What Bennion and Young are getting at, without using the nomenclature from the sociology of religion, is an understanding of supply- and demand-side factors when it comes to Mormon growth. The supply-side is Mormonism, an evangelizing religion that must, of course, have some appeal in order for it to grow at all. But by noting variations in geographic growth they are hinting at the idea that there must be a reason why Mormonism grows more rapidly in some countries than in others, which would indicate demand-side factors (or, potentially, an interaction between the two). They describe one demand-side factor by discussing stability and volatility, though they fail to operationalize it. Operationalizing the relative stability of a country, then, may help predict Mormon growth.

### ***Jehovah's Witnesses Growth***

Surprisingly little research has actually looked at the growth of the Jehovah's Witnesses, and not nearly in the detail of Mormonism (Wah 2001; Stark and Iannaccone 1997b). Stark and Iannaccone (1997b) argue that it is primarily the strictness of the religion that accounts for its rapid growth, though they also recognize an interaction with culture. However, their analysis does not go into specific details on which aspects of local culture make some areas more fertile for JW's growth than others.

Holden (2002) suggests that the Jehovah's Witnesses religion is particularly attractive to individuals who feel overwhelmed by modernity and are looking for certainty in their lives. This is probably a demand-side characteristic as it requires modernity in order for people to feel such angst. But it could also be considered a type of interaction between supply and demand factors in that the JWs offer an answer (supply) to people suffering the alienation of modernity (demand). Even so, it is moving past the idea that it is just the appeal of JWs that attracts converts.

Voas (2008) also examines the growth of the JWs, focusing on one particular aspect of that growth – the surprising relationship between JWs growth and the percentage of the population made up of JWs. Voas describes this self-limiting characteristic of the JWs as a cultural “carrying capacity,” a term borrowed from evolutionary biology to suggest that there are limitations to how many members of a species can survive on a given piece of land (Paul R.

Ehrlich, Anne H. Ehrlich, and Daily 1995). In the case of the JWs, as the percentage of the population that is made up of JWs increases, the growth rate decreases. This seems to imply that there is a limited percentage of any given population that is attracted to JW's beliefs and practices, which makes sense in light of the JWs continuation as an established sect (Lawson 1995a).

Thus, as far as JWs growth goes, there have been limited attempts to explain why JWs grow where they grow and which factors limit that growth. There is also a general lack of research on JWs in general, though Holden's 2002 book goes a long way in filling that lacunae.

### ***Seventh-day Adventist Growth***

Like the JWs, SDA's growth, specifically, has received very little attention. Most of the research on SDAs has focused on specific characteristics of the religion or its members: SDAs view female pastors favorably (Roger L. Dudley 1996), factors related to pastoral morale have been examined (Roger L. Dudley and Cummings 1982), SDA youths' social attachment to the religion and disaffection from the religion have been examined (Roger L. Dudley and Muthersbaugh 1996; Roger L. Dudley 1978, 1999; Roger L. Dudley and Margaret G. Dudley 1986), drug use among SDA youth has been examined (Roger L. Dudley, Mutch, and Cruise 1987), SDA public opinions have been analyzed (Roger L. Dudley, Hernandez, and Terian 1992), SDA military service and attitudes toward war have been examined (Lawson 1996), and the relationships between the SDAs and governments have been carefully analyzed (Lawson 1995a, 1995b, 1996, 1998).

Only one published article has looked at SDA growth (Lawson 1998), though several unpublished conference papers have. Lawson (1998) examines the changing demographics of the SDA religion in New York City and finds, like Mormonism, an increasing appeal of the religion among immigrants, at least, in a "stable," economically developed country like the US. Despite the relative scarcity of research on JWs and SDAs concerning growth, this brief overview of the existing literature indicates that all three religions are still growing, and growing at least somewhat rapidly, especially when contrasted with mainline religions, particularly in the U.S. (Roof and McKinney 1987). However, the existing literature leaves open the question of why these religions grow where they do. Growth of these religions is not uniform across the globe. Which demand-side factors explain the growth of these religions remains to be examined.

### ***Theoretical Approach***

Rather than engage in a debate between supply- and demand-side factors on religious growth, this paper simply argues that both are important factors for religious growth. What's more, how they are important is ever-changing, as religions evolve to adjust to the changing marketplace (Demmitt 1992; Moore 1995) and the demands of the religious market change over time due to a variety of factors, ranging from war to political change to socioeconomic development (Bennion and Young 1996; Bruce 2002).

As far as the growth of these three religions goes, there appears to be at least some overlap in the appeal of these religions. In a sense, that overlap reflects an interaction between supply- and demand-side characteristics. As briefly mentioned above in describing the appeal of JWs, Holden

(2002) argued that it was the salve for modernity offered by the JWs – answers to existential angst and perceived social dislocation – that accounted for their appeal by converts and members. Holden is not the only researcher to propose this as an explanation for the appeal of these three US-based, quasi-Protestant, Christian religions. Leman (1998) also suggested something similar in his analysis of converts to the JWs in Belgium.

This is also a key component in the secularization framework as developed by Bruce (2002; see also Berger 1967; Dobbelaere 2002; Voas 2007). According to Bruce, religions tend to do well in countries that are undergoing modernization, *but* not in thoroughly modernized countries and not in pre-modernizing countries. Bruce argues that, “Modernization disrupts communities, traditional employment patterns and status hierarchies.” This idea is very similar to that of Holden (2002): modernization and modernity lead to social dislocation, and “strict” religions (Kelley 1972; Stark and Finke 2000) provide an existential salve that alleviates the angst that accompanies social dislocation and modernization. The appeal of strict religion has been posited to be temporary: as countries grow more developed and modernized, the populace will also develop other ways of dealing with modernity that do not rely on religion (Bruce 2002; Dobbelaere 2002). Thus, theoretically, the most modernized countries should see limited interest in strict religions.

In other words, according to Bruce and Holden, initial modernization can lead countries to experience resurgences in orthodox and strict religion. This understanding of secularization theory actually leads to a slightly different conclusion of the effects of demand-side factors on religious growth than those regularly attributed to secularization by its detractors (e.g., Stark and Finke 2000). Rather than constant decline, secularization theory actually posits religious growth as countries *begin* to modernize, followed by religious decline as countries reach high levels of modernization. Secularization is curvi-linear, not linear. If Bruce and Holden are correct, there should be virtually no growth of strict religions in pre-modernized countries. Growth of strict religions should start as countries begin to modernize, then slow or disappear altogether as countries reach high levels of modernization.

If this perspective is accurate – that religious growth is driven in part by modernization, explaining variations in growth around the globe – then using indicators of modernization to predict growth should allow one to test this. Mormons, Jehovah's Witnesses, and Seventh-day Adventists are all ideal candidates for testing the idea that modernization significantly affects religious growth. All three religions are strict, exclusive, and missionizing religions. They are all growing, indicating they have supply-side appeal. The question is, “Which demand-side factors interact with supply-side appeal to translate into growth for these religions?” The one demand-side factor of most interest in the present study is modernization. This leads to the following hypotheses:

- *Hypothesis 1: Modernizing countries will have the highest rates of religious growth of strict religions.*
- *Hypothesis 2: Pre-modernizing and highly modernized countries will have the lowest rates of religious growth of strict religions.*

## Data

Yearly membership information for Mormonism in every country around the world going back to 1960 was requested from the Research Division of the LDS religion. That request was denied, but data on close to 60 countries for varying time periods (mostly from the 1970s and 1980s on) was supplied. I supplemented that data with information from a publication of the LDS religion, the *Deseret Morning News Church Almanac* (2007), which includes membership information for each country with a Mormon presence for a specific year (there is usually a two year lag; so the 2007 edition has membership information for 2005). Editions of the Almanac from 1975 through 2008 were used to build a mostly complete picture of Mormon membership information for that time period. I say “mostly complete” because there are some problems in teasing out membership information in some countries. This was true for all three religions, where membership information was aggregated for two countries at some point, and separating that information is not possible given the limited information I have. Where the data received from LDS headquarters and that in the Almanac overlapped there was generally universal agreement; all differences were minor and probably due to rounding or estimation at that time.

