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# An Intersectional Analysis of Perspectives on Science and Religion in the United States

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#### ABSTRACT

Using General Social Survey data (n = 3,504), we examine racial, ethnic, and gender divisions in perspectives on science and religion. We find that while blacks and Latinos are each more likely than whites to be oriented toward religion and away from science, gender differentiates this perspective among Latinos and whites but not among blacks. Furthermore, although whites are more likely than blacks and Latinos to be oriented toward both science and religion, Latino men are more likely than Latina women to be so, but there is no gender difference among blacks or whites. We argue that the collective memory of gendered experiences with racism vis-à-vis science and religion contribute to group-specific views of these two sources of knowledge and authority. These findings underscore the value of an intersectional approach to understanding attitudinal divides and political culture in the United States.

**KEYWORDS** 

Gender; intersectionality; race; religion; science

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Science and religion are central pillars of United States political culture, yet their authority is not uniform across the population. Scholars have long known that gender, race, and ethnicity divide public attitudes about these two sources of knowledge and influence. For example, women are typically more religious than men (Baker and Whitehead 2016) and also tend to hold less favorable attitudes than men about science and technology (O'Brien and Noy 2015). Similarly, Latinos and non-Latino blacks in the United States are often more religious than non-Latino whites (Edwards, Christerson, and Emerson 2013; Kelly and Kelly 2005) and are, on average, more skeptical than non-Latino whites of science and medicine (Pew 2009; Sewell 2015).

These findings seem to reinforce the conventional assumption that science and religion are incompatible and that favorable views of one prohibit favorable views of the other. Moreover, existing research suggests that these preferences fall along racial, ethnic, and gender lines. Yet this binary view of science and religion is limited in two important ways. First, while many people lean more heavily on either science or religion, many incorporate both into their everyday lives (Evans 2011; Johnson, Scheitle, and Ecklund 2015; O'Brien and Noy 2015). Second, existing research typically focuses on race and ethnicity *or* gender rather than examining how these dimensions of social difference interactively shape views of science and religion. However, this approach fails to acknowledge the growing body of evidence that recognizes race, ethnicity, and gender as mutually constitutive systems

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rather than discrete categories (Collins 1993; Simien 2007; Yuval-Davis 2007). Thus, examining the simultaneous effects of race, ethnicity, and gender on preferences for scientific and religious authority may reveal dimensions of inequality that are masked when these frames for social interaction are considered separately. More generally, intersectional analyses can shed light on "differences that matter" (Clarke and McCall 2013:349) to people's lives and are capable of advancing theory on how and why social positions correspond to particular views of the world.

In this article, we investigate whether and how race, ethnicity, and gender orient preferences for cultural authority in the United States. Our analysis is guided by two questions: first, do race, ethnicity, and gender jointly shape perspectives on science and religion? Second, if so, how do the perspectives of black, Latino, and white men and women differ? We address these questions using data from the General Social Survey (n = 3,504). We use latent class analysis to identify underlying orientations toward science and religion and multinomial logistic regression models to examine the extent to which they differ by race, ethnicity, and gender. We find that although race, ethnicity, and gender each organize perspectives on science and religion, the role of gender differs across ethnoracial groups. We argue that group-specific preferences for cultural authority reflect historical and contemporary inequalities in organized science, medicine, and religion. We conclude by discussing the implications of our findings and the value of intersectional approaches for studying political culture and public life.

#### Background

# Intersectionality

Our research is guided by a paradigm of intersectionality, by which we mean "the interaction between gender, race, and other categories of difference in individual lives, social practices, institutional arrangements, and cultural ideologies and the outcomes of these interactions in terms of power" (Davis 2008:68). This approach acknowledges that individuals' worldviews are formed at the confluence of multiple fields of power and inequality (Collins 1993; Crenshaw 1991). An intersectional approach contrasts against one that attempts to reduce social life to unitary categorizations that, in reality, do not exist in isolation. As an empirical tool, intersectionality remains underused in many areas of social science, especially in analyses of political culture (Choo and Ferree 2010). In this article, we focus on the intersection of race, ethnicity, and gender because they are especially salient in everyday life. However, other categories of difference such as social class, sexual orientation, and nationality may also shape individuals' relationships to science and religion as well as their perspectives on cultural authority in general.

Intersectionality and its use in social science are not without critics. Some argue that it has been co-opted by academics and divorced from its social justice origins (Bilge 2013). Others observe that statistical measures of race, ethnicity, and gender are inappropriate because of their uniform treatment of individuals with wide-ranging social experiences and positions (Beltran 2013; McCall 2005). Indeed, recent research has documented the diverse effects of gender on social attitudes, underscoring the difficulty of capturing these relationships in quantitative analyses (Strapko et al. 2016). Yet, despite these hurdles, the push to examine the nexus of race, ethnicity, gender, and other axes of difference and

inequality challenges scholars to think in nonbinary terms and to recognize that these categories are mutually constituted (Cho, Crenshaw, and McCall 2013). Thus, notwithstanding its heterogeneity as an intellectual project, intersectionality is conceptually and analytically useful for providing new angles to study social phenomena (Collins 1993). To our knowledge, ours is the first investigation to apply the intersectionality paradigm to examine orientations towards science and religion among the American public.

Intersectionality is especially valuable for understanding how women and people of color interpret institutions such as science, religion, and politics. The related concept of gendered racism helps to situate ethnoracial and gender discrimination and prejudice in the context of these and other fields of power (Essed 1990). Gendered racism recognizes the interactive effects of racism and sexism, which result in practices and ideologies that differ from those associated with racism or sexism alone. The experience of gendered racism therefore uniquely situates individuals within structures of domination along both ethnoracial and gender lines. Understanding how gendered racism manifests in public opinion holds promise for our knowledge of how these interrelated dimensions of inequality operate at the ideational, cultural, and societal levels. For example, recent studies have found that race and gender interactively shape social and political attitudes in ways that reflect racist and sexist systems (Allison 2011; Ifatunji and Harnois 2015). Given the uneven historical experiences of social groups with science and religion, it is likely that race, ethnicity, and gender operate interactively to inform views of scientific and religious authority.

