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"IF YOU LOVE ME, KEEP MY COMMANDMENTS": A META-ANALYSIS OF THE EFFECT OF RELIGION ON CRIME

COLIN J. BAIER
BRADLEY R. E. WRIGHT

Do religious beliefs and behaviors deter criminal behavior? The existing evidence surrounding the effect of religion on crime is varied, contested, and inconclusive, and currently no persuasive answer exists as to the empirical relationship between religion and crime. In this article, the authors address this controversial issue with a meta-analysis of 60 previous studies based on two questions: (1) What is the direction and magnitude of the effect of religion on crime? (2) Why have previous studies varied in their estimation of this effect? The results of the meta-analysis show that religious beliefs and behaviors exert a moderate deterrent effect on individuals' criminal behavior. Furthermore, previous studies have systematically varied in their estimation of the religion-on-crime effect due to differences in both their conceptual and methodological approaches.

Sociological research on the effect of religion on crime began a century ago and continues through today (Lombroso 1911; Kvaraceus 1944; Schur 1969; Bainbridge 1989), yet a fundamental issue about this relationship remains unresolved. Simply stated, do religious beliefs and behaviors deter individuals' criminal behavior? The ambiguity that characterizes the religion-on-crime literature is evident in the past 30 years of empirical research on the subject. From 1969 to 1998, social scientists have produced an average of two studies per year that estimated the effect of religion on crime (for reviews, see Tittle and Welch 1983; Sherkat and Ellison 1999), and the findings from those studies range from religion having little or no impact on criminal behavior (Hirschi and Stark 1969; Ellis and Thompson 1989) to religion having a dominant impact (Rohrbaugh and Jessor 1975; Chadwick and Top 1993).

In this article, we conduct a meta-analysis in which we systematically collected and synthesized the findings of previous studies about the effect of religion on crime. We focus our analyses on two questions: (1) What is the direction and magnitude of the effect of religion on crime? (2) Why do previous studies vary in their estimation of this effect?

THEORETICAL BACKGROUND

In this section, we outline the theoretical background for the expectation that religion should deter criminal behavior. Although we recognize the classic contributions of Durkheim, Weber, and Marx, we begin our treatment of this subject with more recent theoretical frameworks and empirical studies. We develop three hypotheses to account for why empirical studies have varied in their findings about the deterrent effect of religion on crime.

Hellfire and Beyond: Theory

Recent theoretical perspectives in criminology incorporate arguments for a criminal deterrence effect of religion. The most widely recognized is the hellfire hypothesis. The hellfire hypothesis, as popularized by Hirschi and Stark (1969) and subsequent follow-up studies (Burkett and White 1974; Higgins and Albrecht 1977; Stark 1996), predicts that religion deters individual-level criminal behavior through the threat of supernatural sanctions and promotes normative behavior through the promise of supernatural reward.

In social control theory, another of Hirschi's (1969) theories, religious institutions, like the family and educational institutions, are hypothesized to instill normative beliefs and foster individual attachment, commitment, and involvement with the larger society (Marcos, Bahr, and Johnson 1986). Although religion as such was not discussed in the original model, social control theory would hold that by strengthening an individual's bond to society, religious institutions should deter criminal behavior.

Rational choice theory, as applied to crime, links individuals' self-imposed sanctions to their degree of religious commitment (Grasmick, Bursik, and Cochran 1991). Individuals strongly identified as religious are more likely to experience shame from deviant acts, and individuals saliently involved in religion-based social networks are more likely to experience embarrassment from deviant acts (Grasmick et al. 1991:253). As a result of these processes, religious individuals are deterred from committing criminal acts through increases in the perceived certainty and severity of informal punishment.

From a more sociobiological perspective, arousal theory attributes criminal behavior to natural variations in individuals' demand for neurological stimulation, and criminally prone individuals need more neural arousal than do nonprone individuals (Eysenck 1964). From this perspective, criminals are essentially "bored" individuals (Ellis and Thompson 1989:132) for whom normative social activities, including religious behavior, are unsatisfying. This leads them to seek riskier behavior, including crime. But religion, like school or employment, satisfies most individuals' biological demand for neural stimulation, thus deterring crime for most people.

