PERCEPTIONS OF SCIENCE AND AMERICAN SECULARISM

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ABSTRACT: Theorized links between science and secularism are prevalent in classic sociological thought. More recently, scholars have critiqued these frameworks as oversimplified and empirically untenable. In response to such criticisms, contemporary researchers typically overlook or actively argue against links between science and secularism. This study analyzes data from a random, national survey of adults to examine the empirical connections between perceptions of science and secular identities in the United States. Analyses demonstrate that perceptions of science correlate strongly with American secularism, particularly among atheists and agnostics. Additionally, politicized views of science help account for the previously documented relationship between political and secular identities in the United States. A perspective drawing on the sociology of culture and perceived knowledge provides a more useful framework for understanding these patterns than theories of secularization.

Keywords: atheism, science and religion, secularization, public science, nones

And finally, science as a way 'to God'? Science, this specifically irreligious power? That science today is irreligious no one will doubt in his innermost being, even if he will not admit it to himself.

-Weber [1919] 1946:142

In recent years, outspoken proponents in popular culture and public discourse have authored "gospels of atheism"¹ (e.g., Dawkins 1987; 2003; 2006; Dennett 2007; Harris 2004; Hitchens 2007a; 2007b). Nonbelievers' need for their own gospels is an irony not lost on unsympathetic commentators (e.g., Smith 2001). Still, all belief systems—religious or otherwise—must assemble cognitive schemas and narratives that provide meaning to experience (Berger 1967; Borhek and Curtis 1975; Smith 2003a; cf., Abbott 2001:60–90). Accordingly, advocates representing interpretive communities will necessarily offer mediated communication and polemics to articulate their particular ideological position. In doing

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© 2012 by Pacific Sociological Association. All rights reserved. Please direct all requests for permission to photocopy or reproduce article content through the University of California Press's Rights and Permissions website, at http://www.ucpressjournals.com/reprintinfo.asp. DOI: 10.1525/sop.2012.55.1.167. so, they claim and demarcate cultural domain. A common refrain among the voices of the self-proclaimed "new" atheists is the rhetorical employment of scientific findings and Enlightenment principles as foundational constructs of their posited worldviews. In the social sciences, empirical studies of secularism have not adequately examined the relationship between secular identities and perceptions of science. This omission is due primarily to a scholarly reaction against oversimplified, teleological accounts of the relationship between "science and religion" ingrained in classic sociological theory, particularly accounts of secularization.

Here I empirically explore the ideological frameworks of American secularists, focusing on perceptions of science. The goal is to extend empirical understandings of secularism beyond sociodemographics and political identity, while attempting to avoid the theoretical missteps exemplified by over-generalized or polemic approaches to science and religion. Specifically, I assess the following questions: How much faith do American secularists place in science to solve human problems? To what extent do different types of secularists affirm evolutionary accounts of human origins or a narrative of incompatibility between science and religion? How strongly do perceptions of science relate to secular identities relative to sociodemographic and socialization characteristics? Finally, how much of the covariance between political and secular identities found in previous research is a reflection of the politicization of perceptions of science in the United States? Before examining these questions, it is necessary to outline briefly the theoretical backdrop setting the stage for their exploration.

SCIENCE, RELIGION, AND SOCIAL THEORY

The supposed ideological friction between "science and religion" is rooted in the narrative development of the "scientific revolution" (Shapin 1996) and its accompanying Enlightenment ideology (see McLeod 2000; Wuthnow 1989). Although many scholars now recognize that generalized conflict narratives about science and religion represent a "distorted historiography" (Thomson 2008:13), these views have been (and remain) influential. A diversity of Enlightenment ideas diffused into public discourse and popular consciousness in the 18th century, and although not always definitively irreligious, some were decidedly anti-clerical (Cragg 1964). The articulation and popularization of these ideas soon expanded beyond philosophers such as Hume ([1757] 1993) and Voltaire (Arouet [1764] 1972). Sociology was born of Enlightenment impulses in an effort to apply natural philosophies to understanding the social world. Comte ([1851] 1875) notoriously pitched sociology as "queen of the sciences," accompanied by a belief system that would presumably replace traditional religion (see Bryson 1936). The latter half of the 19th century also saw efforts to articulate more explicitly non-religious cosmologies, often with a heavy rhetorical reliance on hopeful and generalized views of science, especially concerning evolutionary theory (Cockshut 1964). A common thread in this sacred canopy was science as a symbolic vehicle for advancing "reason"-juxtaposed as the light to the darkness of "superstition." Importantly, this narrative contains distinctively mythic qualities

(Numbers 2009; Stark 2003; cf., Demerath 2007). In short, pro-science and (at least explicitly) non-religious perspectives became associated with progress and modernity in certain interpretive communities, including the coalescing field of sociology. Although early 20th-century sociology contained some progressive religious elements, Social Gospel advocates and their ideology were ultimately replaced by scientism and now-classical accounts of secularization as the discipline professionalized (Bannister 1987; Evans 2009; Hadden 1987; Martin 1969:61-9; Smith 2003b:97–159; Swatos 1983; Swatos and Christiano 1999).

