Cohort Succession, Intergenerational Transmission, and the Decline of Religion in the United States

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Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Sociology in the Graduate School of Duke University

2019
ABSTRACT

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Abstract

Scholars over the past several decades have noted the resilience of religion in the United States (Chaves 2011; Gorski and Altinordu 2008; Hadden 1987:601–2; Presser and Chaves 2007), but many recognize that the youngest US cohorts are significantly lower on several religious characteristics than older cohorts (Hout and Fischer 2014; Putnam and Campbell 2012; Voas and Chaves 2016). Scholars have proposed several explanations for this trend, disagreeing about whether it is the result of a particular cultural moment or an ongoing process leading to even greater religious decline. Replicating Voas’ (2009) model of slow, predictable decline across cohorts, I find that, surprisingly, the US closely fits the same trajectory of religious decline as European countries, suggesting a shared demographic process as opposed to idiosyncratic change. Family dynamics are an important part of this story. Family characteristics are some of the most significant predictors of religious outcomes (Hoge, Petrillo, and Smith 1982; Smith and Denton 2005; Uecker and Ellison 2012), but only a few studies have examined how aggregate religious decline is shaped by family processes (Chaves 1991; Crockett and Voas 2006; Kelley and De Graaf 1997). Even fewer have done so using self-reported data from members of several generations of the same families (Bengtson et al. 2018; Bengtson, Putney, and Harris 2013; Smith and Denton 2005). I advance this line of research by decomposing within-family, inter-generational religious decline into components that can be attributed to factors within the family and those that cannot. Whereas the combination of individual and family characteristics explains the decline in religious service attendance within families, it does not explain much of the decline in self-rated religiosity, suggesting that the intergenerational
transmission of religious behavior operates differently than the intergenerational transmission of internal sense of religiosity. I consider these findings in light of theory and research by developmental psychologists and sociologists of the family on what leads children to adopt (or not) their parents’ values, attitudes, and practices.
Dedication

To the memory of George Brauer, who I still aspire to be like.
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1. Introduction

This dissertation examines religious decline in the United States during the 20th century. Specifically, it considers how predictable it was and what role family dynamics played in producing it. At first glance, readers—lay and scholarly alike—may wonder what more there is to know about these topics. According to public opinion, the US population is clearly becoming less religious, and parents have very little influence over how religious their children end up. There also is a fair degree of consensus among social sociologists, but in the opposite direction. Parents clearly play a central role in religious formation, contrary to public opinion (Bengtson et al. 2013; Smith and Denton 2005; Smith, Ritz, and Rotolo 2018), and the displacement of secularization theory in the discipline (Casanova 1994; Edgell 2012; Smith 2008) has led scholars to consider moments of religious decline as exceptions to the relative stability of American religion (Hout and Fischer 2014; Putnam and Campbell 2012). In other words, many lay readers and academics would agree that these debates are settled even though they disagree about which conclusion is correct.

A lag between academic consensus and conventional wisdom is unremarkable. In this case, though, it demonstrates the importance of additional research about religion in the family. A central argument of this dissertation is that both the academic consensus and conventional wisdom overlook the possibility of slow, steady religious decline within families. Children adopt similar religious characteristics as their parents, leading scholars to emphasize stability over change. But the average child deviates from their parents’ examples by becoming slightly less religious in adulthood, which may be more obvious
(and exaggerated) in the anecdotes of parents’ own experiences. These small changes accumulate across time to produce perceptible and predictable national decline. By assuming that children are overwhelmingly shaped by the broader culture, parents ignore the many ways they shape their children’s religious lives. Scholars, by contrast, emphasize the norm of parent-child similarity but largely ignore whether or not long-term, if slow, decline is occurring.

This situation (and the importance of this research) can be understood by examining how sociologists of religion have grappled with the “secularization debate” over the past century, and how the debate has interacted with theoretical and empirical developments. The secularization paradigm—to use Bruce’s nomenclature (2013)—is a rich body of sociological thought that flourished in the mid-20th century. Scholars such as Talcott Parsons, Peter Berger, Thomas Luckmann, and David Martin produced theories that linked modern conditions with religious decline, privatization, and the generalization of religious beliefs (Tschannen 1991). But despite the richness of sociological theory, empirical support for secularization theories was severely limited (Berger 2014; Hadden 1987). The limited availability of nationally representative, historical survey data was certainly one factor. It might also be said that many of the mechanisms that these scholars described were difficult to measure across time; concepts such as social differentiation, the application of scientific logic to everyday life, and “plausibility structures” present challenges to both measurement and causal analysis. A notable exception is that a significant body of empirical scholarship developed around the study of higher
education’s role in religious decline (Wuthnow and Glock 1973; Hoge et al. 1982; Hammond and Hunter 1984).

These limitations came to the forefront in the 1980s and 1990s, when scholars reconsidered the entire paradigm in light of the growth of the Religious Right in public consciousness. Not only did scholars argue that there was limited evidence of decline in the 20th century (Hadden 1987), but they also questioned whether early Americans were as religious as many assumed (Finke and Stark 2005). The result was a new, influential “religious economies” paradigm and a new consensus contrary to the secularization paradigm (Casanova 1994). Advances in the study of secularization did not stop outright (Chaves 1994; Kelley and De Graaf 1997), and the religious economies paradigm faced its own challenges (Chaves and Gorski 2001; Marwell 1996; Voas, Crockett, and Olson 2002). But scholars generally encouraged the discipline to move away from continuing the secularization debate (Edgell 2012; Smith 2008) and instead focus on the diversity and vitality of religious expression (Ammerman 2007; Sullivan 2011).

Even so, a subset of scholars continued to study religious decline, though not exclusively in terms of the secularization paradigm. The growth of the religiously unaffiliated (Kosmin and Keysar 2006; Pew Research Center 2012) motivated a new wave of scholarship, as did the accumulation of over forty years of nationally representative survey data (Hout and Fischer 2014; Voas and Chaves 2016). There is now sufficient evidence to show that, at the very least, the youngest Americans are significantly less religious than older Americans on a number of measures. There is more disagreement about the implications of this change for theories of religious decline. Some argued for the
study of historically and contextually specific instances of religious decline rather than
universal processes (Joas 2014; Taylor 2007; Wohlrab-Sahr and Burchardt 2012). Others
produced more general theories whereby decline occurs within an ongoing cycle (Smith
2017), implying that recent declines have much in common with those occurring in other
historical times. Still others interpreted contemporary religious decline as evidence of the
premature abandonment of the secularization paradigm (Bruce 2013; Voas and Chaves
2016). While the study of religious decline may not be as central to the discipline as it once
was, the debate continues to generate meaningful theoretical advances about the nature of
religion in contemporary societies, which have significance for other studies of religion.

This renewed debate motivates the reexamination of the core mechanisms which
could plausibly cause religious decline. The family represents one important site of
processes, broadly understood as socialization, that seem likely to be implicated in
religious decline. The research on parents’ influence on the religious outcomes of their
children is extensive. But, with few exceptions (Bengtson et al. 2018; Chaves 1991;
Crockett and Voas 2006; Kelley and De Graaf 1997), this scholarship emphasizes the extent
of parent-child religious congruence rather than the average direction of change, however
small. Given the public misconception about the weakness of parents’ influence (Bengtson
et al. 2013; Smith and Denton 2005), this focus is understandable. But we still do not know
how much of national decline in religiosity has occurred because of changes within the
family. This dissertation investigates that question.

Chapters 2 and 3 make up the empirical heart of the dissertation. In Chapter 2—
which has been published in the *Journal for the Scientific Study of Religion* (Brauer
— I assess whether the youngest Americans make up an exceptionally non-religious outlier or the continuation of an observable trend. In terms of theory, this chapter asks, “Is recent religious decline in the United States best understood as a one-time response to particular historical events or as a slowly building wave that grew under stable conditions?” Not only do I find evidence for the latter, but I find that the US trajectory is very similar to that of European countries, making it even less of an exception to religious decline than once thought.

But what sorts of conditions might produce such predictable change? Classical secularization theorists posited that science, education, pluralism, and the separation of church and state might produce decline. Scholars have taken advantage of the extensive body of cross-sectional data—both national and international—to examine such claims (Norris and Inglehart 2011; Hirschle 2013; Schwadel 2014). Fewer scholars, though, have leveraged the more limited sources of data on religion among members of the same family (Bengtson et al. 2013; Smith and Denton 2005) despite the recognized importance of the family in shaping religious outcomes. In Chapter 3, I address a significant limitation of previous research on religion and family by examining the long-term direction of religious change within families, not just the extent of religious congruence within families. I find that social, political, and relational changes in the family across generations explain a substantial amount of the decline in religious service attendance but very little of the decline in self-rated religiosity. This suggests that trends in religious behavior can be explained by changes in the home while trends in internal sense of religiosity are driven more by the broader social conditions in which people grow up.
I contribute to the historical understanding of religious decline and how that decline fits with contemporary theories of secularization, and I identify promising avenues for future research. I do this by clearly distinguishing between two types of processes by which slow, predictable decline could most plausibly occur, namely, cohort and generational processes. Cohort and generational differences often are treated as synonymous, but my results show that it is productive to distinguish between them to show how cohort differences are produced in part by weakening intergenerational religious transmission. This dissertation makes a considerable step forward in demonstrating that a) religious decline in the United States is best understood as slow, consistent, and predictable and b) changes in family structure, parents’ attitudes, and parents’ identities explain a significant portion of that decline. My findings have implications for theories of religious change, within the secularization paradigm and beyond, and they highlight the substantial added value of focusing on individuals’ families of origin. While it is not controversial to conclude that the family is important to understanding the religious lives of the next generation, I show that the family plays a more central role shaping broader religious trends than is generally appreciated.
2. The Surprisingly Predictable Decline of Religion in the United States

2.1. Introduction

Scholars at least as far back as the 1980s have recognized that individual-level religiosity in the United States has been resilient to decline despite, as Hadden (1987:601–2) noted, public perception to the contrary. An additional three decades of data supported this conclusion (Chaves 2011; Presser and Chaves 2007; Putnam and Campbell 2012) but revealed a significant contradiction to the norm of stability: today, younger US cohorts are less religious than older cohorts (Hout and Fischer 2014; Pew Research Center 2012; Schwadel 2010; Voas and Chaves 2016), which I refer to as “across-cohort decline.” While the consensus is growing regarding the empirical data, the interpretation of these data is still debated.

Some scholars argued that younger Americans avoided religion altogether in response to the political activities of the Religious Right (Hout and Fischer 2014; Putnam and Campbell 2012) or, for Catholics, rulings against contraception and abortion by the Catholic Church (Butler, Wacker, and Balmer 2008:366–67; Greeley 1977; Hout 2016). These explanations suggest that recent religious decline resulted from particular historical events which produced idiosyncratic change. By contrast, others argued that religious decline in one cohort produces a less religious society overall, which makes it less likely that future cohorts will become religious (Kelley and De Graaf 1997; Voas and Chaves 2016). Using European data, Voas (2009) made an even stronger argument: despite cultural and historical differences, European countries experienced the same trajectory of
decline across cohorts born in the 20th century. This suggests a demographic process that operates the same way across multiple contexts and continues despite fluctuations caused by historical events.

Is there any evidence that religious change in the United States aligns with the European pattern? I use US and European data to estimate a single trajectory for the religious makeup of cohorts. I then test how well US cohorts fit the function and assess where the United States lies on the trajectory relative to European countries. I find that Voas’ model fits the US data surprisingly well, suggesting a similar process in the United States as in Europe. Further, I find that a larger proportion of the youngest US cohorts are moderately religious than highly religious. I conclude by suggesting that conditions experienced by the United States and European countries might instigate a process of religious decline through less effective religious socialization.

2.2. **Background**

Recent evidence of religious decline across US cohorts comes after three decades of significant challenges to the idea that religion is declining at all. Research on religious decline has long been discussed under the banner of secularization theory. In its strongest form, secularization theory stated that religion would inevitably become less important to institutions and individuals as societies modernized.\(^1\) The debate has shifted dramatically

\(^1\) Tschannen (1991) and Goldstein (2009), among others, have thoroughly summarized the diversity and complexity of various formulations of secularization theory. Regardless, it has been common to refer to the entire body of secularization theories using an exceptionally strong, idealized form which is broad (both institutional and individual) and inevitable (see Warner (1993) and Hout and Fischer (2014:428) for examples). My purpose here is to summarize the secularization debate rather than the specific details or breadth of secularization theory.
over the past half-century; sociologists overwhelmingly accepted secularization theory in the 1960s but overwhelmingly rejected it by the late 1980s (Casanova 1994:11; Joas 2014:10). Since then, scholars have argued that it was an unsupported assumption of the Enlightenment (Hadden 1987) and exaggerated the religiosity of pre-modern peoples (Finke and Stark 2005; Gorski and Altınordu 2008). Others described the many sub-theories (Goldstein 2009; Gorski 2000:140–41; Tschannen 1991) which were inconsistently included and varied by empirical support. And subsequent research found disconfirming evidence for many of the theorized mechanisms, including higher education (Hill 2009; Mayrl and Uecker 2011; Schwadel 2014), exposure to science (Ecklund and Scheitle 2007; Evans and Evans 2008), and religious and cultural pluralism (Chaves and Gorski 2001; Finke and Stark 2005; Hammond and Hunter 1984; Wuthnow 2007), leading some to suggest that sociologists avoid the secularization debate altogether (Edgell 2012; Smith 2008).

Despite this, scholars with quite different opinions on secularization theory have argued for the continued study of historical cases of religious decline (Berger 2014; Casanova 1994; Chaves 1994; Joas 2014; Smith 2017; Taylor 2007; Voas 2009) and recent findings of across-cohort decline have only enlivened this. There is little disagreement about the empirical trends: the youngest US cohorts are less religious than older cohorts (Hout and Fischer 2014; Pew Research Center 2012; Putnam and Campbell 2012; Schwadel 2010; Voas and Chaves 2016), even in the presence of age effects which might appear to be cohort effects when using cross-sectional data (Firebaugh and Harley 1991; Hout and Greeley 1990). But explanations for this trend diverge, generally falling into one of two
types. The first characterizes change as unique to each cohort because of the particular social context in which they grow up. The social context one cohort experiences may well be largely independent of the context that other cohorts experience. I refer to these as theories of “non-directional” religious change. By contrast, the second type argues that a particularly non-religious cohort becomes part of the social context in which subsequent cohorts grow up and raise less-religious children, which produce less-religious cohorts. I refer to these as theories of “self-reinforcing” religious change.

2.2.1. Religious change as a non-directional process

Scholars who argue for non-directional religious change note that religious decline is inconsistent across time and is sometimes followed by an increase in religiosity. For example, some argued that recent religious disaffiliation—the rise of the “Nones”—was too rapid to be explained by a general secularization process (Hout and Fischer 2014:429; Putnam and Campbell 2012:127) and is primarily produced by declining numbers of religious moderates (Schnabel and Bock 2017). They theorized that larger proportions of the most recent US cohorts, particularly among the less-religious, abandoned religious institutions altogether because they perceived the political involvement of the religious right negatively. They noted a similar process that occurred in the 1960s, when the liberalization of sexual morals prompted a resurgence among evangelical Christians in the 1980s, and others have argued that recent Roman Catholic disaffiliation resulted from the Catholic Church’s rulings against contraception and abortion (Butler et al. 2008:366–67; Greeley 1977; Hout 2016). Going further back, the spiritual seeker movement was enabled
by the opening of US minds (and borders) to Eastern philosophies (Dillon and Wink 2007:11).

Others highlighted the qualitative differences in the religious beliefs and identities of each cohort instead of the quantitative differences that surveys have identified. For example, the oldest cohort in Bengtson, Putney, and Harris’ (2013) sample, those who grew up during World War I, identified strongly as religious but had difficulty elaborating their religious beliefs. By contrast, cohorts born in the middle of the 20th century clearly described what they believed but identified as less religious. But, like the cohort born 80 years before them, many Millennials identify as religious but have difficulty describing their beliefs (Smith and Denton 2005). A broader critique of secularization theory has taken shape in the increased emphasis on “everyday religion” which emphasizes the personal, prevalent experiences of religion that are not captured by surveys (Ammerman 2007). Overall, non-directional theories of religious change see religion as dynamic and responsive to its contemporary cultural context.