Differential association and reference group theories emphasize the impact of social groups on individuals' behavior. From the differential association perspective, religion deters crime through both social selection and socialization (Burkett 1993; Wright et al. 1999). With social selection, religion affects peer selection such that individuals committed to religion select peers with similar, conventional beliefs (Burkett and Warren 1987). With socialization, religious peer influence alters individuals' religious commitments through positive reinforcement, thus further deterring crime (Burkett and Warren 1987).

Reference group theory posits that individuals exist within reference groups with whom they tend to share similar backgrounds and beliefs, and, more important, they "decisively" shape each other's behaviors and attitudes (Bock, Cochran, and Beeghley 1987:91-92). Because individuals compare and subsequently control their own behavior based on the behavior and attitudes of others in their reference groups, any increase in morality within these groups increases the moral behavior of all group participants. Thus, as reference groups become religiously centered, religion deters crime through the provision and intensification of group-level morality salience (Bock et al. 1987).

Hellfire and Beyond: Empirical Results

Despite the centrality of religious deterrence in criminological theory, empirical studies have found inconsistent support for the deterrent effect of religion. The first and strongest empirical attack on religious deterrence came from Hirschi and Stark's (1969) test of the hellfire hypothesis. Examining a large, random sample of high school students, they found no association between belief in supernatural sanctions and self-reported criminal behavior. Since Hirschi and Stark's controversial findings, some studies have reported robust and highly significant effects for religion on crime (e.g., Burkett and White 1974; Albrecht, Chadwick, and Alcorn 1977; Higgins and Albrecht 1977; Johnson, Marcos, and Bahr 1987; Cochran and Akers 1989; Grasmick et al. 1991; Powell 1997), whereas others have reported null effects consistent

with Hirschi and Stark's religious nondeterrence (e.g., Gorsuch and McFarland 1972; Jensen and Erickson 1979; McIntosh et al. 1981; Krohn et al. 1982; Sloane and Potvin 1986; Ross 1994; Evans et al. 1996; Benda and Corwyn 1997). Therefore, the empirical effect of religion on crime is still very much a contested issue.

Variation across Religion-on-Crime Effects: Three Explanations

A defining feature of previous studies is their disparate findings regarding the impact of religion on crime. In thinking about this variation, we consider whether it is random or systematic. We explore this question by considering three possible explanations for why previous studies have varied in their findings: the moral-community hypothesis, the type-of-crime hypothesis, and differences in study methodologies.

Our first model for understanding variation in religion-on-crime findings is the moral-community hypothesis. The moral-community hypothesis builds on peer group theory and Durkheim's ([1925] 1961) theory by claiming that the deterrent effect of religion on crime is greatest in areas characterized by high rates of aggregate religiosity. Stark (1996) asserts, "The idea here is that religion is empowered to produce conformity to the norms only as it is sustained through interaction and is accepted by the majority as a valid basis for action" (p. 164). Stark operationalized this idea by hypothesizing that samples taken from the Pacific region of the United States should report lower levels of religious deterrence than samples taken elsewhere across the United States because the Pacific region is highly secularized as compared to the rest of the nation. We test the moral-community hypothesis by examining (1) if studies conducted in the Pacific region of the United States show lower religious deterrence levels than those in other regions and (2) if studies that analyze data from predominantly religious samples (e.g., church members) show higher levels of religious deterrence.

Our second model is based on Burkett and colleagues' (Burkett and White 1974; Burkett 1980) claim that religion is a more effective deterrent of nonvictim crimes (e.g., gambling and drug use) than person and property crimes (e.g., murder and theft). Burkett (1980:663) argues that this relationship is the result of religious institutions acting in relative isolation to deter nonvictim crimes, whereas many social institutions, both religious and secular, act together to deter person and property crimes. From this perspective, we expect studies of nonvictim crimes to report larger deterrent effects for religion than those studying person and property crimes do.

Our final model for variation in empirical findings is motivated by a previous meta-analysis conducted by Wells and Rankin (1991). They studied the

effect of family structure on crime, and they found that the variation in study findings resulted, in part, from methodological differences across studies. These methodological differences included differences in study design, sampling procedures, and populations sampled (Wells and Rankin 1991:73). We hypothesize that these methodological differences may also account for different estimations of religious deterrence.

DATA AND METHODS

Study Identification

We used two methods to identify studies for inclusion in our analyses: database searches and ancestry searches. Using database searches, we identified relevant studies using *Sociological Abstracts*, *PsycINFO*, *Social Sciences Citation Index*, and *Academic Universe*. Using ancestry searches, we searched the bibliographies of already identified studies to locate previous, relevant research.