Data on JW's membership was easier to obtain. The headquarters of the religion was called in early 2007 and asked if they had membership information for each country where they had a presence since 1960. They did, but not in electronic form. The religion publishes the data in several locations, but most of it is aggregated in a large publication which includes an extensive history of the religion as well (Wah 2001). Photocopies of that data for every five years from 1960 on (e.g., 1960, 1965, 1970, 1975, etc.) were requested and were promptly sent (along with a few religious tracts). Given the way the headquarters of the JW's publish their data, this included membership information for the year before each 5<sup>th</sup> year as well (they include growth rates, so they give the year before to illustrate the growth rate calculations).

Getting the data was easy. Converting it into an electronic database, on the other hand, was not. There are some serious limitations of the data as recorded and stored by those who maintain this data, though it is not necessarily the fault of those managing these records. Over the last 45+ years, countries have changed names, governments, and even borders. The records provided were from the original time period and had not been updated to reflect the changed names and borders. With the aid of several encyclopedias, the data was organized to reflect the most accurate distribution of JW's possible. Details on the changes required are presented in Appendix A.

The data for the Seventh-day Adventists was the easiest to obtain as the Seventh-day Adventists maintain a statistics website with most of their membership data in digital format. There are still problems with the data in that data for specific countries was occasionally combined in the past. For example, Trinidad is separate from Tobago, but Tobago's data is grouped with a variety of West Indies countries, making it impossible to know the exact membership numbers for Trinidad and Tobago. In situations like this, the membership data for those countries was omitted and labeled “missing” in the dataset.

### ***Dependent Variables***

Mormons report only one number for members in a country, without specifying whether that is the beginning, ending, or average number of members in a given country in that year. That is the

number used. JWs report two possible membership numbers: average and peak publishers. Average publishers was used. SDAs also provide two numbers: membership at the beginning of the year and end of the year. For uniformity, the number from the end of the year was used. The membership data was used to generate the dependent variables: Mormon, JW, and SDA growth rates. I used exponential growth rates. The formula for the exponential growth rate  $r$  is:

$$Y_t = Y_0 e^{rt}$$

Solving for  $r$ ,

$$r = (\ln(Y_t / Y_0)) / t$$

Where:

- $Y_t$  is the population at Time 2
- $Y_0$  is the population at Time 1
- $t$  is the time period between 0 and  $t$ .

In years when no membership number is included, imputed populations and corresponding growth rates were calculated assuming linear growth. There is, however, a caveat here: Membership numbers were only imputed for years when there was a prior data point. For example, JWs began reporting large membership numbers for many formerly Soviet Bloc countries in the early 1990s, but prior to the 1990s there are no reported membership numbers (that number is included in an “other” group). It is probably the case there were members in the countries prior to the 1990s, but when they reported membership information, they did not report those countries having any members. Because there is no clear date when JWs first entered the country, it is not possible to accurately impute numbers prior to the first membership numbers reported.

There are several additional clarifications that are important to note for methodological clarity. In years when the membership numbers were below 500 total, growth rates could be extreme. For example, going from 1 member to 7 members is only an increase of 6, but results in an exponential growth rate of 196%, which is misleading. Because of the limitations of calculating growth rates for small populations, years when membership numbers were below 500 were dummy coded and excluded from the analysis. The results are slightly different as a result, but probably more accurate.

Additionally, there are some countries where there has never been any growth of these religions (e.g., Brunei, Qatar, Saudi Arabia, etc.). Since the goal of this analysis is to explain what leads to religious growth, countries that have never seen any growth of these religions were *not* excluded from the analysis. Zero growth is just as meaningful when it comes to understanding the factors that determine growth as is rapid growth. Zero growth arguably indicates that demand-side factors and/or government regulation (Grim and Finke 2006) trump supply-side factors. If countries where there is no growth are excluded from one's analysis, the resulting analysis is inherently misleading and biased as it only looks at countries where the religion is growing. Countries that had never had members of these religions or only had one or two members at some point were included with growth rates of zero in the years when there were never members.

Despite excluding growth rates for years with fewer than 500, the frequency curves for the dependent variables were almost normal, but still included several outliers (almost 10 standard deviations above and below the mean), resulting in skewed distributions (there were less than 60 total country-years for all three religions that were outside that range). To meet the criteria of

regression, I capped the few remaining outliers at  $\pm 0.400$  (or 40% growth in a given year), which is about 4 standard deviations above and below the mean. This normalized the distribution but did not significantly alter the results of the analysis.

### ***Control Variables***

Dummy codes for characteristics of countries that might play a role in predicting or restricting religious growth for these religions were generated. Data for these codes were taken primarily from the CIA World Factbook, though supplemented with data from other encyclopedias where necessary. In light of the fact that Mormonism excluded blacks from full membership in the religion prior to 1978 (Mauss 2003), which likely limited growth of the religion in predominantly black countries prior to that time, a dummy code for race is included – (1) predominantly black (greater than 60%) or (0) not predominantly black (less than 60%).

Most communist countries are avowedly atheistic and restrictive of religions (Gabel 2007). Thus, a dummy code for type of government is included in the analysis: (1) currently a communist country or (0) not currently a communist country. Current Communist countries include: China, Cuba, North Korea, Laos, and Viet Nam. As there is some evidence these religions are growing rapidly in former Soviet Bloc countries (Borowik 2002; Greeley 2002; Pollack 2003), a dummy code for former Soviet Bloc was included: (1) former soviet bloc, (0) not former soviet bloc. Finally, because there is limited growth of these religions in predominantly Muslim countries (2006), a dummy code indicating whether or not a country has a majority of Muslims was included: (1) predominantly Muslim (greater than 60%), (0) not predominantly Muslim (less than 60%).

Most of these dummy coded variables are demand-side factors as they capture characteristics of the potential consumers of the religions of interest. However, there are a couple that could be seen as supply-side factors, like predominantly Muslim and currently communist. In a sense, these two characteristics reflect (a type of) religious competition and therefore religious suppliers as well.

Several additional variables are included to control for different factors. These variables combine data from multiple data sources. In order to capture any effect of natural increase to members of the religions, the population growth rate for each country is included. This variable should explain some of the growth of these religions as retention of offspring contributes to religious growth. The data on country populations comes from The World Bank Group (2006). Where necessary, linear change over time was assumed and missing values were imputed.

In order to capture both any “carrying capacity” countries might have for these religions (Voas 2008) as well as the effect of networks on religious growth (Bibby and Brinkerhoff 1973, 1983), the percentage of the country's population made up by members of the religion was also included as a control variable. If networks are the main contributor to religious growth of these religions (Leman 1998), the larger the percentage of the population made up by members of one of these religions, the higher the growth rate should be. However, if there is a negative relationship between the percentage of a country's population made up by members of one of these religions and the growth rate, this would indicate a limited carrying capacity for that religion.