2.2.2. Religious change as a self-reinforcing process

By contrast, self-reinforcing theories of religious change posit that religious decline leads to future decline because future cohorts grow up in less religious societies (Kelley and De Graaf 1997; Voas and Chaves 2016) and future generations\(^2\) are raised by

\(^2\) Life course scholars distinguish between generations (familial lines, such that children are one generation after their parents) and cohorts (groups which shared some experience at the same historical time, such as having grown up during the Great Depression) (Alwin and McCammon 2003:25–26). Sociologists of religion often use generation and cohort interchangeably (for example, see Crockett and Voas (2006), Bengtson et al. (2013), and Voas and Chaves (2016)). It is worth distinguishing between the two in this case because they
less religious parents (Crockett and Voas 2006:581–82). Self-reinforcing theories fit within the study of secularization but do not require the secularization paradigm’s strongest assumptions. National religiosity may bottom out at a modest level rather than completely disappear (Smith 2017:198; Voas 2009:159–60), and the existence of a general process of decline does not preclude the possibility of other forces which might support or renew it. And while religious growth may also be self-reinforcing in particular contexts, most scholars have focused on decline because of the contemporary conditions which they argue enable it.

Contemporary society is thought to expose individuals to unique economic, social, and cognitive conditions. National economic development and security decreased the emotional need for religion (Norris and Inglehart 2011; Smith 2017) and offered people non-religious options for community and consumption (Hirschle 2013). Weakening social barriers between religious groups led to more religiously-mixed marriages; more people married someone of a different religion (including Protestant-Catholic marriages) (Chaves 2011:25) and fewer people switched religions to conform to a spouse’s religion (Putnam and Campbell 2012:144–45). Scientific explanations of the natural world and social spheres provided an alternative paradigm through which to live everyday life, making religion one option among many (Joas 2014; Taylor 2007). Rationalism and pluralism, meanwhile, removed the taken-for-granted nature of religion (Berger 2014) and made belief in God represent distinct mechanisms of relevance. Therefore, I use generation and cohort to mean these distinct concepts.
problematic (Taylor 2007), requiring justification and hedging to appear reasonable (Wuthnow 2012).

Religious adults may still identify as religious even if they have other social options, less emotional need for religion, and close relationships with people of different religions. That is, these conditions do not directly produce religious decline. Instead, religious adults develop cognitive skills to maintain belief in an age of uncertainty (Berger 2014:20) and use verbal and cultural skills to negotiate faith and reason (Wuthnow 2012). They negotiate the competing religious and secular pulls through natural and supernatural frames to understand the world (Taylor 2007). And while they are aware of their religion’s unstable status, they retain their personal motivation or quest (Joas 2014:76; Taylor 2007:532).

However, these do shape the contexts in which youth mature. Successful transmission of religion from parents to children is most likely when parents hold the same beliefs (Bengtson et al. 2013:115) and their beliefs and behaviors are consistent (Bader and Desmond 2006), meaning contemporary economic, social, and cognitive conditions make transmission less likely than before. Further, very religious parents are the most successful at transmitting their religion to their children (Cheadle and Schwadel 2012; Kelley and De Graaf 1997; Smith and Denton 2005), while friends’ religiosity may play an even greater role in predicting how religious children eventually become (Cheadle and Schwadel 2012). If the pools of parents and peers become less religious, they might instigate further decline in the following cohorts and generations. Finally, national religiosity moderates the effectiveness of parental religiosity, such that initial declines
within a religious country might instigate further declines across cohorts (Kelley and De Graaf 1997).

2.2.3. Voas’ model of religious decline

It is certainly plausible that the pattern of decline in the United States is unique to it, but it may also share features with decline in other countries. Voas (2009) suggested that the self-reinforcing process of decline was common across European countries. He divided the population into highly, moderately, and weakly religious categories. The moderately religious group, which Voas called “fuzzy fidelity,” identified with a religious tradition, but were only moderately committed, whether through institutional participation, personal behaviors, or consistency of belief (Voas 2009:161). By comparison, the weakly religious, which Voas called “secular,” had little to no commitment to a religious tradition, neither regularly engaging in religious behaviors nor having a strong sense of religious identity.

Voas’ novel theoretical idea was his emphasis on the role of the fuzzy middle. He argued that religious decline does not occur as highly religious countries transition directly to highly secular countries. Instead, highly religious countries become fuzzy before transitioning to weakly religious countries, which he calls “secular.” The secular population grows slowly early in the process because the size of the fuzzy population is a limiting factor in the number of secular individuals in the next cohort or generation. However, as the fuzzy population grows, the rate at which the next cohort or generation becomes secular grows with it. Religious decline is slight at first and is deceptively small even when most of the population is fuzzy but increases over time.
A simple example illustrates this process across generations. Assume that 10 percent of children end up in the category immediately below their parents, while the remaining 90 percent are just as religious as their parents. If the first generation is 100 percent religious, the second will be 90 percent religious and 10 percent fuzzy. The third generation will only be 1 percent secular (10 percent of children born to fuzzy parents). But 39 percent of the 10th generation will be religious, 39 percent fuzzy, and 23 percent secular. From this point on, only the secular population grows. Even at this point, the youngest generation might still seem fairly religious, with 74 percent reporting some religion. However, the rate of increase of the secular population accelerates. While the 11th generation is just over a quarter secular, the 18th generation is more than half secular. Both this illustration and Voas’ model are very simple descriptions of a trajectory of religious decline. Voas’ argument, though, is that such a simple model fits the European data well and sidesteps some of the issues that arise with more complex models. The self-reinforcing nature of the process, which is instigated rather than directly caused by some set of conditions, is key to the plausibility of such a simple, consistent model. If national religiosity was directly related to economic development, the rate of interreligious marriage, or the extent of science education, countries might show dramatically different trajectories.

It is possible that the United States is following a trajectory similar to those of European countries, even though the United States appears exceptionally religious and recent decline appears too rapid to be the result of a slow process. If so, the general process Voas claimed to identify may be operating in the United States. Voas clearly elaborated the
details of his theory but did not describe a systematic method of fitting countries to the predictive functions. I used an ordinal logistic model to formally fit cohort data to his theorized trajectory. I included European and US data to further test whether Americans’ relatively high, stable religiosity can be explained by a comparatively early placement in the same pattern of religious decline. I use these to answer two questions. Do US cohorts fit the theorized trajectory? And, if so, how far along is the United States predicted to be in the process of religious decline relative to other countries?

2.3. **Methods**

2.3.1. **Data**

Following Voas, I used the 2002 European Social Survey (ESS). The ESS is a multi-year, cross-national survey of European countries that measures attitudes, beliefs, and behaviors. The 2002 ESS includes 22 countries. Under the United Nations coding scheme for Europe (United Nations 2014), six of the countries represented are in Northern Europe, five in Southern Europe, three in Eastern Europe, and seven in Western Europe. Israel is also included. I also used the 1998 and 2008 General Social Surveys (GSS). The GSS is a multi-year, nationally representative survey of the United States population. The 1998 and 2008 surveys included a religion module from the International Social Survey Program surveys that asked additional questions about religious beliefs, behaviors, and social attitudes. I combined the 2002 ESS and 1998 and 2008 datasets to create my analytical sample. I also used the 2002 ESS and GSS datasets to compare rates of daily prayer and weekly service attendance at a single point in time.
Ideally, analyses of cohort differences would use longitudinal rather than cross-sectional data to account for age effects. Despite this limitation, recent research has clarified how strongly age and cohort effects have shaped religious trajectories, at least in the United States. Hout and Fischer (2014:435) found that cohort succession explained 60 percent of the variance in religious preference of their sample, and recent evidence suggests the most common trajectory across the lifespan is curvilinear, in which individuals are most religious early in life, decline during the middle of their life, and rebound somewhat in later life (Dillon and Wink 2007; Hayward and Krause 2013; Ingersoll-Dayton, Krause, and Morgan 2002). So, age effects are neither likely to be significant enough to explain a majority of the trend nor positive enough (whereby religiosity increases consistently with age) to explain Voas’ trajectory of declining religiosity across cohorts.

Also at issue is that the model estimates a trajectory whose major features span over 200 years if any individual country were to traverse it, but the ESS and GSS only include data on respondents born up to 95 years apart. The model can use these data to estimate a significant span of Voas’ theorized trajectory because countries are predicted to be at different points along it. While this raises concerns, the specificity of the trajectories reduces the probability that a country will fit it by chance. Voas and Chaves (2016), by comparison, dichotomized their religious measures and put no restrictions on the shapes of the trajectories. They based their claim that the US trajectory was unexceptional on the fact that a smaller proportion of each subsequent cohort fell into the more religious categories, regardless of the extent to which adjacent cohorts differed. By contrast, a set of
countries will only fit Voas’ theorized model well if they share similar, non-zero rates of religious decline and secular growth (where the change in the fuzzy proportion is determined by the other two) and have similar proportions of religious, fuzzy, and secular people at the same point in the process of religious decline (though not necessarily at the same time in history). However, its use as a predictive tool for any one country’s future is, of course, tenuous and relies on the assumption that no additional forces offset decline or disrupt its self-reinforcing nature. In this way, the entire span of the trajectory can be interpreted as an idealized trajectory in which other forces are kept relatively constant and no single country is expected to follow precisely.

### 2.3.2. Measures

The main concept of interest is the ordinal measure of religiosity developed by Voas. For the European data, I replicated Voas’ coding. I divided respondents into three categories: the religious, fuzzy, and secular. I categorized respondents as religious if they met two criteria. First, they must have scored their religiosity as 7 or greater on an 11-point scale from “Not at all religious” (1) to “Very religious” (11). Second, they must have reported either that they attended religious services at least once per month or scored the importance of religion to their lives as 7 or greater on an 11-point scale from “Extremely unimportant” (1) to “Extremely important” (11). I categorized respondents as secular if they met four criteria. First, they must have scored their religiosity as 3 or less. Second, they must have reported that they attended religious services only on special holy days or less often. Third, they must have scored the importance of religion to their lives as 3 or
less. Finally, they must have reported that they prayed only on special holy days or less often. I categorized the remaining respondents as fuzzy.

The GSS does not have a measure of religious importance, so I was unable to perfectly replicate Voas’ coding. I categorized GSS respondents as religious if they met two criteria. First, they must have reported being at least “Somewhat religious”, the third-most-religious response option on a seven-point scale. Second, they must have reported that they attended religious services at least once per month. I categorized respondents as secular if they met three criteria. First, they must have reported being no more than “Somewhat non-religious”, the third-least-religious response option on a seven-point scale. Second, they must have reported that they attended religious services several times a year or less frequently. Finally, they must have reported that they prayed less frequently than once a week. I categorized the remaining respondents as fuzzy.

Some might find fault in Voas’ measure of religiosity because surveys may miss other indicators of religious vitality (Berger 2007; Dillon and Wink 2007; Sullivan 2011). The growing “lived religion” or “religion in everyday life” approach emphasizes that religion is connected to emotions and everyday behaviors, not just beliefs and institutional practices (Edgell 2012:253). However, the set of criteria that must be met to be categorized as secular is strict, even for GSS respondents. For my adaptation of Voas’

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1 The GSS includes the question, “Would you consider yourself a strong [Catholic, Protestant, etc.] or a not very strong [Catholic, Protestant, etc.]?” This question is not directly analogous to the ESS importance of religion item. Still, results from supplementary analyses (not shown) using this item were like those presented here. I also conducted supplementary analyses (presented in Appendix A) in which I excluded the importance of religion measure when coding the European data. These analyses suggest that the main models overestimate how far along the US is in the secularization process, though the US and Europe were still predicted to have a shared trajectory.
measure to categorize as secular a GSS respondent who has regular religious experiences not asked about in the GSS, they would have to exhibit consistently low levels of self-rated religiosity, religious service attendance, and prayer. The mothers in poverty described by Sullivan (Sullivan 2011), for example, prayed frequently enough that they would not be categorized as secular in my coding. It also is important to remember that Voas’ measure of religiosity is descriptive, not normative. Fuzzy individuals are not identified as such because they represent a theologically inferior set of beliefs and practices, but because their presence is theorized to have a distinct role in the process of religious decline. Even so, I analyze the data using a stricter coding of the secular category, which I describe in Appendix B.

Year of birth was the main predictor variable. To improve model convergence and make coefficients comparable, I linearly adjusted year of birth such that the oldest respondents were born in year 0. I included dummy variables for religious identity, including Catholic, Jewish, Other, and None, where Protestant was the reference category. I included dummy variables for female and ethnic minority status. Ethnic minority status was used because the ESS does not include racial or ethnic categories but did ask respondents if they were a member of an ethnic minority. Non-white GSS respondents were categorized as ethnic minorities. I also controlled for years of education, which I standardized, and size of the area of residence, where 1 corresponds to a medium to large city or unincorporated area, 2 corresponds to a suburb, 3 corresponds to a small city, 4 corresponds to a country village or area between 1,000 and 2,499 people, and 5 corresponds to the open country. I used listwise deletion to handle missing data. I
weighted ESS and GSS observations using the DWEIGHT and WTSSALL variables, respectively.

### 2.3.3. Assumptions

Voas’ theoretical model makes one assumption: religious decline occurs across an ordinal measure of religiosity in which, “people stop being religious more quickly than they start being wholly secular” (Voas 2009:165–66). Voas’ implied mathematical model, meanwhile, suggests three additional assumptions. First, countries follow the same set of religious, fuzzy, and secular trajectories; that is, the percent religious, fuzzy, and secular in each country is predicted by the same set of three functions. Substantively, this means that countries take the same amount of time to transition from majority religious to majority secular, and their fuzzy populations reach the same peak (maximum) proportion during this process before receding. Voas (2009:166–67) noted, however, that rates of change did appear to vary across countries. Second, the functional forms of these three trajectories are logistic, S-shaped curves. Normally, these curves are asymptotic at 1 and 0, predicting the complete disappearance of the religious. Voas (2009:159–60) noted that the least religious countries seemed to be leveling off on some continuous measures of religiosity, though it is unclear from Voas’ findings whether the religious proportion of subsequent cohorts likewise levels off.

Third, there is a latent, country-level variable “progression of religious decline.” Though every country studied is theorized to be following the same trajectory, they are not assumed to be at the same point on it. This is represented in the regression models by a set of dummy variables, one for each country. Additionally, practical limitations of the
data require the assumption that contemporary countries represent distinct populations though not necessarily specific political states. For example, the Czech Republic was formed in 1993. The model assumes that the people included in the Czech sample represent a distinct population associated with the geographic area of what is now the Czech Republic, even before 1993.

2.3.4. Estimation of a shared trajectory

I estimated a model that was restricted to meet the strongest assumptions. This model, which I refer to as the “strict model,” used the rescaled year of birth measure and country dummy variables (where the United States acted as the reference category) to predict whether respondents were religious, fuzzy, or secular. I estimated a second model (the “control model”) in which I added demographic controls to test whether they explained any of the differences between countries.

Given the ordinal nature of the outcome variable, I used ordinal logistic regression models4 (hereafter referred to as ordinal models) to predict them. Ordinal models are more appropriate than ordinary least squares (OLS) regression models when the distances between levels of the outcome variable do not correspond to meaningful values. Because ordinal models are not as easy to interpret as OLS models, I describe a straightforward way to understand them in Appendix C.

I used the strict model to predict each country’s progression of religious decline relative to the United States. This corresponds to the time it would take more-religious

4 I estimated the models in R (version 3.4.2) using the clm function included in the ordinal package (version 2015.6.28). Stata’s (version 15) ologit function produced practically identical results.
countries to become as religious as the United States, or the time it would take the United States to become as religious as less-religious countries. For example, if the 1980 Greek cohort, the 1950 US cohort, 1920 French cohorts are 50 percent religious, the United States would be 30 years later than Greece and 30 years earlier than France. Of course, this measure assumes each country will follow the same estimated trajectory at the same rate in the future, which may not occur. Further, it is limited to the change in the relative makeup of Voas’ categories. As such, populations at the same relative state (that is, with the same religious, fuzzy, and secular proportions) may still differ significantly on other measures of religious belief, practice, and identity.

