

# Traditional, Modern, and Post-Secular Perspectives on Science and Religion in the United States

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## Abstract

Using General Social Survey data, we examine perspectives on science and religion in the United States. Latent class analysis reveals three groups based on knowledge and attitudes about science, religiosity, and preferences for certain religious interpretations of the world. The *traditional* perspective (43 percent) is marked by a preference for religion compared to science; the *modern* perspective (36 percent) holds the opposite view. A third perspective, which we call *post-secular* (21 percent), views both science and religion favorably. However, when faced with competing accounts of events such as creation and evolution, post-seculars root their views in religion rather than in mainstream science. Regression models indicate that perspectives on science and religion do not simply mirror other denominational or ideological differences. Furthermore, religio-scientific perspectives shape attitudes about political issues where scientific and some religious communities diverge, including on abortion rights and stem cell research. Overall, most individuals favor either scientific or religious ways of understanding, but many scientifically inclined individuals prefer certain religious accounts. This suggests that public divisions related to science and religion are cultural and epistemological. This article underscores the complexity of the boundary between reason and faith and highlights the roots of political conflict in perspectives on science and religion in the United States.

## Keywords

science, religion, political culture, secularization, cultural conflict

The relationship between science, religion, and society has been the focus of sociological inquiry since the discipline's earliest years. Historically, many sociologists have presumed that as societies develop, science and reason replace religion and faith as bases for understanding the world. For example, Comte (1998), Marx (1978), Weber ([1904] 1930), and Durkheim ([1912] 1995) each forecast that in modern society, positivism, rationality, and science would displace the theological,

enchanted, religiously oriented perspective held by earlier civilizations. However, more

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than a century later, the prediction that a modern, scientifically oriented worldview would dislocate a traditional, religiously inclined one has not borne out. Continued high-profile confrontations between leaders of religious and scientific communities over issues such as embryonic stem cells, genetic modification, and family planning illustrate that science has not simply replaced religion in the modern world (Evans 2010; Nelkin 2004).

Popular accounts typically downplay doctrinal and institutional differences among religious traditions and presume a broadly antagonistic relationship between science and religion (Dawkins 2006). Contemporary social scientific research often shares this assumption of conflict (Barbour 2000; Evans and Evans 2008). As Western society is increasingly characterized by reason and science, religious authority has ceded influence. Some secularization theories explain this shift as the result of deep-seated incompatibility between scientific and religious authority (Chaves 1994; Gorski 2000). Although secularization is apparent among many Western public institutions, it is less clear whether individuals see science and religion as providing contradictory views of the world (Ecklund 2010; Taylor 2007).

Research on science, religion, and the public is extensive, but it contains two important gaps. First, many studies treat attitudes about science as either outcomes or antecedents of religious attitudes and behaviors (Evans 2011; Freeman and Houston 2011; Sherkat 2011). Yet conceptualizing the relationship in this way assumes that views of science and religion are causally related. In light of the strong appreciation of science and continued religiosity in the United States (Gauchat 2012; Stark 1999), we believe that such an assumption warrants further investigation.

Second, previous studies often examine science and religion in uniform terms that do not reflect their conceptual richness. Research into the public understanding of science finds that individuals view science as interrelated dimensions of affect, knowledge, and understanding (Allum et al. 2008; Miller 2004). Uni-dimensional analyses of science attitudes

or knowledge may therefore miss important details about how individuals use science to make sense of the world. Furthermore, research on science and religion is typically Christian-centric, measuring religion with denominational and religious attendance-based items that may not capture differences in how individuals use religion to orient their lives (Bender et al. 2013).

We pursue a theoretically guided investigation that incorporates multiple dimensions of individuals' views of science and religion. We refer to science and religion as distinctive sets of ideas, information, beliefs, and practices that provide explanations and understandings of certain phenomena. For science, these explanations and understandings are based on reason and logic; for religion, they are based on faith and tradition. In this article, we examine individuals' perspectives on science and religion and how they serve as interpretative frameworks that guide individuals' understandings of the world. Perspectives on science and religion are multifaceted, simultaneously consisting of and serving as sources of knowledge and values. They are affective and may be favorable, unfavorable, or ambivalent. By examining perspectives on science and religion in tandem, we provide a unique analysis that avoids conceptualizing views about these two ways of understanding as cause and consequence of one another. Findings suggest that the issue is more complicated than is often acknowledged and that perspectives on science and religion mark epistemological and cultural divides.

We use General Social Survey data to examine whether a scientifically inclined worldview precludes a religiously inclined one, or if favorable perspectives on science and religion can coexist in the minds of the U.S. public. Latent class analysis suggests that most people hold either *modern* or *traditional* perspectives, preferring either scientific or religious ways of understanding the world. We also identify a third, *post-secular* perspective held by roughly one in five individuals that sees conflict between science and religion as limited to a narrow but important set of issues. This third perspective is not

middle ground between a preference for science and one for religion, but a distinctive worldview that reconciles science and religion in all but a few ways. We also investigate how religio-scientific perspectives correspond to sociodemographic characteristics and attitudes about political issues where scientific and certain religious interpretations diverge. Results indicate that perspectives on science and religion do not necessarily replicate denominational, ideological, or sociodemographic differences.

## THEORETICAL PERSPECTIVES

### *Conflict between Science and Religion*

Contemporary accounts of conflict between science and religion are often rooted in secularization theories, which hold that as societies modernize, individuals and public institutions increasingly rely on rationality rather than faith to organize daily life. Secularization occurs when religious authority is differentiated from other sources of authority and is no longer needed to legitimize institutions such as family, government, and education. In modern society, reason and science are used to legitimize social arrangements once considered the domain of religious authority. Although different secularization theories disagree on why the cultural roles of science and religion have shifted (Gorski 2000), many scholars suggest that science and religion provide contradictory frameworks, in which an inclination for one prohibits an inclination for the other (Binder 2002; Lienesch 2007; Smith 2003; Toumey 1994).

Observers agree that secularization is evident in many Western institutions (Drori et al. 2003; Evans and Evans 2008). Additionally, waning religious participation in Europe and declining public belief in the supernatural are sometimes seen as indicative of religion's declining social influence (Bruce 2011; Dobbelaere 1999; Wilson 1975). Together with declining religiosity, strong support for science among Europeans is consistent with conflict-based accounts (National Science

Board 2012). Furthermore, when asked directly, many people in the United States view science and religion as broadly conflicting (Baker 2012; Longest and Smith 2011), suggesting that for these individuals an inclination toward scientific authority is incompatible with one for religious authority. Overall, prior research suggests that individuals who are more knowledgeable about and appreciative of science are more skeptical of religious interpretations of the world. Alternatively, individuals who favor certain religious ways of knowing may be less knowledgeable and appreciative of science.

A growing body of scholarship indicates that perceived conflict between science and religion may be limited to a few specific issues. Religious individuals are less likely to accept mainstream scientific theories of evolution and the big bang but are not necessarily less knowledgeable about uncontested science (Evans 2011; Lawson and Worsnop 1992; Verhey 2005). This suggests that some people see conflict between science and religion as localized and rely on both science and religion to the extent that they do not provide contradictory explanations. Religious people in the United States are not necessarily averse to science, but they may choose to interpret some events in a religious light. Furthermore, preferences for certain religious rather than scientific accounts may reflect differences in beliefs about the boundaries of legitimate science rather than an assessment of the value of scientific knowledge (Plantinga 2011). If so, an individual's decision to diverge from mainstream science on certain issues may not reflect perceived conflict between reason and faith.

### *Compatibility between Science and Religion*

Science and religion may be more compatible than the conflict thesis suggests. Merton ([1938] 1973) identified the importance of Puritanism in the scientific revolution, and scholars have since elaborated the role of religious values in early scientific discovery and the professionalization of science (Shapin

1996). Recent studies of religious scientists illustrate that scientific careers do not preclude favorable views of religion (Collins 2006; Ecklund 2010). However, these studies emphasize non-institutionalized religious beliefs and practices such as spirituality, raising questions about how scientifically inclined individuals define religion (Ecklund and Long 2011).

Despite declining trust in science among political conservatives, the U.S. public has expressed favorable attitudes about science for at least the past four decades (Gauchat 2012). In contrast with Europe, religious participation in the United States was relatively stable over this period, a trend at odds with secularization theories (Inglehart and Baker 2000). Taken together, public support for science and continued religiosity among the U.S. public suggests that many individuals do not perceive the conflict between science and religion presumed by many scholarly and popular accounts.