A potential weakness of any meta-analysis has been termed the *file drawer problem*, which reflects reviewers' difficulty in retrieving studies reporting nonsignificant results ($p > .05$) as journals tend to select and authors tend to submit studies reporting significant results ($p < .05$) (Rosenthal 1984:108). Our meta-analysis may be less affected by this problem than others because the databases that we searched included books, dissertations, and papers presented at meetings, allowing us to identify studies beyond the more limited scope of journal articles. Furthermore, the religion-on-crime literature has viewed nonsignificant findings as important contributions, especially in the aftermath of Hirschi and Stark's (1969) decree of religious nondeterrence, thus potentially lessening the file drawer problem even further.

Sample of Studies

Our search identified 60 studies that were suitable for our analyses, and we list them in Table 1. Many of these studies were written from a sociological or psychological perspective, and most of them were produced between 1969 and 1998. Fifty-six of the studies were published in either books or journals, and the remaining four were dissertations or presentations at association meetings. The journal articles were most frequently published in the *Journal of Research in Crime and Delinquency*, *Criminology*, and the *Journal for the Scientific Study of Religion*. Each of the studies chosen for our analyses presented a measure of association between religion and criminal behavior.

TABLE 1: Study Data Used in Meta-Analysis

(1) Study	(2) Year of Data	(3) Sample Type[a]	(4) Sample Size	(5) Sample Region[b]	(6) Sample Proportion Male	(7) Sample Proportion White	(8) Educational Selectivity[c]	(9) Religious Selectivity[d]	(10) Dependent Variable (type of crime)[e]	(11) Effect Size[f]
Adeseum (1993)	1977	Prob	1,437	US	.53	.80	NA	GP	Cb	–.03[2]
Albrecht, Chadwick, and Alcorn (1977)	1974	Non-Prob	244	MX	.45	1.0	HS	CM	Cb	–.30[1]
Allen and Sandhu (1967)	NA	Non-Prob	377	SO	1.0	.76	NA	GP	GI	–.13[1]
Amey, Albrecht, and Miller (1996)	NA	Non-Prob	11,728	US	.51	.84	HS	GP	NV	–.02[1]
Amoateng and Bahr (1986)	1982	Non-Prob	17,000	US	NA	NA	HS	GP	NV	–.18[2]
Benda (1995)	1992	Non-Prob	1,093	SO	.46	.59	HS	GP	GI	–.07[1]
—	1992	Non-Prob	1,093	SO	.46	.59	HS	GP	NV	–.16[1]
Benda (1997)	1992	Non-Prob	1,093	SO	.46	.59	HS	GP	GI	–.14[1]
—	1992	Non-Prob	1,093	SO	.46	.59	HS	GP	NV	–.12[1]
Benda and Corwyn (1997)	1992	Non-Prob	724	SO	.48	.86	HS	GP	Cb	–.07[2]
Bock, Cochran, and Beeghley (1987)	1976	Prob	4,530	US	.44	.89	None	GP	NV	–.04[1]
Brownfield and Sorenson (1991)	1979	Non-Prob	1,206	PA	.73	.74	HS	GP	NV	–.06[1]
Burkett (1977)	1971	Non-Prob	837	PA	.51	1.0	HS	GP	NV	–.07[1]
Burkett (1980)	1972	Non-Prob	323	PA	.42	NA	HS	GP	NV	–.18[1]
Burkett (1993)	1981	Non-Prob	264	PA	.48	NA	HS	GP	NV	–.09[2]
Burkett and Ward (1993)	1981	Non-Prob	612	PA	.48	NA	HS	GP	NV	–.13[1]
Burkett and Warren (1987)	1981	Non-Prob	264	PA	.48	NA	HS	GP	NV	–.11[2]
Burkett and White (1974)	1971	Non-Prob	855	PA	.51	1.0	HS	GP	GI	–.07[1]
—	1971	Non-Prob	855	PA	.51	1.0	HS	GP	NV	–.08[1]
Chadwick and Top (1993)	1990	Non-Prob	1,398	MX	.46	.95	HS	CM	GI	–.24[1]