Although their own "existential security" perspective is a revision of modernization theory, Norris and Inglehart (2004:7) used classical secularization narratives as a counterpoint for their analysis of global trends in religion:

In this perspective, the era of Enlightenment generated a rational view of the world based on empirical standards of proof, scientific knowledge of natural phenomena, and technological mastery of the universe. Rationalism was thought to have rendered the central claims of the Church implausible in modern societies, blowing away the vestiges of superstitious dogma in Western Europe. The loss of faith was thought to cause religion to unravel, eroding habitual churchgoing practices and observance of ceremonial rituals, eviscerating the social meaning of denominational identities, and undermining active engagement in faith-based organizations and support for religious parties in civic society.

In the course of arguing against this perspective, they found that on the aggregate, national level, "faith" in science was *positively* related to general religious belief, although the correlation was weak, revealing no definitively linear, crosscultural pattern (Norris and Inglehart 2004:68). Norris and Inglehart are not alone in their distaste for the Enlightenment undercurrents of classical secularization theories. The tradition has been subjected to both stinging (Hadden 1987; Stark 1999; Stark, Iannacconne, and Finke 1996) and thorough criticisms (Gorski and Altinordu 2008; Martin 1991). Principal among these critiques is the problem of reifying and perpetuating an oversimplified version of an "epistemological conflict narrative" embedded in classic sociological thought on these topics (Evans and Evans 2008).

In response, many contemporary theorists and researchers have moved away from addressing issues of science, religion, and secularism. Even firm believers in secularization such as Bruce (2002:106–17) now only accord science a minimal role in such processes. Meanwhile neo-secularization theorists have concentrated on institutional differentiation and loss of discursive authority for organized religion (Chaves 1993; 1994; Yamane 1997).²

EMPIRICAL RESEARCH ON SECULARISM

As classical perspectives on science and religion were being critiqued, empirical research on secularism accumulated. Researchers have paid considerable attention to longitudinal patterns of disbelief and non-affiliation in Western Europe, emphasizing its relatively secular cultural context (Bruce 2001; Crockett and Voas 2006; Voas 2009; Voas and Crockett 2005). A key refinement in this literature is the

recognition of the diversity of expressions of secularism. Just as religious belief and behavior are related but distinct (Glock and Stark 1965), research indicates that these distinctions may also hold regarding the absence of religion (Davie 1994; 2000; Storm 2009). Even in the United States, a relatively religious nation among Western countries, non-affiliation and nonbelief are related but hardly identical (Baker and Smith 2009b; Lim, MacGregor, and Putnam 2010; Vernon 1968).

Although relatively religious in comparison to other developed countries, the U.S. religious market has shifted toward a greater share claiming no religion over the past three decades (Hout and Fischer 2002; Putnam and Campbell 2010). Consistent sociodemographic patterns of these trends are that the religiously unaffiliated are more likely to be young, male, not have children, and live in the Western region of the United States (Baker and Smith 2009a; Cragun 2007; Glenn 1987; Hayes 2000; Kosmin and Keysar 2006; Tamney, Powell, and Johnson 1989). Nonbelievers share these patterns and additionally tend toward higher levels of education (Bainbridge 2005; Sherkat 2008; cf., Uecker, Regnerus, and Vaaler 2007). People may cycle in and out of these non-religious statuses throughout the life course as well (Lim et al. 2010; Stolzenberg, Blair-Loy, and Waite 1995).

Another consistent correlate of secularism in the American context in the past thirty years has been political liberalism (Hadaway and Roof 1979; Roof and McKinney 1987:186–228). In a prominent study of this relationship, Hout and Fischer (2002) proposed that the increase in American nones was largely due to the perceived politicization of religion by the Christian Right. Using the General Social Survey, they demonstrated that the increasing number claiming no religion in the 1990s were predominantly politically liberal. In proposing this causal mechanism, they explicitly rejected classical secularization accounts of the change (cf., Hout and Fischer 2003; Marwell and Demerath 2003). Similarly, Putnam and Campbell (2010:131) addressed the same topic using a 2009 Pew Forum report. They concluded that non-religious Americans' "objections [to religion] were not theological or scientific," but rather that "they [thought] of religious people as hypocritical, judgmental, or insincere."

Empirical assessments focusing on science and secularism have thus far been confined to professional scientists (Ecklund, Park, and Veliz 2008; Ecklund and Schietle 2007; Larson and Witham 1998; Stark 1963). Even among this population, with over 60 percent of contemporary elite scientists atheist or agnostic, Ecklund (2010:6–7, emphasis in original) argues that although "scientists have been perceived as carriers of the secularist impulse ... I argue here that elite scientists who are *boundary pioneers* and *spiritual atheists* might actually be carriers of a new religious impulse...." In sum, where sociologists once presumed the corrosive effects of science on religion, researchers and theorists now actively argue against such interpretations of secularism. Despite the scholarly critique of the role of science in secularism, the conflict narrative exemplified by Dawkins and Hitchens persists.

HYPOTHESES

Qualitative work on American atheism suggests that *perceptions* of science do play an important part in the ideological orientations of at least some expressions of secularism (Cimino and Smith 2007:417–19; 2011; Smith 2011). In the Pew Forum

(2009:13) report that Putnam and Campbell used to argue against the role of "scientific objections" in secularism, roughly one-fourth of disaffiliates interviewed agreed that the statement "modern science proves religion is superstition" represented part of their decision to leave religion. Although not as prevalent as those citing disillusionment with organized religion and religious individuals, this is still a sizeable minority of secularists. Anti-religious, pro-science polemics are readily available for popular consumption and represent stances promoted by many Western secularist advocates. Non-religious positions constitute assertive worldviews necessarily constructed in social networks (Vaisey and Lizardo 2010) and mnemonic communities (Zerubavel 1997). As with any belief system, secularism requires exposure to an interpretive community, both through personal contact and the consumption of mediated communication.