Theories of a post-secular society indicate that despite institutional differentiation, individuals often view the world through religious lenses. Although many aspects of modernity are marked by secular authority, some argue that religion's influence on society has been transformed rather than replaced by science (Casanova 2010; Habermas 2008; Taylor 2007). While civic, political, and economic institutions stake their authority to secular ground, many individuals continue to use religious framings to make decisions about daily life (Gorski et al. 2012). In this view, although religion has ceded formal authority, it continues to influence society through individuals' choices about what to believe and how to behave.

In this account, individuals purposefully construct worldviews by combining elements of scientific, religious, and other ways of knowing (Casanova 2010). Hence, a post-secular perspective entails recognition of the value and utility of multiple belief systems. A post-secular worldview rejects the strict adherence to science characteristic of modernity. Instead, it blends scientific, religious, and other authorities to provide a personally

compelling narrative of the world. In essence, a post-secular perspective views any singular interpretative framework, such as science or religion, as only a partial explanation of reality. Thus, the promise of post-secular theories is not to anticipate uniform preferences for science or religion, but to clarify the circumstances under which individuals prefer different kinds of explanations. In summary, existing research leads us to expect that some individuals have generally favorable perspectives on both science and religion.

### *The Waning Importance of Science and Religion*

Alternatively, individuals may reject both science and religion as sources of understanding. The increasing complexity and bureaucracy of modern institutions isolate and alienate individuals from many social, economic, and political processes (Giddens 1991; Habermas 1989). Scientific and religious authority may each suffer as a result. A postmodern view of society entails a strong relativist epistemology, in which truth claims are evaluated individually, subjectively, and without consistent reference to broader interpretative frameworks. While post-secularism contends that individuals blend epistemological positions to orient their lives, the postmodern view implies that social institutions are incapable of providing enduring meaning or truth (Triandis 1995). Thus, some individuals may dismiss both science and religion as ways to ground their understanding of the world.

Overall, perspectives on science and religion may be characterized by one of four patterns. Table 1 outlines these ideal types. According to conflict theories, we should identify two worldviews, one oriented toward science and away from religion and one with the opposite preference. We refer to these contrasting perspectives as *modern* and *traditional*.<sup>1</sup> We may also observe a *post-secular* perspective, marked by generally favorable views of both science and religion. Finally, some respondents may be skeptical of both scientific- and religious-based understandings, a perspective we refer to as *postmodern*.

**Table 1.** Ideal Types of Perspectives on Science and Religion

|          |             | Science            |                     |
|----------|-------------|--------------------|---------------------|
|          |             | Unfavorable        | Favorable           |
| Religion | Unfavorable | <i>Postmodern</i>  | <i>Modern</i>       |
|          | Favorable   | <i>Traditional</i> | <i>Post-Secular</i> |

Although this schema necessarily distills the U.S. public's views, our framework advances scholarship in this area by allowing perceptions of science and religion to vary independently of one another.

### *Social Bases of Perspectives on Science and Religion*

Although previous research has not focused directly on religio-scientific perspectives, scholars have linked attitudes and behaviors related to science and religion to a variety of sociodemographic characteristics. We therefore examine how religious traditions, gender, race, class, and other traits correspond to perspectives on science and religion. In general, we expect individuals who attend religious services regularly, regardless of their faith traditions, to have especially favorable views of religious interpretations of the world. Furthermore, institutional and doctrinal differences among religious traditions suggest that different faiths promote systematically different perspectives on science and religion. Some traditions accept scientifically favored theories of life, whereas others reject certain scientific accounts. Further complicating matters is the potential decoupling of institutional and individual views. For example, while the Catholic Church has formally reconciled with scientific theories of the big bang (Pope Pius XII 1951; Ratzinger 1988), some Catholics may still favor young-earth interpretations of creation. Nonetheless, we expect that members of conservative Protestant traditions are more likely than others to tie their worldviews to religious explanations incompatible with mainstream science (Hoffman and Johnson 2005; Nelsen, Guth, and Fraser 2001; Scheufele et al. 2009). We also

anticipate that individuals unaffiliated with a faith tradition will be most likely to favor a scientific worldview and reject a religiously inclined one.

Perspectives on science and religion may also vary by gender. Women are socialized from a young age to be less scientifically oriented than men (Correll 2004; Xie and Shuman 2003), and women also tend to be more religious, although the gender gap in religiosity disappears among scientists (Ecklund, Park, and Veliz 2008; Miller and Hoffman 1995). This suggests that, compared to men, women will have less favorable perspectives on science and more favorable perspectives on religion. Furthermore, African Americans and Latinos have less favorable attitudes about science and medicine compared to whites (Pew Research Center 2009; Schnittker, Freese, and Powell 2000) and are, on average, more religious (Hunt and Hunt 2001). We therefore anticipate racial and ethnic differences in religio-scientific perspectives, with non-whites viewing science less favorably and religion more favorably compared to whites.

Social class may also shape perspectives on science and religion. Education generally corresponds to knowledge of and support for science (Allum et al. 2008; Miller 2004). Additionally, higher socioeconomic status is linked to lower levels of religiosity (Schieman 2010; Smith and Faris 2005). Thus, we expect social class, as measured by education, income, and occupational status, to correspond to positive perspectives on science and negative perspectives on religion.

Views on science and religion may relate to other cleavages as well. Compared to younger individuals, older people may be more oriented toward religion and less toward

science (Argue, Johnson, and White 1999; Bak 2001). Because the U.S. South is characterized by unique cultural features, including a stronger historical identification with the anti-evolution movement, we control for geographic location. Finally, we anticipate differences associated with political ideology, with liberals holding more favorable views of science and conservatives holding more favorable views of religion (Gauchat 2012).

### *Science, Religion, and Political Conflict*

If perspectives on science and religion are distinct from denominational, ideological, and sociodemographic differences, then they may also have distinct effects on attitudes about political conflicts. In particular, religio-scientific perspectives may help shed light on issues where science and religion have overlapping jurisdictions. For example, the issue of abortion rights has long been within the reach of both medical/scientific and religious authorities (Luker 1984). More recently, topics such as embryonic stem cell research and genetic modification have posed “ideological dilemmas” for the public (Locke 1999). Science is often associated with progressive politics, whereas religious adherence is more closely aligned with social conservatism (Davis and Robinson 1999; Gauchat 2012). We therefore expect that an inclination for science is associated with support for liberal public policies, whereas an inclination for religion is linked to support for a conservative agenda. We do not, however, expect perspectives on science and religion to correspond directly to political attitudes about issues where scientific and religious communities do not provide direct counterpoints.

## **DATA, MEASURES, AND METHODS**

### *Data*

To examine perspectives on science and religion, we analyze cross-sectional data from the 2006, 2008, and 2010 waves of the

General Social Survey (GSS).<sup>2</sup> The GSS is a nationally representative biennial survey of households in the United States that uses a multi-stage area-probability sampling frame (Smith et al. 2011). These waves of the GSS included a special topics module, which asked respondents about their knowledge of and attitudes about science. Along with questions about religion asked in each survey wave, these variables are the focus of our analysis.

GSS data also contain background information on respondents, which we use to examine sociodemographic and attitudinal correlates of perspectives on science and religion. In 2006, 2008, and 2010, the science module was administered to 1,864, 1,526, and 691 respondents, respectively. Accounting for the survey’s split ballot design and missing cases, results presented here are based on analyses of 2,901 cases (1,563 from 2006; 988 from 2008; and 350 from 2010).

### *Measuring Perspectives on Science and Religion*

Perspectives on science encompass attitudes about science as well as knowledge of scientific concepts and methods. We examine attitudes about science using survey questions commonly used to measure public appreciation of science (Miller 2004). These items asked whether (1) science creates more opportunities for the next generation, (2) science makes life move too fast (reverse coded), (3) science should be supported by government funding, and (4) the benefits of science outweigh its costs. We model these items as discrete ordinal variables on four- and five-point scales, where higher scores indicate more favorable attitudes. Table 2 contains unadjusted descriptive information for the variables we use to measure perspectives on science and religion.