# Race/Ethnicity, Science, and Religion

The heterogeneity of what science and religion mean to the public makes these concepts difficult to fully capture using quantitative measures (Evans and Evans 2008; Hempel and Bartowski 2008; Korver-Glenn, Chan, and Ecklund 2015). For example, attitudes about science are not synonymous with familiarity with scientific information or attitudes about scientists. Similarly, religious belief is not equivalent to religious practices or support for religious leaders in public life. Despite the diverse meanings attributed to these categories, many scholars agree that racialized encounters with science, medicine, and religion result in group differences in attitudes about these institutions. For example, opinion polls indicate that Latinos hold less favorable perceptions than whites of science, and that blacks' attitudes about science are even less favorable than Latinos' (Pew 2009). Interviews with religious individuals also suggest that African Americans and whites are often divided in their views about the relevance of science to daily life (Korver-Glenn, Ecklund, and Chan 2015). The past exclusion and continued underrepresentation of people of color from scientific education and work offers one explanation for these attitudinal differences (Hammonds and Subramaniam 2003; National Science Board 2014).

The scientific and medical exploitation of African Americans has also fostered doubts about science and medicine among many blacks in the United States (Gamble 1997; Reverby 2009). For example, although blacks' distrust of public health and other scientific authorities predates the Tuskegee Syphilis Study, Tuskegee is a watershed cultural memory for African Americans (Reverby 2001). African Americans are also more skeptical than whites of mental health care providers (Diala et al. 2000; Schnittker, Freese, and Powell 2000). Persistent biological racism may contribute further to a suspicion of science and medicine among some blacks and Latinos (Anglin et al. 2008; Benjamin 2013; Bliss 2012; Sewell 2015). Although few studies have compared blacks' and Latinos' attitudes about science, scholarship generally suggests that African Americans and Latinos are less supportive than whites of scientific authority.

Aside from racial and ethnic differences in attitudes about science and medicine, there are ethnoracial divides in religious attitudes and behaviors. Despite regional variation, religion is often more central to the lives of blacks and Latinos compared to whites (Edwards et al. 2013; Hunt and Hunt 2001; Kelly and Kelly 2005). In addition, religious attendance has distinctive cultural meanings for blacks and whites, which are associated with race-specific effects on civic behavior (Musick, Wilson, and Bynum 2000). These individual-level differences are consistent with organizational-level analyses that find that black churches are often more active than others in providing social services, further highlighting the prominence of religious institutions in many African American communities (Sewell and Ray 2015; Tsitsos 2003). Moreover, because of the legacies of slavery, racism, and segregation black churches have been among the few spaces in the United States where blacks (traditionally men) have consistently held leadership positions (Du Bois 1903; Lincoln and Mayima 1990; Taylor, Chatters, and Levin 2004).

Research on the religious beliefs and behaviors of Latinos in the United States often stresses Latinos' religious diversity. For example, a growing number of Latinos in the United States, especially Puerto Ricans, have left the Catholic church to join conservative Protestant churches (Diaz-Stevens and Stevens-Arroyo 1997). Yet, despite increasing denominational variation, Latinos are generally more religious than whites in the United States (Ellison, Echevarria, and Smith 2005; Kelly and Kelly 2005). While blacks and Latinos are each more religious than whites, the lack of research comparing African Americans and Latinos makes it difficult to predict differences in their orientations toward religion, especially relative to science.

#### Gender, Science, and Religion

Gender also patterns attitudes about science and religion in the United States. Women often hold less favorable views than men about science and technology (Moerbeek and Casimir 2005; O'Brien and Noy 2015). Positive attitudes about science are sometimes thought to result from familiarity with science, which implies that differences in science attitudes reflect differences in knowledge of science. However, recent studies emphasize the importance of personal experiences with science and technology for understanding affect toward science (Johnson and Simon 2012). This suggests that women's more pessimistic views of science reflect less positive rather than less numerous encounters with science and technology. Even elite scientists are not immune from the effects of the gender frame on experiences with science (Ecklund, Lincoln, and Tansey 2012). In addition, historical instances of medical discrimination against women of color may negatively affect black and Latina women's perceptions of science and medicine. One of the most egregious cases of this occurred in 1975 when Latinas who had recently immigrated to California from Mexico were sterilized by physicians either without consent or under coercion (Stern 2005).

Coupled with ethnoracial differences, gendered experiences with science and medicine offer further evidence of the simultaneous importance of race, ethnicity, and gender for

understanding orientations toward science. Black women's access to the nursing profession in the United States is an especially poignant example of discrimination at the intersection of science, medicine, gender, and race. As racial segregation became institutionalized at the end of the nineteenth century, the field of nursing emerged as a major source of nondomestic, paid labor for women (Hine 1982). However, black women's struggle to gain entry into the nascent profession occurred in the context of a wider movement in which nurse training transformed from clinically oriented and hospitalbased to an academic discipline housed primarily at colleges and universities (Hine 1982). This shift further marginalized women in medicine, and it doubly disadvantaged women of color, both as consumers and providers of health care (Campinha-Bacote 1998). Altogether, this research suggests not only that women are less oriented than men toward science but also that the gender gap may be more pronounced among blacks and Latinos than among whites.