Study	Year	Sample	N	Region						Effect
—	1990	Non-Prob	1,398	MX	.46	.95	HS	CM	NV	-.28[1]
Chard-Wierschem (1998)	1990	Non-Prob	987	NE	.74	.14	HS	GP	GI	-.12[1]
—	1990	Non-Prob	987	NE	.74	.14	HS	GP	NV	-.11[1]
Clarke, Beeghley, and Cochran (1990)	1982	Prob	7,326	US	.45	.88	None	CM	NV	-.15[2]
Cochran (1988)	1975	Non-Prob	3,065	MW	.48	NA	HS	GP	GI	-.06[1]
—	1975	Non-Prob	3,065	MW	.48	NA	HS	GP	NV	-.10[1]
Cochran and Akers (1989)	1975	Non-Prob	3,065	MW	.48	NA	HS	GP	NV	-.13[2]
Cochran, Wood, and Arneklev (1994)	1992	Non-Prob	1,591	MW	.44	.60	HS	GP	GI	-.07[2]
—	1992	Non-Prob	1,591	MW	.44	.60	HS	GP	NV	-.12[2]
Donahue and Benson (1995)	1992	Prob	30,150	US	.48	.88	HS	GP	GI	-.16[1]
—	1992	Prob	30,150	US	.48	.88	HS	GP	NV	-.17[1]
Donovan (1977)	1972	Non-Prob	13,122	US	.48	.69	HS	GP	NV	-.21[1]
Dudley, Mutch, and Cruise (1987)	1984	Non-Prob	721	US	.48	.64	None	CM	NV	-.27[1]
Elifson, Peterson, and Hadaway (1983)	1974	Non-Prob	600	SO	.50	1.0	HS	GP	GI	-.08[1]
—	1974	Non-Prob	600	SO	.50	1.0	HS	GP	NV	-.08[1]
Ellis and Thompson (1989)	1985	Non-Prob	354	MT	.39	NA	Cg	GP	GI	-.05[1]
—	1985	Non-Prob	354	MT	.39	NA	Cg	GP	NV	-.10[1]
Evans et al. (1995)	1992	Prob	555	MW	.42	1.0	None	GP	Cb	-.07[2]
Evans et al. (1996)	1991	Non-Prob	263	MW	.48	.86	HS	GP	NV	-.05[2]
—	1991	Non-Prob	263	MW	.48	.86	HS	GP	Cb	-.04[2]
Fernquist (1995)	1990	Non-Prob	178	MT	.49	.92	Cg	GP	GI	-.22[1]
—	1990	Non-Prob	178	MT	.49	.92	Cg	GP	NV	-.47[1]
Free (1994)	1988	Non-Prob	916	MX	.40	.96	Cg	GP	GI	-.11[1]
—	1988	Non-Prob	916	MX	.40	.96	Cg	GP	NV	-.17[1]

(continued)

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TABLE 1: Continued

(1) Study	(2) Year of Data	(3) Sample Type[a]	(4) Sample Size	(5) Sample Region[b]	(6) Sample Proportion Male	(7) Sample Proportion White	(8) Educational Selectivity[c]	(9) Religious Selectivity[d]	(10) Dependent Variable (type of crime)[e]	(11) Effect Size[f]
Gorsuch and McFarland (1972)	NA	Non-Prob	84	NA	.45	NA	Cg	GP	GI	-.16[1]
Grasmick, Bursik, and Cochran (1991)	1989	Prob	330	MW	.47	.87	None	GP	GI	-.29[1]
Hadaway, Elifson, and Peterson (1984)	1974	Prob	600	SO	.50	1.0	HS	GP	NV	-.11[1]
Higgins and Albrecht (1977)	1970	Non-Prob	1,383	SO	.49	.53	HS	GP	Cb	-.05[1]
Hirschi and Stark (1969)	1964	Non-Prob	4,077	PA	.65	.54	HS	GP	GI	.00[1]
Jensen and Erickson (1979)	1975	Non-Prob	3,268	MT	NA	NA	HS	GP	GI	-.02[1]
—	1975	Non-Prob	3,268	MT	NA	NA	HS	GP	NV	-.03[1]
Jessor and Jessor (1977)	1972	Non-Prob	432	MT	.44	.89	HS	GP	NV	-.17[1]
	1973	Non-Prob	205	MT	.45	.96	Cg	GP	NV	-.21[1]
Johnson, Marcos, and Bahr (1987)	1985	Non-Prob	768	PA	.45	.85	HS	GP	NV	-.11[2]
Kandel et al. (1976)	1972	Non-Prob	1,112	NE	.42	NA	HS	GP	NV	-.05[2]
Krohn et al. (1982)	1977	Non-Prob	3,065	MW	NA	NA	HS	GP	NV	-.03[1]
McIntosh et al. (1981)	NA	Non-Prob	1,358	SO	.53	.63	HS	GP	NV	-.12[2]
McLuckie, Zahn, and Wilson (1975)	1971	Non-Prob	27,175	NE	NA	NA	HS	GP	NV	-.16[2]
Madray and van Hulst (1997)	1992	Non-Prob	2,727	US	NA	NA	HS	GP	GI	-.08[2]
—	1992	Non-Prob	2,727	US	NA	NA	HS	GP	NV	-.12[2]
Marcos, Bahr, and Johnson (1986)	1985	Non-Prob	2,626	MT	.47	.82	HS	GP	NV	-.15[2]
Middleton and Putney (1962)	NA	Non-Prob	554	MX	.47	NA	Cg	GP	GI	.00[1]