Dummy codes for periods are included. There is some evidence Mormon growth is slowing (Phillips 2006; Anderson 2006). Including periods in the analysis can determine this. Data points

in each decade were coded independently: 1970s, 1980s, 1990s, and 2000s. A (1) indicates a growth rate from that decade; (0) indicates a different decade.

Finally, there is some question as to whether these three religions compete for adherents (Lawson 1995a; Gooren 2005; Pink 2005). To test for this, the percentages of the respective country's populations made up by members of the other religions were included in the analysis.

### ***Independent Variables***

In order to test the specific hypotheses concerning the influence of modernity and modernization on religious growth, a measure of societal modernization was required. This does introduce the tricky issue of how one defines “modernization.” When secularization was originally proposed by Weber (Bendix 1978), the suggestion was that religiosity would decline as rationalization increased. Rationalization refers to the increasing use of pragmatic means to arrive at pragmatic ends. Unfortunately, it does not appear to be the case that there is a universally accepted measure of rationalization in the sociology of religion, as everything from telephones per capita to mere assumptions of rationalization have been used to operationalize this idea (Bruce 2002; Casanova 1994; Crockett and Voas 2006; Dobbelaere 2002; Duke and Johnson 1989; Gaede 1977; Gorski 2000; Hoffmann 1998; Hoge and Roozen 1979; Perl and D. V. A. Olson 2000; Roof 1976; Tschannen 1991; Warner 1993). Rather than create a new index of societal modernization, the UN's Human Development Index is used (United Nations 2007). This index combines measures of standard of living (GDP per capita at PPP), literacy, school enrollment, and life expectancy into a single measure ranging from 0 to 1. Higher values indicate more developed countries. The UN HDI index has only been calculated going back to 1975. As a result, the present analysis is limited to years since 1975. Additionally, the HDI is only calculated in five year increments (i.e., 1975, 1980, 1985, etc.). Linear change was assumed and imputed values for the years in between those data points were calculated.

Given the possibility described by Bruce (2002) that religious growth follows a curvi-linear trend based on modernization, the HDI measures were divided into 8 different variables that mostly reflect tenths of the scale: 0.00 to .29, .30 to .39, .40 to .49, etc. Deciles were used except on the bottom end as there are very few country's with HDI's below .29. There are a total of 104 country-years in the 0 to .29 range from countries like: Burkina Faso, Mali, Niger, etc.. Breaking the scale up into pieces like this rather than using the actual numbers from the HDI allows one to detect curvi-linear effects.

## **Analysis and Results**

The first step in the analysis was to determine if there is, in fact, regional variation in growth for these three religions. Table 1 shows the mean annual growth rate for the three religions of interest by cultural region (the regions are based on Sanders 2002) based on whether or not the countries with zero growth are included or excluded. The growth rates in Table 1 illustrate the importance of including the zero growth country-years in an investigation of the factors that contribute to growth. It should also be noted that these mean growth rates differ from the aggregated growth rates of the religion. There are several reasons for this. First, aggregate growth is adding people to a large base, so it would be smaller than average growth. However,

the average growth rates in Tables 1 and 2 include country-years with zero annual growth, which decreases growth rates to below the aggregate rates. For aggregate growth rates for these religions, see: (Deseret Morning News 2007; Lawson 2008; Stark and Iannaccone 1997a) Without including the zero growth country-years, Mormons have an 11.08% annual growth rate in Russia and Eurasia, which gives the impression that Mormonism is growing very rapidly in that entire region. But when country-years are included for countries where Mormonism is not growing at all in Russia and Eurasia, a more accurate picture is revealed: Mormons are growing at around 3% annually in that region. While the inclusion of the zero-growth rate country-years does not alter the JW and SDA growth rates too substantially in most regions, it does in one in particular: Islamic countries. For both religions, growth in Islamic countries looks promising, at somewhere between 3% and 5% per year, until all of those countries are included, at which point growth drops to less than 1% per year.

	LDS		JW		SDA	
	Zero growth countries excl.	Zero growth countries incl.	Zero growth countries excl.	Zero growth countries incl.	Zero growth countries excl.	Zero growth countries incl.
Anglo-America	3.53%	3.53%	2.89%	2.89%	2.72%	2.72%
Australia and New Zealand	5.02%	5.02%	3.20%	3.20%	1.27%	1.27%
Europe	4.48%	3.41%	4.04%	3.61%	1.26%	1.06%
Islamic Region	NA	0.04%	4.24%	0.98%	3.22%	0.45%
Latin America and Caribbean	10.47%	9.85%	6.31%	6.31%	6.58%	6.58%
Pacific Islands	7.05%	7.05%	4.56%	3.72%	4.31%	4.31%
Russia and Eurasia	16.20%	9.26%	7.57%	5.26%	3.39%	3.39%
South Asia	9.43%	4.81%	6.93%	3.63%	4.69%	3.60%
Southeast Asia	11.18%	4.61%	5.74%	3.31%	5.13%	3.72%
Sub-Saharan Africa	12.02%	3.23%	6.23%	5.32%	7.83%	6.08%
Overall mean	8.58%	4.49%	5.57%	4.30%	5.02%	3.88%

Note: These are growth rates averaged across countries.

TABLE 1 Mean Annual Growth for LDS, JW, and SDA by Cultural Region—1960–2006

Table 1 also illustrates that there is substantial variation by region for all three religions, though it varies most substantially for Mormons and least substantially for JWs. There is literally no growth of the Mormon religion in Islamic countries and substantial growth, more than 9% per year on average between 1960 and 2006 in Latin America and the Caribbean. In fact, for all three religions, the highest mean annual growth rate is highest in Latin America and the Caribbean.

Table 2 presents mean annual growth rates by the dummy-coded country characteristics, by decade, and by HDI, mostly in deciles. Again, two numbers are reported for each religion: the growth rate with the zero growth country-years excluded and the growth rate with the zero

growth country-years included. The differences between these two numbers again illustrate the importance of looking at growth in all countries, not just in the countries where these religions are growing. For instance, SDAs appear to be growing at over 7% annually in countries with HDIs below .29, but when the zero growth country-years are included, the growth rate is actually just below 3%.

	LDS		JW		SDA	
	Zero growth countries excl.	Zero growth countries incl.	Zero growth countries excl.	Zero growth countries incl.	Zero growth countries excl.	Zero growth countries incl.
Predominantly black	11.59%	3.81%	5.88%	5.19%	7.62%	6.16%
Currently communist	NA	0.00%	4.40%	1.01%	3.05%	2.42%
Former Soviet Bloc	13.69%	5.30%	5.73%	2.95%	2.19%	2.01%
Predominantly Muslim	11.19%	0.62%	5.94%	1.91%	6.27%	0.02%
1960–1969	13.84%	5.00%	7.91%	5.68%	5.53%	3.64%
1970–1979	8.88%	3.93%	6.21%	4.97%	5.12%	3.60%
1980–1989	8.93%	4.54%	6.00%	4.63%	5.24%	4.03%
1990–1999	8.72%	5.26%	5.67%	4.46%	5.31%	4.49%
2000–2006	5.89%	3.98%	2.84%	2.42%	4.30%	3.86%
HDI 0.00–.29	7.80%	0.09%	0.26%	0.26%	7.36%	2.33%
HDI .30–.39	15.96%	2.45%	5.48%	5.08%	9.38%	8.80%
HDI .40–.49	14.86%	6.37%	6.11%	5.16%	7.98%	7.07%
HDI .50–.59	10.70%	6.35%	5.93%	4.93%	7.67%	6.46%
HDI .60–.69	11.84%	7.81%	5.32%	3.91%	6.80%	5.55%
HDI .70–.79	9.93%	8.06%	5.92%	4.86%	5.48%	4.78%
HDI .80–.89	5.12%	4.61%	3.73%	3.42%	1.82%	1.68%
HDI .90–1.00	1.67%	1.63%	0.98%	0.95%	1.09%	1.07%
Overall mean	8.58%	4.49%	5.57%	4.30%	5.02%	3.88%

Note: These are growth rates averaged across countries.