The progression of religious decline measures indicate how much each country’s year-of-birth values should be linearly adjusted (that is, without stretching any country’s data) to best fit a single set of religious, fuzzy, and secular trajectories. A mathematically tractable way to calculate this is to compare countries according to which cohort is estimated to be 50 percent religious. The curve predicting the proportion of each cohort that is religious is in the form

\[ f_{\text{religious}}(x) = P(\text{Religious}|x) = 1 - \frac{1}{1 + e^{-c + \alpha + \beta_1 x_{ij} + \beta_j}} \]

where \( c \) is the cutoff or threshold, \( \alpha \) is the intercept, \( \beta_1 \) is the coefficient for year of birth, \( x_{ij} \) is the year of birth for respondent \( i \) from country \( j \), and \( \beta_j \) is the intercept for country \( j \). The function equals 0.5 when \( e^{-c + \alpha + \beta_1 x_{ij} + \beta_j} = 1 \), that is, when \( -c + \alpha + \beta_{ij} + \beta_j = 0 \). Solving for \( x_{ij} \), we find that

\[ x_{ij} = \frac{c - \alpha - \beta_j}{\beta_1} \]
These values indicate how far the country-specific regression lines are shifted to align with each country’s data. To instead shift the data points to align with a single regression line, they should be shifted the same amount but in the opposite direction, which I label $s_j$ to indicate the relative progress of secularization for country $j$.

$$s_j = -x_{ij} = -\frac{c - \alpha - \beta_j}{\beta_1}$$

I also used the strict model to estimate the population trajectory by deriving the definite integrals of the religious, fuzzy, and secular logistic functions from $x - 60$ to $x$, then dividing them by 60. This represents the population proportions when 18-year-olds were born in year $x$. This simple estimate of the population trajectory assumed a uniform age distribution from ages 18 to 78.  

2.3.5. Model assumptions and fit

I examined whether the US and European trajectories were identical by relaxing the assumptions of the strict model. I estimated this “relaxed” model by adding an interaction between year of birth and the US dummy variable (with Austria now the reference category, to avoid perfect multicollinearity) to test whether the United States and Europe exhibited different rates of religious decline. I also allowed the coefficient for the US dummy variable to vary across equations, as if in a multinomial model. This is akin to estimating separate cutoffs for the United States and Europe, leading to different peak fuzzy proportions. I used a Wald test to assess whether the two coefficients were equal,

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5 Hout, Greeley, and Wilde’s (2001) findings illustrate that variable fertility rates can dramatically impact societal-level religious change, so the extrapolation to the country-level should be understood as a very simple heuristic.
where significance (that is, inequality) would indicate that the US and European trajectories had different peak fuzzy proportions. To supplement these tests, I examined the variation across all countries in the rate of change and peak fuzzy proportion by estimating another model which included year of birth × country interactions for each country and allowed all country dummy variables to vary across equations.

To estimate how well the US data fit the European trajectory, I excluded the US data from the strict model and used the resulting equation to predict the US data, given that the US data were placed in such a way that maximized its fit. 6 To test how well the US data fit Voas’ theorized form, I also re-estimated the strict model using only US data and tested how well it predicted the US data. The former provided a measure of how close the US and European trajectories were, while the latter provided a measure of how well the functional form of Voas’ theorized model predicted the US trajectory.

Unfortunately, it is not straight-forward to quantify fit in this case. Statisticians have developed measures of fit for binary and ordinal models, but their meanings are unclear and deciding between them can be difficult (Long 1997:102). Further, these measures of fit are maximized when a model accurately predicts the religious category of an individual, while Voas’ model aims to accurately predict cohorts’ religious, fuzzy, and secular proportions. Therefore, a model that perfectly predicted empirical proportions may still produce minuscule fit statistics.

6 To find the position for the US data on the European trajectory, I calculated the religious, fuzzy, and secular proportions for each decade of birth and iterated over values for a US dummy variable until the predictions were closest to the empirical proportions. That is, I shifted the US data across the x-axis until I found the best fit.
Because of these limitations, I used a substantive rather than statistical measure of model fit which answers the question, “How closely do the empirical religious, fuzzy, and secular proportions of a specific cohort (defined by decade of birth) in a specific country align with their predicted proportions from a given model?” Imagine a US cohort which is 70 percent religious, 25 percent fuzzy, and 5 percent secular. If “model A” predicted that the cohort was 60 percent religious, 30 percent fuzzy, and 10 percent secular, it would have a predictive accuracy of 90 percent, since it would require reallocating 5 percentage points to the religious proportion from each of the fuzzy and secular proportions in order to perfectly predict the empirical proportions.

This approach solely has heuristic value as a supplement to the statistical tests of the underlying assumptions. While it would certainly be telling if the European model only had 50 percent predictive accuracy for the US data, the significance of a predictive accuracy of 95 percent compared to 90 percent is unclear. The pattern across cohorts, though, could be suggestive even if not statistically tested. Religious polarization would likely produce a pattern whereby the most central US cohort had the best fit, with the fit of the remaining cohorts declining across time. By contrast, we might observe particularly poor fit for the youngest cohort if they experienced particularly strong religious decline compared to other cohorts. By contrast, Voas’ theoretical model would produce relatively high, consistent fit across time. Again, without formal criteria for what constitute “particularly poor” or “consistent” fits, these patterns remain suggestive rather than definitive.
2.4. **Results**

2.4.1. **Descriptive statistics**

The descriptive data illustrate the well-known fact that the United States is more religious than most European countries. As seen in Figure 1, roughly a quarter of US adults reported attending religious services weekly in 2002. Only 5 European countries were above 25 percent. Further, the United States had the highest rate of daily prayer at 57.1 percent. The United States also looks comparatively religious to Europe when using Voas’ categories. Figure 2 displays the percent religious, fuzzy, and secular in each country using the analytical samples (2002 ESS and 1998 and 2008 GSS datasets), ordered from the lowest proportion secular to the highest. Of the respondents who were asked the required questions, 94.9 percent (2,382/2,509) of GSS respondents and 97.3 percent (39,749/40,853) of ESS respondents answered all the necessary questions to be categorized. The United States is the sixth-least-secular (10.0 percent) and the tenth-most-religious (36.5 percent). Figure 2 also illustrates the impact of distinguishing between the religious and fuzzy groups. There is significantly less variability in percent secular than there is in percent religious. In other words, focusing solely on the rise of the secular hides much of the variability across countries.

Table 1 reports the results in log-odds from the strict, control, and relaxed models, which predict the religious, fuzzy, and secular categories. The strict model uses year of

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7 Table 1 does not include the 22 country dummy variables in each model. Instead, I visualize their substantive meaning in Figure 4.
Figure 1 National rates of weekly religious service attendance and daily prayer, 2002
Figure 2 National religious compositions by religious, fuzzy, and secular categories, 2002 (Europe), 1998, and 2012 (United States)
Table 1 Ordinal logistic regression model results predicting religious, fuzzy, and secular proportions

<table>
<thead>
<tr>
<th></th>
<th>Strict model</th>
<th>Control model</th>
<th>Relaxed model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.02***</td>
<td>-0.016***</td>
<td>-0.02*** (0.0006)</td>
</tr>
<tr>
<td></td>
<td>(0.0005)</td>
<td>(0.0007)</td>
<td></td>
</tr>
<tr>
<td>Year of birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.552***</td>
<td>0.066***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.011)</td>
<td></td>
</tr>
<tr>
<td>Size of area of residence</td>
<td>0.066***</td>
<td>0.398***</td>
<td></td>
</tr>
<tr>
<td>Minority ethnicity</td>
<td>0.398***</td>
<td>0.058</td>
<td></td>
</tr>
<tr>
<td>Years of education</td>
<td>-0.009*</td>
<td>-0.009*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td></td>
</tr>
</tbody>
</table>

**Religious tradition**

- Protestant (reference)
- Catholic: 0.007 (0.041)
- Jewish: 0.040 (0.126)
- Other: 0.640*** (0.080)
- None: -2.375*** (0.113)

- Year of birth × United States: -0.001 (0.002)

**United States (varies by equation)**

- Secular vs Fuzzy + Religious: -0.423* (0.185)
- Secular + Fuzzy vs Religious: 0.085 (0.167)

**Thresholds**

- Threshold 1 (Secular vs Fuzzy + Religious): -3.219*** (0.054)
- Threshold 2 (Secular + Fuzzy vs Religious): -0.883*** (0.051)

| Sample size | 43,362 | 27,704 | 43,362 |

birth and a dummy variable for each country, where the United States is the reference country, allowing me to estimate the average religious, fuzzy, and secular trajectories and the relative position of each country. The coefficient for year of birth is -0.02 (SE=0.0005) and is highly significant. As seen from the control model in Table 1, demographic controls reduce the size of the year of birth coefficient (from -0.02 to -0.016) but do not substantially impact its significance. In other words, if all countries had the exact same demographic makeup, religious decline would be predicted to occur more slowly.

Substantively, the strict model estimates that if a cohort is 75 percent religious, the cohort
born 110 years later will only be 25 percent religious, compared to 138 years for the control model (assuming demographic proportions stay constant).

The small, negative coefficient for year of birth means that the model predicts that the religious proportion slowly diminishes in size across cohorts. This is in line with Voas’ argument, which I illustrate in Figure 3. The curves in Figure 3 indicate the proportion of each cohort predicted to be religious, fuzzy, and secular, while the points indicate the empirical proportions for each cohort (defined by decade of birth) in each country.8 While there is variation along the curves, there are no clear outliers in the functional form of the three trajectories. And, visually, the US cohort data align closely with the predicted trajectories near the center of the distribution.

Despite falling on the same trajectory, countries lie at various points across it. Figure 4 uses the country dummy variables from the strict model to illustrate how far in the process each country is predicted to be, relative to the United States, with earlier countries being more religious than the United States and later countries being less religious. The countries range from 90 years earlier than the United States (Greece) to 89 years later (the Czech Republic), and there is notable variation within regions. Eastern Europe shows the greatest variation, having one of the earliest countries (Poland) and the latest country (the Czech Republic). Meanwhile, no country in Western Europe is earlier than the United States. Northern and Southern Europe both include countries on either

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8 Figure 3 excludes cohorts with 24 or fewer respondents. This calculation is based on arbitrarily limiting the maximum confidence interval of a proportion to ±0.2 using the equation \(\frac{z(p(1-p))}{CI^2}\), where \(z=1.96\), \(CI=0.2\), and the equation is maximized when \(p=0.5\).
Figure 3 Predicted religious, fuzzy, and secular proportions of cohorts, given birth years relative to the 1920s US cohort
Figure 4 Years in the process of religious decline relative to the United States
side of the United States, with Northern European countries being later on average than Southern European countries.

These findings can be extrapolated from cohorts to national levels of religiosity. Figure 5 illustrates this using the strong but simplifying assumption that the age distribution of adults is uniform from ages 18 to 78. Labels on Figure 5 indicate the proportion of each country that is religious, fuzzy, and secular in the GSS and ESS data while the curves indicate the predicted proportion of each group. The figure is aligned such that the US data lies at year 0, meaning the x-axis can be interpreted as years relative to the United States. The religious population in the United States has dipped below the fuzzy population and is predicted to be surpassed by the secular population in another 50 years. Only the Czech Republic has a larger secular population than fuzzy. Consequently, data are non-existent beyond that point, meaning any inference about the complete takeover of the secular population is tenuous.

These implications rely on the strict assumption that countries experience the underlying process at the same rate and reach the same peak fuzzy proportion. The relaxed model, though, does suggest that the US trajectory deviates from the European trajectory somewhat. As seen in Table 1, the year of birth × US interaction is non-significant at -0.001 (SE=0.002), indicating a rate of change similar to Europe’s. However, the test statistic of the Wald test comparing the two US dummy variables was significant ($\chi^2 = 49.3$, $p < 0.001$), indicating different peak fuzzy proportions. Substantively, the fuzzy proportion in the European trajectory peaks at 52 percent of the population, while it peaks at 61 percent in the US trajectory.
Figure 5 Predicted religious, fuzzy, and secular proportions of populations, relative to the present-day United States
Figure 6 illustrates the variation in trajectories that results from further relaxing the model to allow every country to have a unique rate of decline and peak fuzzy proportion. Countries are arranged along the x-axis based on how long they are predicted to take to transition from a 75 percent religious cohort to a 25 percent religious cohort, and along the y-axis based on their predicted peak fuzzy proportion. The shaded regions indicate regions of significant difference compared to the US rate and peak. The United States is characterized by an unremarkable rate of decline (about 100 years) but has the highest peak fuzzy proportion (over 60 percent). And while only 7 of the 21 other countries have significantly faster or slower rates of decline than the United States, 17 of 21 have significantly lower peak fuzzy proportions. Even so, Slovenia is the clearest outlier, though, with a predicted transition time greater than 300 years, which is more than 100 years longer than the second-longest transition time.

Finally, Table 2 reports how well the estimated European and US trajectories predict the empirical proportions within US cohorts (defined by decade of birth\(^9\)). For both the Europe-only and US-only models, the oldest cohort (1910s) has the lowest predictive accuracy at 80.8 percent and 88.2 percent, respectively, though it also has the smallest sample size (n = 61). Among the predictions using the Europe-only model, the greatest source of error (in percentage points) for every cohort except the 1920s cohort

\(^9\) I choose to estimate fit using decade of birth because it was consistent with how I visualize the results throughout and simplifies visualization in this case as well. As one might expect, the size of the cohort tested impacts how well the European model fits the US data, since smaller cohorts will vary more significantly from the average trajectory. However, I believe that the difference is substantively insignificant. When I divide cohorts into 5-year groups, the average predictive accuracy of the Europe-only model is 91 percent. When I do not collapse year of birth at all and instead assess how well the European model predicts the empirical proportions for each year of birth, the average predictive accuracy is 89 percent.
Figure 6 Predicted rate of decline and peak fuzzy proportion per country

Countries located in the shaded region below the US were predicted to reach a lower peak fuzzy proportion than the US. Those in the shaded region to the left and right of the US were predicted to transition faster and slower than the US, respectively.

Note: the shaded regions indicate which countries' trajectories differed significantly from the US trajectory. Countries located significantly slower than the US are shaded grey.

Significantly slower decline than the US

Significantly faster decline than the US

Predicted peak fuzzy proportion
comes from underestimating the fuzzy proportion. This is to be expected, given that the United States is also predicted to have a higher peak fuzzy proportion than European countries. The overall pattern of fit across cohorts, meanwhile, does not noticeably diverge from the center (1940s and 1950s), reducing the plausibility of stability or polarization. And while the Europe-only model is less successful at predicting the 1950s (86.9 percent) and 1980s (89.1 percent) cohorts than the immediately surrounding cohorts, their fits are much improved in the US-only model (96.4 percent and 98.3 percent, respectively). In fact, the consistently strong fit of the US-only model—at least starting in the 1920s—suggests that the functional form Voas described works well in the US context despite its comparatively high peak fuzzy proportion.

2.5. **Discussion**

The US data align surprisingly well with Voas’ theorized model of religious decline. This result reframes the “uniquely stable” trajectory of religion in the United States as instead being representative of a country that is comparatively early in a predictable process. The relatively recent surge of religious Nones is, in fact, in line with Voas’ model of religious decline, in contrast to the conclusions of Putnam and Campbell (2012:127) and Hout and Fischer (2014:429). Further, declining aggregate religiosity is not primarily the result of the diminishing size of the moderately religious, as Schnabel and Bock (2017) contend. Instead, the highly religious make up increasingly small proportions of each subsequent cohort, while the proportion that is moderately religious has actually
increased substantially across cohorts. In fact, the United States is distinguished by how large its fuzzy middle peaks at compared to European countries.