We examine knowledge of science using a series of 14 quiz-style questions modeled as binary variables. These questions focus on uncontroversial aspects of scientific knowledge, including radioactivity, subatomic particles, and experimental design. This series

**Table 2.** Description of Variables Used to Measure Perspectives on Science and Religion

|   | Overall Sample      |       | Conditional Means by Latent Class |                       |                           |
|---|---------------------|-------|-----------------------------------|-----------------------|---------------------------|
|   | Mean<br>(n = 2,901) | SD    | Traditional<br>(n = 1,238)        | Modern<br>(n = 1,041) | Post-Secular<br>(n = 622) |
| <b>Class Size</b>   |                     |       |                                   |                       |                           |
| Science Knowledge (scientifically correct answer equals one, else equals zero)  |                     |       | .427                              | .359                  | .214                      |
| Center of the Earth is very hot?  | .836                | .370  | .688 <sup>MP</sup>                | .954 <sup>T</sup>     | .932 <sup>T</sup>         |
| All radioactivity is man-made?  | .722                | .448  | .466 <sup>MP</sup>                | .918 <sup>T</sup>     | .902 <sup>T</sup>         |
| The father's gene decides whether the baby is boy or girl?  | .641                | .480  | .533 <sup>MP</sup>                | .690 <sup>TP</sup>    | .773 <sup>MT</sup>        |
| Lasers work by focusing sound waves?  | .493                | .500  | .233 <sup>MP</sup>                | .724 <sup>TP</sup>    | .625 <sup>MT</sup>        |
| Electrons are smaller than atoms?   | .551                | .497  | .357 <sup>MP</sup>                | .727 <sup>TP</sup>    | .643 <sup>MT</sup>        |
| Antibiotics kill viruses as well as bacteria?   | .562                | .496  | .310 <sup>MP</sup>                | .739 <sup>T</sup>     | .767 <sup>T</sup>         |
| Does the Sun go around the Earth or the Earth around the Sun?   | .756                | .430  | .536 <sup>MP</sup>                | .923 <sup>T</sup>     | .912 <sup>T</sup>         |
| The continents have been moving for millions of years and will move in the future?  | .808                | .394  | .665 <sup>MP</sup>                | .983 <sup>TP</sup>    | .801 <sup>MT</sup>        |
| The Universe began with huge explosion?   | .346                | .476  | .212 <sup>MP</sup>                | .678 <sup>TP</sup>    | .058 <sup>MT</sup>        |
| Human beings developed from earlier species of animals?   | .463                | .499  | .330 <sup>MP</sup>                | .877 <sup>TP</sup>    | .032 <sup>MT</sup>        |
| Does a one in four chance of inherited illness mean that if the first child has the illness, the next three will not?   | .878                | .327  | .762 <sup>MP</sup>                | .963 <sup>T</sup>     | .966 <sup>T</sup>         |
| Does a one in four chance of inherited illness mean that each child has the same risk of having the illness?  | .777                | .416  | .646 <sup>MP</sup>                | .877 <sup>T</sup>     | .870 <sup>T</sup>         |
| Understand experimental research design?  | .823                | .382  | .743 <sup>MP</sup>                | .907 <sup>TP</sup>    | .842 <sup>MT</sup>        |
| Clear understanding of what it means to study something scientifically?   | .312                | .463  | .106 <sup>MP</sup>                | .505 <sup>TP</sup>    | .399 <sup>MT</sup>        |
| <b>Science Attitudes</b>  |                     |       |                                   |                       |                           |
| Science and technology create more opportunities for the next generation (1 = strongly disagree, 4 = strongly agree).   | 3.314               | .642  | 3.217 <sup>MP</sup>               | 3.439 <sup>TP</sup>   | 3.297 <sup>MT</sup>       |
| Science makes our way of life change too fast (1 = strongly agree, 4 = strongly disagree).  | 2.544               | .771  | 2.219 <sup>MP</sup>               | 2.853 <sup>TP</sup>   | 2.675 <sup>MT</sup>       |
| Scientific research that advances the frontiers of knowledge is necessary and should be supported by the federal government (1 = strongly disagree, 4 = strongly agree).            | 3.180               | .632  | 3.008 <sup>MP</sup>               | 3.436 <sup>TP</sup>   | 3.095 <sup>MT</sup>       |
| Do the benefits of scientific research outweigh the harmful results (0 = harm strongly outweighs benefits, 2 = harm and benefits about equal; 4 = benefits strongly outweigh harm)? | 3.131               | 1.055 | 2.606 <sup>MP</sup>               | 3.553 <sup>TP</sup>   | 3.469 <sup>MT</sup>       |
| <b>Religion Indicators</b>  |                     |       |                                   |                       |                           |
| Bible is the actual word of God (0 = no, 1 = yes)?  | .309                | .462  | .458 <sup>M</sup>                 | .030 <sup>TP</sup>    | .481 <sup>M</sup>         |
| Bible is inspired by the word of God (0 = no, 1 = yes)?   | .503                | .500  | .446 <sup>MP</sup>                | .560 <sup>T</sup>     | .519 <sup>T</sup>         |
| Bible is a book of myths and fables (0 = no, 1 = yes)?  | .188                | .391  | .096 <sup>MP</sup>                | .410 <sup>TP</sup>    | <.001 <sup>MT</sup>       |
| Strength of religious affiliation (1 = none, 4 = very strong).  | 2.597               | 1.137 | 2.679 <sup>MP</sup>               | 2.058 <sup>TP</sup>   | 3.336 <sup>MT</sup>       |

Source: 2006, 2008, and 2010 GSS.

<sup>T</sup>Significantly different from traditional,  $p < .05$  (two-tailed  $t$ -test).<sup>P</sup>Significantly different from post-secular,  $p < .05$  (two-tailed  $t$ -test).<sup>M</sup>Significantly different from modern,  $p < .05$  (two-tailed  $t$ -test).

also includes questions about the big bang and evolution, which have been criticized for confounding knowledge of science with preferences for certain religious accounts (Roos 2012). However, these survey questions are central to our analysis because they capture the cultural distinctions we seek to investigate. Additionally, analyzing questions about the big bang and evolution in combination with questions about less controversial topics like probability provides unique insight into the U.S. public's preferred sources of knowledge and values (Toumey et al. 2010).

To measure perspectives on religion, we analyze responses to a question that asked whether the Bible is (1) the actual word of God, (2) inspired by the word of God, or (3) filled with myths and fables. This item, which we model as a nominal variable, is frequently used to measure views of certain religious interpretations of the world (Davis and Robinson 1999). We also analyze individuals' religiosity as an ordinal variable based on a question that asked respondents to rate the strength of their religious beliefs on a four-point scale, where higher scores correspond to stronger belief. Although the GSS contains other behavioral and attitudinal measures of religion, we focus on these items because they begin to tap individual preferences for religion and religious-based accounts of the world despite institutional and intellectual differences among faiths.<sup>3</sup>

### *Sociodemographic Characteristics*

We examine how several respondent characteristics relate to perspectives on science and religion. Table 3 summarizes these variables. We measure religious traditions using the typology developed by Steensland and colleagues (2000). We analyze the variable as a set of binaries for conservative, mainline, and Black Protestants; Catholics; Jews; followers of other faiths; and individuals not associated with organized religion.<sup>4</sup>

We examine religious attendance using an eight-category ordinal variable ranging from "never attends" to "attends more than once per week."<sup>5</sup> We measure race and ethnicity

using binary variables for Latino, non-Latino African American, non-Latino white, and non-Latino other race identification. We measure age in years, divided by 10. We examine geographic location using a binary measure for residents of the South. We measure political ideology using an ordinal seven-point scale, where 1 refers to extremely liberal and 7 to extremely conservative. We measure education in years and income as a natural log transformation of household income category midpoints.<sup>6</sup> Finally, we measure occupations using a five-class specification of the Erikson-Goldthorpe-Portocarero scheme created according to the procedure described by Alderson, Junisbai, and Heacock (2007) (I + II = service class; IIIa + b = routine non-manual; IVa + b + c = petty bourgeoisie/farmer; V + VI = skilled workers and foremen; and VIIa + b = non-skilled worker).<sup>7</sup>

### *Political Attitudes*

To begin to assess how perspectives on science and religion relate to U.S. political culture, we analyze attitudes about several issues where scientific and religious communities each have claims to authority. We examine respondents' opinions about women's right to choose abortion with a binary variable. We measure support for government funding for stem cell research with a four-point ordinal variable. We analyze a three-point ordinal variable that asked the degree to which respondents are comfortable consuming genetically modified food. To test whether perspectives on science and religion also predict attitudes about issues where science and religion may not directly compete, we examine a five-point ordinal variable that asked about support for requiring greater fuel economy from automakers and a four-point ordinal variable about support for nuclear energy production. Higher scores correspond to greater support on each of these attitudinal measures (see Table 3).