Women also tend to be more religious than men (Baker and Whitehead 2016; Collett and Lizardo 2009; Freese and Montgomery 2007; Woodhead 2007). Scholars have documented gender gaps in numerous aspects of religious belief and behavior. For example, women participate more often than men in religious services and are more likely to hold orthodox religious beliefs (Miller and Hoffman 1995; Sherkat 1998). Furthermore, women are less likely than men to leave their faith traditions (Wilson and Sherkat 1994). Women's relatively high religiosity has been documented over time (Crawford 1993; Lambert 1992, 1998) and cross-nationally (Beit-Hallahmi and Argyle 1997). Some attribute the differences to gender-role socialization, contending that men's greater tolerance for risk accounts for their lower levels of religious commitment (Miller and Hoffman 1995; Sullins 2006; Walter and Davie 1998). Given the near universality of gender differences in religiosity, some scholars have even argued that the men's weaker religious attachment reflects physiological differences (Stark 2002). Other research notes that these gender differences are larger among Christians than non-Christians (Schnabel 2015; Sullins 2006) and that the gap is smaller among those who are highly educated and politically liberal (Baker and Whitehead 2016). Yet, although other social characteristics may pattern differences in men's and women's religiosity, this gender gap is a notably durable social scientific observation.

#### Perspectives on Science and Religion

Given the cultural and epistemological importance of science and religion, researchers' focus on the public's relationship with these two institutions is not surprising. While science and religion are sometimes thought to be incompatible, scholars now recognize that many individuals reject this notion (Baker 2012; Longest and Smith 2011). Although some research suggests that religious individuals have lower levels of scientific knowledge (Sherkat 2011), others argue that this pattern reflects conservative Protestants' tendency to reject scientific theories of human origins rather than a knowledge deficit (Evans 2011; Johnson, Scheitle, and Ecklund 2016). Furthermore, many individuals understand the world in terms of both science and religion (Chan and Ecklund 2016; Ecklund 2010; Ecklund, Park, and Veliz 2008; Johnson et al. 2015). For example, one recent study found three broad perspectives on science and religion among the U.S. public: a "modern" one that is the most familiar with and appreciative of science and is the least religious, a

"traditional" one that is religiously devout and is the least familiar with and appreciative of science, and a "postsecular" one that is both scientifically informed and deeply religious. In fact, nearly half of those with a postsecular worldview report that the Bible is the literal word of God (O'Brien and Noy 2015). Yet, despite their familiarity with science, post-seculars are nearly unanimous in their rejection of scientific theories of evolution and the big bang. Although moderns are more likely than others to be secular and nontheistic, the postsecular perspective demonstrates that for many individuals, denying scientific information is not the result of inexperience with science but of a preference for other ways of understanding.

There were also ethnoracial and gender divides in these perspectives. Men were more likely than women to be oriented toward science and away from religion and blacks were more likely than Latinos and whites to be oriented toward religion and away from science (O'Brien and Noy 2015). However, researchers have not yet investigated the extent to which race, ethnicity, and gender operate together to inform perspectives on science and religion. Race, ethnicity, and gender are associated with persistent inequalities in status, power, and resources, and examining their interactive effect on views of science and religion presents a new opportunity to understand how these dimensions of stratification map onto preferences for cultural authority in the United States.

# **Empirical Expectations**

We argue that individuals' location at the intersection of multiple fields of difference and power orient them toward religion and away from science, toward science and away from religion, or toward both science and religion. Given that women are more religious than men and have historically been marginalized in science and medicine, we expect that;

Hypothesis 1a: Women are more likely than men to be oriented toward religion.

However, we also expect that:

**Hypothesis 1b:** Gender differentiates this perspective among whites more so than among blacks and Latinos because of the centrality of religion among black and Latino communities in the United States.

Alternatively, we anticipate that:

*Hypothesis 2a:* Men are more likely than women to be oriented toward science and away from religion.

But we expect that:

**Hypothesis 2b:** The gender difference is larger among Latinos and whites compared to blacks because of the unique discrimination experienced by blacks in medicine, both as patients and providers.

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Finally, we anticipate that:

*Hypothesis 3a:* The likelihood of being oriented toward both science and religion is higher for women than for men.

and that:

**Hypothesis 3b:** The gender gap is greater among Latinos and whites than among blacks owing once again to the distinctive discriminatory experiences of black women and men in science and medicine.

#### **Data and Methods**

To examine racial, ethnic, and gender differences in perspectives on science and religion, we analyze data from the General Social Survey (GSS). The GSS is a nationally representative, biennial survey of U.S. households (Smith et al. 2015). Since 2006, subsamples of respondents have been asked questions about their knowledge of and attitudes about science. Along with questions about religious beliefs asked in each wave of the survey, we use these variables to measure perspectives on science and religion.

# Dependent Variable

Our dependent variable is perspectives on science and religion, which we obtained from a latent class analysis (LCA) (Lazarsfeld and Henry 1968). LCA uses observed responses to related survey questions to identify underlying groups of respondents. This approach allows us to model views of science and religion in tandem rather than independently of one another. Consistent with other research on perspectives on science and religion, our LCA uses 20 survey questions that measure knowledge of and attitudes about science, religiosity, and preferences for religious-based knowledge. These items are summarized in Appendix Table A1. Attitudes about science are measured using questions that asked whether (1) the benefits of science outweigh its costs, (2) science should be supported by government funding, (3) science makes life move too fast, and (4) science creates more opportunities for the next generation. Responses were recorded on four- and five-point ordinal scales. Knowledge of science is measured using 14 true/false questions about scientific concepts and methods such as radioactivity, subatomic particles, and experimental design. Two questions in this series about areas of contested knowledge—the big bang and human evolution—are critical for distinguishing views of science and religion.

We measured religiosity using a question that asked respondents to rate the strength of their religious beliefs on a four-point ordinal scale ranging from "no religion" to "strong." We measured preferences for religious-based knowledge using a nominal variable based on 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.<sup>1</sup> While survey questions about the Bible are most relevant to members of Judeo-Christian traditions, self-reported Christians constitute 74 percent of the sample. This survey question provides only three possible responses, which inevitably fails to capture the full range of perspectives on the Bible. Yet,

despite these limitations, this item is a valuable measure of fundamentally different interpretations of this important religious text. In addition, focusing on attitudes about religion and religious knowledge instead of behavioral measures such as religious attendance allows us to capture the religiosity of individuals who are not regular participants in religious institutions but who may nonetheless rely on religious belief. Analyses containing alternative indicator variables for religious belief including belief in God, belief in an afterlife, and confidence in clergy, summarized in Appendix Table A2, generated the same latent classes that we focus on in this article. Because including these additional indicators of religious belief reduced the sample size available for analysis by roughly 24 percent due to missing data, we omit these items from the analysis presented below. Although ours is one of many possible approaches for studying the interface between science and religion, it offers a new way of conceptualizing individuals' relationships with these institutions based on religious belief rather than membership in faith traditions. Moreover, while each indicator variable is necessarily limited in scope, a key advantage of latent class analysis is that it incorporates numerous measures of an underlying construct. Taken together, the indicator variables for our latent class analysis provide a theoretically and empirically robust measure of individuals' perspectives on science and religion.