These findings strengthen the plausibility that a general process of religious decline was at play during much of the 20th century in the United States and Europe. Certainly, these findings fit within secularization theory and could be used to argue that it was abandoned prematurely. But this would neither be easy nor necessary. It would require a clear specification of what secularization means and what sub-theories within

Table 2 Predictive accuracy of the Europe-only and U.S.-only models when predicting U.S. data

<table>
<thead>
<tr>
<th>Decade of birth (observations)</th>
<th>Empirical proportion</th>
<th>Europe-only model Predicted proportion (error)</th>
<th>Predictive accuracy</th>
<th>US-only model Predicted proportion (error)</th>
<th>Predictive accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910 (n = 61)</td>
<td>2.4%</td>
<td>5.2% (+2.8)</td>
<td>80.8%</td>
<td>4.1% (+1.7)</td>
<td>88.2%</td>
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<tr>
<td></td>
<td>49.5%</td>
<td>30.3% (-19.2)</td>
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<td>37.7% (-11.8)</td>
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<tr>
<td></td>
<td>48.1%</td>
<td>64.6% (+16.5)</td>
<td></td>
<td>58.2% (+10.1)</td>
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</tr>
<tr>
<td>1920 (n = 152)</td>
<td>7.9%</td>
<td>6.3% (-1.6)</td>
<td>95.1%</td>
<td>5.1% (-2.8)</td>
<td>95.1%</td>
</tr>
<tr>
<td></td>
<td>37.2%</td>
<td>33.9% (-3.3)</td>
<td></td>
<td>42% (+4.9)</td>
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Note: A cohort’s predictive accuracy represents how closely its predicted proportion aligns with its empirical proportion. It is calculated as 100% minus the number of percentage points that would need to be reallocated for the predicted proportion to perfectly match the empirical proportion.
the breadth of secularization theory should be retained. And even so, several scholars have argued that indiscriminately discarding the entire body of secularization research ignores the aspects which still have predictive or explanatory value (Casanova 1994:12; Chaves 1994:750), and still others have argued that the study of historical cases of secularization (rather than a singular theory) is still important (Berger 2014; Casanova 1994; Chaves 1994; Joas 2014; Smith 2017; Taylor 2007; Voas 2009). Presently, I find it much more fruitful to take this approach by theorizing the significance of these findings to a limited set of ideas from secularization theory and how they might relate to Europe and the United States specifically. I leave it to others to integrate these findings with a systematic review and revision of secularization theory.

These findings fit within two of the basic premises of secularization theory: contemporary life challenges religion in new ways and those challenges weaken average religiosity over time. As I have argued, the former is not controversial. The latter, though, certainly is. The findings focus attention on two challenging questions. How is it that decline could occur in the same way in a variety of different contexts? And how is religious decline a self-reinforcing process? While beyond the scope of these findings, I also address the unavoidable question of whether religious decline is irreversible and inevitable.

2.5.1. Explaining cross-national similarity

Despite varied histories and cultures, countries might undergo the same process of religious decline if it is instigated by certain conditions common to contemporary life and maintained by basic processes of familial and societal socialization of new members. In
other words, what starts religious decline is relatively new while what maintains it is not. One possibility is that forces that had previously engaged religious convictions have weakened, leading to a slow decline towards modest religiosity (Smith 2017:198). Alternatively, religious individuals and organizations may have had a hard time adjusting to the challenges they face in contemporary life, at least in passing religion on later generations. Countries’ rates of decline vary, likely because of cultural and historical factors, but the trajectories show little indication of leveling off at least until the secular population is significant.

This might be compared to an idealypical case of gentrification. Once certain conditions are met that draw middle-class workers into new areas (such as jobs, services, and opportunities for consumption), the influx of the middle class reinforces dual processes of rent increasing beyond the means of previous residents as well as middle-class consumption opportunities settling in the neighborhood. Some neighborhoods might mobilize residents or attempt to pass new laws, but gentrification may well continue if the neighborhood offers the resources middle-class families desire. In the same way, countries might experience similar conditions, albeit at different times and under different circumstances, that weaken the ability of society and families to socialize youth into religious traditions. Religious counter-movements, such as the Religious Right in the United States or anti-Soviet Catholic nationalism in Poland, might combat or offset some of that change. But so long as it remains harder to socialize new members into religious traditions than before, each subsequent generation will slowly make society less religious overall.
It is unclear whether other regions will experience trajectories of decline similar to Europe and the United States. The poor fit of the Israeli data to the trajectory suggests that they may not. If religious decline is instigated by some specific condition, and that condition does not arise in all countries, then other countries may exhibit very different patterns of religious change and stability. Research on multiple modernities demonstrates that countries vary significantly in how they negotiate the secular-religious tension as they modernize (Eisenstadt 2010; Wohlrab-Sahr and Burchardt 2012). On the one hand, some countries might avoid the conditions which instigate decline and religious convictions might remain relatively stable. On the other hand, even religiously-motivated solutions to the challenges brought on by modernization may unwittingly introduce the necessary conditions. Until the mechanisms are identified, though, it may be difficult to predict which countries will experience a similar trajectory and when they begin it.

2.5.2. Mechanisms of self-reinforcement

Scholars have identified several mechanisms which may create new, more difficult conditions for religious socialization. While mechanisms are often thought of as linear relationships, where an increase in the causal factor is associated with a proportional decline in religiosity, it is more plausible that mechanisms might start or enable a process which takes on its own trajectory. For example, urbanization and economic development are often implicated (Hirschle 2013; Norris and Inglehart 2011; Ruiter and Tubergen 2009). However, if these are assumed to have a direct relationship with religious decline, Poland, Ireland, Italy, Portugal, Greece, and the United States would have to be the least urban and developed, which they are not. To adapt Hirschle’s (Hirschle 2013) proposed
mechanism, the mere presence of secular alternatives to religion (a binary variable) might be more important than the number of alternatives (a continuous variable). Under this scheme, each subsequent cohort might invest less time and cognitive resources in religious traditions and more time in secular options simply because secular options are available, not because they are more numerous than religious ones.

Another possible mechanism might work through cognitive challenges to plausibility and reasonableness (Berger 2014; Wuthnow 2012). Again, if the extent religious traditions can be taken for granted is a binary condition, its loss might instigate slow, long-term change across cohorts and generations. In line with Berger’s (2014) revised thinking on plausibility structures, it might be that religious individuals develop new skills to counteract the relativizing impact of pluralism. Youth may recognize the importance of religion to parents and peers and subsequently develop religious convictions themselves. However, it may be much harder to rationalize a reality that never had an opportunity to be taken for granted as real compared to one that had been for some time. Finally, Voas and Doebler (2013:246) found that many highly religious Europeans do not rate religious faith as a value that is important to encourage at home, suggesting that changing parenting values have played a role. Without further research, it is impossible to identify the mechanism precisely, but enough theories exist to suggest potential leads.

2.5.3. Is religious decline irreversible and inevitable?

Finally, do these findings imply that religious decline is reversible or inevitable? As is common to note, it is difficult to predict the future, even with the most accurate
models of the past. On the one hand, the empirical pattern of slow decline across cohorts suggests an ongoing process rather than idiosyncratic change. If there is no expectation that the process and the mechanisms underlying it will be disrupted, further religious decline is not only theoretically possible but highly plausible. However, the existence of processes that slowly weaken religious convictions does not preclude the possibility of strong counteracting forces. Certainly, US history provides many examples of religious revivals and mobilization (Butler et al. 2008). So, for example, even if the conditions which enable religious decline remain (making decline inevitable), religious revivals may effectively undo many decades of slow decline. To further build on Voas and Chaves’ (2016:1546–7) metaphor, religion might be likened to a tub of water which naturally cools over time. Adding hot water does make it hotter, but it doesn’t stop the cooling process. But, until we understand the nature of the water heater and the person turning on the faucet, we are left with significant unknowns about how long the bath will remain comfortable.

2.5.4. Limitations

The conclusions are limited by the cross-sectional nature of the GSS and ESS data. Twenty-five years ago, several scholars debated a similar use of cross-sectional data to make conclusions about across-cohort change (see Chaves (1989), Chaves (1991), Firebaugh and Harley (1991), and Hout and Greeley (1990)). The same limitations are warranted here. Unlike those analyses, the present model doesn’t attempt to estimate age or period effects and instead assumes a cohort effect. This assumption is warranted by recent APC analyses that have found convincing evidence for a strong cohort effect.
(Crockett and Voas 2006; Hout and Fischer 2014; Schwadel 2010; Voas and Chaves 2016).

Still, readers should keep in mind that this analysis has been conducted on cross-sectional data.

Scholars also should be careful when using the model to predict future religious trajectories. The data includes, at most, nine cohorts from each country, which the model uses to display 240 years of religious decline. The critiques 25 years ago are still relevant today: extrapolating beyond the time limits of the data can be misleading (Hout and Greeley 1990). Instead, these findings should be interpreted as tentative evidence that Voas’ theoretical model is accurate, at least enough to motivate further investigation. It is impressive that the current data across 23 countries fit his model, but whether future data continue to fit the model remains to be seen.

Finally, Voas’ three-level measure of religiosity and my adaptation of it to available GSS data may miss certain kinds of religious practice and experience. A more tentative interpretation of the results is that a specific pattern of religious practice and identity have declined across cohorts, leaving open the possibility that people may be increasingly religious in other ways. However, these omissions only pose a serious problem to this approach if individuals engaging in such practices or having such experiences do so without also thinking of themselves as religious or that religion has any importance to their lives. This seems unlikely, though it remains a logical possibility.

2.6. Conclusion

The United States and Europe appear to be on a similar trajectory of religious decline, with some variation in the rate and expected maximum size of the fuzzy middle.
While the United States has traditionally been thought of as an exception to this process, it might better be described as being comparatively early in it. Despite its placement relative to European countries, the United States appears to be in a transitional state in which the fuzzy population has reached a critical mass. It is ultimately unknown whether these majority-fuzzy cohorts will change this trend. But if in the 21st century the United States experiences the same changes that majority-fuzzy European nations did during the 20th century, the United States will be decidedly more secular by its close.
3. The Family Dynamics of Religious Decline across Birth Cohorts

3.1. Introduction

There is a general consensus within the sociology of religion that the youngest Americans are less religious than older Americans on several commonly-used measures. Within that consensus, though, scholars disagree about the primary cause of this change and its long-term trajectory. According to some scholars, historically contingent decline occurs because the unique conditions of a specific time and place lead individuals to become less religious than they might otherwise be. The role religious institutions play in social values (Hout and Greeley 1987) and politics (Hout and Fischer 2014; Putnam and Campbell 2012) are two examples. Other scholars argue that religious decline is self-reinforcing, whereby the pull towards strong religious convictions weakens over time. This could be because of conditions unique to modernity (Hirschle 2013; Norris and Inglehart 2011; Voas and Chaves 2016) or a more general process by which religiosity wanes (Smith 2017:198–99). Historically contingent explanations fit well with significant deviations from existing trends (Hout and Fischer 2014:429; Putnam and Campbell 2012:76–77), while self-reinforcing theories posit a predictable trajectory across time (Brauer 2018; Voas 2009), though not to the exclusion of religious resurgence (Voas and Chaves 2016:1546–7). Recent evidence indicates that the United States and European countries share a predictable, long-term trajectory of religious decline across birth cohorts (Brauer 2018; Voas 2009) rather than being characterized by sudden change experienced by particular cohorts. This suggests a mechanism which is shared across
contexts rather than one connected to unique social or political events. While these studies identified the shape of the trajectory, they did not investigate potential causes.

Other research, however, makes clear that family characteristics and dynamics are among the important causes of cohort differences in religiosity (Chaves 1991; Cheadle and Schwadel 2012; Kelley and De Graaf 1997). Taken together, family characteristics are possibly the most important factors in shaping a child’s religious characteristics (Bengtson et al. 2013:185; Hayes and Pittelkow 1993; Smith and Denton 2005:261; Spilka et al. 2003:108). A large body of research illustrates that numerous family factors predict the religiosity of children, including divorce (Lawton and Bures 2001; Smith and Denton 2005; Uecker and Ellison 2012), shared religious tradition between parents (Bengtson et al. 2013), parental relationship quality (Bengtson et al. 2013; Hoge et al. 1982; Wilson and Sherkat 1994), parenting style (Luft and Sorell 1987), and parental religious strictness (Hunsberger 1983). Broader economic and educational trends may also shape how sure individuals are in their religious convictions and their beliefs about their religion’s exclusive truth (Hill 2011; Reimer 2010) which may in turn shape religious socialization of their children.

I assess what role, if any, family characteristics play in religious decline in the United States. I use a multi-generational panel study of Californian families to estimate how much of the decline across birth cohorts can be explained by parents’ socioeconomic status, quality of relationship with their children, parenting attitudes, and social and religious attitudes. Using hierarchical growth curve models, I find that parents play different roles in influencing their children’s religious service attendance and their self-
rated religiosity. While parents’ attitudes and relationships and respondents’ own characteristics largely explain across-cohort trends in religious service attendance, they only partially explain the decline of self-rated religiosity. These findings illustrate that religious decline has occurred within families as well as across society. Some of these changes are linked to broader social changes that shape the experience at home, such as interfaith marriage and expectations that children conform to family values. But the US religious context is also undergoing change that is unexplained by other factors.

3.2. Background

Scholars have been keen to clarify the extent of religious decline in the United States. While the rapid rise of religious “nones” has garnered significant attention, several measures of religiosity have declined much more slowly across the past 40 years (Chaves 2017). Studies of religious decline have largely focused on measures of religiosity which are particularly relevant to Protestantism (Cadge, Levitt, and Smilde 2011; Hill and Pargament 2017:51–52; Wuthnow 2015:197). Recent studies are no exception, with emphasis on religious service attendance, prayer, self-rated religiosity, and self-assessed importance of religion to everyday life (Brauer 2018; Voas 2009; Voas and Chaves 2016). Scholars have emphasized “everyday religion” to correct for the lack of recognition of some forms of religious expression (Ammerman 2007; Sullivan 2011). But the causes of decline in traditional aspects of religiosity remains an open and interesting theoretical question. When considering decline in the United States, then, a more precise question is, “Why has a particular form of religious life become less prominent across birth cohorts?”
Scholars have pointed to two classes of mechanisms: broad social conditions that shape birth cohorts, whatever their origin families are like, and particular conditions in the home that shape the development of children across familial generations. In analyses of aggregate trends, these two mechanisms can be difficult to disentangle. But there are empirical and theoretical reasons to distinguish between them. Given that demographic processes play a key role in religious change (Fischer and Hout 2008), distinguishing between within-family and between-family dynamics could help us make more accurate predictions of future religious trajectories. Decomposing the overall trend into the parts that are attributable to family dynamics and the parts that are not also would allow scholars to better assess how personal religious characteristics develop across individuals’ lives. This is particularly important given the roles that broader social changes likely played in shaping contemporary Americans’ religious lives. Some of these changes directly involve family life, such as the growing belief in allowing greater independence during adolescence and young adulthood (Collins-Mayo and Dandelion 2010:29; Smith et al. 2018), while others, such as the changing political climate (Hout and Fischer 2014), do not.

Most existing research on religious trends across time focuses on birth cohorts (Brauer 2018; Fischer and Hout 2008; Hout and Fischer 2014; Putnam and Campbell 2012; Voas 2009; Voas and Chaves 2016). Far less research has distinguished trends across birth cohorts from trends across familial generations (Bengtson et al. 2013; Crockett and Voas 2006; Kelley and De Graaf 1997), despite the breadth of research demonstrating the importance of the family in shaping religious outcomes (Hayes and Pittelkow 1993; Smith
and Denton 2005:261; Spilka et al. 2003:108). The reason for this is unclear, though there are several plausible explanations. Available data are certainly more limited in their ability to draw conclusions about the family than about birth cohorts. One also could take scholars’ broad assessments about the relative stability of religiosity across familial generations to mean that the net change is zero. For example, there is evidence that the success rate of religious transmission from parent to child has not changed since the 1970s (Bengtson et al. 2013:185). But even if children are very similar to their parents, they still may be less religious than their parents on average.