In contrast to classical theorizing about science, religion, and secularism, I assume that neither the varied institutional practices of science nor popular perceptions thereof have an inevitable relationship with secularization as a social process or with secular identities. The epistemological conflict narrative may be an influential component of non-religious belief systems in certain contexts, but this is as an empirical question, as there is nothing inevitable, irreversible, or static about a conflict between "science and religion" (Evans and Evans 2008). There is, however, a cultural legacy of secular advocates rhetorically employing science, often by claiming that the enterprise possesses a unique form of objectivity, and is therefore excluded from the subjective and purportedly fallible aspects inherent to other systems of belief (see Brown 1998). This rhetoric allows certain conceptions of science to act as narrative framing for individual experience, providing its own symbolic universe of meaning (Cimino and Smith 2011; Smith 2003a:63–94).

I hypothesize that *contemporary American secularists will tend to affirm relatively scientistic worldviews*. I expect both non-affiliated believers and nonbelievers to be influenced by advocates stressing the connections between secularism and science, but with stronger effects for nonbelievers, as secularist advocates typically promote irreligious *belief*. Additionally I assess whether the previously documented correlation between American political and secular identities is a reflection of the politicization of perceptions of science. The cultural legacy of "the Enlightenment" as narratively promoted by Western secularist advocates (see Campbell 1972) and the discourse that surrounds issues of "science and religion" are the starting points for formulating these expectations.

DATA

The data used to assess the American public concerning the connections between perceptions of science and secularism were taken from Wave II of the Baylor Religion Survey (BRS), which was fielded in 2007 by the Gallup Organization. The fixed content for the survey was developed to extensively measure the religious attitudes and behaviors of American adults. In addition, each wave of the survey includes modules on varying topics. Wave II contained a battery of questions on perceptions of science. The BRS II was drawn from a national random sample of non-institutionalized, English-speaking American adults with telephones. It employed a mixed-mode sampling design consisting of two phases. In the first phase, random digit dialing was used to contact potential respondents. Those who agreed to receive a mailed questionnaire and provided an address were sent the survey. A total of 3,500 potential respondents were contacted, with 2,460 questionnaires sent out and 1,648 returned, resulting in a contact-to-completion rate of 47.1 percent (1,648/3,500) and a response rate of 67 percent for the mailed survey phase (1,648/2,460).³ Gallup created a weight variable incorporating information from the Census Bureau on race, gender, region of the country, age, and education. This weight was employed in all forthcoming analyses. Bader, Mencken, and Froese (2007) provide in-depth information on the sampling methodology used by the BRS.⁴

MEASURES

Forms of Secularism

I draw distinctions between three forms of secularism: atheists, agnostics, and those who claim no religious affiliation while maintaining some form of theistic belief. These groups can be thought of as disbelievers, nonbelievers, and nonaffiliated believers, respectively. Respondents were asked, "Which one of the following statements comes closest to your belief about God?" Response options included: "I believe in God with no doubts"; "I believe in God, but with some doubts"; "I sometimes believe in God"; and "I believe in a higher power or cosmic force." Along with these, "I am an atheist" and "I don't know and there is no way to find out" were offered as response options. These were coded as atheists (n = 66) and agnostics (n = 93). To assess claiming no religious affiliation while maintaining theistic belief, a category was created using the question above as well as one that asked: "Which of the following religious families do you most identify with?" A list with over forty religious traditions and denominations, as well as a writein option, was provided. "No religion" was specifically offered as a response.⁵ Respondents who selected this option but claimed some form of theistic belief were coded as non-affiliated believers (n = 78). There is no overlap between the atheist, agnostic, and non-affiliated believer categories. Affiliated believers (n =1,300) were used as a comparison category in tables of descriptive statistics and as the reference category for multivariable modeling.

Sociodemographics and Political Identity

A number of variables were used to account for social and demographic characteristics. Gender was coded as a dummy variable with female = 1. Age was measured in years, ranging from 18 to 96. Household income per year was measured in the following categories: (1) less than \$10,000; (2) \$10,001 to \$20,000; (3) \$20,001 to \$35,000; (4) \$35,001 to \$50,000; (5) \$50,001 to \$100,000; (6) \$100,001 to \$150,000; and (7) more than \$150,000 per year. Education was measured in attainment categories from (1) eighth grade or less to (7) postgraduate work/degree. A dummy variable was created for marital status such that being currently married = 1. Having children was coded as a dummy variable with being a parent = 1. Political identification was measured using a question that asked, "How would you describe yourself politically?" Answer choices ranged from (1) "extremely conservative" to

(7) "extremely liberal," with (4) "moderate" as the middle category. Based on the Census Bureau designation, region of the country was coded into a dummy variable such that West = 1.