Table 1 contains LCA results, which use data for 4,341 respondents with complete information for indicator variables.<sup>2</sup> Results suggest that there are three underlying worldviews related to science and religion: a traditional perspective (41 percent) oriented toward religion and away from science, a modern perspective (37 percent) oriented toward science and away from religion, and a postsecular perspective (21 percent) that is knowledgeable and appreciative of science but is religiously devout and rejects main-stream scientific theories about evolution and the big bang.

# Independent and Control Variables

The independent variables for our analysis are respondents' race, ethnicity, and gender. We measured gender with a binary variable that equals one for female. We measured race and ethnicity using mutually exclusive binary variables for Latino (any race), non-Latino black, and non-Latino white. Summary statistics for independent and control variables are provided in Table 2. Race, ethnicity, and gender are complex, multidimensional constructs, and statistical measures like the ones we use do not capture the considerable heterogeneity within these categories. However, researchers have consistently found ethnoracial and gender differences in attitudes about science and in religiosity. If this

Number of classes	p	BIC	Proportion reduction in BIC			
1		127,807.530				
2	< 0.01	122,610.121	0.04			
3	<0.01	121,462.265	0.01			
4	0.76	121,001.778	0.00			
5	0.76	120,793.288	0.00			
6	0.76	120,658.098	0.00			
7	0.76	120,619.247	0.00			

Table 1. Fit statistics for latent class analysis

Source: General Social Survey 2006, 2008, 2010, 2012, and 2014.

*Notes:* N = 4,341; preferred model in bold; *p* is the *p*-value from the Lo–Mendell–Rubin likelihood-ratio test; *BIC* is the Bayesian information criterion; supplementary analysis indicates that the 4, 5, 6, and 7 class models divide the continuum between modern and traditional classes, while leaving the postsecular class intact.

Table 2. Descriptive statistics	for variables	used in the a	analysis ( $n = 3,504$ ).
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	Mean	Std. dev.	Min.	Max.
Female	0.53		0	1
Race/ethnicity <sup>a</sup>				
Black, non-Latino	0.15		0	1
Latino	0.11		0	1
White, non-Latino	0.75		0	1
Religious tradition				
Conservative Protestant	0.25		0	1
Catholic	0.25		0	1
Black Protestant	0.08		0	1
Jewish	0.02		0	1
Other faith	0.04		0	1
No religious affiliation	0.17		0	1
Nonaffiliated nontheist	0.03		0	1
Mainline Protestant	0.16		0	1
Religious attendance ( $0 = never$ , $8 = more than once per week)$	3.52	2.77	0	8
Education (in years)	13.80	2.89	0	20
<i>Income</i> (natural log transformation of household income category midpoints) <sup>b</sup>	10.65	1.03	6.21	12.06
Political views (1 = extremely liberal, 7 = extremely conservative)	4.09	1.43	1	7
Lives in South	0.28		0	1
Age (in years, divided by ten)	4.70	1.63	1.80	8.90
Year, 2006	0.36		0	1
Year, 2008	0.22		0	1
Year, 2010	0.08		0	1
Year, 2012	0.09		0	1
Year, 2014	0.24		0	1

Source: General Social Survey 2006, 2008, 2010, 2012, and 2014.

<sup>a</sup>The analysis excluded 136 people (54 men and 82 women) classified as "other race."

<sup>b</sup> 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, 172,500.

investigation finds that perspectives on science and religion are simultaneously rooted in race, ethnicity, and gender, then it would point to the need for additional research to investigate the variation in attitudes within ethnoracial and gender categories.

Regression models control for several respondent characteristics, which may account for variation in attitudes about science and religion. We measured religious traditions using mutually exclusive binary variables for conservative, mainline, and black Protestants, Catholics, Jews, followers of other faiths, people who are not associated with organized religion but who do not deny the existence of God, and nontheists who are not associated with organized religion. Although some argue that this typology does not fully capture the complexity of theological conservativism (Bartkowski and Hempel 2009; Hempel and Bartkowski 2008), it reflects important historical differences among faith traditions and it is the standard of coding GSS religious affiliation data (Woodberry et al. 2012). We controlled for religious attendance using a nine-category ordinal variable ranging from "never attends" to "attends more than once per week." We controlled for age, measured in years, and geographic location, measured using a binary variable for residents of the South. We controlled for political ideology using an ordinal seven-point scale, where higher scores correspond to more conservative beliefs. Because religious belief and behavior are associated with socioeconomic status, we controlled for social class in two ways. First, we controlled for education in years where zero indicates no formal schooling and scores above twelve indicate college-level education. Second, we measured income using a natural log transformation of household income category midpoints.