—	NA	Non-Prob	554	MX	.47	NA	Cg	GP	NV	-.06[1]
Nelson and Rooney (1982)	1977	Non-Prob	4,491	NE	NA	NA	HS	GP	NV	-.18[3]
Perkins (1985)	1982	Non-Prob	1,514	NE	NA	NA	Cg	GP	NV	-.16[2]
Powell (1997)	1994	Non-Prob	521	SO	.38	.02	HS	GP	GI	-.47[2]
Preston (1969)	NA	Non-Prob	516	SO	NA	.62	HS	GP	NV	-.14[1]
Rohrbaugh and Jessor (1975)	1971	Non-Prob	475	MT	.44	NA	HS	GP	NV	-.30[1]
—	1971	Non-Prob	221	MT	.48	NA	Cg	GP	NV	-.25[1]
Ross (1994)	1989	Non-Prob	271	NE	.57	NA	Cg	GP	GI	-.03[1]
Roth (1972)	1971	Non-Prob	4,101	MW	.51	NA	HS	GP	NV	-.05[1]
Sloane and Potvin (1986)	1975	Prob	1,121	US	.48	NA	None	GP	GI	-.06[1]
—	1975	Prob	1,121	US	.48	NA	None	GP	NV	-.05[1]
Stark (1996)	1980	Non-Prob	11,995	US	.48	.79	HS	GP	Cb	-.02[1]
Stark, Kent, and Doyle (1982)	1966	Non-Prob	1,799	US	1.0	1.0	HS	GP	GI	-.06[1]
Tittle and Welch (1983)	1972	Prob	1,993	US	.53	.65	None	GP	Cb	-.07[1]
Turner and Willis (1979)	1975	Non-Prob	379	NE	.47	NA	Cg	GP	NV	-.22[1]
Wechsler and McFadden (1979)	1977	Non-Prob	7,083	NE	.45	.90	Cg	GP	NV	-.04[1]
Welch, Tittle, and Petee (1991)	1984	Non-Prob	2,487	US	1.0	NA	None	CM	Cb	-.08[2]

NOTE: — = when study provided two effect coefficients for sample. NA = missing data.
a. Prob = probability sample; Non-Prob = nonprobability sample.
b. Sample region: US = national; NE = Northeast; SO = South; MW = Midwest; MT = Mountain; PA = Pacific; MX = mixed region.
c. Educational selectivity: HS = sample from high school population; Cg = sample from college population; None = sample with no educational selectivity.
d. Religious selectivity: CM = church members; GP = general population.
e. Dependent variable (type of crime): GI = general index crimes; NV = nonvictim crimes; Cb = general index and nonvictim crimes combined.
f. Effect size: [1] = Pearson's r correlation coefficient; [2] = beta coefficient; [3] = eta coefficient.