TABLE 2 Mean Annual Growth for LDS, JW, and SDA by Country Characteristics—1960–2006

There is also substantial variation both within and between the religions. Mormons have the lowest growth rate in predominantly black countries while SDAs have the highest. JWs are growing fastest in both former Soviet Bloc countries and predominantly Muslim countries.

Over time, all three religions have seen some variation, but the trend is similar for all three: an increase in growth from the 1960s through the 1980s, followed by a slowdown in growth through today, though the slowdown is pretty minor for the SDAs. As for the HDI measures, all three exhibit a similar curvi-linear pattern – very slow growth in countries with an HDI below .29 and very slow growth in countries with HDIs above around .80 to .90. However, there is some variation in the patterns here. Mormon peaks in countries with HDIs in the .50-.79 range. SDA

growth, on the other hand, peaks in the .30-.39 range. JW growth is fairly constant in modernizing countries.

All of the above descriptive statistics indicate three things. First, including zero growth country-years in an investigation of the factors that influence growth for religions is important. Second, there are some differences in the religions, as these religions do not grow at the same rate in different contexts. This means the supply-side factors are important. And third, there are some differences among the consumers of these religions, indicating demand-side factors are important. In order to determine the relative strength of these factors on the growth of these religions, multiple auto-regression analyses were performed.

	Model 1 (n = 5,140)		Model 2 (n = 2,980)		Model 3 (n = 2,980)		Model 4 (n = 2,727)	
	B	SE	B	SE	B	SE	B	SE
Predominantly black (=1)	0.003	0.005	0.008	0.007	0.018*	0.007	0.010	0.008
Current communist (=1)	-0.069***	0.016	-0.097***	0.023	<u>-0.089***</u>	0.023	-0.092***	0.022
Former Soviet Bloc (=1)	0.026***	0.008	0.049***	0.010	<u>0.061***</u>	0.010	0.057***	0.011
Predominantly Muslim (=1)	-0.066***	0.005	-0.077***	0.006	<u>-0.074***</u>	0.006	-0.072***	0.007
Population growth rate	0.087	0.054	-0.014	0.065	-0.033	0.065	-0.022	0.066
% of total population	-0.107*	0.052	-0.213**	0.071	-0.171*	0.071	-0.108	0.115
HDI 0.00 to .29 (=1)			-0.010	0.015			-0.033*	0.017
HDI .30-.39 (v1)					0.018	0.015		
HDI .40-.49 (=1)			0.028**	0.010	0.053***	0.015	0.021*	0.011
HDI .50-.59 (=1)			0.020	0.011	0.047**	0.016	0.016	0.012
HDI .60-.69 (=1)			0.033**	0.011	0.058***	0.016	0.028*	0.013
HDI .70-.79 (=1)			0.021	0.011	0.049**	0.016	0.012	0.013
HDI .80-.89 (=1)			-0.021	0.012	0.007	0.017	-0.028*	0.014
HDI .90-1.00 (=1)			-0.052***	0.013	-0.015	0.018	-0.049***	0.015
1970-1979 (=1)					0.042***	0.008		
1980-1989 (=1)					0.028***	0.006	-0.018*	0.008
1990-1999 (=1)					0.024***	0.005	-0.024**	0.008
2000-2006 (=1)							-0.045***	0.008
% JW							-0.522	2.208
% SDA							0.068	0.234
Autoregression coefficient	0.520***	0.012	0.431***	0.017	0.431***	0.017	0.415***	0.018
Constant	0.066***	0.003	0.069***	0.011	0.018**	0.012	0.100***	0.014
Log-likelihood	6120.404		3435.251		3454.577		2595.912	

\*\*p < .01; \*\*\*p < .001.

TABLE 3 Mormon Growth Rate Regressed on Independent Variables (Autoregression)

	Model 1 (n = 5,428)		Model 2 (n = 3,452)		Model 3 (n = 3,452)		Model 4 (n = 2,787)	
	B	SE	B	SE	B	SE	B	SE
Predominantly black (=1)	0.022***	0.004	0.008	0.005	0.007	0.005	0.008	0.006
Current communist (=1)	-0.045***	0.010	-0.069***	0.014	-0.067***	0.014	-0.092***	0.017
Former Soviet Bloc (=1)	-0.001	0.006	0.023***	0.007	0.025***	0.007	0.020**	0.008
Predominantly Muslim (=1)	-0.036***	0.004	-0.032***	0.005	-0.036***	0.005	-0.038***	0.006
Population growth rate	0.005	0.022	-0.015	0.020	-0.017	0.020	-0.013	0.019
% of total population	-8.946***	0.997	-6.208***	1.193	-5.406***	1.182	-3.829**	1.470
HDI 0.00-.29 (=1)			-0.008	0.016			0.020	0.027
HDI .30-.39 (=1)					0.009	0.016		
HDI .40-.49 (=1)			-0.004	0.007	0.006	0.017	-0.013	0.008
HDI .50-.59 (=1)			-0.001	0.008	0.009	0.017	-0.010	0.008
HDI .60-.69 (=1)			-0.006	0.008	0.002	0.017	-0.014	0.009
HDI .70-.79 (=1)			-0.005	0.008	0.005	0.018	-0.011	0.009
HDI .80-.89 (=1)			-0.025**	0.009	-0.015	0.018	-0.035***	0.010
HDI .90-1.00 (=1)			-0.041***	0.010	-0.028	0.018	-0.049***	0.010
1970-1979 (=1)					0.003	0.004		
1980-1989 (=1)					0.022***	0.003	0.011***	0.004
1990-1999 (=1)					0.020***	0.002	0.007	0.004
2000-2006 (=1)							-0.012**	0.005
% Mormon							-1.281**	0.463
% SDA							-0.297	0.161
Autoregression coefficient	0.781***	0.008	0.784***	0.010	0.782***	0.010	0.799***	0.011
Constant	0.059***	0.003	0.070***	0.008	0.048**	0.018	0.082***	0.010
Log-likelihood	10582.781		7140.714		7189.465		6036.352	

\*\*p< .01; \*\*\*p< .001.