### *Analytic Technique*

To identify underlying perspectives on science and religion, we use latent class analysis

**Table 3.** Description of Independent Variables and Political Attitudes

|  | Overall Sample |       |       | Conditional Means by Latent Class |                      |                      |
|--|----------------|-------|-------|-----------------------------------|----------------------|----------------------|
|  | Mean           | SD    | N     | Traditional                       | Modern               | Post-Secular         |
| Religious Tradition  |                |       |       |                                   |                      |                      |
| Mainline Protestant  | .169           | .375  | 2,331 | .143 <sup>M</sup>                 | .199 <sup>T</sup>    | .167                 |
| Conservative Protestant  | .254           | .436  | 2,331 | .265 <sup>MP</sup>                | .098 <sup>TP</sup>   | .510 <sup>MT</sup>   |
| Catholic   | .239           | .427  | 2,331 | .274 <sup>P</sup>                 | .237 <sup>P</sup>    | .177 <sup>MT</sup>   |
| Black Protestant   | .089           | .285  | 2,331 | .166 <sup>MP</sup>                | .014 <sup>TP</sup>   | .072 <sup>MT</sup>   |
| Jewish   | .020           | .141  | 2,331 | .014 <sup>M</sup>                 | .035 <sup>TP</sup>   | .006 <sup>M</sup>    |
| Other faith  | .042           | .200  | 2,331 | .027 <sup>MP</sup>                | .052 <sup>T</sup>    | .050 <sup>T</sup>    |
| No religious affiliation   | .186           | .389  | 2,331 | .110 <sup>MP</sup>                | .364 <sup>TP</sup>   | .018 <sup>MT</sup>   |
| Religious Attendance (0 = never, 8 = more than once per week)              | 3.556          | 2.766 | 2,331 | 3.776 <sup>MP</sup>               | 2.322 <sup>TP</sup>  | 5.307 <sup>MT</sup>  |
| Female   | .526           | .499  | 2,331 | .599 <sup>M</sup>                 | .421 <sup>TP</sup>   | .570 <sup>M</sup>    |
| Race/Ethnicity   |                |       |       |                                   |                      |                      |
| Latino   | .085           | .278  | 2,331 | .143 <sup>MP</sup>                | .047 <sup>T</sup>    | .038 <sup>T</sup>    |
| African American (non-Latino)  | .142           | .349  | 2,331 | .259 <sup>MP</sup>                | .038 <sup>TP</sup>   | .100 <sup>MT</sup>   |
| Other race (non-Latino)  | .032           | .175  | 2,331 | .032                              | .038 <sup>P</sup>    | .018 <sup>M</sup>    |
| White (non-Latino)   | .742           | .438  | 2,331 | .565 <sup>MP</sup>                | .877 <sup>T</sup>    | .843 <sup>T</sup>    |
| Education (in years)   | 13.882         | 2.847 | 2,331 | 12.570 <sup>MP</sup>              | 15.120 <sup>TP</sup> | 14.219 <sup>MT</sup> |
| Income (natural log transformation of household income category midpoints) | 10.650         | 1.004 | 2,331 | 10.337 <sup>MP</sup>              | 10.384 <sup>T</sup>  | 10.819 <sup>T</sup>  |
| Erikson-Goldthorpe-Portocaro Class Scheme                                  |                |       |       |                                   |                      |                      |
| I + II = service class   | .396           | .489  | 2,331 | .236 <sup>MP</sup>                | .535 <sup>TP</sup>   | .458 <sup>MT</sup>   |
| IIIa + b = routine non-manual  | .286           | .452  | 2,331 | .343 <sup>MP</sup>                | .221 <sup>TP</sup>   | .291 <sup>MT</sup>   |
| IVa + b + c = petty bourgeoisie/farmer                                     | .078           | .268  | 2,331 | .084                              | .071                 | .080                 |
| V + VI = skilled workers and foremen                                       | .102           | .303  | 2,331 | .123 <sup>M</sup>                 | .087 <sup>T</sup>    | .090                 |
| VIIa + b = non-skilled workers   | .138           | .345  | 2,331 | .215 <sup>MP</sup>                | .087 <sup>T</sup>    | .080 <sup>T</sup>    |
| Political Views (1 = extremely liberal, 7 = extremely conservative)        | 4.062          | 1.430 | 2,331 | 4.095 <sup>MP</sup>               | 3.656 <sup>TP</sup>  | 4.713 <sup>MT</sup>  |
| Lives in South   | .274           | .446  | 2,331 | .297 <sup>M</sup>                 | .206 <sup>TP</sup>   | .347 <sup>M</sup>    |
| Age (in years, divided by 10)  | 4.599          | 1.604 | 2,331 | 4.665 <sup>M</sup>                | 4.472 <sup>TP</sup>  | 4.698 <sup>M</sup>   |

(continued)

**Table 3. (continued)**

|  | Overall Sample |      |       | Conditional Means by Latent Class |                     |                     |
|--|----------------|------|-------|-----------------------------------|---------------------|---------------------|
|  | Mean           | SD   | N     | Traditional                       | Modern              | Post-Secular        |
| Political Attitudes  |                |      |       |                                   |                     |                     |
| Should it be possible for a pregnant woman to obtain a legal abortion for any reason she wants? (0 = no, 1 = yes)              | .467           | .499 | 1,231 | .387 <sup>MP</sup>                | .687 <sup>TP</sup>  | .216 <sup>MT</sup>  |
| Should U.S. government fund scientific research using embryonic stem cells? (1 = definitely should not, 4 = definitely should) | 3.013          | .893 | 618   | 2.954 <sup>MP</sup>               | 3.313 <sup>TP</sup> | 2.603 <sup>MT</sup> |
| Will you eat genetically modified (GM) food? (1 = will not eat GM food, 3 = will eat GM food)                                  | 1.848          | .661 | 637   | 1.672 <sup>M</sup>                | 2.062 <sup>TP</sup> | 1.796 <sup>M</sup>  |
| Favor or oppose requiring automakers to make cars and trucks that use less gasoline? (1 = strongly oppose, 5 = strongly favor) | 4.623          | .733 | 618   | 4.561 <sup>P</sup>                | 4.633               | 4.709 <sup>T</sup>  |
| Favor or oppose increasing electricity in U.S. produced from nuclear power? (1 = strongly oppose, 4 = strongly favor)          | 2.867          | .777 | 128   | 2.769                             | 2.906               | 3.000               |

Source: 2006, 2008, and 2010 GSS.

Note: Latent class sizes vary for political attitudes due to differences in sample sizes for these items.

<sup>T</sup>Significantly different from traditional,  $p < .05$  (two-tailed  $t$ -test).

<sup>P</sup>Significantly different from post-secular,  $p < .05$  (two-tailed  $t$ -test).

<sup>M</sup>Significantly different from modern,  $p < .05$  (two-tailed  $t$ -test).

**Table 4.** Fit Statistics for Latent Class Analysis

| Number of Classes | <i>p</i>        | BIC              | Percent Reduction in BIC | LL                | <i>df</i> |
|-------------------|-----------------|------------------|--------------------------|-------------------|-----------|
| 1                 |                 | 85392.518        |                          | -42568.694        | 32        |
| 2                 | <.001           | 81616.983        | 4.421                    | -40549.375        | 65        |
| <b>3</b>          | <b>&lt;.001</b> | <b>80919.562</b> | <b>.855</b>              | <b>-40069.113</b> | <b>98</b> |
| 4                 | .762            | 80719.840        | .247                     | -39837.701        | 131       |
| 5                 | .761            | 80645.468        | .092                     | -39668.964        | 164       |
| 6                 | .770            | 80625.786        | .024                     | -39527.571        | 197       |
| 7                 | .762            | 80672.881        | -.058                    | -39419.567        | 230       |

Source: 2006, 2008, and 2010 GSS;  $n = 2,901$ .

Note: *p* is *p*-value from Lo-Mendell-Rubin likelihood-ratio test; BIC is Bayesian information criterion; LL is log likelihood; and *df* is degrees of freedom; bolded text indicates preferred model.

(LCA) (Goodman 1974; Lazarsfeld and Henry 1968; Magidson and Vermunt 2001). LCA assumes that responses to conceptually similar questions share underlying associations. LCA identifies the number of latent classes ( $T$ ) needed to best account for response patterns in the observed manifest variables, which in this article are attitudes, affect, and knowledge about science and religion. Conventionally, LCA entails fitting an independence model in which each case is assigned to a single latent class ( $T = 1$ ). Assuming that an underlying association exists among manifest variables, model fit will improve when  $T = 2, \dots, n$ , until the underlying associations among variables are identified. Respondents are assigned to latent classes based on their greatest posterior probability of class membership.<sup>8</sup> For example, in a three-class model where the probabilities of class membership are .7, .2, and .1, the individual is assigned to the first class.