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Procedures

From these 60 studies, we collected two types of measures: the effect of religion on crime, which we used as a dependent variable in our analyses, and various study characteristics, which we used as independent variables. To generate a common metric for measuring religion-crime associations, we computed Pearson's r correlation coefficients, as described by Rosenthal (1984) and Rosenthal and Rubin (1986). We used corresponding p levels to convert reported gamma coefficients into Pearson's coefficients, and we translated "significant" or "moderate" relationships as $p < .05$, "strong" relationships as $p < .01$, and "nonsignificant" relationships as $p < .50$ to allow for their conversion to Pearson's coefficients (Rosenthal 1984:33). When studies provided Pearson's r or standardized regression coefficients, we recorded the effects as reported in the original study. When studies reported separate effect sizes by gender or race, we combined them by using weighted averages to produce a summary effect size. Nineteen of the 60 studies reported separate empirical associations for religion and both general index crime and nonvictim crime. Because this distinction between types of crime is substantively important for our study, we did not collapse these coefficients. Instead, we used both types of religion-crime associations from these 19 studies such that in the end, we analyzed a total of 79 measured empirical associations between religion and crime (41 studies reported one coefficient of association, 19 reported two).

Turning to the study characteristics, we recorded various attributes of each study as described in Table 1. Columns 1 and 2 give the study reference and the year of data collection. Studies typically analyzed data collected two to eight years before their year of publication. Column 3 indicates whether each study used probability or nonprobability samples. Probability samples included both local (e.g., towns, cities, and counties) and national random samples, whereas nonprobability convenience samples came mostly from educational institutions, church logs, and correctional institutions. Most studies, 85 percent, used nonprobability samples. Column 4 displays the sample sizes of each study, ranging from 84 to 30,150 respondents, with an average of 3,112. Column 5 shows the region of the United States in which the study was conducted: nationwide, Northeast, South, Midwest, Mountain, Pacific, or mixed. Each region has at least 10 percent of the studies, with 20 percent of the studies being nationwide. Column 6 shows the proportion of male subjects in the studies, ranging from .38 to 1.0. Most studies, 62 percent, had more female than male subjects. Column 7 displays the proportion of White subjects in the studies, ranging from .02 to 1.0, with 41 percent of the studies scoring above .75. Column 8 reports whether studies used educational standing to select study members ("educational selectivity"). Many

studies (66 percent) were drawn from high school samples, and 19 percent were from college and university samples. Column 9 displays whether studies drew their subjects from populations of known church members ("religious selectivity"), and most studies (92 percent) did not. Column 10 presents the type of crime analyzed in each study. General index crimes include theft, robbery, assault, and murder. Nonvictim crimes include alcohol use (by minors) and marijuana use. Most studies (60 percent) used nonvictim measures, whereas 29 percent used general index measures, and 11 percent used a combined measure. Finally, column 11 displays the coefficient type and effect size reported in each study. Most studies (71 percent) reported their results using a Pearson's r correlation coefficient, whereas 28 percent used standardized regression (beta) coefficients, and 1 percent used an eta coefficient. In analyses not shown here, we found that the studies did not significantly vary in their reported findings by whether they reported Pearson's r correlation coefficients or standardized coefficients such as betas and etas.

The studies used both behavioral and attitudinal measures of religion. Behavioral measures included church attendance, prayer, family discussion of religious issues, listening to religious broadcasts on the radio, and watching religious programming on the television. Attitudinal measures included belief in God, belief in Jesus, belief in the Devil, belief in the Bible, belief in supernatural sanctions, strength of religious beliefs, importance of religion in daily life, and how religious subjects considered themselves to be. In analyses not shown here, we found that type of religion measure had no significant effect on studies' estimation of the religion-crime association. For parsimony, then, we did not distinguish between types of religious measures in our analyses.

Overall, our analyses had few missing data. Some studies did not report year of data collection, sample proportion male, sample proportion White, educational selectivity, or sample region. To gain this information, we consulted other published descriptions of the data and, when needed and possible, we contacted the primary authors. In the end, about 95 percent of our desired data were collected, with only one variable proving problematic. Sample proportion White is missing in 38 percent of the studies. For any variable with missing cases, we created a dummy variable indicating which cases were missing. We then recoded the substantive variable to its mean and included both it and the dummy variable in the regression equation.