Religious Socialization

Beyond sociodemographic and political influences, it is important to control for childhood socialization and reference group views, as these factors have a strong relationship with secularism in adults (Baker and Smith 2009a; Lim et al. 2010). To measure religious socialization, a question was used that asked respondents how often they attended religious services at age 12. Answer choices ranged from (0) "never" to (8) "more than once a week." To account for reference group ideology, a question was used that asked about the religious affiliation of each parent. A dummy variable was created such that if either parent claimed no religion, a value of 1 was assigned.

Perceptions of Science

A battery of questions asked respondents to: "Please indicate your level of agreement with the following statements about science." Answer choices ranged from (1) "strongly disagree" to (5) "strongly agree," with (3) "undecided" as the middle category. Three questions included in the battery were utilized for analyses. These were as follows: "Science will eventually provide solutions to most of our problems"; "Humans evolved from primates over millions of years"; and "Science and religion are incompatible." These questions address how much "faith" and epistemic authority respondents placed in institutional science, as well as their subscription to a conflict narrative.⁶ Descriptive information on all variables used in the analyses presented is provided in the appendix.

ANALYTIC STRATEGY

Initially I assessed sociodemographic, political, and religious socialization characteristics in a bivariate context with the three secular categories and affiliated believers. Perceptions of science and the secular identities were then analyzed in a similar fashion. Next, I conducted binary logistic regression analyses to examine the association between attitudes toward science and secularism in a multivariable context. For the models presented, each non-religious category was coded as 1, with affiliated believers coded as 0. Other non-religious categories were excluded from the model. For example, in the model predicting atheists, agnostics and non-affiliated believers were coded as missing. This allowed for analysis of all three groups against a consistent comparison. I conducted the models in two stages. The first stage models predicted each secular category using the sociodemographic, political, and socialization variables highlighted by previous research as correlates of non-religious identity. The second stage models added the measures for perceptions of science. I then used the results of the models to estimate the relative impact of the variables in the models, as well as to determine predicted probabilities of the various forms of secularism depending on perceptions of science.

RESULTS

Table 1 shows the percentage of respondents within the categories of atheist, agnostic, non-affiliated believer, and affiliated believer who hold the sociodemographic, political, or socialization characteristic in question. Disbelief and nonbelief were more gendered than non-affiliated belief. One-third of atheists and agnostics were female, compared to almost half of non-affiliated believers. Regarding age, atheists tended to be the youngest. In terms of income, atheists and agnostics averaged more than affiliated believers, while non-affiliated believers averaged less. Consistent with Sherkat's (2008) findings, secularism was more prevalent among those with higher education. Over 40 percent of atheists and agnostics held a college degree, compared to 33 percent of non-affiliated believers and 24 percent of affiliated believers. Sixty-three percent of atheists identified as politically liberal, compared to 43 percent of agnostics and 46 percent of non-affiliated believers. Regarding family structure, non-affiliated believers were the least likely to be married and have children. All three non-religious groups were relatively similar on patterns of religious socialization.

Table 2 displays the percentage of respondents within the non-religious categories and among affiliated believers who agreed, disagreed, or were undecided regarding the statements about science. Examining the question designed to elicit

	(Column	Percentages)		
	Atheists	Agnostics	Non-Affiliated Believers	Affiliated Believers
% Female ^a	33.3	34.4	48.7	55.6
% Under 40 ^b	48.4	40.9	39.7	34.2
% Above 100k ^b	25.0	25.3	14.4	20.5
% College grad	41.2	42.1	32.5	24.1
% Married ^a	57.6	60.7	44.2	68.6
% Children	48.5	59.3	45.3	76.9
% Liberal ^b	63.2	43.3	46.0	21.4
% West	41.2	32.3	28.2	20.6
% None parent	26.1	26.0	26.9	7.6
% Attended weekly age 12	22.4	20.9	20.2	55.4

TABLE 1

Contingency Tables of Sociodemographics, Political Identity, and Religious Socialization for Atheists, Agnostics, Non-Affiliated Believers, and Affiliated Believers

Source: Baylor Religion Survey 2007.

a. Chi-Square test with three secular categories and independent variable significant at the .1 level.

b. One-Way ANOVA with three secular categories and independent variable significant at the .1 level; ANOVA tests conducted on full variables rather than the dichotomized.

levels of "faith" in science, atheists had the most, with 79 percent agreeing that science "will solve most of our problems." Seventy-three percent of non-affiliated believers and 64 percent of agnostics agreed with this statement, compared to 36 percent of affiliated believers.

Concerning acceptance of evolution, over 92 percent of both atheists and agnostics agreed that humans evolved from primates, compared to 73 percent of non-affiliated believers. By contrast only one-third of affiliated believers agreed. Evolution is an aspect of science that serves as a symbolic marker of non-religious identity—especially for theistic disbelief and nonbelief. As for whether "science and religion are incompatible," over half of atheists agreed with this statement, as did about one-fourth of agnostics, while less than one-tenth of non-affiliated believers did. The "harder" the secularist position, the more likely the adoption of an epistemic conflict narrative.