TABLE 4 *Jehovah's Witnesses Growth Rate Regressed on Independent Variables (Autoregression)*

	Model 1 (n = 5,611)		Model 2 (n = 3,273)		Model 3 (n = 3,273)		Model 4 (n = 2,833)	
	B	SE	B	SE	B	SE	B	SE
Predominantly black (=1)	0.031***	0.003	0.012*	0.005	0.012*	0.005	0.010	0.005
Current communist (=1)	-0.009	0.008	-0.035**	0.014	-0.036**	0.014	-0.048**	0.015
Former Soviet Bloc (=1)	-0.016***	0.005	-0.010	0.006	-0.011	0.006	-0.026***	0.007
Predominantly Muslim (=1)	-0.031***	0.003	-0.042***	0.005	-0.043***	0.005	-0.044***	0.005
Population growth rate	0.190***	0.044	0.105*	0.047	0.106*	0.047	0.120**	0.047
% of total population	-0.115	0.096	-0.309*	0.125	-0.305*	0.127	-0.308*	0.136
HDI 0.00-.29 (=1)			-0.074***	0.014			-0.092***	0.017
HDI .30-.39 (=1)					0.072***	0.015		
HDI .40-.49 (=1)			-0.018*	0.008	0.054***	0.014	-0.025**	0.008
HDI .50-.59 (=1)			-0.022**	0.008	0.050***	0.015	-0.026**	0.009
HDI .60-.69 (=1)			-0.031***	0.008	0.040**	0.015	-0.035***	0.009
HDI .70-.79 (=1)			-0.038***	0.008	0.034*	0.015	-0.044***	0.009
HDI .80-.89 (=1)			-0.072***	0.009	-0.003	0.015	-0.077***	0.009
HDI .90-1.00 (=1)			-0.083***	0.009	-0.012	0.016	-0.088***	0.010
1970-1979 (=1)					-0.001	0.005		
1980-1989 (=1)					0.001	0.004	0.001	0.005
1990-1999 (=1)					0.004	0.004	0.001	0.006
2000-2006 (=1)							0.002	0.006
% Mormon							0.001	0.080
% JW							-0.109	1.389
Autoregression coefficient	0.338***	0.013	0.372***	0.016	0.372***	0.016	0.354***	0.018
Constant	0.037***	0.002	0.094***	0.008	0.021	0.016	0.099***	0.010
Log-likelihood	7554.415		4619.478		4620.509		4102.062	

\*p< .05; \*\*p< .01; \*\*\*p< .001.

TABLE 5 Seventh-day Adventists Growth Rate Regressed on Independent Variables (Autoregression)

Tables 3, 4, and 5 report the results of autoregression analyses. Autoregression was employed as serial autocorrelation is a concern with repeated data points over time. In many cases, serial autocorrelation is a problem, but in this case, serial autocorrelation is actually indicative of growth momentum. If the autoregression coefficient is significant in these analyses, it indicates there is significant growth momentum for these religions from year to year, which is to say, once a religion begins to grow in an area, it tends to continue growing. The remaining coefficients in the analysis can basically be interpreted just as the coefficients of OLS multiple regression are.

Table 3 presents the results of a step-wise autoregression using the annual Mormon growth rates of each country as the dependent variable. Model 1 includes just the control variables. As expected, Mormons grow significantly slower in predominantly black countries. They also grow significantly slower in communist countries and Muslim countries. The other three variables are not significant.

Model 2 in Table 3 introduces the HDI measures. In order to capture curvi-linear effects, the HDI measure was broken up into (mostly) deciles. Because of multi-collinearity, one of the deciles has to be left out of the regression, though it is reflected in the constant and the coefficients of the other variables are relative to the omitted variable. In Model 2, the .30 to .39 HDI range is the reference group. As expected from Table 2, Mormons grow faster in developing countries, countries in the .50 to .79 range. They also grow significantly slower in the highest HDI range relative to the .30 to .39 range. With the HDI measures included, there is little change among the control variables: predominantly black is no longer significant but percentage of the total population is, and it is a negative predictor.

Model 3 introduces the period dummy codes. Like HDI, period variables are dummy codes and, due to multi-collinearity, one has to be omitted (it is reflected in the constant). In Model 3, the 2000 to 2006 period is omitted. Mormon growth is slowing down as the period dummy codes included in the equation are all positive and significant relative to the omitted group. Mormonism was growing faster in the 1970s and 1980s than it in the early 2000s. The slowdown started in the 1990s. Also of note in Model 3, with period controlled, the predominantly black variable reverses, indicating Mormon growth is picking up in predominantly black countries. Model 4 introduces two final variables – the percentage of the country's population made up of JWs and SDAs. It appears Mormons do not actually compete with JWs but benefit from the work of JWs as the presence of a large percentage of JWs in a population significantly and substantially increases the growth rate of Mormons. Finally, in all four models, the autoregression coefficient is significant and substantial, indicating growth momentum accounts for most of the variation in Mormon growth rates.

Table 4 replicates the autoregression analysis with JW's growth rates as the dependent variable. In Model 1, four of the control variables are significant. JWs grow significantly faster in predominantly black countries. However, they grow significantly slower in predominantly Muslim and currently communist countries. Additionally, as the percentage of JWs in a country increases, there is a significant and substantial decrease in growth.

Model 2 introduces the HDI measures; the .30 to .39 range is omitted. The expected pattern is observed with significantly slower growth in countries with HDIs above .80. Model 3 introduces the period measures and indicates there was a slowdown in JW growth in the 1970s, but it picked up in the 1980s and 1990s, only to slow again after the turn of the century. Model 4 introduces

the population percentages of Mormons and SDAs, but neither of these significantly influence JW growth. In all four models, the autoregression coefficients are significant, again indicating growth momentum is the single best predictor of JW growth.

Table 5 replicates the autoregression analysis with SDA growth rates as the dependent variable. In Model 1, four variables are significant. SDAs grow more rapidly in predominantly black countries and in countries with high population growth rates. However, they grow more slowly in former Soviet Bloc countries and predominantly Muslim countries.

Model 2 introduces the HDI measures; the .30 to .39 range is the reference range. Every single HDI measure is significant ( $p < .001$ ). This initially seems surprising, but referring back to Table 2 explains this: SDAs grow most rapidly in countries with a .30 to .39 HDI measure. Closer scrutiny of the slope coefficients does indicate that growth is slowest in countries below .29 and countries above .80. Thus, the curvi-linear relationship is observed. There is also some change in the control variables. Former Soviet Bloc and population growth rate are no longer significant. Some of the variation in growth rates explained by those variables is explained by the HDI measures (based on a separate OLS analysis with collinearity diagnostics). Predominantly Muslim is still a negative predictor of growth, and SDAs grow faster in black countries even with HDI controlled. Of note is the negative relationship with percentage of the population. Like JWs, the higher the percentage of the population made up of SDAs, the slower the growth rate.

Model 3 introduces the period variables. The omitted/reference year is post 1999. Unlike the other two religions, SDA growth has not seen a significant slowdown in growth.. Model 4 introduces the two population percentages for the other religions, Mormons and JWs. Neither is significant. Finally, the autoregression coefficient is significant in all models, indicating growth momentum is a substantial contributor to future growth.

## Discussion

What can be concluded from the above analyses? Generally speaking, the fact that country-level characteristics are significant predictors of growth for all three religions indicates demand-side factors are important in understanding growth. At the same time, demand-side factors do not have identical effects on the religions, indicating supply-side factors are also important. Is one set of factors more important than the other? Perhaps. But compelling arguments could be made for both sides. Only some religions are growing, supporting the supply-side argument. But most religions don't grow in some locations (e.g., predominantly Muslim countries and highly developed countries), supporting the demand-side argument. Rather than debate which is more important, understanding how each contributes to our understanding of religious growth will probably result in the best models of religious growth.

As far as the two hypotheses go, both were supported by this analysis. (1) Modernizing countries have the highest rates of religious growth for these religions. (2) Pre-modernizing and highly modernized countries have the lowest rates of religious growth for these religions. This finding supports secularization theory as outlined by Bruce (2002) and others.