RESULTS

To gauge the magnitude of the effect of religion on crime, we plotted in Figure 1 the frequency distribution of the 79 religion-on-crime effect sizes
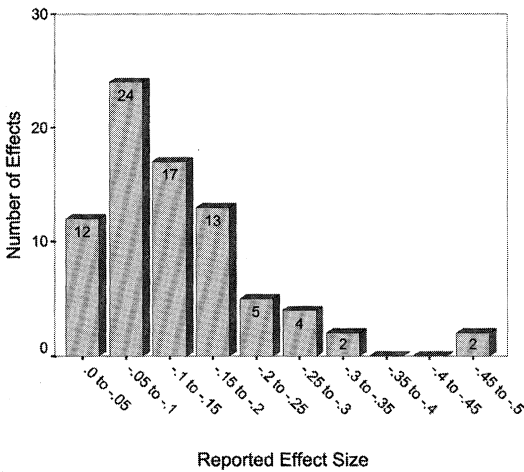
Figure 1: **Frequency Distribution for Religion-on-Crime Effect Sizes (*n* = 79)**

reported in the 60 studies that we analyzed. The mean reported effect size was $r = -.12$ ($SD = .09$), and the median was $r = -.11$. About two-thirds of the effects fell between $-.05$ and $-.20$, and, significantly, none of them was positive. A test of the null hypothesis that the mean effect for religion on crime equals zero was strongly rejected at $t = -11.9$. These findings show that religious behavior and beliefs exert a significant, moderate deterrent effect on individuals' criminal behavior.

Turning to the variation in findings across studies, as illustrated in Figure 1, we tested our three hypotheses by estimating zero-order (i.e., bivariate) and multivariate regression equations that we present in Table 2.

The moral-community hypothesis posits that studies with high religious selectivity would find stronger religion deterrent effects and that studies conducted in the Pacific region would find weaker deterrent effects. In support of this hypothesis, the religious selectivity variable significantly and negatively predicted effect size, meaning that studies high in religious selectivity found more negative (i.e., more deterrent) effects of religion on crime. The zero-order and multivariate coefficients of religious selectivity were $\beta = -.30$ and $\beta = -.45$, respectively. The Pacific region variable positively predicted effect size, as hypothesized, but it was not statistically significant at $\beta = .14$ and $\beta = .12$.

The type-of-crime hypothesis posits that studies examining *nonvictim* crime would find stronger deterrent effects for religion. We found support for this hypothesis in that the nonvictim crime variable negatively predicted effect size at $\beta = -.15$ and $\beta = -.24$. The latter multivariate coefficient was statistically significant at $p < .05$.

TABLE 2:   Regressing Religion-on-Crime Effect Size on Study Characteristics

Study Characteristics	Zero-Order Equations		Multivariate Equation	
Theoretical variables				
Religiously selective samples	−.30**	(−.10, .038)	−.45**	(−.16, .048)
Samples from Pacific region	.14	(.04, .031)	.12	(.03, .033)
Nonvictim crime	−.15	(−.03, .021)	−.24*	(−.04, .021)
Methodological variables				
Year of data collection	−.24*	(.00, .001)	−.01	(.00, .001)
Probability sample	.06	(.02, .029)	−.22	(−.06, .048)
Sample size (log$_n$)	.24*	(.02, .008)	.35**	(.03, .010)
Sample proportion male	.20	(.15, .091)	.13	(.11, .092)
Sample proportion White	.12	(.05, .064)	.25*	(.13, .060)
High school samples	.15	(.03, .023)	−.30	(−.06, .051)
College samples	−.13	(−.03, .027)	−.39	(−.09, .057)
R^2			.37	
F test			2.46**	

NOTE: Cells present standardized (beta) coefficients (unstandardized coefficients and standard deviations in parentheses); $n = 79$ for multivariate equation.
*$p < .05$. **$p < .01$.

The methodological difference hypothesis found mixed support. Several study characteristics had no significant impact on effect size, including probability sample, sample proportion White, high school samples, and college samples. Nonetheless, several other study characteristics did significantly predict effect size. The year of data collection variable significantly and negatively predicted effect size in the zero-order analyses ($\beta = -.24$), but it attenuated in the multivariate analyses ($\beta = -.01$). This finding indicates that as the year of data collection moved later in time, studies found increasingly larger deterrent effects of religion (i.e., the zero-order effect). This change over time, however, can be explained by other variables present in the multivariate equation. Specifically, in analyses not presented here, we found that later studies found stronger effects because they used smaller sample sizes and included more female and non-White subjects. The sample size (log$_n$) variable significantly and positively predicted effect size in both equations ($\beta = .24$ and $\beta = .35$). As sample sizes increased, studies found smaller effects of religion on crime. The sample proportion White variable positively predicted effect size ($\beta = .12$ and $\beta = .25$) and was significant in the multivariate equation. As studies contained more White subjects, they observed smaller deterrent effects.