Table 3 presents the results from the binary logistic regression models. In Model 1, men, those without children, those living in the West, those who attended services infrequently as a child, and those who had a parent who claimed no religion were all significantly more likely to be an atheist. In Model 2, acceptance of evolution and perception of incompatibility between science and religion significantly and positively predicted atheism. Every unit increase on the evolution measure resulted in 2.7 times higher odds of being an atheist relative to being an affiliated believer. Each unit increase on the incompatibility of science and religion measure roughly doubled the odds of atheism relative to affiliated belief. Concerning whether models including political identity are picking up the effects

			Non-Affiliated	Affiliated
	Atheists	Agnostics	Believers	Believers
Science will solve problemsª				
% Agree	79.4	64.2	73.1	36.2
% Undecided	7.4	8.4	7.7	11.9
% Disagree	13.2	27.4	19.2	51.9
Humans evolved from primates ^a				
% Agree	92.7	92.6	72.7	33.3
% Undecided	0.0	6.3	9.1	16.5
% Disagree	7.3	1.1	18.2	50.2
Religion/science incompatibleª				
% Agree	50.7	26.3	9.1	14.2
% Undecided	9.0	15.8	15.6	13.4
% Disagree	40.3	57.9	75.3	72.4

TABLE 2

Contingency Tables of Perceptions of Science for Atheists, Agnostics, Non-Affiliated Believers, and Affiliated Believers (Column Percentages)

Source: Baylor Religion Survey 2007.

a. Chi-Square between three secular categories and independent variable significant at the .1 level.

TABLE 3	Binary Logistic Regression Models Predicting Being an Atheist, Agnostic, and Non-Affiliated Believer vs. an Affiliated Believer (Odds	
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Ratios Reported With Standard Errors in Parentheses)

	Ath	leist	Agn	ostic	Non-Affilia	ted Believer
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	.025 (.848)***	.00 (1.375)***	.014 (.760)***	.00 (1.102)***	.281 (.684)	.054 (.880)*
Female	.325 (.319)***	.490 (.354)*	.319 (.272)***	.363 (.305)***	.590 (.282)*	.608 (.292)
Age	(010) (010)	.991 (.012)	$1.017(.008)^{*}$	1.011(.009)	(600.) 866.	(600) 266.
Income	.994(.110)	.971 (.124)	1.017(.100)	.882 (.108)	.832 (.093)*	.753 (.097)**
Education	1.104(.102)	1.164(.124)	1.228 (.087)*	$1.274(.102)^{*}$	1.102(.095)	1.103(.101)
Married	1.348(.360)	1.413 (.388)	.888 (.320)	1.279 (.351)	.679 (.330)	.760 (.335)
Children	$.450(.350)^{*}$.672 (.405)	.702 (.310)	.656 (.339)	.369 (.315)***	.405 (.323)**
Political ID ^a	$1.755(.100)^{***}$	1.334 $(.123)^{*}$	$1.506(.081)^{***}$	1.144(.094)	1.352 (.088)***	1.122(.099)
West	2.021 (.303)*	1.564 (.362)	1.332 (.277)	1.198 (.314)	1.191(.310)	1.246 (.318)
Attend age 12	.778 (.057)***	.816 (.066)**	.771 (.051)***	.796 (.057)***	.778 (.053)***	.808 (.055)***
None parent	3.908 (.371)***	3.507 (.449)**	4.460 (.317)***	6.167 (.376)***	4.620 (.337)***	5.788 (.352)***
Science ideology						
Faith in science	I	1.174 (.172)		1.187 (.136)	Ι	1.444 (.145)*
Evolution	I	2.728 (.208)***		$3.006(.173)^{***}$	Ι	1.458 (.127)**
Rel./sci. conflict	I	2.015 (.139)***	I	$1.642(.123)^{***}$	I	.957 (.143)
Model stats						
Likelihood R ²	.257	.419	.224	.387	.219	.270
Nagelkerke R ²	.298	.469	.270	.448	.259	.317
-2 log likelihood	362.589	276.715	473.460	367.526	428.800	398.257
N	1,184	1,156	1,220	1,192	1,198	1,171
Source: Baylor Religion Su a. Higher scores indicate r $p \leq .1. *p \leq .05. **p \leq .01. **$	rvey 2007. nore liberal political iden **p ≤ .001.	tity.				

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of the politicization of perceptions of science, a one-unit increase on the political identity measure (toward liberal) resulted in a 76 percent increase in the odds of being an atheist in Model 1. This effect was decreased to less than half its predictive power in Model 2, to a 33 percent increase in odds per unit increase in the independent measure.

For Model 3, men, those with higher levels of education, and those with less religious socialization were all significantly more likely to be agnostic. Education level had a stronger effect on agnosticism relative to the other forms of secularism in the multivariable models. In Model 4, acceptance of evolution and perception of incompatibility between science and religion were significantly related to agnosticism. Each unit increase on the acceptance of evolution measure tripled the odds of being an agnostic relative to being an affiliated believer. The effects of perceiving incompatibility between science and religion were also significant, but not as strong as for atheists. The perception of science measures attenuated the effects of political identity to statistical non-significance (p = .166). In Model 3, a one-unit increase on the political identity measure resulted in a 51 percent increase in the odds of being agnostic. In Model 4, the effect of this measure was reduced to a 14 percent increase in odds per unit increase.

In Model 5, men, those with lower income, those without children, and those who had low levels of religious socialization were all more likely to be a non-affiliated believer. Unlike atheists and agnostics, a high level of "faith" in science was significantly related to being a non-affiliated believer, net of controls. Acceptance of evolution was also significant, but the effects were less influential for non-affiliated believers compared to disbelievers and nonbelievers. The effect of political identity was again attenuated to statistical non-significance (p = .241) by the inclusion of the perception of science measures. The increase in odds per unit increase in the political identity measure was 35 percent in Model 5 and 12 percent in Model 6.