This analysis also supports the idea outlined by Voas (2007) that there is a “secular transition” countries pass through. While Voas outlined what the secular transition entails from a theoretical

standpoint, this analysis provides evidence for an actual transitional range of modernization. As a country's HDI moves into the .80 range, the secular transition begins. Most countries around the world today with HDI's above .90 have large secular populations (Zuckerman 2006). While by no means a definitive study on secularization theory, this analysis does indicate that there is a clear transition that takes place for exclusive, strict, missionizing religions near the upper-end of the HDI range: there are substantial decreases in growth rates. If the root cause behind that decline in growth rates is not a secularization effect, it is unclear what it is. That said, fully two-thirds of countries around the world today have yet to pass through the secular transition, indicating these religions will likely continue to grow for the foreseeable future, though probably at reduced rates.

Some details related to the control variables warrant discussion. That Mormonism grew less slowly among predominantly black countries is no surprise: until 1978 Mormons did not actively proselytize among blacks and limited their participation in the religion (Mauss 2003). While it appears Mormon growth in predominantly black countries has picked up, Mormonism is not growing at the same rate in predominantly black countries as are the other religions. That is probably due to the legacy of discrimination. The finding that JWs and SDAs grow more rapidly in predominantly black countries may also be, at least in part, due to the continued limited appeal of Mormonism in these countries, reducing competition.

None of the religions are growing rapidly in currently communist or predominantly Muslim countries. This is not surprising considering the regulations placed on religions in these countries (Pink 2005). That said, there is some reason to believe that there is at least some growth of JWs and SDAs in some of these countries, even though it is not currently being reported. Both JWs and SDAs have historically continued to worship and even proselytize in communist countries (Lawson 1995a). This makes sense in light of the motivations and characteristics of the JWs in particular. JWs are tenacious in the face of persecution, "It is a sociological axiom that one of the optimal conditions under which world-renouncing movements thrive is persecution" (Holden, p. 88). They also have a tendency to ignore government restrictions. Thus, for JWs, restrictions on religions by governments are, in a sense, enticements to proselytize, not barriers. This is not the approach taken by Mormons or SDAs (Gooren 2006; Lawson 1995a; Gary Shepherd and Gordon Shepherd 1998). Mormons wait until they are officially recognized, generally, to enter a country and begin proselytizing. SDAs, on the other hand, use medical offerings and social services to gain entry into countries, often on the cusp of the removal of government restrictions.

Another finding of note is the substantial and significant negative relationship between percentage of the population that is JW and the growth rate of JWs in that country. This supports both Voas's (2002) and Holden's (2002) arguments there is a limited pool of people interested in the product of the JWs. This was also true for SDAs, though to a much lesser extent. However, it should be noted that just because there is limited appeal in these countries that does not mean growth of these religions is not through social networks, as previous research indicates it is (Leman 1998). Growth probably still takes place primarily through networks, but the appeal of the religion is limited to a specific group of individuals.

Perhaps the only unexpected finding was the lack of competition between these religions. When the percentages of a country's population made up of the other two religions is included in the regression equations, it generally does not make much of a difference. This may indicate that different people are attracted to the different religions. It may also overlook intra-country variation as there are regional variations in growth for those religions within countries: one

religion may monopolize one region while another will predominate in another region (Knowlton 2007). The only instance when the relationship was significant was when the percentage of the population that was Jews was used to predict Mormon growth. It was positive, indicating Mormons benefit from the growth of Jews. This may be a “pioneering” effect of Jews: they enter countries earlier than Mormons and fight many of the political and legal battles to allow proselytism, opening up the country for Mormons to follow (Pink 2005).

Finally, much has been said about the rapid expansion of religious groups into former Soviet Bloc countries (Greeley 2002; Pollack 2003). This analysis indicates these religions are doing fine in those countries, but not particularly stellar. Part of the explanation may actually be a “pent-up/missed opportunity” effect explained by the main finding of this paper. There may have, in fact, been a pent-up demand for these religions precisely during the stages of modernization when these religions are in highest demand. But due to government restrictions on these religions, the religions were not allowed to focus as much effort in these countries as they would have liked. By the time those restrictions fell, these countries were sufficiently modernized as to have begun to pass through the secular transition. As a result, these religions now have limited appeal. The pent-up demand was not met and the window of opportunity is now closed. If that interpretation is accurate, there will be no major religious revivals in the formerly communist countries, nor in any highly developed, predominantly Muslim countries if religious proselytizing restrictions are ever removed.

Additionally, the general finding concerning these countries and former communist countries overlooks nuanced growth in these religions. There have been spurts of growth of these religions, of SDAs in particular, following the collapse of communism. But those spurts of growth have been short-lived, and even the religions themselves attribute the rapid decline in growth after the spurt to economic development (Lawson 2008).

Two final points warrant discussion. First, two of the three religions are experiencing slowdowns in growth; the SDAs appear to be experiencing a slowdown, but it is not a significant reduction in growth over previous periods. The interpretation that makes the most sense for this slowdown is the increasing number of developed countries around the world. If secularization theory is correct, and this study lends supports for it, then the appeal of these religions around the world will continue to decline, slowing growth rates for these three religions even more in the future. Another factor that may be contributing to the slow down may not be the consumer appeal, but reductions in religious fervor among the members in developed countries (Alston and Aguirre 1979). As religions increase in size, the dedication and fervor of the members tends to decrease. It may be that there is less missionary zeal among the already converted, reducing interest in converting others.

The final point warranting discussion is the different patterns of growth of the three religions relative to the HDIs of countries. These differences also make sense in light of the differences in the religions. SDAs, for instance, are often the first to enter countries, along with Jews. But SDAs bring with them hospitals, schools, and other institutions that help spur development (Lawson 1995a, 1996, 1998). Thus, the high degree of success of SDAs in the lower HDI countries makes sense – they have a high appeal when the people in the country have very little. Jews, on the other hand, bring with them only their strict theology. Given the “carrying capacity” limitation of Jews due to their isolationism and strict theology (Holden 2002; Leman 1998), it makes sense that they will be appealing to a limited number of people in a given society. Thus, the relatively flat relationship of Jewish growth across the HDI ranges makes sense as continual efforts to attract

people to a moderately appealing religion. Finally, Mormons are generally late-comers to a country as they rarely enter countries where they are not welcome (Bennion and Young 1996; Gary Shepherd and Gordon Shepherd 1998) and they do not generally fund schools, hospitals, or other institutions that contribute to societal development. Additionally, while the theology is exclusive, it is less strict and isolationist than is the theology of JWs. Also, educational and financial success are encouraged among Mormons (Heaton, Bahr, and Jacobson 2005), unlike JWs (Holden 2002; Stark and Iannaccone 1997b), which might explain why growth rates peak a bit later for them.

## Limitations

One limitation of this study is the failure to control for government and social regulation (Grim and Finke 2006). Part of that regulation is the culture of these countries: these religions are not “legitimate” religious options. While controlling for whether a country is currently communist or not and whether or not a country is predominantly Muslim or not accomplish something similar to controlling for government regulation, it may be the case that this analysis overlooks additional government restriction that is limiting growth potential of these religions. It should also be noted that these religions are trying to find ways to gain entrée into predominantly Muslim countries, in some cases using modified proselytism techniques that build on shared beliefs found in the Quran (Lawson 2008).