3.2.1. Co-regulation

Religious socialization can be understood through what developmental psychologists call “co-regulation”—the process whereby parents gradually give their children greater responsibility for regulating their own behavior until they are independent adults (Kuczynski 2002:16; Maccoby 2015:6–7). During early childhood, parents closely regulate their children’s behavior in order to transmit shared symbols, role-taking skills, cognitive orientations, and goals (Arnett 2015:87; Inkeles 1968:81). But when their children reach adolescence, parents’ regulation (ideally) becomes looser, less direct, and more selective. Rather than regulating through direct shaping, parents of adolescents rely on three categories of activities: active communication with the child about their activities and whereabouts, opportunities to provide direct feedback on the child’s behavior, and teaching skills on how to monitor one’s own behavior (Collins and Madsen 2002:52–53). Co-regulation thereby depends on “contingent responses” from
parents in which they recognize their child’s signal for support, and they provide an appropriate level of support (Pearce and Denton 2011:145).

Adolescence doesn’t represent the end of parent-child co-regulation. It continues—though in an even more flexible manner—throughout emerging adulthood. This stage in the life course is characterized by the exploration of relationships, roles, and identities (Arnett 2015:92, 96). It emerged as more young adults began pursuing higher education—delaying entry into the workforce—and gained access to birth control—reducing the pressure to maintain long-term, monogamous relationships (Arnett 2015:85). Parents are most successful socializing their children into their religion when they support their children in matters of faith (Leonard et al. 2012) and engage their faith-development through a variety of means, such as modeling religious behavior, participating in shared religious activities, and holding their children accountable to the family’s religious standards (Okagaki, Hammond, and Seamon 1999). But the competing needs of support and independence during emerging adulthood can present a challenge for socializing children into the parents’ religion (Collins-Mayo and Dandelion 2010:29).

### 3.2.2. Predictors of religious transmission

Whereas developmental psychologists fit the role of different family characteristics into the co-regulation framework, sociologists generally treat them as working through distinct processes. Divorce is one such example, which is negatively associated with religious affiliation and religiosity for divorcees (Brodbar-Nemzer 1986) and their children (Lawton and Bures 2001; Smith and Denton 2005). Divorce is thought to disrupt children’s religious socialization, either through being cut off from a religious
community (Lawton and Bures 2001) or from the regular support of two religious parents (Zhai et al. 2007). Divorce reduces the amount of oversight that religious parents can give their children across time, which hampers their formative influence significantly (Uecker and Ellison 2012). Notably, children of divorced evangelical Protestant, mainline Protestant, or Roman Catholic parents exhibit greater declines than children of divorced parents from other religious traditions and non-religious backgrounds (Bengtson et al. 2013:117). Several studies also demonstrate that religious congruence between parents and children is greatest among children who have warm, close relationships with their parents (Bengtson et al. 2013; Hoge et al. 1982; Ozorak 1989; Wilson and Sherkat 1994). While Hunsberger (1983:32) suggested that the causal direction may be reversed (where religious differences lead to poor relationships), later research using longitudinal data supported the initial interpretation (Bengtson et al. 2013; Wilson and Sherkat 1994:155).

Other research used the psychological constructs of parenting styles and the dimensions that underlay them. In general, parents who exerted greater control, were more nurturing, and had better communication were more likely than other parents to have children with the same values as them (Luft and Sorell 1987). The congruence of parents’ faiths also seems to affect the success of religious transmission. Interreligious marriage is more common among younger Americans (Chaves 2011:24–25) which, as Putnam and Campbell (2012) argue, has led to much greater acceptance of religious diversity. Further, unaffiliated individuals have become less likely to adopt their spouses’ religions upon marriage, meaning more children are being raised in homes in which one parent is religious while the other is not (Hout 2016:7–8). As might be expected on purely
mathematical grounds, fewer parents from interfaith marriages have children who share their faith (Bengtson et al. 2013:115). Even so, they are no more likely than same-faith parents to raise an unaffiliated child, so long as neither parent is unaffiliated (Bengtson et al. 2018). This is not so for interfaith marriages where one parent is unaffiliated. While Baby Boomers with unaffiliated parents were more likely than not to adopt some religious identity, later cohorts were more likely to be unaffiliated if at least one parent was unaffiliated (Bengtson et al. 2018).

3.2.3. The parenting style of contemporary Americans

The abundance of quantitative evidence demonstrates that the family has an important and influential role in religious socialization of children. But recent changes in broad parenting framework may also play a role in how religion is passed on. There also is evidence that parents in the United States have adopted a shared framework for addressing the role of religion in the household. This includes parents who are religious (Smith et al. 2018), unaffiliated (Manning 2015), atheist, and agnostic (Ecklund and Lee 2011). The common framework is characterized by what Roof and McKinney (1987) called “new voluntarism”: the conviction that individuals are responsible for the details of their own religious lives as a personal preference to be respected by others. This does not mean that parents avoid religious socialization altogether. Religious parents still involve their children in their preferred religious community. They hope that their children will continue in it, marry similarly religious people, and raise religious children of their own. But they accept that their children may choose other religious options, including no religion at all. And they recognize that their own wishes for their children may need to
give way to maintain family solidarity (Smith et al. 2018). This openness to religious choice extends to non-religious parents as well. Certainly, some non-religious parents actively socialize their children into non-religious worldviews (Bengtson et al. 2018). But many are hesitant to strictly raise their children to be non-religious. Instead, many non-religious parents expose their children to religious influences in order to give their children a moral framework, embed them in a supportive community, and to avoid ostracization (Ecklund and Lee 2011; Manning 2015).

These parenting attitudes reflect a broader shift in Americans’ views on religion. Americans are motivated to appear rational in their religious convictions even while maintaining their unique set of practices, beliefs, and implications for everyday life (Wuthnow 2012). This may be connected to shifts across birth cohorts in the meanings of and distinction between “religiosity” and “spirituality” (Bengtson et al. 2013), though there is debate about whether such a distinction is as significant as many believe (Ammerman 2013; Steensland, Wang, and Schmidt 2018). Smith and Denton’s (2005) “Moralistic Therapeutic Deism” is another example of the shift towards an individualistic, internal, and rational religious framework. It also is evident in the diversity of religious beliefs and practices among the religiously unaffiliated (Wilkins-Laflamme 2015), who nevertheless emphasize religious experiences that are based on relationships, embedded in everyday life, cognitively processed, and transformational in response to personal growth (Drescher 2016:119). These sorts of religious ideas and practices can be understood as adaptive to contemporary social conditions in that they can maintain plausibility through means other than religious congregations (Berger 2014).
While these attitudes are broadly shared, they may be patterned along socioeconomic lines. Scholars have pointed to several attitudinal differences across educational and income levels which may shape how individuals religiously socialize their children. Practically, this would mean that religious co-regulation strategies differ by socioeconomic status, and changes across familial generations may be driven by increasing educational and economic achievement. Specifically, college graduates are less likely than non-graduates to believe that only one religion is true (Hill 2011) and express greater doubt in the truth of their religion (Hill 2015:36). Students who are exposed to secular theories in college also exhibit greater theological liberalism (Reimer 2010). Parents who have financial security may also have less need for religion as a psychological resource (Norris and Inglehart 2011; Smith 2017) and have a greater number of social alternatives to religion (Hirschle 2013). Finally, women’s increased labor force participation may affect the extent to which they socialize their children into a religious tradition, at least at a daily level. This is particularly relevant, given the body of data that suggests mothers are more influential than fathers in determining children’s religious characteristics (Spilka et al. 2003:113–14).

It is unclear to what extent cohort differences in religiosity reflect declining co-regulation by parents when it comes to religion, as distinct from social and cultural changes that do not operate through family dynamics. In this chapter I investigate the role of parenting attitudes, the parent-child relationship, and socioeconomic status in predicting the religiosity of the next generation.
3.3. **Methods**

3.3.1. **Data**

I use the Longitudinal Study of Generations (LSoG), a multigenerational panel study of families living in Southern California in 1971 (Silverstein and Bengtson 2016). Data collection began in 1971 with 2,044 respondents from 345 three-generation families. The researchers generated the original sample using a subscriber list of a Health Maintenance Organization in Los Angeles. They recruited men over the age of 60 who were part of three-generation families. Seven additional waves of data have been collected and made publicly available; these were collected in 1985, 1988, 1991, 1994, 1997, 2000, and 2005. This includes data on individuals who became spouses of the original respondents during the study as well as a fourth generation from whom data were first collected in 1991. Overall, the dataset includes information from over 3,500 respondents in over 400 families.

I display the response rate and attrition of LSoG respondents in Figure 7. The top panel shows the per-generation response rates in each wave. To simplify the interpretation, I only use those respondents in the first three generations who were in the initial survey and those from the fourth generation who were in the 1991 survey (that is, the first survey with data on the fourth generation). This excludes the 18 percent (n = 620) of respondents who became members of the original families (e.g. through marriage) after the first wave of data collection. The response rates for Generation 1 decline rapidly across the span of the surveys, as might be expected for the oldest respondents. The response rates for Generation 2 and Generation 3 drop significantly between the first and second
Figure 7 Response and survival rates at each survey wave by generation

surveys waves (a 14-year span) to 67 percent and 56 percent, respectively, but then slowly taper to 46 percent and 47 percent, respectively, in the most recent survey wave.
Generation 4, meanwhile, maintains a higher response rate across the 14 years they are represented, dropping to 89 percent in their second wave (1994) and down to 65 percent in the most recent wave.

The bottom panel re-interprets the data as survival rates, whereby the points indicate the proportion of respondents who had not yet completely dropped out of the data collection. Notably, the survival curves for Generations 2, 3, and 4 show that complete drop-out of the survey was more gradual than changes in the response rate, meaning some respondents completed later survey waves even if they missed a previous wave. For example, 80 percent of respondents in Generation 2 were represented in the second or later waves, meaning 13 percent (80%-67%) did not complete the second survey but completed a later survey. Similarly, the survival rate for Generation 4 in their second wave was 98 percent, meaning 9 percent of Generation 4 did not complete the 1994 survey but did complete a later wave.

The generational and panel structure of the LSoG allows me to decompose religious change into a) changes within individuals across time, b) changes within families across generations, and c) differences between families. I use all four generations to calculate descriptive statistics. Because the first generation does not have parents represented in the data, I use generations two, three, and four when estimating statistical models.

3.3.2. Measures

For some questions in the LSoG, the wording and response options changed in relatively small ways across waves, such as dropping a response option. In cases where
response options were inconsistent across survey waves, I recode the data to conform with the smaller set of options. For each variable below, I report the numeric codes and qualitative meanings of the highest and lowest values. The coding for each variable is identical for parents and their children.

3.3.3. Outcomes

Voas (2009) and Brauer (2018) developed their arguments about declining religiosity using frequency of religious service attendance, self-rated religiosity, self-rated importance of religion, and frequency of prayer. I replicate these constructs to the extent that the LSoG allows. I code religious service attendance on a five-point scale from “Never” (0) to “Weekly or more often” (4). I code self-rated religiosity on a four-point scale from “Not at all religious” (0) to “Very religious” (3). In the second wave (1985), respondents could also report that “Religion is the most important influence in my life” as a response option above “Very religious.” I collapsed these respondents into the “Very religious” category.

The LSoG does not include data on respondents’ frequency of prayer, nor does it have self-rated importance of religion per se. However, it does ask respondents about the importance of religious service attendance relative to eight or nine other values, depending on the survey wave.10 With these limitations in mind, I attempt to replicate

---

10 In the first, fourth, and fifth survey waves, respondents ranked the following eight values from most important to least: “an exciting life (novelty, adventure)”; “equality (working for social justice for all)”; “a sense of accomplishment (achievement)”; “financial comfort (enough to have the things you really want in life)”; “respect or recognition from other people”; “service (devotion to bettering mankind)”; “friendship (meaningful relations with others who really care)”; and religious participation “(working with others in your
Voas’ categories here for illustrative purposes rather than analytical. I categorize respondents as religious if they a) reported being at least moderately religious and b) either attended religious services no less than monthly or ranked the importance of religious participation among the top three values. I categorize respondents as secular if they a) reported being not at all religious, b) attended religious services no more than once a year or so, and c) ranked the importance of religious participation among the lowest three values. Finally, I categorize respondents as fuzzy if they fell between the religious and secular categories. For the purpose of categorizing respondents into these categories, I adjust respondents’ ranking of religious service attendance as if the ninth option was not ranked.

3.3.4. Predictors

I code a binary variable to indicate whether respondents’ parents divorced (1) or did not divorce (0) before the respondents turned 20. To create this measure, I use data that respondents provided on the beginnings and the ends of all their marriages. If any of those marriages (including those between a parent and step-parent) ended while their child was between the ages of 0 and 19, I code their child as having experienced a parental divorce. I code a binary variable to indicate whether respondents’ parents identified as having different religions (1) or the same religion (0). I treat Roman Catholicism and Protestantism as different religions. Additional analyses (not shown) indicate that treating them as the same religion has neither substantive nor statistical effects.

own church or organization).” In three remaining five survey waves, respondents also ranked the importance of “family life (working for the well-being of family members)” relative to the other eight.
I code the quality of respondents’ relationships with their parents as the average of three similarly measured, highly-correlated variables. In each case, respondents reported about their relationships with their parents. Quality of communication with the parent is measured on a six-point scale from “Not at all good” (0) to “Extremely good” (5). Closeness to the parent is measured on a six-point scale from “Not at all close” (0) to “Extremely close” (5). How well the respondent got along with their parent is measured on a six-point scale from “Not at all well” (0) to “Extremely well” (5). The average measure of respondents’ relationships with their parents ranges from a low of 0 (poor communication; not close; doesn’t get along) to a high of 5 (good communication; close; gets along). This measure is the only “parent” variable which was reported by their children.

I code how much respondents agreed that rules should be flexible when raising children on a four-point scale from “Strongly disagree” (0) to “Strongly agree” (3). I code how much respondents agreed that someone should change their values if they conflict with their family’s values on the same four-point scale. I code how politically conservative or liberal respondents were on a five-point scale from “Very conservative” (0) to “Very liberal” (4), with “Moderate” (2) acting as the middle value. I code four dummy variables to indicate religious affiliation, with Roman Catholic serving as the reference category. The variables indicate “Protestant,” “Jewish,” “Some other religion,” and “No affiliation.”

I code total household incomes as a logged, continuous variable. I adjust these values for inflation to align with the value of a US dollar in 2017. For each survey wave, respondents placed their household income in one of several ordinal response options.
which indicated a range of incomes. I first calculate their uninflated income as the average of the two ends. I then adjust their income based on data from the United States Bureau of Labor Statistics (2019). Finally, I take the log of the adjusted value. I code education on a five-point scale, ranging from “Less than a high school degree” (0) to “Post college education” (4). I code a binary variable to indicate whether the respondent worked full time (1) or did not work full time (0).

I code binary variables to indicate whether respondents were white (1) or not (0) and whether they were female (1) or male (0). I code age as a continuous variable centered at age 40, which helps the model converge and redefines the intercept as reflecting a meaningful, centrally-positioned age.

3.3.5. Decomposing average effects from change across time

I decompose respondents’ time-varying predictors into two components: their average values and the deviations from their average values. This “person-mean centered” approach allows me to distinguish between a) the expected difference between two respondents who have different average levels of the predictor and b) an individual’s expected change if they change on the predictor (Hoffman 2014). I decompose respondents’ age, income, educational attainment, and the relationship quality with parents into mean and deviation terms. To avoid mathematical problems with taking the log of negative income deviations, I calculate deviations from mean income as the difference between the natural log of income minus the natural log of the mean income. As a result, the income deviation represents a multiplicative deviation in the original income scale, not additive.
3.3.6. Matching parents to children

The design of the LSoG allows researchers to test how changes among parents predict changes in their children, and vice-versa. However, this would introduce considerable complexity, as parents and children are not always represented at the same time if one or the other drops out. To simplify this, I match children to a single wave of their parents’ data. This has several practical benefits. A greater number of observations are matched to their parents’ data. Parents’ data also become time-invariant, which allows me to focus on the time-varying effects of children’s characteristics. Ideally, respondents would match to their parents’ data from when the respondent was in adolescence or young adulthood. However, this is not possible for a large proportion of the respondents. To maximize data usage, I match respondents to their parents’ data at the time closest to when the respondent was a teenager. I report on parents’ age from the matched data in the results section.