#### Analysis

We use multinomial logistic regression models to examine racial, ethnic, and gender differences in perspectives on science and religion. Regression models use data from the 3,504 respondents with complete information for variables of interest.<sup>3</sup> We use interaction terms to test for differences between racial, ethnic, and gender groups. In logistic regression models, coefficients are confounded by residual variation, making standard tests of equality inappropriate (Long 2009). We therefore compute predicted probabilities and delta-method standard errors to test whether group differences are statistically significant. Predicted probabilities offer the additional advantage of easing comparisons between each group in the model. All statistical analyses use the recommended sampling weights.<sup>4</sup>

#### Results

# Unadjusted Differences in Perspectives on Science and Religion

Table 3 contains the proportions of survey respondents that hold traditional, modern, and postsecular perspectives on science and religion by gender and ethnoracial identity. Racial, ethnic, and gender differences are evident throughout the table. For example, Latina women (.76) and Latino men (.57) are each overrepresented in the traditional category. A chi-squared test indicates that the 19-point gender gap among Latinos is statistically significant (p < .05; test not displayed). Table 3 also indicates that white women (.26) and white men (.35) are each less likely than Latinos to hold a traditional perspective on science and religion (p < .05; tests not displayed). Although the gender gap among whites is smaller than it is among Latinos, it is in the expected direction and is also statistically significant (p < .05; test not displayed). However, whereas black women and black men are each more likely than whites and Latino men to hold a traditional perspective (p < .05; tests not displayed), the gender difference in blacks' representation in this category is not significant. Overall, this first set of results suggests not only that race, ethnicity, and gender jointly shape perspectives on science and religion but also that gender organizes these

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	п	Proportion traditional ( $n = 1,413$ )	Proportion modern $(n = 1,330)$	Proportion postsecular ( $n = 761$ )
Overall sample	3,504	0.40	0.38	0.22
Women	1,857	0.45	0.32	0.24
Men	1,647	0.45	0.36	0.20
Blacks, non-Latino	510	0.73	0.14	0.13
Latinos	376	0.66	0.23	0.12
Whites	2,618	0.30	0.45	0.24
Black women	297	0.75	0.08	0.17
Black men	213	0.71	0.19	0.09
Latina women	190	0.76	0.16	0.09
Latino men	186	0.57	0.29	0.14
White women	1,370	0.35	0.38	0.27
White men	1,248	0.26	0.52	0.22

Table 3. Traditional, modern, and postsecular perspectives on science and religion by race, ethnicity, and gender.

Source: General Social Survey 2006, 2008, 2010, 2012, and 2014.

*Notes:* N = 3,504; statistics in the table are weighted to adjust for nonrandom sampling design. Proportions sum across rows (may not sum to 1 due to rounding).

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views differently across ethnoracial groups. In addition, the differences highlight the value of studying attitudes about cultural authority through an intersectional lens.

Table 3 also suggests that the chances of holding a scientifically oriented, modern perspective are group-specific. White women are more likely than Latina women and black women to hold this perspective, as are white men compared to Latino men and black men (p < .05; tests not displayed). However, in contrast to the traditional worldview, gender differentiates the modern perspective similarly across ethnoracial groups. For example, Table 3 shows that black men are more likely than black women to hold a modern perspective (.19 compared to .08; p < .05; test not displayed). Likewise, Latino men are more likely than Latina women to be included in this group (.29 compared to .16; p < .05; test not displayed). Finally, although whites are more likely than Latinos and blacks to hold a modern perspective, the gender gap among whites is similar in magnitude to the gender gaps among Latinos and blacks and it is also statistically significant (p < .05; tests not displayed).

The final column in Table 3 contains the proportion of each gender, ethnic, and racial group that holds a postsecular perspective. This perspective, which blends elements of science and religion, is least common overall and for each gender/ethnoracial category except for black women. The table indicates that white men are more likely than black men and Latino men to hold this view (p < .05; tests not displayed). White women, too, are more likely than black women and Latina women to see the world from a postsecular vantage (p < .05; tests not displayed). Latina women are also less likely than black women to hold this perspective (p < .05; test not displayed). However, like the traditional perspective, gender's relationship to a postsecular worldview depends on race and ethnicity. For example, white men are significantly less likely than white women to be included in this group and an even larger gender gap is evident among blacks (p < .05; tests not displayed). In contrast, the gender difference in Latinos' probability of holding a post-secular worldview is not statistically significant. These results therefore point to another difference in the role gender plays in shaping views of science and religion among Latinos, blacks, and whites in the United States.

# Adjusted Differences in Perspectives on Science and Religion

To test whether these differences remain after accounting for other characteristics of respondents, we estimated a multinomial logistic regression model, which included controls for respondents' religious tradition, social class, political ideology, age, and geographical location. Table 4 contains regression estimates. To illustrate the results, Figure 1 contains the predicted probabilities of holding each worldview by race, ethnicity, and gender.<sup>5</sup> Predictions are adjusted to reflect group differences when control variables are held to their mean levels.

Consistent with the unadjusted group differences in Table 3, Figure 1 indicates that women are generally overrepresented in the traditional category and that the gender gap is greatest among Latinos. Specifically, the average Latina woman's probability of holding a traditional perspective is .63 compared to just .43 for the average Latino man. Figure 2 graphs this gender gap directly and indicates that the 21-point difference is statistically significant (p < .05). Similarly, the average white man is significantly less likely than the average white woman to hold a traditional view of science and religion (p < .05, Figure 2). However, in contrast to Latinos and whites, Figure 2 indicates that among blacks the gender difference in the probability of holding a traditional perspective is not statistically

	Modern vs.	Postsecular vs.	Postsecular vs.
		1.00***	
Female	0.52***	1.69***	0.87
	(0.07)	(0.24)	(0.11)
Race/Ethnicity	0.00***	0.54	0.11***
Black, non-Latino	0.20^^^	0.56	0.11^^^
	(0.07)	(0.29)	(0.04)
Latino	0.40***	1.57	0.63
	(0.09)	(0.51)	(0.21)
Interactions			
Female * black	0.86	1.96	1.69
	(0.37)	(1.10)	(0.58)
Female * Latino	0.71	0.54	0.38*
	(0.24)	(0.22)	(0.15)
Religious tradition			
Conservative	0.47***	3.05***	1.44*
Protestant			
	(0.08)	(0.60)	(0.26)
Catholic	0.72*	0.71	0.52***
	(0.11)	(0.14)	(0.09)
Black Protestant	0.34**	5.06***	1.73
	(0.13)	(2.15)	(0.63)
Jewish	1.18	0.81	0.95
	(0.58)	(0.51)	(0.64)
Other faith	1.54	1.10	1.70
	(0.52)	(0.38)	(0.50)
No religious affiliation	1.93**	0.18***	0.36**
	(0.39)	(0.07)	(0.13)
Nontheist, no religious	5.39**	<0.01***	<0.01***
affiliation	(3.21)	(<0.01)	(<0.01)
Religious attendance	0.85***	1.40***	1.19***
5	(0.02)	(0.04)	(0.03)
Education	1.48***	0.80***	1.18***
	(0.04)	(0.02)	(0.03)
Income	1.31***	0.94	1.23***
	(0.09)	(0.06)	(0.07)
Political views	0.85***	1.37***	1.17***
	(0.03)	(0.05)	(0.05)
Lives in South	0.90	1.23	1.10
	(0.13)	(0.19)	(0.15)
Aae	0.93	0.99	0.91*
· · <del>y</del> =	(0.04)	(0.04)	(0.04)