Another limitation of this study is that it takes as valid the official reported membership of these religions. This is probably a safe assumption for JWs (Stark and Iannaccone 1997b; Wah 2001) and SDAs (Lawson 1995a), but has been shown to be problematic for the Mormon religion. Two recent studies (Knowlton 2005; Phillips 2006) show that such an assumption is inaccurate. Mormon population numbers are inflated by as much as 70% in some countries. Only 30% to 70% of the Mormon populations claimed by LDS Church headquarters self-identify as Mormon in recent censuses. This inaccuracy stems from the fact that the Mormon religion keeps converts on their membership roster unless the convert formally requests that their name be removed or until they reach the age of 110 and are not known to be active. As a result, literally millions of people who are claimed to be Mormon by the religion do not self-identify as such. As the growth rates used in this analysis are based on reported Mormon populations, this means that the growth rates calculated are probably somewhat off the mark. If so, they actually underestimate growth as the number of people added is probably accurate (in terms of sheer baptisms) but they are being added to a base that is smaller than that reported by LDS Church headquarters. One potentially serious concern with this problem, however, might be a correlation between inflated membership numbers and modernization – perhaps retention is lower in less developed countries. If that is the case, the inflation may not be uniform and/or random, which may affect the calculations. Unfortunately, a way to test for and then compensate for such a problem is not readily available.

## References

- Alston, Jon P., and B. E. Aguirre. 1979. "Congregational Size and The Decline of Sectarian Commitment: The Case of The Jehovah's Witnesses in South and North America.." *SA: Sociological Analysis* 40:63-70.
- Anderson, Duwayne R. 2006. "Estimates for the Future Membership of the Church of Jesus Christ of Latter-day Saints." <http://www.lds-mormon.com/churchgrowthrates.shtml>.
- Bendix, Reinhard. 1978. *Max Weber: An Intellectual Portrait*. University of California Press.
- Bennion, Lowell C., and Lawrence A. Young. 1996. "The Uncertain Dynamics of LDS Expansion, 1950-2020.." *Dialogue: A Journal of Mormon Thought* 29:8-32.
- Berger, Peter L. 1967. *The Social Reality of Religion*. New York: Faber and Faber.
- Bibby, Reginald, and Merlin B. Brinkerhoff. 1973. "The circulation of the saints: A study of people who join conservative churches." *Journal for the Scientific Study of Religion* 12:273-84.
- Bibby, Reginald W., and Merlin Brinkerhoff. 1983. "Circulation of the Saints Revised: A Longitudinal Look at Conservative Church Growth." *Journal for the Scientific Study of Religion* 22:253-262.
- Borowik, Irena. 2002. "Between Orthodoxy and Eclecticism: On the Religious Transformations of Russia, Belarus and Ukraine.." *Social Compass* 49:497-508.
- Bruce, Steve. 2002. *God Is Dead: Secularization in the West*. London: Blackwell Publishers.
- Casanova, Jose. 1994. *Public Religion in the Modern World*. Chicago: University of Chicago Press.
- Crockett, Alasdair, and David Voas. 2006. "Generations of Decline: Religious Change In Twentieth-Century Britain." *Journal for the Scientific Study of Religion*.
- Demmitt, Kevin P. 1992. "Loosening the Ties That Bind: The Accomodation of Dual-Earner Families in a Conservative Protestant Church." *Review of Religious Research* 34:3.
- Deseret Morning News. 2007. *2007 Church Almanac*. Salt Lake City, UT: Deseret News.
- Dobbelaere, Karel. 2002. *Secularization: An Analysis at Three Levels (Gods, Humans, and Religions)*. New York: Peter Lang Publishing.
- Dudley, Roger L. 1978. "Alienation from Religion in Adolescents from Fundamentalist Religious Homes." *Journal for the Scientific Study of Religion* 17:389-398.
- Dudley, Roger L. 1996. "How Seventh-Day Adventist Lay Members View Women Pastors." *Review of Religious Research* 38:133.

- Dudley, Roger L. 1999. "Youth Religious Commitment Over Time: a Longitudinal Study of Retention." *Review of Religious Research* 41:110-121.
- Dudley, Roger L., and Des Cummings. 1982. "Factors Related to Pastoral Morale in the Seventh-Day Adventist Church." *Review of Religious Research* 24:127.
- Dudley, Roger L., and Margaret G. Dudley. 1986. "Transmission of Religious Values from Parents to Adolescents." *Review of Religious Research* 28:3-15.
- Dudley, Roger L., Edwin I. Hernandez, and Sara M. K. Terian. 1992. "Religiosity and Public Issues Among Seventh-Day Adventists." *Review of Religious Research* 33:330.
- Dudley, Roger L., Patricia B. Mutch, and Robert J. Cruise. 1987. "Religious Factors and Drug Usage Among Seventh-Day Adventist Youth in North America.." *Journal for the Scientific Study of Religion* 26:218-233.
- Dudley, Roger L., and H. Phillip Muthersbaugh. 1996. "Social Attachment to the Seventh-Day Adventist Church Among Young Adults." *Review of Religious Research* 38:38.
- Duke, James T., and Barry L. Johnson. 1989. "The Stages of Religious Transformation: A Study of 200 Nations." *Review of Religious Research* 30.
- Ehrlich, Paul R., Anne H. Ehrlich, and Gretchen C. Daily. 1995. *The Stork and the Plow: The Equity Answer to the Human Dilemma*. New York: Putnam Book.
- Gabel, Paul. 2007. "An Elemental Impulse: Religion is so Powerful that Even Soviet Antireligious Policy Failed." *skeptic.com*. <http://www.skeptic.com/eskeptic/07-05-30.html> (Accessed June 1, 2007).
- Gaede, Stanley. 1977. "Religious Participation, Socioeconomic Status, and Belief Orthodoxy." *Journal for the Scientific Study of Religion* 16:245-253.
- Gooren, Henri. 2006. "Latter-day Saints Under Siege: The Unique Story of Mormon Growth in Nicaragua." in *Annual Meeting of the Society for the Scientific Study of Religion*. Portland, OR.
- Gooren, Henri. 2005. "The Pentecostalization of Religion and Society in Latin America." in *Annual Meeting of the Society for the Scientific Study of Religion*. Rochester, New York (Accessed November 1, 2005).
- Gorski, Philip S. 2000. "Historicizing the Secularization Debate: Church, State, and Society in Late Medieval and Early Modern Europe, ca. 1300 to 1700." *American Sociological Review* 65:138-167.
- Greeley, Andrew M. 2002. "Religious Revivals in Eastern Europe." *Society* 39:76-77.