3.3.7. Missing Data

I account for missing data using multiple imputation drawn through Markov chain Monte Carlo simulation. The missing data can be categorized into three types. First, some respondents are represented in the data at a particular time but are missing data on one or more variables. Second, some respondents should be represented in the data at a particular point but are not. This may have occurred if the research team was unable to contact the respondent for future waves or the respondent refused to complete them. Third, some respondents are matched to parents who are missing data on one or more variables. Because multilevel models are well-equipped to handle unbalanced panel
data—in which respondents have different numbers of responses at different times—I impute data in the first and third cases only. That is, I do not impute respondents’ data if they are completely missing from a survey wave.

The LSoG presents several challenges to handling missing data in a way that conforms to contemporary best practices. Imputation models should be “congruent” with the analysis model, in which all relationships in the main analyses are also in the imputation model, including all predictors, interactions (Hippel 2009), and random effects (Grund, Lüdtke, and Robitzsch 2018). A further source of complexity arises from the nature of the outcome variables, which are ordinal rather than continuous. Rounding after imputation is a common solution, but simulation studies indicate that it biases coefficient estimates (Allison 2005; Horton, Lipsitz, and Parzen 2003). Predictors perform better when left unrounded, even when imputed values are impossible. But analysts must either impute ordinal outcome variables using some method other than the multivariate normal model or analyze them as continuous variables.

The ideal imputation model for the LSoG would 1) fully account for the three-level multilevel structure, 2) include any random effects used in the analysis models, 3) estimate parent variables alongside their child’s data, and 4) impute the outcomes as ordinal variables rather than continuous. Given limitations in available software and the tradeoff between the ideal model and the time to impute the data under such a complex structure, I prioritize the second and fourth goals. While a three-level imputation model is not feasible in the software I used (Quartagno and Carpenter 2019), I do account for the lowest two levels of the multilevel structure (response events nested in individuals). With
regards to the third goal, I match parents to their children after imputing the data rather than before, thereby significantly reducing the number of variables (and thus computation time) that are included in the imputation model. Based on the proportion of missing information in the data (Graham, Olchowski, and Gilreath 2007), I produce 50 imputed datasets using 5,000 burn-in imputations and 400 imputations between each completed dataset.

3.3.8. Analyses

For each outcome, I estimate the same six multilevel growth curves, which I describe below. The objective of these analyses is to assess a) the change in a respondent’s religiosity as he/she ages, b) the extent to which the difference between a parent and his or her child’s religiosity is explained by the family’s characteristics, and c) the extent to which that difference is not explained by their family’s characteristics. These correspond to age, generation, and cohort effects, respectively. To distinguish age effects from generation and cohort effects, I decompose respondents’ age in each wave into two terms: their mean age across all waves (centered at age 40) and their time-specific deviations from that age. I allow time-specific deviations in age to vary randomly (according to a normal distribution) across respondents, meaning each respondent is modeled as having a unique trajectory as they age.

To further distinguish between generation and cohort effects, I first allow the effect of mean age to vary randomly across families. That is, each family has its own slope across mean age. Under this assumption, the fixed effect for mean age becomes the predicted difference in religiosity between a parent and child in an average family,
weighted by their difference in age. Mean age is a somewhat unintuitive measure, but it can be understood as an approximation of birth year, that is, birth cohort. If every respondent were measured at the same times, then mean age would be a linear transformation of birth year, whereby \( \text{birth year} = \text{mean survey year} - \text{mean age} \). This would mean that the mean age fixed effect would indicate the combination of cohort and generation effects within an average family. While this was not the case in the LSoG data, birth year and mean age exhibit a very strong negative correlation \( (\rho=-0.91) \), and so I treat them as comparable measures.

Figure 8 uses simulated data to illustrate the significance of random mean age effects across families, though transformed into year of birth for easier interpretation. In both panels, the same two families are plotted with their predicted trajectory across birth cohorts. The first family is lower on the outcome on average and also has a negative slope across years of birth, while the second family is higher on average and has a positive slope. Further, each person in the first family has one offspring while each person in the second family has two. As a result, the second family grows larger than the first with each subsequent generation by a scale of two and so becomes a larger proportion of the population relative to the first family.

In the panel on the left, the model accounts for family-level differences in intercept but not slope, meaning the fixed effect for the slope represents the average change across cohorts for the entire population. In this case, each birth cohort is predicted to be slightly higher on the outcome than the previous birth cohort. By contrast, the model in the panel on the right adds a random slope term for year of birth, meaning
Figure 8 Simulated family trajectories in random intercept and random slope models

The fixed effect represents the combination of cohort and generation effects for an average family. While each subsequent generation in family 2 is predicted to be more religious...
than the previous generation, the opposite is true for family 1. An average family, meanwhile, is predicted to decline slightly across generations. As these examples demonstrate, the population-level trend across birth cohorts can differ from changes across familial generation.

While the random effects for mean age allow me to estimate the change within families, it still represents the combination of generation and cohort effects. A central empirical question for the models, then, is which predictors reduce the fixed effect for mean age in the dataset to 0, which would suggest that all change in the outcome from the oldest generation to the youngest can be explained by the included variables. Put another way, if the fixed effect for mean age is reduced to 0, it would suggest that, in an average family, the youngest generation would be just as religious as the oldest generation assuming all other characteristics were constant. For example, imagine children of politically conservative parents were more religious than their parents while children of politically liberal parents were less religious. If members of Family 1 were politically liberal and members of Family 2 were politically conservative, the within-family declines would be partially or completely explained by the family context, that is, through generational effects. Any residual effect of mean age represents within-family cohort effects or generation effects based on unmeasured variables.

For each outcome, I estimate multilevel models for continuous outcomes. In all of the models, I include random intercepts across individuals and families as well as the

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The ordinal nature of the outcome variables means that cumulative logit models would be more appropriate than continuous models. However, maximum likelihood estimation methods are unlikely to efficiently
random age deviation slope across individuals and random mean age slope across families. I use autoregressive error structures, which are appropriate for time-series data and improve how well the models fit my data. I use maximum likelihood rather than restricted maximum likelihood so that I can compare both the random and fixed components of the models (Hoffman 2014). For my analytical strategy, I first estimate the “null,” unconditional growth model with no additional predictors. This partitions the total variance into within-individual, within-family, and between-family components. For the remaining models, I divide the predictors into four substantively meaningful groups, estimate the models with each group separately, and then estimate a final model that includes all the predictors. For models with parent variables, I estimate separate coefficients for mothers’ and fathers’ values.

For the second model—“Parent SES model”—I add parents’ logged income, education, and fulltime work status to the null model. For the third model—“Parent-child relationship model”—I add four variables to the null model: whether parents had divorced, the person-mean and deviation of the relationship quality with their parent, and whether their parents were of different religious traditions. For the fourth model—“Parent attitude model”—I add four sets of variables to the null model: how parents’ flexibility, political liberalness, whether they expect people to change their values, and indicators for their religious affiliation. For the fifth model—“Respondent model”—I add

estimate multilevel regression models with non-normal error structures and even one random slope (Snijders and Bosker 2012:311). Bayesian methods do not have this limitation but are prohibitively slow given the size of the dataset and number of imputations.

12 I assess model fit by estimating unconditional growth curve models with varying error structures, then calculating the Akaike Information Criteria for each.
the respondents’ characteristics to the null model: their means and deviations of logged income and education; as well as whether they were white and female. And for the final model—“Full model”—I add all previous predictors to the null model.

Notably, I do not use respondents’ own political attitudes in the models I present despite existing research that argues that religious decline among the youngest Americans occurred in response to the political activities of the Religious Right (Hout and Fischer 2014; Putnam and Campbell 2012). The predictors I use represent previously-measured parental characteristics (e.g. parents’ political orientation during respondents’ teen years), factors for which existing research has confirmed the causal direction (the quality of parent-child relationships, see Bengtson et al. 2013 and Wilson and Sherkat 1994:155), and stable characteristics (e.g. sex, race). By contrast, respondents’ political attitudes at each wave may be highly correlated with their religiosity even if the causal direction is reversed or the relationship is spurious. Adding respondents’ own political attitudes as predictors might therefore mute the predicted effects of family characteristics without gaining any additional clarity about the causal nature of the relationship between religion and politics.

I do include respondents’ educational attainment, which is shaped by religiosity for at least a subset of the population. Specifically, research by Darnell and Sherkat (1997; Sherkat and Darnell 1999) demonstrate that Protestant fundamentalism is associated with lower rates of educational attainment. But while it is plausible that individuals’ average religious characteristics might shape educational choices, it is substantially less plausible that changes in religiosity are associated with an increased or decreased probability of
pursuing additional education. That is, it is much more plausible that pursuing additional education leads someone to change religiously than it is for changes in religiosity to affect whether they pursue additional education. While I cannot address the relationship between overall tendencies in education and religiosity, I do examine how changes in education are associated with changes in religiosity by decomposing respondents’ educational attainment into within- and between-person differences.

3.4. Results

3.4.1. Descriptive Statistics

Table 3 reports the univariate distribution of all outcome and predictor variables, where responses from each person at each wave are treated as separate observations. For continuous variables, I report the 2.5 quantile, mean, 97.5 quantile, and missing observations. For ordinal variables, I report the count and percentage (excluding missing data) for each response option as well as the percent missing.

Notably, 30 percent of person-wave observations reported weekly or more frequent service attendance (4 or 5) while 59 percent of the observations reported being at least moderately religious (2 or 3). Protestants make up the largest religious group in the sample (38 percent) followed by the unaffiliated (28 percent). Meanwhile, 21 percent of observations are coded as having parents with different religious affiliations.

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13 Two notable exceptions might be individuals who identify a religious calling and thereby pursue religious training and, alternatively, individuals who become less religious while pursuing religious training and do not complete their program.
### Table 3 Descriptive statistics

<table>
<thead>
<tr>
<th>Respondent</th>
<th>2.5 Quantile</th>
<th>Mean</th>
<th>97.5 Quantile</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age, centered at 40 years old</td>
<td>-21</td>
<td>7.27</td>
<td>41.33</td>
<td>29 (0%)</td>
</tr>
<tr>
<td>Age deviation</td>
<td>-20.38</td>
<td>0</td>
<td>13.62</td>
<td>29 (0%)</td>
</tr>
<tr>
<td>Mean income, logged</td>
<td>9.44</td>
<td>11.1</td>
<td>12.26</td>
<td>204 (2%)</td>
</tr>
<tr>
<td>Income deviation, logged</td>
<td>-1.04</td>
<td>0</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>Mean educational attainment</td>
<td>0</td>
<td>1.99</td>
<td>4</td>
<td>1,512 (12%)</td>
</tr>
<tr>
<td>Educational attainment deviation</td>
<td>-1.5</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mean political orientation</td>
<td>0</td>
<td>1.92</td>
<td>4</td>
<td>202 (2%)</td>
</tr>
<tr>
<td>Political orientation deviation Mean</td>
<td>-1.17</td>
<td>0</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>Relationship with mother</td>
<td>0.83</td>
<td>3.36</td>
<td>5</td>
<td>2,275 (18%)</td>
</tr>
<tr>
<td>Relationship with mother deviation</td>
<td>-1.5</td>
<td>0</td>
<td>1.33</td>
<td></td>
</tr>
<tr>
<td>Mean relationship with father</td>
<td>0.67</td>
<td>3.11</td>
<td>5</td>
<td>3,057 (24%)</td>
</tr>
<tr>
<td>Relationship with father deviation</td>
<td>-1.42</td>
<td>0</td>
<td>1.33</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Generation</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1,256 (10%)</td>
<td>3,897 (31%)</td>
<td>5,143 (41%)</td>
<td>2,261 (18%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White ethnicity</td>
<td>5,303 (42%)</td>
<td>7,254 (58%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religious affiliation</td>
<td>1,026 (8%)</td>
<td>11,531 (92%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of religious service attendance</td>
<td>3,554 (38%)</td>
<td>1,427 (15%)</td>
<td>871 (9%)</td>
<td>904 (10%)</td>
<td>2,676 (28%)</td>
<td>3,125 (25%)</td>
<td></td>
</tr>
<tr>
<td>Self-rated religiosity</td>
<td>1,560 (15%)</td>
<td>2,854 (27%)</td>
<td>4,061 (38%)</td>
<td>2,229 (21%)</td>
<td>1,853 (15%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Works full time</td>
<td>5,620 (54%)</td>
<td>4,867 (46%)</td>
<td>2,070 (16%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political orientation</td>
<td>1,162 (10%)</td>
<td>2,957 (25%)</td>
<td>4,361 (37%)</td>
<td>2,249 (19%)</td>
<td>1,069 (9%)</td>
<td>759 (6%)</td>
<td></td>
</tr>
<tr>
<td>Parents have different religious affiliations</td>
<td>4,738 (39%)</td>
<td>1,246 (21%)</td>
<td>5,317 (47%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents divorced while respondent was less than 20 years old</td>
<td>3,861 (69%)</td>
<td>1,702 (31%)</td>
<td>5,738 (51%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mother</th>
<th>2.5 Quantile</th>
<th>Mean</th>
<th>97.5 Quantile</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A person should change their lifestyle if it runs against their family’s values.</td>
<td>1,692 (19%)</td>
<td>3,081 (34%)</td>
<td>3,229 (36%)</td>
<td>955 (11%)</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>1,861 (21%)</td>
<td>2,656 (30%)</td>
<td>2,866 (33%)</td>
<td>588 (7%)</td>
</tr>
<tr>
<td>Rules should be very flexible when raising children</td>
<td>182 (3%)</td>
<td>866 (13%)</td>
<td>2,204 (33%)</td>
<td>3,419 (51%)</td>
</tr>
<tr>
<td>Works full time or not</td>
<td>6,212 (72%)</td>
<td>2,422 (28%)</td>
<td>2,667 (24%)</td>
<td></td>
</tr>
<tr>
<td>Political orientation</td>
<td>1,329 (17%)</td>
<td>2,310 (29%)</td>
<td>2,374 (30%)</td>
<td>1,289 (16%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Father</th>
<th>2.5 Quantile</th>
<th>Mean</th>
<th>97.5 Quantile</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A person should change their lifestyle if it runs against their family’s values.</td>
<td>1,116 (14%)</td>
<td>2,448 (30%)</td>
<td>3,196 (39%)</td>
<td>1,424 (17%)</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>2,376 (29%)</td>
<td>1,405 (17%)</td>
<td>2,002 (24%)</td>
<td>821 (10%)</td>
</tr>
<tr>
<td>Rules should be very flexible when raising children</td>
<td>503 (8%)</td>
<td>971 (16%)</td>
<td>2,223 (37%)</td>
<td>2,284 (38%)</td>
</tr>
<tr>
<td>Works full time or not</td>
<td>2,705 (35%)</td>
<td>5,125 (65%)</td>
<td>3,471 (31%)</td>
<td></td>
</tr>
<tr>
<td>Political orientation</td>
<td>1,356 (18%)</td>
<td>2,566 (34%)</td>
<td>1,955 (26%)</td>
<td>1,009 (13%)</td>
</tr>
</tbody>
</table>

Note: Observed percentages were calculated after dropping missing values.
Turning to data on family dynamics, the average observation had moderately close relationships with their matched mother (mean = 3.36) and father (mean = 3.11). Further, the central 95 percent spreads of the deviations from those means were relatively balanced, ranging from -1.5 to 1.33 for relationships with mothers and -1.42 to 1.33 for fathers. Thirty-one percent of observations had experienced a parental divorce before the respondent was age 20. Eighty-four percent of mothers agree somewhat or strongly that rules should be flexible while raising children (2 or 3), compared to 75 percent of fathers. Forty-seven percent of mothers, meanwhile, agreed somewhat or strongly that a person should change their lifestyle if it runs against their family’s values. This is compared to 56 percent of fathers who agreed.