Table 4. Odds	ratios from	multinomial	logistic	regression	of	perspectives	on	science
and religion on	race, ethn	icity, gender,	interacti	ons, and co	onti	rols.		

Source: General Social Survey, 2006, 2008, 2010, 2012, and 2014.

*Notes:* N = 3,504; standard errors in parentheses; \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001; constant and controls for the survey year are not reported. Referent for race/ethnicity is non-Latino white. Referent for religious tradition is mainline Protestant.

significant. Overall, these results suggest that gender's differential association with a traditional worldview cannot be attributed to other respondent characteristics.

The second set of bars in Figure 1 indicates that the chances of holding a modern perspective also depend on race, ethnicity, and gender. The patterns are similar to the unadjusted group differences presented in Table 3, indicating that race, ethnicity, and gender are associated with a modern view of science and religion independently of other differences among respondents. Whites remain most likely and blacks least to be included in this category after adjusting for other characteristics. Unlike the traditional perspective, gender relates to the modern perspective similarly across ethnoracial identities. Figure 2 indicates



□Latina Women ■Latino Men ■Black Women ■Black Men ■White Men

**Figure 1.** Adjusted predicted probabilities of traditional, modern, and postsecular perspectives on science and religion by race, ethnicity, and gender.

*Notes*: Bars in the graph indicate predicted probabilities of traditional, modern, and postsecular perspectives by gender, race, and ethnicity. Probabilities are based on the regression model in Table 4 with control variables held at their means. Data come from the General Social Survey, 2006, 2008, 2010, 2012, and 2014 (n = 3,504).



White Men - White Women Black Men - Black Women Latino Men - Latina Women

**Figure 2.** Adjusted gender differences in predicted probabilities of traditional, modern, and postsecular perspectives on science and religion by race and ethnicity.

*Notes*: Bars in the graph indicate gender differences in the predicted probabilities of traditional, modern, and postsecular perspectives by race and ethnicity. Probabilities are based on the regression model in Table 4 with control variables held at their mean. Data come from the General Social Survey 2006, 2008, 2010, 2012, and 2014 (n = 3,504). Asterisks indicate statistically significant differences (p < .05, two-tailed tests).

that for blacks, Latinos, and whites the gender gaps are similar in direction and magnitude and each is statistically significant (p < .05). In other words, men are more likely than women to lean relatively heavily on science and less so on religion regardless of race and ethnicity.

Although control variables do little to account for racial, ethnic, and gender divides in the traditional and modern views of science and religion, adjusting for other respondent characteristics reduces gender differences in blacks' and whites' odds of holding a postsecular perspective. In contrast, controlling for other characteristics increases the gender difference in Latinos' probability of holding this view. Specifically, while Table 3 indicated that black men and white men are less likely than black women and white women to hold a postsecular perspective, Figure 2 shows that these gender differences are not significant, net of controls. However, Figure 2 also indicates that after adjusting for other respondent characteristics, the average Latino man is significantly more likely than the average Latina woman to be included in the postsecular category (p < .05). In addition, stepwise regression models indicate that this gender gap reflects Latina women's greater likelihood of identifying as conservative Protestant, which is a faith tradition closely associated with postsecularism.

The rank order of these ethnoracial and gender differences must be examined in the context of group-specific experiences with science and religion. For example, whites are the least likely to hold a traditional perspective, while women of color are the most likely to hold this view. This is consistent with the historical connections between religious institutions and social valuations of moral worth for women. The social histories of sexual politics regarding issues such as birth control and sex education in the United States are particularly useful for interpreting gender's differential association with a traditional worldview (Gordon 2002). In contrast, whites are the most likely to hold a modern worldview, which is far less religious than the others. Secularism and atheism are often viewed unfavorably in the United States and our results suggest that whites may be able to "afford" the stigma of secularism more so than people of color, especially African Americans. Recent research suggests that the same is true for men compared to women (Edgell, Frost, and Stewart 2017).

To summarize, this analysis finds that race, ethnicity, and gender simultaneously orient views of cultural authority in ways that are obscured when these dimensions of difference are considered separately. Our expectations that women are more likely than men to be oriented toward religion and that men are more likely than women to be oriented toward science are generally supported (H1a, H2a, and H3a). However, we also find that these differences are contingent on race and ethnicity, although not necessarily in the ways we predicted (H1b, H2b, and H3b). Altogether, our analysis indicates that race, ethnicity, and gender operate in tandem to shape public perspectives on science and religion. It also underscores the importance of investigating sociopolitical attitudes in the United States from an intersectional viewpoint.

# Conclusion

Although perspectives on science and religion are sometimes thought to mirror information deficits or surpluses, scholars increasingly recognize that public views of these two ways of knowing reflect moral and cultural considerations (Evans and Evans 2008; O'Brien and Noy 2015). This suggests that orientations toward science and religion vary not just by educational attainment but by attributes and identities associated with unique historical experiences. This study tested this proposition by examining the extent to which race, ethnicity, and gender

shape orientations toward science and religion in the United States. Not only did we find systematic differences in the views of blacks, Latinos, and whites, we found that gender organizes these perspectives differently depending on race and ethnicity. Notably, group differences we found were robust to numerous control variables and sensitivity analyses. Given the importance of science and religion in the United States, public views of these sources of authority help explain conflict and division in political culture, especially about the role of scientific and religious leaders and institutions in social life.