Multiple indicators were analyzed to determine the relative strength of the relationship between perceptions of science and non-religious identities. First, in examining the likelihood ratio pseudo R-squared statistics for Models 1 and 2, the estimated amount of variance explained increased by 63 percent (.419/.257 = 1.63).⁷ Similarly in Models 3 and 4, this coefficient of determination increased by 73 percent (.387/.224 = 1.73). The predictive power increase for the science measures was a notable, but lower, 23 percent for non-affiliated believers (.270/.219 = 1.23).

Fully standardized coefficients were also calculated for the statistically significant variables in Models 2, 4, and 6. Detailed information on the calculation of these coefficients is available in Menard (2011).⁸ Table 4 shows the standardized coefficients along with the Wald chi-square statistics for each significant variable in the second stage models. For predicting atheism, the acceptance of evolution ($\beta = .358$) and incompatibility between religion and science ($\beta = .185$) measures had the strongest effects. For predicting agnosticism, acceptance of evolution was easily the strongest variable ($\beta = .339$), while perception of incompatibility ($\beta = .095$) was similar in predictive strength to gender ($\beta = -.099$). Perception of incompatibility did not have a significant relationship with being a non-affiliated believer, while having "faith" in science ($\beta = .117$) and accepting evolution ($\beta = .151$) did.

TABLE 4

	Ath	Atheist		Agnostic		Non-Affiliated Believer	
Variable	Wald	β	Wald	β	Wald	β	
Female	4.047	085	11.083	099	2.897	066	
Income		_		_	8.603	121	
Education		_	5.655	.063	_	_	
Children		_		_	7.830	109	
Political identity	5.520	.112		_	_	_	
Attend age 12	9.409	112	15.827	077	15.246	138	
None parent Science ideology	7.802	.092	23.367	.081	24.866	.144	
"Faith" in science Evolution Rel./sci. conflict	 23.297 25.492	 .358 .185	40.561 16.286	 .339 .095	6.429 8.837 —	.117 .151	

Wald Chi-Square Statistics and Fully Standardized Coefficients for Significant Variables in Binary Logistic Models Predicting Being an Atheist, Agnostic, and Non-Affiliated Believer

Source: Baylor Religion Survey 2007.

Although the evolution measure had the strongest effect in the model, its predictive power was similar in strength to service attendance as a child ($\beta = -.138$) and having a "none" parent ($\beta = .144$).⁹

Figure 1 graphically displays the predicted probabilities for being an atheist, agnostic, or non-affiliated believer compared to an affiliated believer by responses to the statistically significant perception of science measures in each model (see Long 1997:64–75).¹⁰ The x-axis represents a respondent's answer on both science measures that were statistically significant for the respective models. Acceptance of evolution and affirming that "science and religion are incompatible" were graphed for atheists and agnostics, and evolution and "faith" in science for nonaffiliated believers. Probabilities are given on the graph for the highest and lowest responses. Respondents who reported that they "strongly disagreed" with the significant science measures had a less than 1 percent chance of being any type of secularist compared to an affiliated believer. Meanwhile respondents who reported that they "strongly agreed" with evolutionary accounts of human origins and that science and religion are incompatible had a 39 percent chance of being an atheist and a 55 percent chance of being an agnostic. Considering the proportion of Americans who are dis- and nonbelievers is around 10 percent, these predicted probabilities are relatively high. "Strongly agreeing" with faith in science and acceptance of evolution had a less dramatic impact on being a non-affiliated believer, with a predicted probability of 13 percent.

Overall, perceptions of science relate strongly to secular identities in these data, especially among disbelievers and nonbelievers. In addition to differences in perceptions of science, the secular groups outlined differ with regard to patterns of gender, income, education, family structure, and political identity. This provides further evidence for examining different forms of secularism, as they may have distinctive sociological contours.



FIGURE 1

Predicted Probabilities of Being Atheist, Agnostic, and Non-Affiliated Believer vs. Affiliated Believer by Perceptions of Science

DISCUSSION

Many non-religious Americans' ideological frames emphasize favorable perceptions of science. Views of science also accounted for a majority of the covariance between secularism and political identity among all three groups examined. It seems that differing perceptions of science among those identifying as politically conservative or liberal are a critical aspect of the connection between political orientation and secularism. Certain scientific topics, particularly regarding the teaching of—and public response to—evolution, have become politically divisive symbolic boundaries in the United States (Berkman and Plutzer 2009). The science battery used in this study also asked about creationism, and roughly 44 percent of respondents answered that "creationism should be taught in public schools." Reciprocal rancor over these issues helps fuel the connections between scientism and secularism. These patterns may be limited to the American context though, as the United States is more the exception than the rule regarding the politicization of issues such as evolution (Miller, Scott, and Okamoto 2006). Cross-national comparisons of the relationships examined here are needed.