The regression equations presented in Table 2 face a potential problem. Of the 60 studies analyzed, 19 of them contributed two religion-on-crime coefficients each. This potentially violates the assumptions of the standard regression model because these 19 pairs of coefficients might share unobserved

causes, if relevant aspects of each study are not included in our multivariate equation. We tested this possibility by reestimating the multivariate equation in Table 2 by using a mixed fixed-effect, random-effect model. We defined each of the independent variables presented in Table 2 as fixed effects, and we defined the studies of origin as random effects such that any two coefficients drawn from the same study were modeled as sharing unobserved variation. The estimation of this mixed model, not presented here, produced the same pattern of findings as shown in Table 2, thus giving additional confidence in them.

DISCUSSION

In this article, we have analyzed the effect of religion on crime as reported in previous empirical studies. We examined data from 60 studies, and we found that religion had a statistically significant, moderately sized effect on crime of about $r = -.12$. Since Hirschi and Stark's (1969) finding of religious nondeterrence, many sociologists have questioned whether religion has any effect on crime. Our findings give confidence that religion does indeed have some deterrent effect.

We also tested and found support for three explanations of why previous studies have varied in their estimation of the religion-on-crime effect. We found evidence that (1) studies of religiously based samples produced significantly stronger estimates for the deterrent effect of religion, as per the moral-community hypothesis; (2) studies examining nonviolent crime found significantly stronger deterrent effects, as per the type-of-crime hypothesis; and (3) studies using small sample sizes and more racially diverse samples found stronger deterrent effects. A shortcoming of our analyses, though, was that the studies that we examined did not report sufficient data for us to examine denominational differences in the effect of religion on crime.

Our findings raise several issues for future research on religious deterrence of crime. Among them, why do studies with more White subjects observe lower levels of religious deterrence? One possibility coincides with the semi-involuntary thesis proposed by Ellison and Sherkat (1995, 1999). They maintain that African Americans are constrained in their ability to not participate in religious activities as highly segregated African American churches are a primary source of secular as well as supernatural rewards and punishments. Future studies can examine this possibility by testing whether for African Americans, more so than for Whites, the promise of secular and supernatural rewards accounts for the deterrent effect of religious participation.

Future research can also test the predictive capacity of the moral-community hypothesis. We found strong support for this hypothesis at the local,

congregational level but little support at the larger regional level. Future studies should test the moral-community hypothesis at multiple levels of community size, ranging from the neighborhood to the national region, as well as by varying levels of organization within similarly sized communities.

Our results also raise an interesting methodological question for future meta-analyses. That is, why do studies with larger sample sizes report smaller effect sizes? Wells and Rankin (1991) found a similar relationship in their meta-analysis of the effect of family structure on delinquency, concluding that "the most substantial correlations are produced by the smallest, least reliable, and least representative studies . . . [underlying] the importance of weighting for sample size when estimating summary effect coefficients" (p. 88). We question this conclusion because increased sample size does not ensure more sample reliability or representativeness. In fact, increased sample size may actually decrease sample quality as the sampling design becomes more difficult to carry out effectively. Perhaps a better explanation for the negative effect of sample size is related to the file drawer problem. It may be that researchers and journal editors alike are simply more likely to believe and publish null findings derived from larger samples.

To conclude, this study found solid evidence of a moderately strong deterrent effect of religion. This, combined with a better understanding of the impact of research methodologies, provides a solid base on which future research can build in its effort to better understand the effect of religion on crime.

APPENDIX
Intercorrelation Matrix for Independent Variables Used in Meta-Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Samples from Pacific region	1.00									
(2) Nonvictim crime	.16	1.00								
(3) Year of data collection	−.27*	−.18	1.00							
(4) Probability sample	−.16	−.15	.02	1.00						
(5) Sample size ($\log_n$)	−.17	.11	−.11	.17	1.00					
(6) Sample proportion male	.05	−.22	−.17	.06	.09	1.00				
(7) Sample proportion White	.13	.11	−.30*	.18	−.05	−.17	1.00			
(8) High school samples	.26*	.13	−.04	−.31*	.33*	.11	−.29*	1.00		

(continued)

APPENDIX continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(9) College samples	−.19	−.01	.09	−.19	−.39*	−.21	.26	−.71*	1.00	
(10) Religiously selective samples	−.11	−.06	.10	.01	.03	.11	.16	−.21	−.14	1.00

NOTE: Cells present Pearson's r product-moment correlations.
*$p < .05$.

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