How much do these statistics represent parents’ data from when their child was a teenager? Table 4 reports respondents’ ages at the time that their parents’ data were collected. Data from parents of second-generation respondents are, as expected, drawn from nearly a quarter century past respondents’ teenage years on average. But the mean and median deviations from teenage years are relatively small (up to 4 years) for the third and fourth generations. The maximum deviations, by comparison, are quite large: up to 35 years for the third generation and 21 years for the fourth generation.

<table>
<thead>
<tr>
<th>Generation</th>
<th>Minimum</th>
<th>Median</th>
<th>Mean</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Father</td>
<td>5</td>
<td>24</td>
<td>25</td>
<td>48</td>
</tr>
<tr>
<td>2nd Mother</td>
<td>5</td>
<td>24</td>
<td>25</td>
<td>52</td>
</tr>
<tr>
<td>3rd Father</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>35</td>
</tr>
<tr>
<td>3rd Mother</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>4th Father</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>4th Mother</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>
Turning to the outcome variables specifically, Figure 9 displays the average change in religious service attendance and self-rated religiosity for each generation as respondents age. I also break the data out according to the average religiosity of the first generation in each family; I compare families in which the oldest generation a) attended religious services more than several times a year on average to those who attend less often and b) reported being greater than somewhat religious on average to those who reported being less religious. The points represent the mean values for each 5-year age span using the multiply-imputed data and are sized proportionally to the number of observations used to calculate the mean. The lines indicate the predicted values from the best-fitting regression model which uses an intercept and a linear age effect to predict each outcome for each generation. The age effect for each generation can be inferred from the slope of each line, while the generation effect is represented by the vertical distance between generations’ lines at the same age.

Each of the plots indicate slightly different relationships across age and generation. Overall, though, there is evidence of regression to the mean for both religious service attendance and self-rated religiosity as well as decline on average. Generation 4 respondents attended between several times a year and monthly on average, regardless of whether their great-grandparents attended more than several times a year or less often. And because these two groups are roughly the same size (1,633 and 1,886 respondents, respectively) and the average difference between Generations 1 and 4 are similar (between 0.5 and 1 point), the average change is closer to 0 than these suggest. In fact, Generation 4 is roughly a quarter of a point lower than Generation 1 on average, not
Figure 9 Predicted linear age trajectories for each generation on the outcome variables.
accounting for age differences. Likewise, Generation 4 respondents reported being about halfway between moderately and somewhat religious, regardless of whether their great-grandparents were more or less religious than that. But because many more Generation 1 respondents reported being greater than somewhat religious (N = 2,738) than somewhat or less religious (N = 781), the average change is negative. The relative stability of the trends across age, particularly for families whose oldest members are in the more religious categories, should not be surprising. Dillon and Wink (2007:82) found a shallow U-shaped trajectory using the same data, which is smoothed by the linear predictor I use. Substantively, this at least suggests that religious changes across year of birth are likely to be generation or cohort effects rather than age effects, at least among the respondents in the LSoG.

We can also examine the proportion of each generation that is classified as religious, fuzzy, and secular, which I show in Figure 10. Because generations changed very little on average as they aged, I simplify the illustration by using respondents’ median religious service attendance, self-rated religiosity, and ranking of the importance of religious service attendance to classify them rather than show the change over time. The pattern is akin to Voas’ (2009) and Brauer’s (2018) findings, with increasing secular proportions across generations and a peak in the fuzzy proportion (Generation 3), though change occurred at a much slower rate.

These patterns suggest that the youngest respondents are indeed less religious than those in their parents’ generations on average, but not all families experienced such change. Further, the difference is much less substantial than what Brauer (2018) found
Figure 10 Proportion of respondents in each generation that are religious, fuzzy, and secular, calculated using respondents’ religious measures at their medians across cohorts at the national level. It is possible that immigration and differential rates and timing of fertility explain some of this difference. However, this seems implausible,
since immigration and fertility rates likely led to greater average religiosity, not lower (Fischer and Hout 2008). A more plausible possibility is that the unique population from which the LSoG was drawn (that is, Southern Californian families) deviates somewhat from the national average, which is apparent from the low rate of religious service attendance among the oldest generation. However, the pure descriptive trend does not account for within-family and within-individual factors, both stable and changing. I turn to the formal models to further investigate the decline within families.

3.4.2. Models

To be concise, I interpret the fixed effect coefficients from the models using mothers’ data rather than fathers’ when the two are substantively similar. Throughout, a positive mean age effect means that older generations (with higher mean age) are predicted to be more religious than younger generations. To give a substantive interpretation to the mean age effect, I describe the coefficients in terms of the difference between an eighty-year-old individual and his or her twenty-year-old grandchild (i.e. a 60-year difference) from an average family. A negative age-deviation effect, meanwhile, means that individuals are predicted to become less religious as they age. I interpret the age-deviation coefficient in terms of an average individual’s predicted change across twenty years.
3.4.2.1. Frequency of religious service attendance

Table 5 reports the results of the multilevel models which estimate respondents’ frequency of religious service attendance. Model 1 (the null model) indicates that parents attend religious services more frequently than their children (β = 0.01, p < 0.001). That is, a 20-year-old individual is predicted to be 0.6 points lower on attendance than his or her 80-year-old grandparent. Further, the coefficient for the age deviation is negative (β = -0.012, p < 0.001), suggesting respondents drop 0.24 points after aging 20 additional years.

As seen in Model 2, parents’ socioeconomic status reduces the mean-age coefficient by 20 percent, from 0.01 to 0.008 (p < 0.001), though none of the coefficients are significant predictors of the outcome. Model 3 indicates that qualities of the parent-child relationship explain roughly 10 percent of the mean-age effect when accounting for respondents’ relationships with their mothers (β = 0.009, p < 0.001) and 40 percent when accounting for their relationships with their fathers (β = 0.006, p < 0.01). The only significant predictor is whether respondents’ parents had different religious traditions, which is significant in the model for mothers (β = -0.142, p < 0.05). This indicates that individuals whose parents are of different faiths are on average 0.142 points lower on the attendance scale than individuals from same-faith households.

Model 4 adds parents’ parenting attitudes, political orientation, and religious affiliation. As before, the mean age effect is reduced when either mothers’ or fathers’

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Models differed in the number of observations depending on which parent’s data, if either, was used. These discrepancies arose because some respondents could not be matched to one or both of their parents. Parents’ data were only imputed if they were already in the dataset, meaning these respondents did not receive imputed parent data.
Table 5 Multilevel model results predicting the frequency of respondents' religious service attendance

<table>
<thead>
<tr>
<th>Model</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>z Value</th>
<th>p value</th>
<th>Lower 95% CI</th>
<th>Upper 95% CI</th>
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<tr>
<td>Model 1</td>
<td>0.5</td>
<td>0.1</td>
<td>5</td>
<td>0.0001</td>
<td>0.3</td>
<td>0.7</td>
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<tr>
<td>Model 2</td>
<td>0.6</td>
<td>0.1</td>
<td>6</td>
<td>0.00001</td>
<td>0.4</td>
<td>0.8</td>
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<tr>
<td>Model 3</td>
<td>0.7</td>
<td>0.1</td>
<td>7</td>
<td>0.000001</td>
<td>0.5</td>
<td>0.9</td>
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Note: This table presents the results from multilevel models predicting the frequency of respondents' religious service attendance. The models include various predictors and show significant effects at the 0.05 level.
characteristics are included, with it reducing from 0.01 to 0.005 (p < 0.05) in the latter case. While flexibility of rules does not significantly predict religious service attendance, respondents were predicted to attend religious services more frequently if their mother believed that people should change their lifestyles if they conflicted with their family’s values (β = 0.084, p < 0.05). Respondents with politically liberal parents, meanwhile, were predicted to attend religious services less frequently than those with politically conservative parents (β = -0.126, p < 0.001), meaning children of very liberal parents are predicted to be on average 0.63 points lower than children of very conservative parents. And, as should be expected, children of religiously unaffiliated parents were less likely than children of Catholic parents to attend religious services (β = -0.404, p < 0.01).

Model 5 forgoes parental variables and instead adds respondent characteristics. The age-deviation effect is reduced by one-third compared to the null model, from -0.12 to -0.008 (p < 0.001). In practical terms, this means an average individual is predicted to be only 0.016 points lower at age 40 than age 20, assuming they otherwise stayed the same. Mean educational attainment is positively associated with religious service attendance but is non-significant (β = 0.053). By contrast, additional educational attainment is associated with declining attendance (β = -0.097, p < 0.001). An individual is predicted to decrease their frequency of religious service attendance if their education increases. Women are also predicted to be 0.15 points higher than men on average.

Finally, Model 6 includes all previously added variables. The mean age coefficient is half the size it was in the null model, from 0.01 to 0.005, and is no longer significant. This suggests that the decline in religious service attendance within families may be
explained by the combination of parent and child characteristics and their relationship quality, though primarily the first. While it is still more plausible that religious service attendance is declining across cohorts than increasing, there is no longer enough power to distinguish the cohort effect from 0 when using a conventional threshold for significance. The remaining coefficients are similar to the previous models, with a few exceptions. Respondents’ mean education attainment is still positive and now significant ($\beta = 0.066, p < 0.05$). Mother’s household income is also negatively associated with respondents’ religious service attendance ($\beta = -0.093, p < 0.05$).

Figure 11 illustrates the practical implications of these findings by ranking the maximum impact of each predictor in Model 6 for mothers. The labels on either side of each bar indicate the maximum range of values (if on an ordinal scale) or the observed range in the original data (if continuous). The length of the bars represents the predicted difference between respondents with those two values but who are otherwise identical. The greatest differences exist between people who have very conservative and very liberal mothers (0.49 points); those who go from having less than a high school degree to some post-bachelor’s education (0.48 points); and those with religiously unaffiliated mothers compared to those with Roman Catholic mothers (0.39 points). Meanwhile, an average respondent who was in all eight waves of the LSoG (from 1971 to 2005) is predicted to have dropped by 0.28 points during that time which, despite being non-significant, is still less than the predicted 0.36 points between the oldest and youngest respondents in the data.

From the perspective of statistical significance, parents’ political attitudes, socioeconomic status, and respondents’ education stand out as the most important factors
Figure 11 Maximum possible predictive effects of each predictor on frequency of religious service attendance
predicting religious service attendance. When viewed in terms of the reduction of the mean-age effect, respondents’ relationships with their fathers also seems to play a role despite being non-significant. Parental factors and the parent-child relationship (particularly with fathers) did more to reduce the mean-age coefficient than respondents’ own characteristics, suggesting a within-family process of transmitting religious behaviors.

3.4.2.2. Self-rated religiosity

Table 6 reports the results of the multilevel models which estimate respondents’ self-rated religiosity. As with religious service attendance, the null model indicates that generations (β = 0.010, p < 0.001), with an estimated 0.6 points separating a grandparent and their grandchildren from an average family. Likewise, respondents are predicted to think of themselves as less religious as they age (β = 0.007, p < 0.001), translating to a 0.14-point drop for every twenty additional years.

As seen in Model 2, adding mothers’ socioeconomic status reduces the mean-age coefficient by 30 percent, from 0.01 to 0.007 (p < 0.001). The reduction in the mean-age effect is less substantial when adding fathers’ SES (β = 0.009, p < 0.001), though none of the predictors are significant. Parents’ relationships with their children, meanwhile, does very little to reduce the mean-age effect for either parent, as seen in Model 3. The quality of the parent-child relationship is positively associated with self-rated religiosity (β = 0.054, p < 0.01), and improvements to the mother-child relationship are associated with additional, smaller increases in self-rated religiosity (β = 0.027, p < 0.01).
Table 6 Multilevel model results predicting the frequency of respondents' self-rated religiosity

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Note: Additional columns can be added as needed for more detailed analysis.
Model 4 adds variables measuring parents’ attitudes and identity, which reduces the mean-age effect by 20%, from 0.01 to 0.008 (p < 0.001). As before, children of liberal parents are predicted to think of themselves as less religious than children of conservative parents (β = -0.061, p < 0.001). Unlike with attendance, mothers’ expectations of conformity to family values play a role in self-rated religiosity. Children of mothers who think that people should change their behaviors to align with their family’s values are more likely to think of themselves as religious than children of mothers who dissent from that idea (β = 0.065, p < 0.01). Fathers’ opinions about conformity to family values do not seem to have as much of an effect (β = 0.024, p > 0.05).

Notably, children of religiously unaffiliated mothers are predicted to think of themselves as less religious than children of Roman Catholic mothers (β = -0.152, p < 0.05) while the coefficient for fathers is half the size and non-significant (β = -0.073). However, children of fathers who identify as Protestant (β = 0.168, p < 0.05) or a religion other than Catholic, Protestant, or Jewish (β = 0.214, p < 0.05) are predicted to rate themselves as more religious than children of Roman Catholic fathers. Children with Jewish parents, meanwhile, are predicted to think of themselves as less religious than children of Catholics (β = -0.391, p < 0.001).

Adding respondents’ characteristics, as shown in Model 5, highlight the slightly greater religiosity of women compared to men (β = 0.0179, p < 0.001). As before, additional educational attainment is associated with declining self-rated religiosity (β = -0.032, p < 0.05), though average attainment is not at a conventional threshold of significance (β = -0.017). Turning to the full model (Model 6), all of the factors together
account for only 30% of the mean-age effect, from 0.01 to 0.007 (p < 0.001). The coefficients in the full model are essentially the same as they are in the previous models. The only exception is the coefficient for unaffiliated mothers (β = -0.127), which becomes non-significant.

Figure 12 illustrates the substantive impact of these models. The oldest respondents are predicted to be 0.48 points lower than the youngest on average, and an average respondent in the 2005 data is predicted to be 0.18 points less religious than they were in 1971. Respondents with the warmest, closest relationships with their mothers are predicted to be 0.26 points more religious than those with the coldest, most-distant relationships. However, those who go from the latter to the former are predicted to increase in religiosity by 0.14 points. A child of a very conservative mother is predicted to be 0.24 points more religious than a child of a very liberal mother. And a child whose mother strongly agrees that people should change their behaviors is predicted to be 0.16 points more religious than a child whose mother strongly disagrees.

While parents’ characteristics substantially reduced the predicted decline of religious service attendance within families, they did very little to reduce the decline in religious service attendance. This suggests that declining self-rated religiosity is primarily a cohort effect that is substantially shaped by the surrounding culture and society rather than by changes in the family. The contrast between religious service attendance and self-rated religiosity also suggests a distinction between religious behaviors and religious identities.
Figure 12 Maximum possible predictive effects of each predictor on self-rated religiosity
3.5. **Discussion**

Both religious service attendance and self-rated religiosity declined across familial generations. The size of these changes should not be overstated: the models suggest that, in an average family, there was a 0.6-point decline in both religious service attendance and self-rated religiosity—once again assuming an 80-year-old grandparent with a 20-year-old grandchild—even before accounting for family characteristics. The change in religious, fuzzy, and secular categories is also less dramatic than what Brauer (2018) found at the national level. The geographic focus of the LSoG sample and the different measures used to create the categories could explain this difference. More importantly, though, this demonstrates that slow, religious decline can occur even when children look a lot like their parents religiously.

3.5.1. **Cohort and generation processes**

Parents’ characteristics explained a substantial portion of the decline in religious service attendance across generations, 50 percent in terms of coefficient size and enough to make it non-significant under traditional thresholds of significance. This suggests that much of the change we see at the aggregate level can be explained by changes in the household. By contrast, declining self-rated religiosity appears to be related to factors outside the family. That is, declining religious service attendance seems to occur across generations while declining self-rated religiosity occurs across cohorts.