The second part of the investigation uses multinomial logistic regression to examine sociodemographic characteristics of the groups identified by the latent class analysis. Our sample in the second stage of the analysis consists of the 2,331 individuals with complete information for sociodemographic variables of interest.<sup>9</sup> Finally, we use binary and ordinal logistic regression models to investigate how perspectives on science and religion relate to political attitudes. Sample sizes for this final set of analyses vary according to the GSS ballot design. We conducted the LCA

using Mplus and descriptive and regression analyses using Stata.<sup>10</sup>

## RESULTS

### Perspectives on Science and Religion

Table 4 presents LCA results. We examined models that grouped respondents into between one and seven latent classes. To determine the best fitting model, we relied on Lo-Mendell-Rubin likelihood-ratio tests (LMR) and the Bayesian Information Criterion (BIC), common measures of model fit in LCA (Asparouhov and Muthén 2012; Nylund, Asparouhov, and Muthén 2007). A significant LMR test indicates that the model provides a better fit than a model with one less latent class. An insignificant test statistic indicates no improvement in fit. In Table 4, the insignificant LMR test from the four-class model suggests the three-class model best fits the data. However, the BIC's minimum value is sometimes used to select the number of classes in LCA, and in Table 4 the BIC is lowest in the six-class model.

When fit statistics point to different latent class solutions, scholars suggest considering the kinds of variables being analyzed (Nylund et al. 2007). While the BIC may be preferable for LCA models with continuous outcomes, the LMR test more reliably selects the correct number of classes for models with categorical outcomes, like those in this analysis (Lo, Mendell, and Rubin 2001). Furthermore, the

BIC's reliability has been criticized when there are a small number of classes, especially when class sizes are unequal (Nylund et al. 2007). Because there is no consensus about which statistic should be used to select the number of latent classes, the decision typically rests on a combination of statistical, substantive, and theoretical considerations. Based on LCA results, analyses of different latent class models, and theoretical expectations, we focus on results from the three-class model.

The final three columns in Table 2 contain conditional means and proportions of manifest variables. These statistics informed our choices of category labels and give meaning to the groups identified in the LCA. Superscripts designate statistically significant differences between groups as indicated by two-tailed *t*-tests. The top row of Table 2 indicates that the largest category is characterized by a *traditional* perspective on science and religion and contains 43 percent of the sample. A second class is marked by a *modern* view and contains 36 percent of the sample. Finally, 21 percent of respondents hold a *post-secular* perspective on science and religion.

Overall, these results suggest that most people in the United States have favorable orientations toward either science or religion but not both. This is consistent with theories of broad conflict between these two ways of knowing. Furthermore, although the post-secular perspective entails high levels of science knowledge as well as favorable views of science and religion, responses to questions about evolution and the big bang suggest that even for this most accommodating group, science and religion sometimes conflict. When asked about these issues, the post-secular latent class almost unanimously aligned their views with particular religious accounts. So, rather than the four ideal types outlined earlier, Table 2 identifies three unique religio-scientific perspectives, each supporting a variation of the conflict thesis.

Members of the traditional class have significantly lower scores than do the other groups for all science literacy and attitude

items. For example, 47 percent of the traditional class, compared to 92 and 90 percent of the modern and post-secular groups, respectively, correctly answered that radioactivity occurs naturally. Although the traditional class reported lower levels of religiosity than did the post-secular class, its religious affiliation strength is higher than average and significantly higher than that of the modern class. Likewise, 46 percent of the traditional group, compared to 31 percent of the overall sample, responded that the Bible is the literal word of God.

The modern perspective, shared by 36 percent of the sample, stands in stark opposition to a traditional view of science and religion. Members of the modern category are knowledgeable about science and the most appreciative of its uses, and they are the least religious. This perspective is not unique in its high science literacy, but it is distinctive in its optimism about science in society and its low levels of religiosity. Unlike other perspectives, large majorities of moderns responded that the universe began with a big bang and that humans evolved from other animals ( $p < .05$ ). Moreover, only 3 percent of the modern group responded that the Bible is the literal word of God. Among moderns, 41 percent indicated that the Bible is a book of myths and fables, compared to 19 percent of the overall sample.

The post-secular perspective, held by 21 percent of respondents, is characterized by less favorable attitudes about science than those of the modern class, but their attitudes toward science are significantly more favorable than those of the traditional class. Moreover, science literacy scores for the post-secular and modern classes are statistically indistinguishable on nearly half of these items. In contrast to moderns, however, 48 percent of post-seculars reported that the Bible is the literal word of God, and none reported that the Bible is a book of myths and fables. Furthermore, post-seculars' mean religious affiliation strength is significantly higher than that of each other latent class ( $p < .05$ ).

Despite their generally favorable outlook on science, members of the post-secular

category were substantially and significantly less likely than the other classes to respond that the universe began with a big bang (6 percent) and that humans evolved from other animals (3 percent). Post-seculars were also less likely than moderns to respond that the continents have been moving for millions of years ( $p < .05$ ). These findings suggest the post-secular perspective recognizes limited conflict between science and religion. Analyses of additional science knowledge questions asked to a subset of respondents in 2008 further suggest that members of the post-secular latent class are knowledgeable about science yet choose to root their understandings of certain events in religious belief.<sup>11</sup>

In summary, our LCA identifies three distinct perspectives on science and religion.<sup>12</sup> Findings suggest that most people in the United States are inclined toward either science or religion, but not both. We also find a narrow swath of the public with generally favorable perspectives on both scientific and religious understandings. But rather than a fully compatible view, even these individuals cannot reconcile some scientific and religious accounts. This third perspective is consistent with recent findings that many religious individuals are scientifically literate yet prefer some religious explanations to scientific ones (Evans 2011). Our results suggest that approximately one-in-five members of the U.S. public see science and religion in this light.

### *Sociodemographic Differences in Perspectives on Science and Religion*

The final columns of Table 3 present sociodemographic characteristics of each latent class. As expected, women, African Americans, Latinos, and individuals in lower social classes are significantly overrepresented in the traditional compared to the modern category. The post-secular and modern classes have similar income, despite post-seculars' slightly lower educational attainment and occupational status. Furthermore, the post-secular perspective is held disproportionately by respondents who are older, politically conservative, and reside in the South.

Table 3 also underscores the importance of religious traditions for individuals' perspectives on science and religion. Conservative Protestants are split nearly evenly between the post-secular and traditional latent classes. While conservative Protestants in the post-secular and traditional classes differ significantly in their gender, race, class, age, and political views, these gaps tend to reflect more general differences between perspectives.<sup>13</sup>

To examine these patterns in a multivariate setting, we estimated a multinomial logistic regression model. Table 5 indicates that many of the group differences identified in Table 3 remain statistically significant net of one another. Compared to mainline Protestants, conservative Protestants are 3.618 ( $p < .001$ ) and 1.663 ( $p < .01$ ) times more likely to hold the post-secular rather than modern or traditional perspectives. Religiously unaffiliated respondents are less likely to hold post-secular rather than modern (.144;  $p < .001$ ) or traditional views (.359;  $p < .01$ ).<sup>14</sup> Also, members of the post-secular class attend religious services more frequently than do members of the other latent classes, net of other differences ( $p < .001$ ).

Gender and race differences persist in the multivariate context. Women are more than twice as likely as men to hold post-secular rather than modern perspectives (2.037,  $p < .001$ ). Whites are more likely to express post-secular (4.706;  $p < .001$ ) or modern (8.736;  $p < .001$ ) rather than traditional views.<sup>15</sup> Furthermore, Table 5 indicates that the post-secular and modern classes have similar income and occupational status despite a statistically significant education gap.<sup>16</sup> Finally, Table 5 indicates that respondents who hold a post-secular perspective are significantly more politically conservative than the other respondents, other differences aside.