- Grim, Brian J., and Roger Finke. 2006. "International Religion Indexes: Government Regulation, Government Favoritism, and Social Regulation of Religion." *Interdisciplinary Journal of Research on Religion* 2.
- Hadaway, C. Kirk. 2006. "LDS Membership in the U.S.," in *Annual Meeting for the Society for the Scientific Study of Religion*. Portland, OR.
- Heaton, Tim B., Stephen J. Bahr, and Cardell K. Jacobson. 2005. *A Statistical Profile of Mormons: Health, Wealth, and Social Life*. New York: Edwin Mellen Press.
- Hepworth, Joseph T. 1999. "A Causal Analysis of Missionary and Membership Growth in the Church of Jesus Christ of Latter-Day Saints (1830-1995)." *Journal for the Scientific Study of Religion* 38:59-71.
- Hoffmann, J. P. 1998. "Confidence in Religious Institutions and Secularization: Trends and Implications." *Review of Religious Research* 39:321-343.
- Hoge, Dean R., and David A. Roozen, eds. 1979. *Understanding Church Growth and Decline, 1950-1978*. New York: The Pilgrim Press.
- Holden, Andrew. 2002. *Jehovah's Witnesses: Portrait of a Contemporary Religious Movement*. 1st ed. Routledge.
- Iannaccone, Laurence R. 1996. "Reassessing Church Growth: Statistical Pitfalls and Their Consequences." *Journal for the Scientific Study of Religion* 35:197-216.
- Iannaccone, Laurence R. 1994. "Why Strict Churches Are Strong." *American Journal of Sociology* 99:1180-1211.
- Iannaccone, Laurence R., Daniel V. A. Olson, and Rodney Stark. 1995. "Religious Resources and Church Growth." *Social Forces* 74:705-731.
- Kelley, Dean M. 1972. *Why Conservative Churches Are Growing: A Study in Sociology of Religion*. HarperCollins.
- Knowlton, David C. 2007. "On the Political Economy of Mormon Growth." in *Annual Meeting for the Society for the Scientific Study of Religion*. Tampa, FL.
- Knowlton, David Clark. 2005. "How Many Members Are There Really? Two Censuses and the Meaning of LDS Membership in Chile and Mexico." *Dialogue* 38:53-78.
- Lawson, Ronald. 1998. "Broadening the Boundaries of Church-Sect Theory: Insights from the Evolution of the Nonschismatic Mission Churches of Seventh-day Adventism." *Journal for the Scientific Study of Religion* 37.
- Lawson, Ronald. 1996. "Church and state at home and abroad: The evolution of Seventh-Day Adventist relations with Governments." *Journal of the American Academy of Religion* 64:279.

- Lawson, Ronald. 2008. "Comparing the Global Growth and Distributions of Mormons, Adventists, and Witnesses."
- Lawson, Ronald. 1998. "From American Church to Immigrant Church: The Changing Face of Seventh-Day Adventism in Metropolitan New York." *Sociology of Religion* 59:329.
- Lawson, Ronald. 1996. "Onward Christian Soldiers: Seventh-Day Adventists and the Issue of Military Service." *Review of Religious Research* 37:193.
- Lawson, Ronald. 1995a. "Sect-State Relations: Accounting for the Differing Trajectories of Seventh-day Adventists and Jehovah's Witnesses.." *Sociology of Religion* 56:351.
- Lawson, Ronald. 1995b. "Seventh-day Adventist Responses to Branch Davidian Notoriety: Patterns of Diversity within a Sect Reducing Tension with Society.." *Journal for the Scientific Study of Religion* 34:323.
- Leman, Johan. 1998. "The Italo-Brussels Jehovah's Witnesses Revisited: From First-generation Religious Fundamentalism to Ethno-religious Community Formation.." *Social Compass* 45:219-226.
- Lobb, C. Gary. 2000. "Mormon Membership Trends in Europe Among People of Color: Present and Future Assessment." *Dialogue: A Journal of Mormon Thought* 33:55-68.
- Loomis, Roger. 2002. "Church Growth." in *The Association for the Sociology of Religion*. Chicago, IL <http://www.lds4u.com/growth2/Index.htm>.
- Mauss, Armand. 2003. *All Abraham's Children: Changing Mormon Conceptions of Race and Lineage*. Illinois: University of Illinois Press.
- Moore, R. Laurence. 1995. *Selling God: American Religion in the Marketplace of Culture*. New York: Oxford University Press.
- Perl, P., and D. V. A. Olson. 2000. "Religious Market Share and Intensity of Church Involvement in Five Denominations." *Journal for the Scientific Study of Religion* 39:12-31.
- Phillips, Rick. 2006. "Rethinking the International Expansion of Mormonism." *Nova Religio* 10:52-68.
- Pink, Johanna. 2005. "The Concept of Freedom of Belief and Its Boundaries in Egypt: The Jehovah's Witnesses and the Baha'i Faith Between Established Religions and An Authoritarian State." *Culture & Religion* 6:135-160.
- Pollack, Detlef. 2003. "Religiousness Inside and Outside the Church in Selected Post-Communist Countries of Central and Eastern Europe." *Social Compass* 50:321-334.
- Roof, Wade Clark. 1976. "Traditional Religion in Contemporary Society: A Theory of Local-Cosmopolitan Plausibility." *American Sociological Review* 41:195-208.

- Roof, Wade Clark, and William McKinney. 1987. *American Mainline Religion: Its Changing Shape and Future*. New Brunswick, NJ: Rutgers University Press.
- Sanders, Raymond L. 2002. "Culture Regions." *University of Texas*.  
[http://www.utexas.edu/depts/grg/sanders/GRG305/culture\\_regions.htm](http://www.utexas.edu/depts/grg/sanders/GRG305/culture_regions.htm) (Accessed July 10, 2008).
- Shepherd, Gary, and Gordon Shepherd. 1996. "Membership Growth, Church Activity, and Missionary Recruitment.." *Dialogue: A Journal of Mormon Thought* 29:33-57.
- Shepherd, Gary, and Gordon Shepherd. 1998. *Mormon Passage*. Illinois: University of Illinois Press.
- Stark, Rodney. 2001. "Modernization and Mormon Growth: The Secularization Thesis Revisited." Pp. 13-23 in *Contemporary Mormonism: Social Science Perspectives*, vol. 2nd, edited by Marie Cornwall, Tim B. Heaton, and Lawrence A. Young. Illinois : University of Illinois Press.
- Stark, Rodney. 1996. "So Far, So Good: A Brief Assessment of Mormon Membership Projections." *Review of Religious Research* 38:175-179.
- Stark, Rodney. 1984. "The Rise of a New World Faith." *Review of Religious Research* 26:18-27.
- Stark, Rodney, and Roger Finke. 2000. *Acts of Faith: Explaining the Human Side of Religion*. California: University of California Press.
- Stark, Rodney, and Laurence R. Iannaccone. 1997a. "Why the Jehovah's Witnesses Grow So Rapidly: A Theoretical Application." *Journal of Contemporary Religion* 12:133-157.
- Stark, Rodney, and Laurence R. Iannaccone. 1997b. "Why the Jehovah's witnesses grow so rapidly: A theoretical application." *Journal of Contemporary Religion* 12:133-157.
- The World Bank Group. 2006. "World Development Indicators 2004."  
<http://web.worldbank.org>.
- Tschannen, Olivier. 1991. "The Secularization Paradigm: A Systematization." *Journal for the Scientific Study of Religion* 30:395-415.
- United Nations. 2007. "Human Development Reports." <http://hdr.undp.org/reports/global/2003/> (Accessed February 13, 2007).
- Voas, David. 2007. "The Continuing Secular Transition." Pp. 25-48 in *The Role of Religion in Modern Societies*, edited by Detlef Pollack and Daniel V. A. Olson. Routledge.
- Voas, David. 2008. "The Trumpet Sounds Retreat: Learning from the Jehovah's Witnesses." P. 256 in *The Centrality of Religion in Social Life: Essays in Honour of James A. Beckford*, edited by Eileen Barker. Ashgate Publishing.

Wah, Carolyn R. 2001. "An Introduction to Research and Analysis of Jehovah's Witnesses: A View from the Watchtower." *Review of Religious Research* 43:161-174.

Warner, R. Stephen. 1993. "Work in Progress toward a New Paradigm for the Sociological Study of Religion in the United States." *American Journal of Sociology* 98:1044-1093.

Zuckerman, Phil. 2006. "Atheism: Contemporary Numbers and Patterns." Pp. 47-68 in *The Cambridge Companion to Atheism*, edited by Michael Martin. Cambridge University Press.