One interpretation of these findings is that preferences for cultural authority are rooted in historical power dynamics and that individuals tend to favor sources of authority that align with the interests of their social groups. For example, perspectives on science and religion may reflect long-standing inequalities and exploitation in science and medicine. Despite recent inroads into scientific education and careers made by women and people of color, science has been traditionally organized, occupied, and reproduced by white men. The general affirmation of science among white men in these data is consistent with their dominance in this domain. In contrast, although men are overrepresented as religious leaders, religious organizations are disproportionately composed of women. Moreover, in some faith traditions, including black Protestantism and Pentecostalism, women have played expansive roles (Brasher 1998). Women's relatively favorable outlook on religion may result from their greater collective presence in this sphere. Similarly, people of color and immigrant communities in the United States have each relied on religion as a social space of freedom, support, and control. This shared experience may help to explain the high value placed on religion by many blacks and Latinos. Thus, despite white men's substantial influence in organized religion, power in this domain is distributed more widely among ethnoracial and gender groups.

Our findings provide new insights about how gender and ethnoracial identities guide individuals' understandings of the world. Perspectives on science and religion are associated with far-reaching differences in social and political attitudes (Noy and O'Brien 2016), which suggests that the divisions described in this article may correspond to wider divides among the public, including about issues that are unrelated to science or religion. Orientations toward science and religion may also be associated with support for different kinds of political leaders and public policies. Although ethnoracial and gender groups are entitled to equal protection under the law, social life in the United States is marked by structural and interpersonal racism and sexism, in beliefs, behaviors, and practice. Thus, racial, ethnic, and gender differences in access to power suggest that group-level efforts to elect scientifically or religiously oriented public leaders will not yield commensurate results. Interpreted through this lens, the relative prominence of science and marginalization of religion in U.S. public institutions may be seen as a consequence of gendered and racialized structures and ideologies, which prioritize the forms of cultural authority found most appealing by white men.

A practical implication of our research is that for those seeking to increase the public's appreciation of science and medicine, these institutions must address deep-seated, long-held mistrust in scientific knowledge and methods rather than simply increasing public understanding. By showing that perceptions of science and religion are staked to racial, ethnic, and gender identities, our results suggest that changing public perspectives on science and religion depend on changing the cultural contexts in which these worldviews are produced and maintained.

We have suggested that racial, ethnic, and gender divides in perspectives on science and religion result from collective memories related to group-specific experiences. However, the variables-based, quantitative approach taken here is better positioned to establish the scope of these divisions rather than their underlying causes. Although our argument is theoretically and empirically supported, additional qualitative research is necessary to understand how individuals interpret their relationships with science and religion. In particular, we contend that ethnoracial and gender differences in perspectives on science and religion are rooted in historical inequalities in individuals' and groups' interactions with scientific and religious institutions. Qualitative research would be well-suited to determine whether and how individuals refer to these historical inequalities in discussing their perspectives on science and religion. Doing so would help to determine whether the racial, ethnic, and gender differences we identify stem from an awareness of historical inequalities, contemporary personal or public experiences, or some combination of the two.

This study raises new questions about group differences in public perceptions of conflict between science and religion, both at the general level and with respect to specific controversies. Amid increasing politicization of science and religion (Evans 2017; Gauchat 2012), ethnoracial and gender divides in worldviews have implications for public support for elected leaders, public policy, and democratic institutions more broadly. Additional survey data are needed to understand public perceptions of the intersection of religious, scientific, and other sources of cultural authority, especially regarding controversial topics such as human origins, climate change, and artificial intelligence. Such data streams could substantially advance this area of research both methodologically and theoretically.

Moreover, although this article focused on the intersection of race, ethnicity, and gender, the regression analysis revealed that social class is a significant predictor of orientations toward science and religion. Future research should therefore consider whether and how socioeconomic status factors into ethnoracial and gender divides in public perspectives on science and religion. Further study is also needed to understand whether and how individuals mobilize these worldviews in encounters within the fields of science and religion, for example, in churches or hospitals, and in other contexts. Overall, this article highlights the simultaneous importance of race, ethnicity, and gender for perspectives on science and religion. In addition, it illustrates more generally the value of investigating public opinion and political culture through an intersectional lens.

#### Notes

1. The question of how to conceptualize biblical literalism is the subject of considerable scholarly debate. Some argue that literalism is a marker of conservative Protestant group identity more so than an indicator of religiosity (Boone 1989). However, others view literalism from a more hermeneutical, "bottom-up" perspective (Bartkowski 1996), which is consistent with our interpretation. Our treatment of literalism as distinct from conservative Protestant identity is further supported by the substantial number of conservative Protestants in our sample—roughly 44 percent—who do not hold literalist views of the Bible. While members of black Protestant faiths are also more likely than others to hold literalist views of the Bible, approximately 37 percent of the black Protestants in our sample report nonliteralist interpretations. Thus, while biblical literalism may be related to doctrinal assent, we argue that literalism and religious identity are conceptually and analytically distinct. Nonetheless, our multiple regression analysis includes controls for religious traditions in order to assess ethno-racial and gender differences in perspectives on science and religion net of differences in religious belief–associated faith traditions.

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- 2. A Lo-Mendel-Rubin (LMR) likelihood-ratio test indicated that the three-class model provided the best fit for the data although the Bayesian information criterion (BIC) decreased incrementally when more than three latent classes were examined. Substantively, adding more than three latent classes to the model served to divide the continuum between traditional and modern perspectives into smaller groups, while the postsecular class was mostly unchanged. Ultimately, our decision to focus on the three-class model was based on a combination of statistical, substantive, and theoretical considerations.
- 3. Individuals whose racial and ethnic identification was "other" are excluded from regression analyses.
- 4. The average variance inflation factor (VIF) for the model including all control variables is 1.84, which indicates that multicollinearity is not a substantial source of bias.
- 5. Appendix Table A3 contains tests of difference between each racial, ethnic, and gender group in the analysis, adjusted for control variables.