### *Traditional, Modern, and Post-Secular Perspectives and Political Attitudes*

Finally, we examine how religio-scientific perspectives relate to beliefs about issues where science and religion have each been mobilized by political interests. Table 3

**Table 5.** Odds Ratios for Multinomial Logistic Regression of Science-Religion Perspectives on Independent Variables

|  | Post-Secular<br>versus Modern | Post-Secular<br>versus Traditional | Modern versus<br>Traditional |
|--|-------------------------------|------------------------------------|------------------------------|
| Religious Tradition <sup>a</sup>                         |                               |                                    |                              |
| Conservative Protestant                                  | 3.618***<br>(.729)            | 1.663**<br>(.311)                  | .460***<br>(.091)            |
| Catholic   | .826<br>(.168)                | .709<br>(.146)                     | .858<br>(.155)               |
| Black Protestant   | 2.759<br>(1.440)              | 1.519<br>(.562)                    | .551<br>(.245)               |
| Jewish   | .455<br>(.290)                | .394<br>(.270)                     | .865<br>(.362)               |
| Other faith  | 1.069<br>(.343)               | 2.136*<br>(.746)                   | 1.999*<br>(.665)             |
| No religious affiliation                                 | .144***<br>(.055)             | .359**<br>(.141)                   | 2.489***<br>(.524)           |
| Religious Attendance                                     | 1.365***<br>(.041)            | 1.166***<br>(.031)                 | .855***<br>(.023)            |
| Female   | 2.037***<br>(.306)            | .645**<br>(.090)                   | .316***<br>(.043)            |
| Race/Ethnicity <sup>b</sup>                              |                               |                                    |                              |
| Latino   | .673<br>(.337)                | 1.424<br>(.564)                    | 2.115*<br>(.788)             |
| White (non-Latino)                                       | .539<br>(.212)                | 4.706***<br>(1.409)                | 8.736***<br>(2.694)          |
| Other race (non-Latino)                                  | .346<br>(.200)                | 1.332<br>(.661)                    | 3.847**<br>(1.664)           |
| Education  | .834***<br>(.027)             | 1.169***<br>(.034)                 | 1.402***<br>(.041)           |
| Income   | .911<br>(.076)                | 1.166*<br>(.084)                   | 1.280***<br>(.088)           |
| Erikson-Goldthorpe-Portocarero Class Scheme <sup>c</sup> |                               |                                    |                              |
| I + II = service class                                   | .884<br>(.246)                | 2.490***<br>(.590)                 | 2.816***<br>(.625)           |
| IIIa + b = routine non-manual                            | .984<br>(.273)                | 1.694*<br>(.389)                   | 1.721*<br>(.376)             |
| IVa + b + c = petty bourgeoisie/farmer                   | 1.111<br>(.375)               | 1.572<br>(.448)                    | 1.415<br>(.383)              |
| V + VI = skilled workers and foremen                     | 1.253<br>(.400)               | 1.567<br>(.420)                    | 1.251<br>(.310)              |
| Political Views  | 1.403***<br>(.076)            | 1.142**<br>(.056)                  | .814***<br>(.038)            |
| Lives in South   | 1.134<br>(.179)               | 1.042<br>(.144)                    | .919<br>(.134)               |
| Age (years, divided by 10)                               | 1.067<br>(.049)               | .926<br>(.038)                     | .868***<br>(.035)            |
| Constant   | 1.382                         | .001                               | .001                         |
| Log likelihood   | -1729.147                     |                                    |                              |
| BIC  | 3783.965                      |                                    |                              |

Source: 2006, 2008, and 2010 GSS;  $n = 2,331$ .

Note: Standard errors are in parentheses.

<sup>a</sup>Wald  $X^2 = 150.315$ ;  $p < .001$ ; referent is mainline Protestant.

<sup>b</sup>Wald  $X^2 = 109.070$ ;  $p < .001$ ; referent is non-Latino African American.

<sup>c</sup>Wald  $X^2 = 33.247$ ;  $p < .001$ ; referent is VIIa + b (non-skilled workers).

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (two-tailed test).

suggests that perspectives on science and religion are related to attitudes about some but not all political conflicts. For example, the overall sample is closely divided on the question of abortion, yet attitudes vary sharply across latent classes. The post-secular class is most strongly opposed to women's right to choose abortion, significantly more so than the traditional class ( $p < .05$ ). Only the modern latent class reports majority support for abortion rights ( $p < .05$ ). Attitudes about stem cell research and genetically modified food follow a similar pattern. For both issues, post-seculars and traditionals express disproportionate support for positions associated most closely with organized religion, whereas moderns report greater support for positions associated with mainstream science. Differences in attitudes about fuel economy standards and nuclear energy production are largely statistically insignificant, suggesting that religio-scientific perspectives are most salient in conflicts over issues where scientific and religious institutions each claim authority. Debates related to environmental and energy policy are politically contentious, but they do not engage the same scientific and religious meanings as questions related to life, such as when it begins and how it can be manipulated by humans.

Attitudes about socio-political issues are often attributed to denominational, ideological, and other social cleavages. However, regression results presented in Table 6 indicate that perspectives on science and religion are significantly associated with attitudes about abortion rights, stem cell research, and genetically modified food net of other differences among respondents. A modern perspective is associated with greater support for all of these issues ( $p < .05$ ). However, while moderns are more willing than post-seculars to consume genetically modified food, the difference is only marginally statistically significant ( $p < .10$ ). Additionally, the post-secular class is significantly more opposed than the traditional class to abortion rights and public funding for stem cell research

( $p < .05$ ; results not shown). Overall, these results further suggest that religio-scientific perspectives are particularly salient for issues where humans intervene in natural processes of life, even in cases of non-human life as illustrated by attitudes about genetically modified food. Religio-scientific perspectives may therefore also be useful for understanding political conflict concerning human cloning and genomic research, assisted reproductive technology, and end-of-life issues including capital punishment.

Several control variables in Table 6 have statistically significant effects in anticipated directions. Other differences aside, political conservatives and respondents who attend religious services more frequently are more likely to oppose abortion rights and government funding for stem cell research ( $p < .001$ ), and women are more likely to support abortion rights ( $p < .05$ ). Most important to this article, however, is that after controlling for a wide range of respondent characteristics, significant differences remain in traditional, modern, and post-secular views on political debates where science and religion compete for cultural and epistemic priority.

Our results suggest that the discursive framing of political debates is crucial for determining whether and how they become embedded within broader perspectives on science and religion. Political contests over reproductive rights, stem cells, and genetic modification often center on direct conflict between certain scientific and religious authorities. Consequently, public attitudes are entwined with wider cultural sentiments related to reason and faith. Political debates about fuel economy standards and nuclear energy are not imbued with the same religious meaning as controversies related to life, especially human life. Hence, attitudes about energy policy are not strongly related to perspectives on science and religion. In summary, these findings suggest that religio-scientific perspectives are most useful for understanding political controversies where the jurisdictions of science and religion

**Table 6.** Odds Ratios for Logistic Regressions of Political Attitudes on Science-Religion Perspectives and Independent Variables

|   | Support Right to Choose Abortion | Support Funding for Stem Cell Research | Support for GM Food | Support for GM Economy Standards | Support Fuel Economy Standards | Support Expanded Nuclear Energy |
|---|----------------------------------|--|---------------------|----------------------------------|--------------------------------|---------------------------------|
| Perspectives on Science and Religion <sup>a</sup>                     |                                  |  |                     |                                  |                                |                                 |
| Traditional perspective   | .426***<br>(.077)                | .598*<br>(.136)                        | .451***<br>(.100)   | .853<br>(.226)                   | .521<br>(.291)                 |                                 |
| Post-secular perspective  | .261***<br>(.054)                | .367***<br>(.088)                      | .647<br>(.164)      | 1.622<br>(.475)                  | .485<br>(.302)                 |                                 |
| Wald $\chi^2$ for joint significance of science-religion perspectives | 45.176***                        | 17.459***                              | 13.048**            | 5.688                            | 1.876                          |                                 |
| Religious Tradition <sup>b</sup>                                      |                                  |  |                     |                                  |                                |                                 |
| Conservative Protestant   | .645*<br>(.138)                  | .792<br>(.209)                         | .621<br>(.164)      | .699<br>(.211)                   | 1.431<br>(.912)                |                                 |
| Catholic  | .811<br>(.173)                   | .770<br>(.199)                         | 1.052<br>(.265)     | 1.116<br>(.340)                  | .586<br>(.373)                 |                                 |
| Black Protestant  | .886<br>(.328)                   | .972<br>(.490)                         | 1.166<br>(.508)     | 1.081<br>(.662)                  | 1.677<br>(1.711)               |                                 |
| Jewish  | 2.002<br>(1.169)                 | .978<br>(.524)                         | .830<br>(.683)      | 4.671<br>(4.992)                 | .071<br>(.118)                 |                                 |
| Other faith   | .654<br>(.250)                   | 1.178<br>(.486)                        | .478<br>(.189)      | .784<br>(.366)                   | 4.645<br>(6.295)               |                                 |
| No religious affiliation  | .794<br>(.191)                   | .860<br>(.257)                         | .876<br>(.250)      | 1.227<br>(.421)                  | .741<br>(.447)                 |                                 |
| Religious Attendance  |                                  |  |                     |                                  |                                |                                 |
|   | .826***<br>(.024)                | .832***<br>(.031)                      | 1.004<br>(.035)     | 1.002<br>(.042)                  | 1.065<br>(.087)                |                                 |
| Female  | 1.359*<br>(.201)                 | 1.075<br>(.188)                        | .522***<br>(.092)   | 1.240<br>(.257)                  | .339*<br>(.152)                |                                 |
| Race/Ethnicity <sup>c</sup>   |                                  |  |                     |                                  |                                |                                 |
| Latino  | .709<br>(.253)                   | .855<br>(.436)                         | 1.226<br>(.547)     | .620<br>(.364)                   | 4.505<br>(4.500)               |                                 |
| Other race (non-Latino)   | .242**<br>(.122)                 | .698<br>(.391)                         | 2.420<br>(1.381)    | 1.068<br>(.705)                  | 1.166<br>(1.830)               |                                 |