American secularists tend to place a high level of faith in science and to affirm its epistemic authority—sometimes to the perceived antagonism of purportedly transcendent sources of authority. A substantial proportion of American nonbelievers, and especially disbelievers, affirm narratives of scientism. Belief in a narrative of conflict between "science and religion" relates strongly to atheism, moderately to agnosticism, and is unrelated to non-affiliated belief. One's position on theism, rather than religious affiliation, is what affects the affirmation of an epistemic conflict narrative.¹¹

An important caveat accompanies these findings about perceptions of science and secularism. A position supporting institutional science is clearly not a sufficient cause for adopting a secular identity. For example, although over 90 percent of atheists and agnostics accepted evolution in the data analyzed, only 23 percent of all respondents accepting evolution in the sample were theistic disbelievers or nonbelievers. Many Americans maintain religious outlooks and affirm a circumscribed authority for institutional science. It does appear, however, that scientism acts as a replacement for religious worldviews for many secular Americans (see Lemert 1979).

Direct extensions of the current research to how individuals narrate moral cosmologies and contextualize lived experience through symbolic perceptions of science are worth exploring. People develop, transmit, and maintain ideologies through symbolic interaction performed in social networks and consumed from a variety of communicatory media. A change in methodological strategy to systematic qualitative assessments of the identity processes of secularists, beyond the easier-to-find organized atheists, would be an insightful way to examine these issues. Additionally, transcending binary categories of religious/irreligious to explore how individuals may maintain nominal, symbolic religious identities without frequent practice or engagement in religious communities would improve our understanding of the gradations of both religiosity and secularism (Calhoun 2010; Gans 1994). Typologies of identity and engagement with religion, such as the one referenced earlier (Glock and Stark 1965), could be refined to explore levels of engagement in secular interpretive communities. Concepts of practice, knowledge, and even belief transpose easily onto secularism. The degrees of integration individuals have into secular communities, as well as the relative social organization of these communities, remain relevant areas for study.

Secular identities are tied to social and political movements when individuals are civically engaged (Casanova 2006), and at the very least to imagined communities, even if secularity is not being practiced through organizations (Cimino and Smith 2011). On the institutional level, processes of secularization occur when social or party movements successfully shift balances of power toward ideological legitimations with less (explicitly) religious accoutrements (Froese 2008; Smith 2003b). Conversely, sacralization through more overtly religious social movements remains a distinct possibility in the supposedly postmodern world, often as a response *to* the modern world (Almond, Appleby, and Sivan 2003; Bruce 2008; Casanova 1994; Demerath 2007). Perhaps the most appropriate generalization to draw from empirical studies of secularization is that interest group politics necessarily play a role in ideological change, toward the secular or the religious (Yamane 1997).

Leaving behind the moral polemics that debates about secularization frequently encompass, a promising alternative perspective for advancing understanding of patterns of secularism is one that draws on the sociology of culture to outline the relationship between identities and interpretive communities (Stark [1958] 1991), as well as between these communities and their surrounding political environments. Identities remake and are made by narratives attached to interpretive communities (Cerulo 1997). The sociology of knowledge could also be useful, as the adoption, reproduction, and maintenance of an ideology directly imply questions of where to place the weight of epistemic authority (Proctor 2005). How people answer these questions constitutes a "social ontology," which provides a store of perceived knowledge drawn upon to place one's self within a cultural field (Hardin 2009; Martin 2003; Martin and Desmond 2010). This knowledge does not need to be "objective"—it merely needs to be *perceived* as such. Selective perception and information seeking can readily fill in apparently confirming information.

As numerous historical and empirical critiques have emphasized, Enlightenment perspectives and scientism make for myopic and misguided explanatory social theory; however, Dawkins and like-minded others are unlikely to be persuaded by social scientific moralizing about adopting a more detached view of science, religion, or secularism. Nor are members of the movements these public figures represent likely to heed a call to move beyond an epistemic conflict narrative. As long as these narratives maintain subcultural influence, they will constitute an important aspect of understanding certain forms of secularism.

To guard against advocating scientism as social theory, perhaps different wisdom from "the founders" is worth remembering instead of Enlightenment ideas about secularization. The following quip occurs in the same Weber ([1919] 1946:143) speech that supplied the epigraph:

I may leave aside the naïve optimism in which science—that is, the technique of mastering life which rests upon science—has been celebrated as the way to happiness. Who believes this?—aside from a few big children in university chairs or editorial offices.

Or perhaps the pithy observance that: "Religion seems destined to transform itself rather than disappear" (Durkheim [1912] 1995:432). For sociologists it is best to refrain from positing inherent relationships between belief systems or social institutions, including those involving science, religion, or secularism. The actors who animate ideologies are inseparable from the historical, political, and cultural contexts structuring the situations they inhabit. It is in the intersection of these fields that belief systems, secular or otherwise, emerge and persist.

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NOTES

- 1. I borrow this phrase from Kijeski (2008).
- 2. There are some exceptions to the more recent trend of secularization arguments omitting the role of science. Tschannen's (1991) synthesis incorporates the idea that while macro structural dynamics are the more distal cause of secularization, "scientization" works as one of the proximal mechanisms for replacing worldviews previously grounded in religious precepts. He derives this from fleeting discussions of science in some theories (e.g., Berger 1967:107).