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# Appendix

Table A1. Summary statistics for indicator variables used in latent class analysis (n = 4,341).

	Overall sample	Conditional means by latent class		
	Mean	Traditional	Modern	Postsecular
	(n = 3,504)	(n = 1,453)	(n = 1,302)	(n = 749)
Class size		0.41	0.37	0.21
Science knowledge (Scientifically correct answer equals one, else				
equals zero)				
Center of the Earth is very hot.	0.84	0.70	0.96	0.93
All radioactivity is man-made.	0.74	0.48	0.93	0.91
The father's gene decides whether the baby is a boy or girl.	0.62	0.50	0.68	0.76
Lasers work by focusing sound waves.	0.50	0.26	0.72	0.60
Electrons are smaller than atoms.	0.55	0.36	0.73	0.63
Antibiotics kill viruses as well as bacteria.	0.56	0.28	0.75	0.77
Does the Sun go around the Earth or the Earth around the Sun?	0.76	0.55	0.94	0.88
The continents have been moving for millions of years and will move in the future.	0.82	0.70	0.98	0.78
The Universe began with a huge explosion.	0.37	0.23	0.71	0.06
Human beings developed from earlier species of animals.	0.48	0.36	0.88	0.02
Does a one in four chance of inherited illness mean that if the	0.88	0.75	0.96	0.97
first child has the illness, the next three will not?				
Does a one in four chance of inherited illness mean that each child has the same risk of having the illness?	0.77	0.62	0.88	0.87
Understand experimental research design.	0.83	0.75	0.91	0.85
Clear understanding of what it means to study something scientifically?	0.31	0.12	0.50	0.36
Science attitudes				
Science and technology create more opportunities for the next	3.28	3.19	3.39	3.26
generation ( $1 = strongly disagree, 4 = strongly agree$ ).				
Science makes our way of life change too fast $(1 = strongly agree,$	2.54	2.23	2.82	2.68
4 = strongly disagree).				
Scientific research that advances the frontiers of knowledge is	3.16	2.98	3.42	3.03
necessary and should be supported by the federal government				
(1 = strongly alsagree, 4 = strongly agree).	2.45	2.50	2.60	2.45
Do the benefits of scientific research outweigh the harmful results	3.15	2.59	3.60	3.45
(0 = narm strongly outweighs benefits, 2 = narm and benefits)				
about equal; 4 = benefits strongly outweign narm)?				
Religion indicators	0.21	0.40	0.00	0.47
The Bible is the actual word of God $(0 = no, 1 = yes)$ ?	0.31	0.48	0.03	0.4/
The Bible is inspired by the word of God $(U = no, 1 = yes)$ ?	0.49	0.41	0.55	0.53
The bidle is a book of myths and tables $(U = no, 1 = yes)$ ?	0.20	0.11	0.42	0.00
Strength of religious affiliation ( $1 = none, 4 = very strong$ ).	2.58	2.67	2.03	3.35

Source: General Social Survey 2006, 2008, 2010, 2012, and 2014.

	Number of classes	p	BIC	Percent reduction in <i>BIC</i>
Full model + Belief in God (GOD) + Belief in afterlife (POSTLIFE) +	1		121,002.006	
Confidence in clergy (CONCLER) + Confidence in science (CONSCI)	2	< 0.01	116,053.554	0.04
	3	0.02	114,386.142	0.01
	4	0.36	113,727.603	0.00
	5	0.76	113,285.069	0.00
	6	0.77	113,113.184	0.00
	7	0.79	113,110.536	0.00

# Table A2. Fit statistics for alternative latent class analysis with additional religion indicators.

Source: General Social Survey (GSS) 2006, 2008, 2010, 2012, and 2014.

*Notes:* N = 3,311; *p* is the *p*-value from the Lo–Mendell–Rubin likelihood-ratio test; *BIC* is the Bayesian information criterion; *df* is degrees of freedom; preferred model in bold; GSS variable names in caps.

Table A3. Adjusted group differences in probabilities of traditional, modern, and postsecular perspectives.

	Traditional		Modern	Modern		
	Difference in predicted probabilities	p	Difference in predicted probabilities	p	Difference in predicted probabilities	p
WM-BM	-0.34	<0.01	0.17	<0.01	0.17	<0.01
WM-LM	-0.13	<0.01	0.12	<0.01	0.01	0.74
WM-WW	-0.08	<0.01	0.10	< 0.01	-0.02	0.25
WM-BW	-0.40	<0.01	0.27	< 0.01	0.13	<0.01
WM-LW	-0.34	<0.01	0.22	< 0.01	0.12	<0.01
BM-LM	0.21	<0.01	-0.05	0.34	-0.16	<0.01
BM-WW	0.26	<0.01	-0.07	0.15	-0.19	<0.01
BM-BW	-0.07	0.18	0.11	0.04	-0.04	0.13
BM-LW	0.00	1.00	0.05	0.42	-0.05	0.15
LM-WW	0.06	0.18	-0.02	0.51	-0.03	0.43
LM-BW	-0.27	<0.01	0.16	<0.01	0.12	0.01
LM-LW	-0.21	<0.01	0.11	0.02	0.10	0.01
WW-BW	-0.33	<0.01	0.18	<0.01	0.15	<0.01
WW-LW	-0.26	<0.01	0.13	<0.01	0.14	<0.01
BW-LW	0.07	0.28	-0.05	0.28	-0.01	0.74

Source: General Social Survey 2006, 2008, 2010, 2012, and 2014.

Notes: N = 3,504; probabilities are based on the regression model contained in Table 4 with control variables held at their means; p is the p-value from tests of difference between probabilities based on delta-method standard errors; M = men; W = women; B = non-Latino black; L = Latino; W = non-Latino white.