(continued)

Table 6. (continued)

|  | Support Right to Choose Abortion | Support Funding for Stem Cell Research | Support for GM Food | Support Economy Standards | Support Fuel      | Support Expanded Nuclear Energy |
|--|----------------------------------|--|---------------------|---------------------------|-------------------|---------------------------------|
| White (non-Latino)                                       | .594<br>(.172)                   | .774<br>(.303)                         | 2.267*<br>(.785)    | .950<br>(.454)            | 3.463<br>(2.592)  |                                 |
| Education  | 1.059<br>(.032)                  | 1.038<br>(.040)                        | .987<br>(.034)      | 1.052<br>(.046)           | .970<br>(.091)    |                                 |
| Income   | 1.144<br>(.081)                  | .929<br>(.080)                         | .945<br>(.095)      | .836<br>(.089)            | 1.032<br>(.194)   |                                 |
| Erikson-Goldthorpe-Portocarero Class Scheme <sup>d</sup> |                                  |  |                     |                           |                   |                                 |
| I + II = service class                                   | 1.012<br>(.240)                  | 1.449<br>(.436)                        | 1.716<br>(.494)     | .772<br>(.267)            | 3.941<br>(3.413)  |                                 |
| IIIa + b = routine non-manual                            | .748<br>(.168)                   | .968<br>(.280)                         | 1.465<br>(.421)     | .931<br>(.313)            | 5.881*<br>(4.742) |                                 |
| IVa + b + c = petty bourgeoisie/farmer                   | .870<br>(.257)                   | 1.506<br>(.551)                        | 1.695<br>(.683)     | .757<br>(.307)            | 6.294*<br>(5.888) |                                 |
| V + VI = skilled workers and foremen                     | .984<br>(.271)                   | 1.127<br>(.374)                        | 1.111<br>(.382)     | 1.026<br>(.403)           | 6.013<br>(6.507)  |                                 |
| Political Views  | .721***<br>(.037)                | .730***<br>(.046)                      | 1.045<br>(.062)     | .872<br>(.062)            | 1.144<br>(.187)   |                                 |
| Lives in South   | .901<br>(.138)                   | 1.161<br>(.223)                        | .609***<br>(.114)   | .829<br>(.182)            | 2.054<br>(.954)   |                                 |
| Age (years, divided by 10)                               | 1.055<br>(.047)                  | 1.203***<br>(.062)                     | .968<br>(.049)      | .985<br>(.060)            | 1.207<br>(.153)   |                                 |
| Constant   | 1.856                            |  |                     |                           |                   |                                 |
| N  | 1,231                            | 618                                    | 637                 | 618                       | 128               |                                 |
| Model log likelihood                                     | -685.384                         | -664.145                               | -581.376            | -481.116                  | -128.642          |                                 |
| Model BIC  | 1534.427                         | 1488.952                               | 1317.715            | 1129.321                  | 378.585           |                                 |

Source: 2006, 2008, and 2010 GSS.

Note: Standard errors are in parentheses. Abortion rights model is binary logit, all others are ordinal logit (cut points not shown).

<sup>a</sup>Referent is modern perspective.<sup>b</sup>Referent is mainline Protestant.<sup>c</sup>Referent is non-Latino African American.<sup>d</sup>Referent is VIIa + b (non-skilled workers).\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (two-tailed test).

overlap, and where these sources of authority have each been enlisted in the service of political interests.

## DISCUSSION

This article examined views of science and religion in the United States and how these perspectives correspond to sociodemographic attributes and socio-political attitudes. The traditional and modern perspectives illustrate a fundamental fissure among the U.S. public's cognitive framings of the world: one favors science over religion, the other holds the opposite view. The post-secular perspective indicates that roughly one-in-five individuals view science and religion more circumspectly. However, rather than the fully compatible worldview we anticipated, the post-secular perspective sees conflict between science and religion as limited to particular issues related to life. In these domains, the post-secular perspective is associated with a tendency to use religion to ground one's views.

Conservative Christians are not uniformly opposed to science, but they are more likely to reject scientific theories of the big bang and human evolution (Evans 2011). However, our analysis reveals that the selective rejection of certain scientific theories cannot be accounted for by denominational differences alone. Individuals from across religious traditions accept some facets of science and reject others, suggesting that although faith traditions are related to religio-scientific perspectives, they are not constitutive of them. Thus, we find that religion shapes individuals' worldviews in ways not captured by conventional measures of religion such as denominational affiliation or religious attendance. This finding bolsters recent criticisms of social scientific work on religion as overly congregation-based and Protestant-centric (Bender et al. 2013). Furthermore, it illustrates how views of religion matter for social attitudes beyond strictly religious contexts.

Post-seculars' generally favorable views of science and their rejection of evolution and the big bang may indicate that science and

religion coexist for these individuals, but that evolution and the big bang are not viewed as legitimate science. By defining a specific component of evolution—natural selection—as outside the boundaries of science, other aspects of the theory, such as an ancient earth and common ancestry, can be reconciled with religious texts (Plantinga 2011). The disproportionate number of conservative Protestants in the post-secular class supports this interpretation. Historically, some conservative Christian traditions have viewed mainstream scientific theories of evolution and the big bang as corruptions rather than limitations of science (Iannaccone 1993; Marsden [1980] 2006, 1991). If these theories are perceived as non-science, then individuals who dismiss them may not see their views on science and religion as conflicting in even a narrow sense.

Perspectives on science and religion are an important component of U.S. political culture. Shared meanings of expertise, credibility, and authority are ingrained within society's collective decisions about nature, knowledge, and politics (Jasanoff 2005). Competing worldviews among publics stoke fundamental disagreements about questions regarding life, such as when it begins, how it can end, and whether it should be manipulated by technology. We find that traditional, modern, and post-secular perspectives on science and religion differentiate U.S. public opinion on the big bang, evolution, abortion rights, stem cell research, and genetically modified food. The overlapping jurisdictions of science and religion in these areas create ideological dilemmas, which force individuals to choose among different interpretations of the world (Locke 1999). Ideological dilemmas are not limited to matters of reason and faith, but the absence of a fourth perspective, one that rejects both science and religion, underscores that science and religion are central pillars in U.S. life. Therefore, rather than appealing to other sources of authority, including common sense or morality, political debates often stress direct opposition between scientific and certain religious communities.

The social profiles of religio-scientific perspectives further inform understandings of

political culture. In terms of education, income, and occupations, individuals with a traditional perspective are more socially marginalized than people in other classes, and marginalization is often linked to conservative religious commitment (Stark and Bainbridge 1987). However, we show that the post-secular perspective is the most religiously committed despite its association with relatively high socioeconomic status. Additionally, favorable views of science are typically associated with progressive socio-political attitudes. However, the post-secular perspective suggests this linkage is not inevitable. In other words, this analysis provides evidence that social marginalization and religious commitment are not necessarily bound together, nor are positive views of science and liberal political preferences. Future work should examine the implications of this finding in greater depth.

Modernity is often defined by rationalization (Weber [1904] 1930), information (Castells 1996), quantified risk (Beck 1992), and other kinds of scientific knowledge. However, we find that more than three in every five members of the U.S. public are associated with perspectives that diverge from mainstream science on questions of creation and evolution. Perhaps Western society has never been marked by a widespread scientific orientation (Latour 1993). In the twenty-first century, a majority of the U.S. public believes in miracles, just as they did throughout the twentieth century (Shapin 2008). This suggests that religion continues to shape individuals' worldviews, which in turn shape political culture more generally. Nonetheless, this article provides a more refined understanding of science, religion, and the public than is often assumed. Although much of the U.S. public prefers scientific to religious ways of understanding, neither the post-secular nor the traditional perspectives can be easily dismissed as anti-scientific.