Descriptive Statistics of Variables Used							
Variable	Mean	SD	Min.	Max.			
Female	.53	.499	0	1			
Age	47.35	16.823	18	96			
Income	4.31	1.594	1	7			
Education	4.29	1.525	1	7			
Married	.66	.476	0	1			
Children	.72	.449	0	1			
Political identity	3.62	1.624	1	7			
West	.23	.417	0	1			
Attend age 12	5.27	2.411	0	8			
None parent	.11	.306	0	1			
"Faith" in science	2.94	1.190	1	5			
Evolution	2.93	1.491	1	5			
Rel./sci. conflict	2.33	1.105	1	5			
Atheist ^a	.05	.218	0	1			
Agnostic ^a	.07	.253	0	1			
Non-affiliated believer ^a	.06	.231	0	1			

APPENDIX Descriptive Statistics of Variables Used

Source: Baylor Religion Survey 2007.

a. Descriptive statistics for the dependent variables modeled rather than for overall sample.

- 3. A three-call design was used, with an initial attempt to reach a respondent followed by two call-backs. One thousand potential respondents were given a brief phone interview and asked if they would be willing to complete a mailed questionnaire. Six hundred and twenty-four people agreed to participate and provided mailing addresses. Another 2,500 potential respondents were contacted and simply asked if they would be willing to complete the mailed questionnaire, of which 1,836 agreed. The recruitment phase of the survey took place from September 4th through September 29th, 2007. Potential respondents received a \$5.00 incentive in the mailing for agreeing to complete the questionnaire. Mailings included a cover letter explaining the objectives of the survey and a number to call for questions about the procedure or the survey more generally. Follow-up letters and reminder postcards were sent, as well as a second complete mailing to addresses that had not responded. The collection of questionnaires was discontinued on December 11th, 2007.
- 4. In supplemental analyses, I compared Wave II of the BRS to the 2008 GSS on standard sociodemographics, political ideology, religious characteristics, and acceptance of evolution. The samples are similar on these dimensions, including acceptance of evolution. Of the GSS sample 45.4 percent accepted evolution, while 42.3 percent rejected it. In the BRS 42.4 percent accepted and 41.9 percent rejected. Tabled results of the comparisons are available upon request.
- 5. Of the BRS sample, 11.2 percent were religious nones, compared to 16.4 percent in the 2008 GSS. The incongruence in the estimates comes primarily from differences in question format. In contrast to the long list of options on the BRS, the GSS asked, "What is your religious preference? Protestant, Catholic, Jewish, some other religion, or no religion?" The GSS had less than 1 percent of the sample in the "other" category (not Jewish or mainstream Christian), compared to 6.1 percent in the BRS. The BRS measure effectively places many "liminal" nones, who are more likely to come from the "other" category (Lim et al. 2010), into a religious tradition. For an expanded discussion of the

discrepancies between the surveys, see Smith and Kim (2007). Regarding dis- and nonbelievers, 4.2 percent of BRS respondents were atheist and 6 percent were agnostic, compared to 3 percent and 4.7 percent, respectively, in the 2008 GSS.

- 6. Among those perceiving science and religion as incompatible, there was a relatively even split between secularists and biblical literalists—although each clearly envisioned a different "winner" to the conflict. Further analyses of those perceiving incompatibility using responses to a second statement that read "We rely too much on science and not enough on faith" confirmed this.
- 7. The likelihood ratio pseudo R^2 was used to estimate variance explained because it is the coefficient of determination most similar to R^2 in linear regression. It was calculated by subtracting the model's –2 log likelihood from the initial –2 log likelihood, divided by the initial likelihood (Menard 2010:48-9). This produces a proportional reduction in error metric ranging from 0 to 1.
- 8. The formula is: $\beta_x^* = \beta_x^* \sigma_x^* R / \sigma_{\text{logit}(\hat{Y})}$. Here, β_x^* represents the standardized estimate, β_x the unstandardized estimate of the independent variable, σ_x the standard deviation of the independent variable, R the zero-order correlation between the observed and predicted values of the dependent variable Y, and $\sigma_{\text{logit}(\hat{Y})}$ the estimated standard deviation of the dependent variable. The standard deviations of the dependent variables for each model were estimated by using the predicted values of the outcome (\hat{Y}) to calculate: ln [$\hat{Y} / (1 \hat{Y})$]. The estimated standard deviations for the dependent variables were atheist = 2.51, agnostic = 2.2, and non-affiliated believer = 1.7.
- 9. Similar models were also run using the 2008 GSS to predict being an atheist, agnostic, and non-affiliated believer versus affiliated believer, with a dichotomous measure of acceptance of evolution used as a predictor ("no" and "yes"). As in the models presented, acceptance of evolution had the strongest relationship with agnosticism and also had a significant impact on atheism; however, with GSS data, acceptance of evolution was non-significant for predicting non-affiliated belief. Standardized coefficients for the respective models indicated that evolution was the strongest predictor of agnosticism and the second strongest of atheism (behind gender). The addition of the binary measure for evolution made the political identity measure in the models statistically non-significant for atheists and attenuated its effect on agnosticism by 40 percent. Results are available upon request.
- 10. Predicted probabilities were calculated by inputting all variables into the equation for each model at their respective means (other than the significant science ideology measures "solved for"). The coefficients for the constants were –9.489 for Model 2, –8.867 for Model 4, and –2.917 for Model 6.
- 11. Perceptions of science also vary by the projected image through which theism is conceptualized (Froese and Bader 2010:83–106).

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