Educational attainment illustrates the complexity of this point. Though respondents’ educational attainment was a statistically significant predictor of their attendance, it and other measures of respondents’ socioeconomic status explained very
little of the decline within families. By comparison, after adding mothers’ and fathers’ education, income, and work status to the models for attendance, the predicted decline across families shrunk by two and three times as much as it did after adding respondents’ characteristics. This is despite none of them reaching statistical significance in the full model besides mother’s household income. This illustrates how cohort differences in things other than religion, such as socioeconomic status, can produce differences in religion in subsequent generations. While I did, in fact, find that respondents became less religious as their educational attainment increased, this type of relationship could explain why others have found that educational attainment in the aggregate is associated with religious decline even though it has become a weaker predictor at the individual level among younger Americans (Schwadel 2014). That is, if educational attainment is associated with changes in the household rather than or alongside changes in an individual’s religious services attendance, it might indirectly affect aggregate religiosity by influencing intergenerational religious transmission.

From the perspective of socialization, the most impactful changes would be those that lead parents to think of religious socialization as less important or that lead them to provide an ineffective amount of support in response to a child’s developmental needs. A more complex modeling approach would be required to determine the parabolic and age-dependent function predicting “optimal” levels of co-regulation. But my findings provide more general insight into generational and cohort effects.
3.5.2. Religious behaviors and self-perception of religiosity

These findings may also reflect different dynamics by which parents shape behaviors compared to their effects on the cognitive aspects of religion. Religious service attendance is certainly more easily modeled, monitored, and reinforced than one’s perception of oneself as religious. Further, by including their children in regular religious participation, parents embed them in supportive social networks which can further reinforce religious behaviors (Smith and Denton 2005). And, because congregations communicate values, beliefs, and other cultural content (Chaves 2004), religious attendance in one’s youth gives children the cultural resources to more easily integrate into other congregations as adults.

By comparison, self-rated religiosity is a fuzzier concept than religious service attendance. As such, it is almost certainly more difficult for parents to communicate their expectations for their children. Scholars have extended research on socialization to examine the role of children’s perceptions of parent values (Ojeda and Hatemi 2015). Parents communicate the importance of religion by setting expectations of conformity to family values, which allows children to more effectively emulate their parents. But demonstrating the importance of religious service attendance is much more direct than communicating an expected level of personal religiosity. Further, self-rated religiosity is likely shaped by other discursive cultural factors. That is, even if there is agreement about the meaning of “religiosity” (Steensland et. al. 2018), what it takes to perceive oneself as religious may have changed across cohorts. While qualitative research might uncover
such cultural changes, quantitative scholars should consider how such changes might affect the value of self-rated religiosity as a proxy for religiosity generally.

3.5.3. Political attitudes

One of the largest differences in both outcomes was between children of very liberal and very conservative parents. One possibility is that parents’ political orientations are correlated with unmeasured factors that would suggest other causal processes. For example, a more discriminate coding of religious affiliation, such as distinguishing between evangelical and mainline Protestants, may account for some of the differences attributed to political orientation. Another possibility is that conservative and liberal parents in the data are unequally distributed across geographic space and are embedded in qualitatively different social networks and local institutions.

But another possibility is that political conservatives and liberals do indeed parent differently despite having a shared frame by which they understand their parenting. That is, parents of all political orientations may frame their parenting style as granting children the freedom to explore their own religious identity, per Smith and colleagues (2018), but still may vary in their behaviors and expectations. Assuming the behaviors were patterned along religious or political identities, then social groups might appear more influential than one’s self-reported approach to parenting. From the perspective of measurement, the common frame by which parents understand their role may have led to the diminished value of survey measures about such thoughts about parenting. Smith and colleagues’ work provides ample qualitative findings to motivate future research about such processes.
Of course, parents’ political attitudes shape the political attitudes of their children. One possibility, then, is that the real causal factor is children’s political orientation and that parents’ attitudes are simply a noisy measure of their children’s attitudes. In alternative models (not presented), respondents’ political orientations were indeed strong predictors of religious service attendance and self-rated religiosity—though, in the latter case, it only explained a small proportion of the decline across generations. Does this suggest that political mobilization of religious conservatives led younger, less religious Americans to abandon religion entirely, as suggested by other scholars (Hout and Fischer 2014; Putnam and Campbell 2012)? Unfortunately, these models cannot adjudicate the causal direction of political views and religiosity, let alone whether it represents a spurious relationship. Further investigation using models specifically tailored to causal inference is required to better understand this relationship.

3.5.4. Limitations

These findings must be understood in light of the population from which they were drawn: families residing in California. The generalizability of these findings to the broader United States is limited at the very least in the numeric sense. That is, the specific strength of each predictor is likely to differ when applied to samples from elsewhere in the country. Still, it seems plausible that, whatever the differences between Californian and other US families are, they share similar processes of handing down faith from one generation to the next. Though there are few if any datasets that are comparable to the LSoG in its scope across historic and generational times, future research may be able to
leverage studies of two-generational families to generate nationally-representative estimates of decline across familial generations.

It must also be repeated that a majority of respondents’ data were not from their adolescent or young adult years. Consequently, only a subset of the data speaks directly to how young respondents changed in response to their family context, which is when we might expect most of the changes to occur. Finally, operationalizing the co-regulation process is an undeniably fuzzy endeavor when data were not specifically designed to measure it. Distinguishing between being too flexible, flexible but supportive, and too strict is not practically feasible when using only two measures on five-point scales. Consequently, my findings on parenting attitudes should be understood as a further step towards integrating psychological dynamics into studies of social change rather than a strict empirical test of the co-regulation process. Future research might examine such factors in a more expansive way using datasets that are equipped to do so.

3.6. Conclusion

One’s family of origin remains one of the most important factors in adult religiosity. Slow decline across familial generations, shaped by changing demographics, attitudes, and socioeconomic status, helps explain religious trends evident in the United States. While it already has been established that the youngest US cohorts are less religious than older ones, I have shown that this pattern is evident within families and explained in large part by family characteristics, at least for attendance. Taken together, these findings demonstrate that religious decline is as much an experience within families as it is a societal experience.
4. Conclusion

This research makes two significant contributions to knowledge about religion and religious decline. First, it further illustrates that the United States is not an exception to the experience of religious decline that characterizes much of the world in the 20th century. Recent research has made similar arguments (Voas and Chaves 2016) but I go further by showing that the shape of European and US trajectories is practically identical. While contextual factors certainly play a role in distinguishing the exact trajectories of each country, this further emphasizes the shared conditions which could plausibly produce this decline. In other words, future scholarship can build on this research by examining the general conditions of contemporary life, not just country-specific ones.

Second, my research refocuses attention on the family dynamics that produce or enable decline. While this research is not exceptional in its emphasis on the family generally, it is one of very few studies to document how families influence decline rather than maintain stability. By distinguishing between changes within families and those across them, I identify the extent of the family’s influence in decline. While I find that frequency of religious service attendance is largely explained by changes in the family, self-rated religiosity seems to be declining across cohorts in ways that are not attributable to parent characteristics or parent-child relationships. That is, familial and societal processes shaping formal religious participation are different from those shaping people’s subjective sense of their own religiosity.

The implications for future scholarship are both theoretical and methodological. This research emphasizes how slowly changing social conditions can influence family
dynamics and slowly weaken the importance of religion in the next generation’s lives. This is in contrast to theories which emphasize more abrupt or idiosyncratic changes which might produce sudden religious decline. Methodologically, it illustrates the added value of knowing about individuals’ families of origin when explaining why younger Americans are less religious than their parents. Without this knowledge, scholars cannot disentangle religious changes caused by changes in parents and households from religious changes caused by social and cultural changes that are not directly about families. While suitable data are limited, scholars should continue to consider how family characteristics influencing intergenerational religious transmission are and are not implicated in generational and cohort differences in religiosity.

Overall, this research is a significant step forward from existing studies of religious decline. It contributes to the long-running secularization debate as well as to knowledge about the connections between religion and family. And it uses a novel approach to contribute to knowledge about how family context shapes religious decline or continuity. Parents may be surprised and encouraged by the important role they play in shaping their children’s outcomes. But they also may reflect on how their parenting reinforces (or does not reinforce) their children’s religiosity. Scholars should recognize in this research a familiar but revealing take on the role of the family which pushes past the focus on parent-child congruence to better understand what is happening. This research began by reassessing the nature of decline generally and concludes by setting an agenda for scholars to rethink the role that family plays in producing it.
5. Appendices

Appendix A. Loss of detail from the GSS coding of religious, fuzzy, and secular respondents

I assessed the loss of detail in the GSS coding in two ways. First, I adjusted the US data to mimic the average and maximum effects of the importance of religion measure in the European data. Second, I re-ran the analyses after excluding the importance of religion measure when categorizing European respondents.

I recoded the ESS data to match the GSS coding by excluding the ESS measure of the importance of religion. In total, 6,675 (16.3 percent) of the 40,853 respondents used in the 2002 ESS are coded differently when ignoring the measure of religious importance. The range differs substantially between countries, from a low of only 6.4 percent differently coded in Poland to a high of 31.7 percent in Finland, and a mean of 16.0 percent. The biggest difference is among those categorized as religious by Voas’ measure, with 35.9 percent categorized as fuzzy when the religious importance measure is excluded. By comparison, only 7.7 percent of respondents categorized as fuzzy are coded as secular when religious importance is excluded. So, it is possible that the limitations of the GSS coding made US cohorts look less religious than they actually are.

I adjusted the US data based on the average difference in coding (35.9 percent of religious and 7.7 percent of fuzzy respondents that were categorized differently) and the maximum difference (73.2 percent of religious and 3.2 percent of fuzzy respondents from Finland that were categorized differently). This produces estimates that would be expected if US adults exhibit similar patterns of religious importance relative to the other
measures as the European average and Finland respectively. With no adjustment, the youngest US cohorts are no longer majority religious, with the 1980 cohort being 32.7 percent religious and 52.4 percent fuzzy. This is not the case when adjusted based on the European average. The United States is predicted to be 68 years further than Greece. The percent religious declines from 70.1 percent of the 1920 cohort to 51.5 percent of the 1980 cohort, while only 34.7 percent of the 1980 cohort is fuzzy. The difference is of course larger when making the maximum adjustment. The United States is predicted to be 48 years further than Greece, with 82.9 percent of the 1920 cohort and 71.1 percent of the 1980 cohort being religious.

The models are not substantially changed when the ESS categorization excludes the importance of religion, though the substantive implication for each country is slightly different. The strict model’s coefficient for year of birth is nearly identical when comparing models that include and exclude importance of religion and are highly significant in each case. However, because each country is categorized as less religious when excluding the importance of religion measure, they are predicted to be further along in the process relative to the United States. Figure 13 displays the predicted religious, fuzzy, and secular trajectories and the cohort proportions when the importance of religion is not used. The United States is predicted to be only 50 years further than Greece when the European data excludes importance of religion, compared to 90 when it is used to categorize respondents.
Figure 13 Predicted religious, fuzzy, and secular proportions of cohorts, given birth years relative to the 1920s US cohort when using less-precise coding for Europe
From these analyses, we should expect that the United States is less far along than is indicated in the strict model (as seen in Figure 4), maybe 40 years. However, there is no evidence that the United States would not fit the shared trajectory if respondents’ importance of religion were measured.
Appendix B. Strict definition of secular

I created a second coding for secular respondents that is stricter than Voas’ original, in order to assess how sensitive the categorization is. To be categorized as secular in the stricter coding, ESS respondents must never attend religious services, never pray, score their religiosity as a 0 (“Not at all religious”), and score the importance of religion as a 0 (“Extremely unimportant”). Likewise, GSS respondents are categorized as secular if they never attend religious services, never pray, and score their religiosity as a 1 (“Extremely non-religious”). I replicated Figure 4 by plotting the stricter cohort proportions to the predicted curves, as seen in Figure 14.

While the trajectories look similar and visual inspection suggests similarly good fit for the cohort proportions, there are two substantively significant differences. First, the stricter coding produces a model that predicts a slower increase of the secular proportion of each cohort. By year 150 (that is, the cohort born 150 years after the 1920s US cohort), the secular proportion is estimated to only make up 25 percent of the youngest cohort, compared to more than 50 percent when using the less strict coding. Second, only 39 US respondents were coded as secular using the stricter coding. The consistently low proportion of people in each US cohort who have absolutely no connection to religion suggests that Americans are more likely than Europeans to retain some religious practice or identity. This could be as minimal as attending religious services less than once a year or identifying as very non-religious as opposed to extremely religious.
Figure 14 Predicted religious, fuzzy, and secular proportions of cohorts, given birth years relative to the 1920s US cohort when using stricter coding
Appendix C. Interpreting ordinal models

One way to understand ordinal models is to use the latent variable interpretation, as described by Long (1997:116). Imagine fitting an OLS model to a continuous outcome, like the one shown in the first panel of Figure 15, resulting in a linear regression equation. The regression line indicates the predicted conditional mean. For example, when \( x = 2 \), the mean is predicted to be 0.35. A normal distribution surrounds the regression line which indicates how much we might expect a random draw to vary from its predicted value. When \( x = 2 \), fifty percent of the data is expected to lie between 1.3 and 2.64 and 95 percent is expected to lie between 0.01 and 3.93. And, because the outcome is continuous, 2 is equally spaced between 1 and 3.

An ordinal model, as seen in the second panel of Figure 15, looks similar to the OLS model but differs in a few ways. The y-axis still indicates a continuous outcome (the latent variable, in log-odds), but it is broken up into discrete bins, one for each value of the outcome. Moving from \( y = 0.42 \) to \( y = 0.49 \) is associated with a 0.7-point increase in the latent variable. Both points lie within the middle bin, representing the second group. A distribution also surrounds the regression line for the ordinal model which indicates the spread of values we should expect to find. The distribution is logistic with a variance of \( \pi^2/3 \) and the values are in terms of the latent variable. Some proportion of the distribution will be in the lowest bin, some in the middle bin, and the rest will be in the highest bin. These proportions represent the predicted probabilities of each group, conditional on the outcome variables. When \( x = 2 \), 50 percent of the distribution is in the
Figure 15 Illustration of the latent variable interpretation of ordinal logistic regression
lowest bin ("Low" in the second panel of Figure 15), 39 percent in the middle bin ("Medium"), and 11 percent in the highest bin ("High"). Finally, the ordinal model estimates the distance between the cutoffs (also called thresholds) instead of assuming they are equally spaced. When we convert the linear relationship between the latent variable and its predictors to predicted probabilities of each category of the outcome variable, the relationship is clearly non-linear, as seen in the third panel of Figure 15.

Under normal assumptions, an ordinal model estimates a single equation which predicts the latent variable. This is in contrast to a multinomial logistic model, which simultaneously estimates separate logistic regressions for each pair of comparisons. For example, a multinomial model would estimate two coefficients for $x$, one for the model comparing Low and Medium and one comparing Low and High—the model comparing Medium and High can be derived from the other two equations and so is redundant. Ordinal models, then, are efficient but strict, while multinomial models are flexible but inefficient. Thankfully, an ordinal model can relax this assumption for a subset of its coefficients, allowing the analyst to decide which coefficients should vary by equation. The analyst can then use a Wald test to examine whether the coefficients are identical, which would indicate that the extra flexibility is unnecessary.
6. Bibliography


7. Biography

Simon George Brauer holds a B.S. in Sociology and Psychology from Illinois Institute of Technology in Chicago, IL and an M.A. in Sociology from Duke University. He is co-lead with Peter Arcidiacono on “The Role of Catholic Campus Ministry in the Formation of Young Adults,” a panel survey of Catholic college students. And in 2017, he received an Interfaith Diversity Experiences and Attitudes Longitudinal Survey (IDEALS) research award. Simon has published on national trends in the number of congregations (Brauer 2017) and individual religiosity (Brauer 2018), as well as on the role of religion in higher education (Schleifer, Brauer, and Patel 2018) and medicine (Brauer, Yoon, and Curlin 2015, 2017; Frush et al. 2018).