Individuals' daily choices—about who to trust, what to believe, and how to behave—are simultaneously constrained by and constitutive of society's macro-level contours (Giddens 1991). This article advances

sociological theory by showing how the U.S. public clusters into widely held interpretative positions that correspond to an array of social cleavages and provide a setting for deep-seated political conflict. Although religio-scientific perspectives may not correspond to all political attitudes, additional corollaries of perspectives on science and religion, including voting patterns, interpersonal behaviors, and socioeconomic attitudes, are a promising avenue for future research.

This article relies on a unique set of survey questions fielded in select waves of the GSS to subsamples of respondents, and many of the items used in this analysis are not contained in existing datasets. Our findings highlight the importance of variables measuring beliefs about the Bible, benefits of scientific research, human evolution, and the big bang for distinguishing perspectives on science and religion. If future research can identify reliable ways of capturing religio-scientific perspectives using a smaller number of survey questions, these items may be worth including in other national and cross-national surveys. Such data would facilitate studying religio-scientific perspectives across domains, comparatively, and over time.

Religion's diminishing influence over certain public affairs has coincided with an increase in spirituality among individuals, even among people who are scientifically inclined (Ecklund and Long 2011; Marler and Hadaway 2002). Moreover, our findings indicate there is substantial decoupling between individual and institutional perspectives on science and religion. For example, despite the Catholic Church's acceptance of modern science's origin theory, some Catholics in our sample did not support the scientific theory of the big bang (Pope Pius XII 1951; Ratzinger 1988). Overall, the finding that individual views of science and religion often differ from the official positions held by religious authorities points to the importance of cultural framings in addition to institutional ones for understanding individual choices about what to believe and when.

This article suggests that the post-secular perspective emerged from traditional and

modern views as a way for individuals to reconcile competing frameworks (Casanova 2010). An alternative is that traditional and modern perspectives arose from the post-secular view. This possibility is supported by Merton's ([1938] 1973) account of the role of Puritanism in the professionalization of science and the relatively recent schisms (i.e., twentieth century) between scientific and some religious institutions over evolution. Cross-sectional analyses risk inaccurately portraying the boundary between science and religion as static. Therefore, additional study is needed to consider how perspectives on science and religion emerge historically and individually.

Although our findings support theories of conflict between science and religion, they also show that many individuals see reason and faith as more compatible than is often acknowledged. We advance theory and research in this area of continued sociological interest by providing evidence for traditional, modern, and post-secular perspectives on science and religion. The post-secular view is not a midpoint between modern and traditional, but a distinct way of using science and religion to interpret the world. These results highlight the complexity of this cultural terrain and the value of examining religio-scientific perspectives in understanding divisions in U.S. society.

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## Notes

1. We prefer the label *modern* to *secular* because secularization theories do not necessarily presume conflict between science and religion (Gorski 2000).
2. Many variables for this analysis come from questions asked only to subsamples of respondents in

these survey years. To maximize the sample size for analysis, we pooled data across GSS waves. Mean levels for variables of interest are similar across survey years, and in supplemental regression models we included binary controls for survey year. Findings from these supplemental analyses do not change the conclusions presented in this article.

3. We computed supplemental latent class analysis models that include manifest variables measuring: (1) religious attendance, (2) prayer frequency, (3) belief in an afterlife, and (4) confidence in clergy (see Table S1 in the online supplement [<http://asr.sagepub.com/supplemental>]). Additional religion indicators produced latent classes similar to the ones presented here in their meanings and sizes, the attributes of respondents assigned to them, and their relationships with political attitudes. Ultimately, we excluded these manifest variables from the final analysis because of missing data issues.
4. Although we adopt Steensland and colleagues' (2000) classification, which includes fundamentalist, Pentecostal, charismatic, and evangelical Christian traditions in a single category, we recognize important historical differences among these traditions (Smith et al. 1998; Woodberry et al. 2012). We therefore prefer the term conservative Protestant to evangelical Protestant.
5. In supplemental latent class analysis models, we analyzed religious attendance as a manifest variable in combination with religious affiliation strength. Conclusions from these additional analyses are similar to those presented here. We do not assume a causal relationship between religious attendance and perspectives of science and religion. Rather, religious attendance is a social characteristic we examine in relation to religio-scientific perspectives.
6. Household income category midpoints are (in dollars) 500; 2,000; 3,500; 5,500; 6,500; 7,500; 9,000; 11,250; 13,750; 16,250; 18,750; 21,250; 23,750; 27,500; 32,500; 37,500; 45,000; 55,000; 67,500; 82,500; 100,000; 120,000; 140,000; and 172,500.
7. We thank Art Alderson for sharing details of his analysis with us.
8. We also examined alternative class assignments obtained using a pseudo-likelihood estimator (Vermunt 2010). Class assignments and results of analyses of manifest and independent variables were similar based on each class assignment method. We therefore report results from the more conventional posterior probability method.
9. We also examined cases excluded due to missing sociodemographic data. The percentage of post-seculars is not significantly different between the full and restricted samples (22 and 21 percent, respectively; two-tailed *t*-test). However, the traditional class is significantly larger in the restricted compared to the full sample (50 percent compared to 43 percent,  $p < .05$ ). The restricted sample's modern class is correspondingly smaller (28 percent compared to 36 percent,  $p < .05$ ). Although respondents

- in the restricted sample overall have significantly lower scores on several science knowledge items, and significantly higher scores on religion items, levels of manifest variables are similar between corresponding classes in the full and restricted samples.
10. We employ a two-stage rather than a simultaneous estimation strategy for the LCA and regression analyses. Simultaneous estimation allows independent variables from the regression equation to affect the formation of latent classes, which we wish to avoid for the theoretical and substantive reasons discussed earlier. Furthermore, we prefer Stata's post-estimation and prediction capabilities. We therefore use Mplus for the LCA (not supported by Stata) and Stata for subsequent analyses.
  11. The 2008 survey included 15 science knowledge questions about uncontested topics such as erosion and aerodynamics, designed to minimize cultural bias. In supplemental analyses, we compared additional science knowledge items across latent classes. Post-seculars and moderns each had significantly higher scores than traditionalists on each item ( $p < .05$ , two-tailed  $t$ -tests). Post-seculars and moderns differed significantly only on a question about litmus paper. Although post-seculars had a lower mean score than moderns on an additive scale of correct responses, the difference was only .54 points. This further suggests that the post-secular perspective entails high science literacy and disagreement with only a few particular scientific theories.
  12. Table S2 in the online supplement summarizes manifest variables for models with four, five, and six latent classes. Each model includes a class of post-seculars containing roughly one-fifth of respondents. Table S3 in the online supplement examines how respondents were assigned to latent classes across models. Of post-seculars in the three-class model, 95 percent were assigned to a common class in the four-class model. Additionally, 87 and 76 percent of the three-class post-seculars were assigned to common classes in the five- and six-class models, respectively. LCA models with more than three classes created new classes along a continuum defined by traditional and modern perspectives at its poles (see Table S2). The traditional and modern perspectives are further subdivided by adding more classes; the post-secular class is mostly unchanged. A unique, postmodern, fourth perspective does not emerge. Overall, these results provide support for the three-class solution.
  13. The most notable denominational differences between post-secular and traditional conservative Protestants are the larger share of traditionalists who are Baptist (21 versus 10 percent) or Pentecostal (11 versus 6 percent). Furthermore, nondenominational conservative Protestants are overrepresented in the post-secular class compared to the traditional latent class (22 versus 14 percent).
  14. Religious traditions are jointly significant ( $X^2 = 346.94$ ;  $p < .001$ ). Supplementary stepwise regressions reveal that relationships between religious traditions and latent classes are largely independent of other sociodemographic characteristics. One exception is that in the nested model, Black Protestants were significantly more likely to hold traditional rather than modern perspectives. However, after controlling for race, the effect of Black Protestantism on the odds of holding a traditional rather than modern perspective loses statistical significance. This is consistent with Shelton and Emerson's (2012) finding that although Black Protestants share doctrine with other conservative Christian traditions, the two groups have different approaches to the boundary between science and religion. Our findings suggest that while conservative Christian traditions shape religio-scientific perspectives independently of race, the same cannot be said for Black Protestant traditions.
  15. Race variables have a jointly significant effect on the model ( $X^2 = 86.77$ ;  $p < .001$ ).
  16. Occupational status variables have a jointly significant effect on the model ( $X^2 = 33.49$ ;  $p < .001$ ).

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